EK's Exit Group

A plan for Finland's way out of the COVID-19 crisis

Final report

29 April 2020

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The role and goals of the Exit Group

The Board of the Confederation of Finnish Industries (EK) decided in its meeting of 7 April 2020 to appoint an Exit Group as a response to the COVID-19 crisis. The Exit Group is tasked with preparing measures and proposals to pave Finland’s way out of the acute stage of the crisis and to support the country in the subsequent reconstruction stage. By appointing the group, EK is acknowledging the gravity of the situation and the urgency of measures. The Exit Group offers its support and collaboration to the Government and government task forces. The business community is also very committed to sharing its resources and skills to combat the epidemic.

The Exit Group is chaired by Mikko Helander and its other members are Kari Jussi Aho, Henrik Ehrnrooth, Annu Nieminen, Leena Niemistö, Timo Ritakallio and Antti Vasara. The Exit Group’s work is supported by Jyri Häkämies, Jouni Hakala, Paavali Kukkonen, Jukka Manninen and Sami Pakarinen from the Confederation of Finnish Industries. McKinsey & Company Helsinki has kindly offered its valuable expertise and international data for the use of the Exit Group, for which we are extremely grateful. Jussi Kekkonen from Miltton has provided communications expertise in the project.

The Exit Group has not produced its own epidemiological extrapolations and instead refers to the real-time COVID-19 statistics released by the Finnish Institute for Welfare and Health (THL). This data has been compared to the profile of the outbreak in a number of benchmark countries and based on this analysis, we can form general understanding of the typical linkages between the stages of the outbreak and the control measures. The group has utilised both macroeconomic and business modelling methods in its work to anticipate the outcomes of various scenarios and containment strategies. Estimates are made referring to major Finnish sources such as Pellervo Economic Research PTT, Bank of Finland, ETLA Economic Research and Ministry of Finance. International sources include IMF, IFO and Johns Hopkins University.

Summary

On 12 March 2020, the World Health Organization WHO declared the coronavirus disease (COVID-19) a global epidemic. COVID-19 is a new disease, so the world's population has not developed immunity against it. What has made the coronavirus disease exceptional is its ability to be transmitted from an asymptomatic carrier for a period of approximately 14 days, during which time asymptomatic carriers can spread the disease. For risk groups, the disease can be life-threating and the long-term effects of the disease on the health of all those who have contracted the disease are as yet unknown.

The outbreak has led to widespread restrictions in many countries, such as school, shop and restaurant closures, fencing off public areas, limitations on gatherings and the closing of national borders. **These measures have profound social and economic consequences. At the moment, the cost of the crisis for Finnish economy is approximately EUR 80–120 million per day.**

Strategies adopted by different countries to combat the COVID-19 epidemic vary. Sweden has elected to follow a strategy based on the herd immunity hypothesis to combat the COVID-19 epidemic. Germany's approach has been to quickly bring the outbreak of the disease under control. New Zealand's goal is to eradicate the disease completely from its islands.

The restrictions announced by the Finnish Government have proved highly effective, thanks to the compliance of the public. The number of new cases has dropped steadily over the past two weeks, and the number of patients treated in hospitals at a given time has settled at approximately 200. **The Exit Group proposes the containment strategy.** The spread of the virus will be slowed down by proactive measures until a vaccination is available. The aim is to identify those infected by testing, to trace those who have been in contact with a person infected with the virus and to place them in isolation. It is accepted that the virus cannot be completely eliminated in Finland, but its prevalence can be substantially limited. Adhering to the strategy will eventually allow the gradual lifting of restrictions and for shops and services to reopen.

Containing the outbreak of the virus is a much lower-risk strategy compared with the herd immunity hypothesis. It helps minimise the human cost and prevent the overloading of the public healthcare system. **The containment strategy is the preferred strategy from the economic perspective, as it gives consumers and businesses security.** The strategy will also help prevent the prolonging of social and societal problems.

The key elements of the containment strategy are a large testing capacity and extensive testing programmes (see Table 1). Tracing those who have been exposed to the virus is an effective tool preventing the spread of the epidemic. Tracing is a key element in addition to testing.

Table 1: Elements of the containment strategy and the situation in Finland on 28 April.

The current trend in the number of infections in Finland is encouraging – other factors that would enable lifting of restrictions do not exist yet

		Requirement	Finland's estimated status on 28 April	Ongoing measures
Indicators	Number of cases • Diagnoses • Hospital patients • Deaths	Decrease/stable situation for the past two weeks in the following: • Number of new hospital patients • Number of new diagnoses • Number of deaths	The number of new cases has decreased for 18 consecutive days, R0 close to 1 Number of hospital patients has decreased/remained stable for 18 consecutive days	Restrictions remain in place but the Government is planning partial easing of them
Factors enabling the lifting of restrictions	Availability of PPE	Requirement 1–6 million per day • ~1 million for healthcare • 3–5 million for civilian use when restrictions are lifted	Insufficient supply, significant shortages in healthcare	Domestic production being launched, procurement from abroad being intensified
	Testing capacity	Increase testing capacity to 12,000 tests per day Situational analysis through antibody tests (population level only)	5,000 tests/day PCR and antibody tests in use	Everyone displaying symptoms tested and capacity raised to 10,000 tests per day
	Transmission chains known	80% of contacts reached within 24 hrs from diagnosis Sufficient staff for tracing transmission chains (1,300–1,800) Tracing technologies	Aim to trace contacts Staff resources have been increased Technical tools are being piloted	Mobile app development in progress
	Hospital capacity • Intensive care capacity • Hospital workers	Intensive care capacity 400–500 beds (estimated need for COVID-19 patients 300)	Intensive care capacity 400 beds, possibility to increase up to 800	Hospital districts have readiness to increase intensive care capacity
	Restrictions are followed	People must follow restrictions (e.g. avoid gatherings)	Restrictions are followed relatively well	The police are monitoring compliance
	Availability of vaccine/treatment	The certainty that Finland will have access to effective vaccine/treatment once it has been approved (expected in 12–18 months)	No certainty of availability	Interest in vaccine development

- The number of new cases is on the decrease, and the number of patients treated in hospitals is stable.
- PPE and hospital equipment must be available in sufficient quantities to enable effective containment. The total number of face masks of the varying standards needed per day may reach six million.
- All those who have contracted COVID-19 – both symptomatic and asymptomatic – are identified through extensive testing programmes (**target level 12,000 tests/day**) The TTI approach (test, trace, isolate) requires the identification and breaking of every chain of transmission **(80% of contacts must be reached within 24 hours from the diagnosis)**.
- To prevent transmission, those who are ill or have been exposed to the disease are consistently isolated.

The Finnish economy is expected to contract this year by 5–13% from 2019. The differences in the scenarios depend on the duration of restrictions, the number and impact of assumed support measures and the degree of decline in exports.

The adopted strategy allows the reopening of the economy and an upward turn in growth before the end of this year. Therefore, it is crucially important to do everything in our power to achieve a fast recovery. Fast recovery can be achieved by the efficient implementation of the

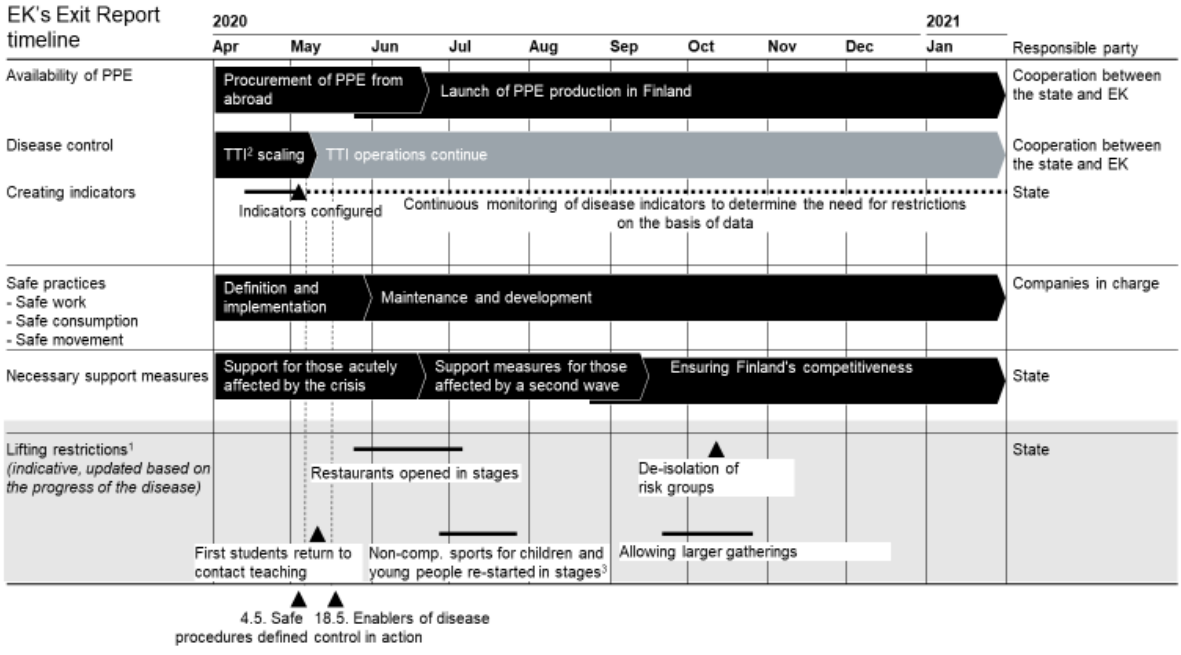
containment strategy. The key to this is a gradual return to a more normal everyday life combined with resolute containment measures and safe work, consumption and movement.

The government has made decisions on first-line crisis action and assistance to businesses, but it is clear that new measures to ease the cash situation of businesses and to enable new growth are needed. Examples of these include securing future business operations through direct support or compensations in fields where business operations have been suspended on the basis of government regulations or recommendations, the introduction of a carry back scheme to counteract acute cash shortages, continued relaxing of working hours regulations and crisis assistance which is tied to the company's ability to employ their (already furloughed) staff.

It is also vital for the business community to give its full support for the public efforts to reopen society. The Exit Group proposes that the business community support the Government in the sourcing and manufacturing of PPE, through mortgage and other debt repayment holidays as necessary during the acute COVID-19 crisis and the deferral or waiving of rents in the sectors hardest hit by the COVID-19 crisis.

It is the view of the Exit Group that, based on the current situation in the epidemic, society and the economy should reopen gradually according to the following timetable (see Figure 1).

Figure 1: A provisional timetable for reopening society



1. Provided that such enabling support measures are in place and that the reopened activities observe the new practices and guidelines related to social distancing, disinfection and new forms of service 2. Test, trace, isolate 3. In stages, provided that safe practices are implemented

The gradual reopening of society and the economy requires wide adoption of safety practices to restore consumer confidence.

- To ensure safe working conditions, those infected must be identified before they come to work to minimise the spread of the virus at the workplace.
- Consumer confidence can be restored if consumers feel safe carrying out transactions, even if the COVID-19 crisis continues longer than expected.
- Public transport must be safe for consumers and commuters to use.
- In addition to actual safety, increasing the feeling of being safe is equally critical for consumer behaviour to start returning to normal.

The containment strategy measures will be the bridge between now and the time when we can start to control COVID-19 with a vaccine. The current understanding is that it will take between 12 and 18 months before we have a safe and effective vaccine. The availability of the vaccine in Finland must be secured once it is ready for distribution.

The adopted strategy, extensive public information campaigns and a systematic implementation of the exit roadmap are decisively important tools that also help create a shared belief that the COVID-19 crisis can be beaten. Looking at the countries where the epidemiological strategy has been successfully implemented, three important characteristics can be identified ("best practices"):

1. Comprehensive and accurate situational awareness based on confirmed facts has been achieved to form the basis for crisis management.
2. Decision-making and implementation are conducted together in the group responsible, not in silos.
3. Public and private sectors cooperate towards the common goals to be able to respond to a crisis of this magnitude.

The business community has organised itself according to the best practices in sections that are coordinated by EK. The business community is ready and willing to present resources and competence to support the work of the Finnish Government and administrative organisation. The Exit Group proposes that the business community establish and provide the resources for an operative centre with the role of ensuring timely delivery of the measures presented in this report.

We cannot walk the road to recovery alone – measures are needed urgently

Measures needed immediately to control the epidemic:

- Availability of personal protective equipment (PPE): up to 6 million masks / day
- Testing capacity: 12,000 tests / day
- Contact tracing: 1,300-1,800 contact tracers (with possible digital application to support tracing)
- Safe practices that minimise infections (including safe work, consumption and movement)
- A clear roadmap for lifting restrictions

Measures proposed for the business community:

- Bringing expertise to cooperation projects with the state (e.g. PPE, testing)
- Implementing measures for safe work and for conducting business safely under the leadership of selected companies
- Contributing to the cost of testing and tracing employees
- Appointment of executive management to ensure implementation of the proposed actions and rapid introduction of new ideas

Measures proposed for the state:

- Implementation of management strategy enablers. Cooperation with the private sector if necessary, to achieve objectives
- Targeted support for viable companies that do not turn layoffs into redundancies
- Extension of the fast-tracked co-determination procedure to the end of 2020
- Changes to taxation to support purchasing power

The COVID-19 epidemic in Finland and the rest of the world

The global outbreak of the COVID-19 disease

In December 2019, several cases of pneumonia with an unknown cause were diagnosed in the city of Wuhan in China (Yang, 2020). The first observations of a new disease were recorded by the health authorities of Wuhan on 1 December 2019, but there are signs of the spread of the virus in Wuhan in October. (Ma, 2020) The common symptoms included high temperature, dry cough, fatigue and digestive symptoms. Most of the cases could be traced back to a fish market in Wuhan.

During January, the virus spread to other provinces of China. (CNN, 2020) In late January (30 January), the World Health Organisation (WHO) declared the coronavirus a public health emergency of international concern (PHEIC). In March (12 March), the WHO declared the COVID-19 epidemic a global pandemic. (WHO, 2020) At that point, there were 125,260 confirmed cases globally (80,981 in China) and 4,613 deaths (3,173 in China) (WHO, 2020). That same day, international share prices reacted sharply to the news of the pandemic, and the stock markets saw their biggest crash since 1987 (Imbert, 2020). After mid-March, most European countries introduced restrictions on people's movement and shop opening hours and closed public spaces and schools.

In the second half of April, the number of new transmissions started to decline in several European countries. So far, the global number of confirmed cases is 2.3 million (1.1 million in Europe) with 162,000 deaths (of which over 100,000 in Europe) (WHO, 2020). In April, several European countries (including Germany, Austria, Denmark and Norway) announced their respective plans to gradually easing restrictions.

COVID-19 outside Finland

Strategies adopted by different countries to combat the COVID-19 epidemic vary. Most countries have aimed at least to slow the spread of the disease, and some countries have managed to completely eliminate the virus. Below we have summarised some of the strategies adopted. Our first example is Sweden, which has elected to follow a strategy based on the herd immunity hypothesis to combat the COVID-19 epidemic. The second example is from Germany, which had a national pandemic plan in place long before the COVID-19 pandemic was declared. Germany's approach has been to quickly bring the outbreak of the disease under control. The third example is New Zealand, which aims to completely eliminate the disease from within its borders.

The three strategies have so far resulted in widely different mortality rates. The per capita death rate in Sweden has been 198 deaths per million people. In Germany, this figure is 67 and in New Zealand 3. In Finland, the corresponding figure is 31. (Statista, 2020)It is worth noting that as different as these three strategies are, their economic impacts seem quite similar. According to the IMF forecast, Sweden will see an approximately 7% shrinkage in GDP in 2020. The predicted decline for Germany is 4–7% and for New Zealand approximately 7%. (IFO, 2020) (IMF, 2020)Similarly, the GDP of Finland is estimated to decline 5–13% in 2020. (ETLA, 2020) (Suomen Pankki, 2020) (PTT, 2020) (IMF, 2020) (Valtiovarainministeriö, 2020)

Sweden

The first case of COVID-19 in Sweden was confirmed on 30 January 2020 in a passenger returning from China (Radio Sweden, 2020). The first death from COVID-19 was registered in Stockholm on 11 March 2020. Unlike many other countries, Sweden has officially adopted the herd immunity strategy. Constitutionally, the responsibility of introducing measures to prevent the spread of a virus lies with the Public Health Agency of Sweden. The Government may use the recommendations of the Public Health Agency at its discretion, and that is the path being followed in Sweden in the case of the coronavirus.

Sweden has not restricted the activities of citizens or businesses to any great degree, and most of the measures are voluntary. Gatherings of more than 50 people are banned, however, and all citizens are urged to avoid unnecessary social contacts. Many sports leagues have also suspended their operations. (HS, 2020)

The coronavirus disease has spread quite significantly, particularly in the Stockholm metropolitan area. By late April (23 April), there were 16,755 confirmed cases and 2,021 deaths. Per capita, the number of coronavirus deaths in Sweden is 198 per 1 million. The same figure in Finland is 31. (Statista, 2020)The age profile of those who have died of the disease is remarkably similar in both countries.

Despite the absence of restrictions, the consumer behaviour of the Swedes has changed dramatically. The number of trips from Stockholm to the highly popular tourist destination Gotland have dropped by 96% and the volume of traffic within Stockholm is estimated to have decreased by 75% (Bloomberg, 2020). According to the IMF forecast, the rate of unemployment in Sweden will reach 10.1% in 2020 and the GDP will shrink by 6.8% (YLE, 2020).

Lessons learnt from Sweden's strategy

Inadequate or ill-targeted restriction measures expose a larger-than-necessary proportion of the population to the disease, leading to a higher rate of cases and mortality than in countries with tougher restrictions.

While there are only few restrictions in place, people's behaviour has changed sufficiently due to the epidemic to cause a significant drop in the demand for local services.

The transnational economic shock caused by the epidemic will be substantial regardless of the national strategy adopted (the Swedish GDP is largely dependent on exports).

Germany

The first case of COVID-19 in Germany was confirmed on 27 January near Munich. The transmitter of the disease was assumed to be the patient's colleague, who had recently travelled from China (DW, 2020). In early March (9 March), the total number of diagnosed cases of COVID-19 had risen by 1,100, and the first two deaths from the disease were reported. (Bloomberg, 2020) At the end of March (23 March), Germany banned all public gatherings of more than two persons, closed restaurants and certain retail businesses, and introduced a compulsory physical distance of 1.5 metres between people in public places. By the end of March (31 March), more than 60,000 cases of COVID-19 had been confirmed and nearly 600

deaths had been recorded in Germany. Of those who had died from COVID-19, 87% were 70 years of age or older (RKI, 2020). To date (24 April) the number of COVID-19 deaths in Germany is 5,575. Per capita, the number of coronavirus deaths in Germany is 67 per 1 million.(Statista, 2020)

From 20 April onwards, Germany has allowed small shops to reopen and is planning to reopen schools gradually from 4 May. However, there are differences in the schedule of reopening of schools between states. Restaurants will remain closed and events are cancelled until further notice. Wearing a face mask has now been made compulsory in many German states and during certain activities, such as travelling on public transport. Germany is aiming to reach the capacity of 200,000 tests per day in order to keep the outbreak under control (The Guardian, 2020). Germany is well known for its extremely strict privacy laws. Germany has, nonetheless, launched the development of a mobile tracing application based on the understanding that efficient tracing is a critical factor in controlling the disease once restrictions are eased (Techcrunch, 2020).

Long before the COVID-19 epidemic broke out, Germany had a national pandemic plan in place. It includes a description of the division of responsibilities between different authorities and operators in case of an epidemic. The responsibility for the management of the crisis on the national level is with the federal government and on the local level with the states, subject to federal government ruling. The role of the Robert Koch Institute is to give guidance to the federal government on the nature and pattern of the epidemic and the disease.

The restrictions and the COVID-19 disease have resulted in heavy economic losses in Germany, particularly through the decline in the restaurant, tourism and passenger transport sectors and exports. According to the IFO, Germany's GDP will shrink by 4.2% in 2020 despite the heavy government interventions (IFO, 2020). Based on the IMF forecast, the German GDP will fall by 7% in 2020 (IMF, 2020).

Lessons learnt from Germany's strategy

The containment of the disease requires large testing capacity and an extensive testing programme.

Effective tracing of contacts helps slow the spread of a virus in the early stages of an outbreak, and tracing plays a central role alongside testing in keeping the epidemic under control.

Clear advance planning and division of roles form the basis for successful epidemic control.

New Zealand

The first COVID-19 case in New Zealand was confirmed on 28 February (The Citizen, 2020). By the end of March (23 March), some 100 infections had been detected, at which point the Government imposed strict restrictions to curb the epidemic. The borders were closed for non-citizens and citizens arriving in the country were required to go into quarantine for 14 days. School buildings were closed, as were most of the shops and all gatherings were banned. The country declared a state of emergency two days later (25 March), which is still in force to this day (New Zealand Government, 2020).

New Zealand's chosen strategy is to eliminate the disease completely. This strategy is based on extensive testing (more than 100,000 tests carried out), contact tracing, quarantine and extensive restrictions. The borders are expected to remain closed until the end of the pandemic (for at least 12–18 months). The plan is to lift restrictions in stages so that some schools and shops may reopen at the end of April (27 April) (TIME, 2020).

By late April (23 April), New Zealand had 1,112 confirmed cases of COVID-19 and 16 confirmed deaths. The per capita death rate in New Zealand is 3 deaths per million people.

The repercussions of the restrictions and the epidemic on New Zealand's economy have been significant. They have stopped all operations related to tourism and there are practically no international passenger flights. Retail consumption decreased dramatically in March (clothing -30%, consumables -30%, fuel -20%). Freight traffic has also decreased by 40–80%, depending on the region (NZ Treasury, 2020). According to the IMF forecast, New Zealand's GDP will fall by 7.2% in 2020 (IMF, 2020).

Lessons learnt from New Zealand's strategy

Heavy restrictions imposed sufficiently early and quickly may prove a successful method of completely eliminating the COVID-19 epidemic locally.

It is assumed that beating the virus will require isolation from the rest of the world (or at least a compulsory 14-day isolation for anyone arriving in the country) for up to 12–18 months, until a COVID-19 vaccine is available.

Restrictions aimed at eradicating the virus are highly damaging for the economy, but the difference with countries with lighter restrictions (e.g. Sweden) in the short term is almost negligible.

COVID-19 in Finland

The spread of the disease

In late January (29 January) The first laboratory-confirmed case of COVID-19 in Finland was diagnosed in a Chinese tourist in Lapland.(YLE, 2020). By the last week of February (26 February), the second case of COVID-19 (first in a Finnish patient) in Finland was confirmed, originating in Milan, northern Italy.(YLE, 2020) In early March (3 March), THL classified the whole of Italy as a coronavirus epidemic area (YLE, 2020). In the second week of the month (9 March), THL extended its classification to include the Austrian Tirol and the Nordrhein-Westfalen region in Germany (THL, 2020). Soon after this (12 March), THL stopped defining specific epidemic areas and stated that it was now possible to contract the disease in any part of Europe and the rest of the world (THL, 2020). At that point, there were 109 confirmed cases in Finland(THL, 2020).

In mid-March (12 March), the Finnish Government issued an official ban on public events of more than 500 people. People were encouraged to work remotely and to avoid unnecessary travel. On the third week of March (16 March), the Government issued new measures aimed at slowing the spread of the epidemic. Schools and educational institutions introduced distance

learning, and day care and classroom teaching for years 1–3 would only be provided for those children whose parents are classified as essential workers and who are therefore unable to stay at home. Public gatherings of more than 10 people were banned. People over the age of 70 were advised to self-isolate. Borders were closed for inbound passenger traffic except for Finnish nationals and work-based border traffic between Finland and Sweden or Norway (HS, 2020).

Furthermore, the Parliament approved a decision at the end of March (28 March) to close off the region of Uusimaa, allowing only necessary travel across the regional boundary. All restaurants in Finland were also closed. The isolation of Uusimaa ended on 15 April, as there were no longer constitutional grounds for extending the restriction, as the epidemic had now spread in the rest of the country (IS, 2020).

The restrictions in Finland have been effective, and Finland is likely to have reached the peak of the present epidemic or is very close to it. The R_0 of the coronavirus in Finland, indicating the transmissibility of the disease, is close to 1. However, when restrictions are lifted, there is the risk of a second wave of the epidemic. On 22 February, Finland's Prime Minister Sanna Marin stated that Finland would be moving on from the containment strategy to a "hybrid" strategy: test, trace, isolate and treat.

At the time of writing (24 April), the number of confirmed cases of COVID-19 in Finland is 4,395 and the moving 5-day average of transmissions has steadily decreased for 15 days, although the number of tests has been slightly increased. The number of new infections peaked on 6 April (208 confirmed new cases) (THL, 2020). The number of new cases has increased particularly in Länsi-Pohja, an area bordering Sweden.

There are currently 206 patients in hospital care, 50% of whom are in Uusimaa. Sixty patients are in intensive care. The number of COVID-19 patients in hospital care has remained stable for 15 days (HS, 2020). The intensive care capacity has not been exceeded but there has been a shortage of PPE, such as FFP2/FFP3 face masks, in hospitals.

At least 172 people are known to have died from COVID-19, 88% of whom were over the age of 70. The disease has spread is several care homes, where many elderly residents with multiple conditions have taken ill (HS, 2020).

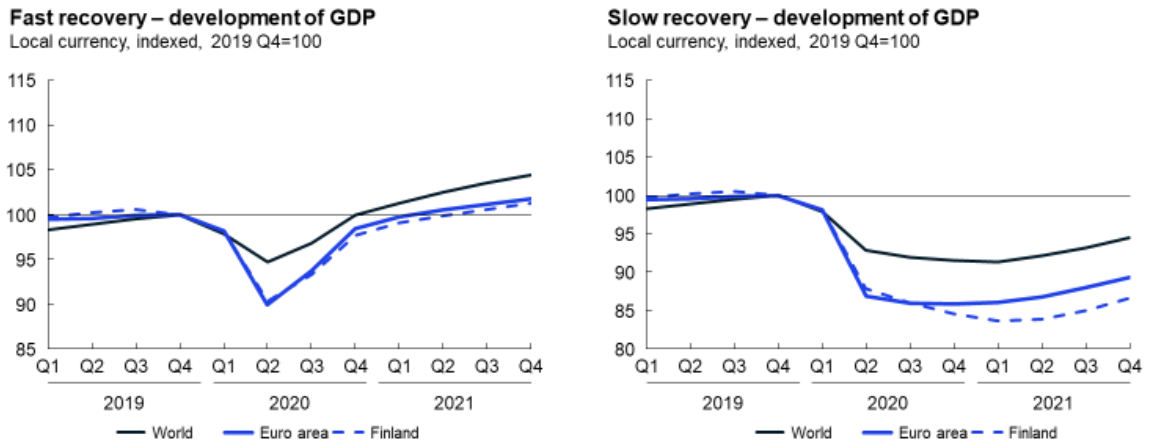
Estimated economic impact

The Finnish economy is expected to contract this year by 5–13% from 2019 as a result of the COVID-19 epidemic. (PTT, 2020) (IMF, 2020) (ETLA, 2020) (Suomen Pankki, 2020) The differences in the scenarios depend on the duration of restrictions, the number and impact of assumed support measures and the degree of decline in exports. Mainly two scenarios have been envisaged: the more optimistic one assumes the economy will bounce back more quickly with a v-shaped recovery after a sharp shock. In the fast-recovery scenario, public health measures and social restrictions help bring the epidemic under control within 2–3 months from the outbreak. The more pessimistic of the two scenarios is based on a slower restoration of the economy to the pre-COVID-19 level. According to the slow-recovery scenario, measures and restrictions are effective to begin with, but there will be a second wave of the virus, which will

keep the restrictions in place for several months. In both scenarios, economic easing will be partly successful, softening the shock and helping avoid a financial crisis.

In the fast-recovery scenario, the economy will bounce back before the end of 2020 and resume the pre-epidemic growth path by early 2021 (Figure 2). In 2020, Finnish private consumption, exports and imports will fall as restrictions remain in place, leading to rising unemployment. In 2021, however, the economy is expected to recover with the reopening of the economy and private consumption, exports and imports will regain a more normal level with a positive impact on the employment rate. In the slow-recovery scenario, economic recovery is delayed, and it will not be possible to achieve the pre-crisis growth until after 2021 because of the ongoing restrictions. Private consumption, exports and imports will decrease dramatically in 2020 while the restrictions are in force. The export markets will remain subdued as other countries fight the second wave of the pandemic. In 2021, GDP growth will continue to stall due to sluggish export markets.

Figure 12: The development of GDP by different scenarios



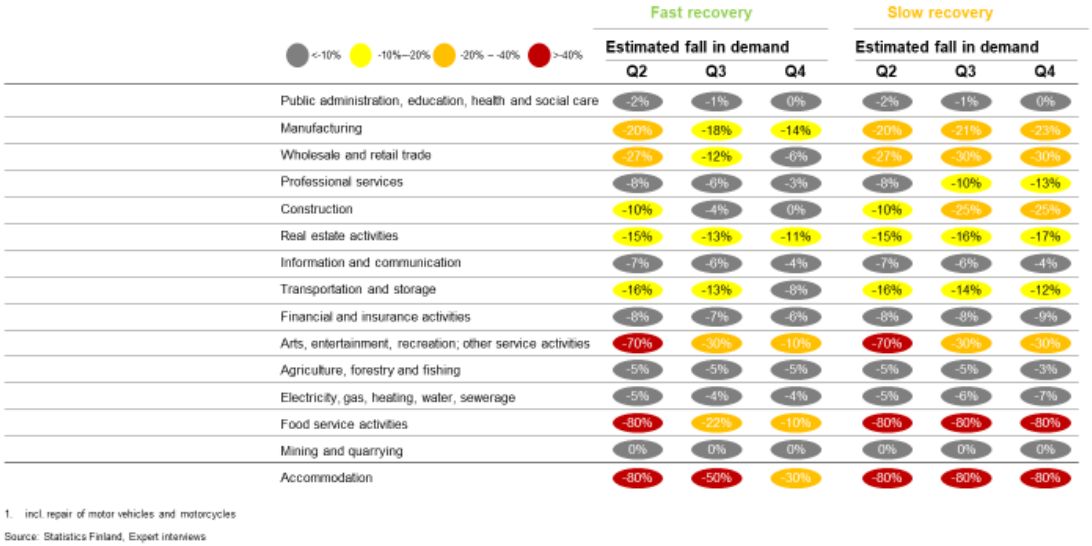
The differences between the scenarios are considerable: the fast-recovery scenario predicts a decline of -4.3% in private consumption in 2020 while the slow-recovery scenario anticipates a drop of -11.3%. The corresponding figures for exports are -5.6% and -11.3% for 2020 and +6.1% and -4.3% for 2021 respectively. The impact of a slow recovery on society, the national economy and the wellbeing of the people would be significant according to the pessimistic scenario. The difference in GDP between the two strategies is EUR 11 billion in 2020 and EUR 30 billion in 2021. Therefore, it is crucial to take all possible measures to ensure that the likelihood of a fast recovery is as high as possible.

China is the first country to have beaten the epidemic, at least for now. The economic development in China this year has followed the fast-recovery scenario: growth in Q1 showed -6.8% decline, but the forecast for the full year shows a moderate 1.2% growth. The rapid recovery of the Chinese economy was made possible by the prompt efforts to limit the spread of the disease through effective measures and safety measures, the sizeable domestic market and strong economic performance prior to the COVID-19 crisis. Since the Finnish economy is deeply interlinked with the economy of the rest of the Europe, we are unable to fully control how quickly our exports can recover. This makes the recovery of domestic demand all the more vital for the overall economy.

Consumer demand has plummeted in 2020, particularly in the service sector. In food service activities and tourism, arts, entertainment and recreation services, demand has declined by 70–80% in the wake of the restrictions. In these sectors, the rapid lifting of restrictions is expected to drive demand with businesses quickly returning to normal as consumers resume their normal rate of consumption. In addition to the above sectors, the accommodation sector has suffered from the restrictions, as the closing of the borders, in particular, has affected demand. Since these restrictions are expected to remain in place for a prolonged period of time, the accommodation sector's desperate situation is likely to continue for some time.

The volume of construction is particularly affected by consumer confidence in the economy and the availability of investments. For this reason, the COVID-19 epidemic will have little impact on the construction industry in the short term. In the fast-recovery scenario, construction will resume the normal level as the economy and consumer confidence recover, with construction of office premises and shopping centres as the only exceptions. In the slow-recovery scenario, the volume of construction will decline substantially in 2020, as consumers defer investment decisions and it gets harder to receive financing. In the fast-recovery scenario, the manufacturing industry recovers as the export and import markets pick up pace driving the supply and demand of components and raw materials. In the commerce sector, demand in the specialist retail sector, in particular, will suffer as consumers defer purchase decisions and are on the move less. The grocery trade will, on the other hand, grow slightly, as consumers stock up on food and eat at home more.

Table 2: Contraction of demand, by sector



	Fast recovery			Slow recovery		
<-10% -10%–20% -20% – -40% >-40%	Estimated fall in demand			Estimated fall in demand		
	Q2	Q3	Q4	Q2	Q3	Q4
Public administration, education, health and social care	-2%	-1%	0%	-2%	-1%	0%
Manufacturing	-20%	-18%	-14%	-20%	-21%	-23%
Wholesale and retail trade	-27%	-12%	-6%	-27%	-30%	-30%
Professional services	-8%	-6%	-3%	-8%	-10%	-13%
Construction	-10%	-4%	0%	-10%	-25%	-25%
Real estate activities	-15%	-13%	-11%	-15%	-16%	-17%
Information and communication	-7%	-6%	-4%	-7%	-6%	-4%
Transportation and storage	-16%	-13%	-8%	-16%	-14%	-12%
Financial and insurance activities	-8%	-7%	-6%	-8%	-8%	-9%
Arts, entertainment, recreation; other service activities	-70%	-30%	-10%	-70%	-30%	-30%
Agriculture, forestry and fishing	-5%	-5%	-5%	-5%	-5%	-3%
Electricity, gas, heating, water, sewerage	-5%	-4%	-4%	-5%	-6%	-7%
Food service activities	-80%	-22%	-10%	-80%	-80%	-80%
Mining and quarrying	0%	0%	0%	0%	0%	0%
Accommodation	-80%	-50%	-30%	-80%	-80%	-80%

1. incl. repair of motor vehicles and motorcycles

Source: Statistics Finland, Expert interviews

It is estimated that, without measures, a majority of accommodation, food services and land transport operators would face financial difficulties within the three months, regardless of the scenario. This is largely due to the steep decline in demand and lack of business liquidity. The sectors least affected by the liquidity crisis in the next six months will be financial and insurance activities, professional services and agriculture, as the decline in demand in these sectors is not expected to be dramatic. According to the fast-recovery scenario, an estimated 38% of businesses (in terms of net sales) will face financial difficulties in the next six months, unless the required measures are taken. This would affect 595,000 employees. In the slow-recovery scenario, 42% of businesses (in terms of net sales) will face financial difficulties without the required measures. Correspondingly, this would affect 765,000 employees.

Finland's exit strategy and the required measures

Choosing the strategy

Various strategies to combat the COVID-19 epidemic have been highlighted in public discussion recently. The strategies can be roughly divided into those based on gaining herd immunity (Sweden) and those based on containment of the virus (Germany, South Korea).

Strategy 1: Herd immunity

Description: Herd immunity means a level of immunity in a population that can also protect those who have not been immunised either through a vaccine or having previously contracted a disease. In order to achieve herd immunity, it is thought that 70–90% of the population has to

contract the disease (or be vaccinated), depending on its infectiousness (Johns Hopkins, 2020). In slowly developing herd immunity, the aim is to limit the spread of the virus to avoid overloading the healthcare system while achieving 70–90% immunity.

Human cost: Deaths in excess of 25,000, cases of the virus: 3,900,000–5,000,000

Risks:

- **Achieving herd immunity requires a lasting epidemic:** Achieving herd immunity (70–90% of the population) with an acceptable rate of simultaneous cases could take as long as 8 months, based on current knowledge (16,000–21,000 new cases per day). This would mean that the average need for intensive care beds is 600–1,300 per day, which is likely to overload Finland's intensive care capacity and increase the mortality rate.
- **The extensive spreading of the disease would result in a high number of deaths:** The herd immunity strategy is likely to lead to a higher absolute number of deaths than the strategy in which the epidemic is contained and a smaller share of the population contracts the disease.
- **The virus increases the risk of long-term health effects:** The long-term effects of the virus on health are as yet unknown and it is possible that the virus will result in permanent damage in some patients (e.g. in the lungs and kidneys) (SCMP, 2020).
- **At the moment, there is uncertainty about the nature and duration of the immunity:** It is not yet known how strong the immunity is for those who have had the virus and how long the immunity is effective (SA, 2020).
- **Prolonged uncertainty damages economic development:** A prolonged period of uncertainty (which the herd immunity strategy would lead to) has a negative impact on consumer confidence and thereby on the national economy and businesses as a opposed to a scenario where the outbreak is kept under control through safety measures while allowing for people to go to work and conduct their business.

Strategy 2: Containment

Description: The spread of the virus will be slowed down by proactive measures until a vaccination is available. The aim is to identify those infected by testing, to trace those who have been in contact with a person infected with the virus and to place them in isolation. It is accepted that the virus cannot be completely eliminated in Finland, but its prevalence can be substantially limited. Adhering to the strategy will eventually allow the gradual lifting of restrictions and for shops and services to reopen.

Human cost: The number of deaths is 1,000–2,000 (presuming that the number of new cases settles at less than 200 per day, so R0 ≈ 1 following restrictions and other measures).

Risks:

- **The cost of containment:** The containment strategy is resource intensive (1,300–1,800 employees needed for contact tracing alone) and requires extensive testing (daily testing

capacity 12,000). In addition, the use of PPE should be extended outside the healthcare setting, which adds to the costs by EUR 2–5 million per day.

- **Restrictions must remain in place for a long time:** It is quite possible that some restrictions may need to remain in place until a vaccine is available (12–18 months). This may lead to a lower compliance with restriction, which would reduce their effectiveness.

Conclusions and strategic recommendations

The Exit Group recommends that Finland adopt the containment strategy to combat the COVID-19 epidemic. This strategy mitigates health effects while protecting society from the long-term effects of the virus, which are largely still unknown. Bringing the outbreak under control will also allow a gradual reopening of society, which will remove some of the negative economic and social effects of the crisis and the burden on public health resulting from care shortage.

Containing the outbreak of the virus is a much lower-risk strategy compared with the herd immunity hypothesis. In the containment strategy, human costs are minimised while the healthcare system remains within capacity, helping to avoid the consequences of overstretched public health resources. The strategy also helps to reduce secondary diseases and other long-term health effects associated with the coronavirus disease.

From the economic perspective, the containment strategy is overall a better strategy as it brings an element of security to businesses and consumers, even if this means longer and more stringent restrictions for certain sectors (such the events industry) compared to the herd immunity strategy.

Containment of the virus also requires substantial resources to arrange for increased testing capacity, contact tracing and PPE. However, the herd immunity strategy is equally resource intensive, with the focus on increasing expensive intensive care capacity.

Measures required in the containment strategy

PPE

> *The availability of PPE and hospital equipment in sufficient quantities to enable effective containment must be made a top priority*. *The total number of face masks of the varying standards needed per day may reach six million.*

COVID-19 requires extensive protective measures. The pandemic has created an enormous global peak in demand for PPE. The demand is further increased by the fact that the use of face masks or coverings has been made compulsory in many countries as part of the safe easing of restrictions. Wearing a face covering is required in ten of Germany's sixteen states and wearing a face mask in shops and on public transport is mandatory in Austria.

The manufacturing of PPE takes place mostly in China. Finland has taken steps to start the domestic production of PPE and to scale up the output to meet the demand. This is a precautionary response to the risk that China will undergo a second wave of the COVID-19 epidemic and that the country would be forced to restrict the export of PPE. One of the most common bottlenecks in investing in PPE is the EN certification. Many countries have resolved this problem by introducing their own national standards. In France, for example, a decision was made on 30 March 2020 on two new national face mask standards. France is aiming to increase their own production of masks from 15 million to 40 million by the end of April. One is a professional standard mask for service industry workers (filters 90% of particles) and the other is a standard for masks for civilian use (filters 70%).

According to our own estimate, the Finnish healthcare system requires 400,000–800,000 masks per day. An additional 30,000–150,000 face masks are required in elderly care. If the intention is to safely open up society, an additional 3.7–5.3 million masks will be needed in the service sector and in everyday use. The service sectors (retail, restaurants and tourism) alone would require 250,000–750,000 mask per day, in addition to which consumers would use 3.4–4.5 million face coverings per day.

Measures proposed for the business community:

- Large Finnish corporations with operations in China have already reorganised their local professional procurement systems and contacts to support National Emergency Supply Agency in the sourcing of PPE and agreements on continued cooperation are in place.
- Companies are actively involved in launching Finnish-based manufacturing of face masks to help secure health and safety at work and to enable safe consumer mobility. The aim is that the daily need for face masks, which may be as much as six million per day, will be met through Finnish-based production.
- Many Finnish businesses investing in the manufacturing of PPE

Measures proposed for the state:

- Finland should introduce national standards for face masks, as France has already done. This will help ensure that investments required to start Finnish PPE manufacturing can be made as soon as possible. At the same time, the certification for new manufacturing of higher specification masks should be initiated.

- This will guarantee the efficient distribution of the professional-standard PPE required in the social welfare and healthcare setting. When PPE is sourced, it should be ensured that they are made available where they are needed, such as elderly care services.

Testing

> *The target for testing must be to identify all those who have contracted the virus – both the symptomatic and asymptomatic. Since COVID-19 is a generally hazardous communicable disease under the Communicable Diseases Act, the medical examinations and the treatment of the disease must be provided to all citizens free of charge.*

Extensive, timely testing is one of the cornerstones of the containment strategy. Testing should be significantly increased to form an accurate analysis of the situation and to effectively trace infections. This includes both the genetic PCR tests and antibody tests – accepting that they involve some problems.

The downside of the PCR tests is that some infections go undetected due to the difficulty of obtaining a sample. HUS has estimated that approximately 20 per cent of the nasopharyngeal swabs give a false negative. The problem with antibody tests, on the other hand, are the false positives. Regardless of this, antibody testing may be used to support decision-making by offering valuable data of the general prevalence of the disease within a population. With more reliable testing technology and the wider distribution of the disease, antibody testing will enable an increasing number of people to work safely while the immunity of persons who have already contracted the disease can be confirmed.

To reach the level of Germany or Norway in the number of daily tests, Finland should be conducting 12,000 PCR tests per day, and have a low threshold for referrals to tests: tests should be taken immediately at the onset of even one of the symptoms of the COVID-19 disease. According to our knowledge, the public sector is able to conduct 4,500 tests per day, with the aim of raising that figure to 10,000 per day. The capacity in the private sector at the moment is 4,000 tests per day. By combining these two resources, we are currently able to meet the target number of daily tests to contain the spread of the epidemic.

Measures proposed for the business community:

- Companies are to introduce straightforward policies for directing employees to occupational healthcare services for coronavirus testing immediately at the onset of even one of the symptoms of COVID-19.
- Companies could also offer the testing capacity in the private sector for immediate use by negotiating with the public sector on the necessary arrangements

Measures proposed for the state:

- COVID-19 tests must also be made available free of charge through private and occupational healthcare services using suitable outsourcing procedures
- The testing capacity must be stepped up to the level required by the adopted strategy (12,000 PCR tests/day) by utilising the testing capacity of private service providers (up to

4,000 tests/day). The Ministry of Social Affairs and Health should negotiate and agree on the rates with the service providers and Kela (the Social Insurance Institution of Finland) would reimburse service providers for the cost of testing. This model does not require any legislative amendments and, according to the ruling of the European Commission, is in compliance with the public procurement legislation due to the exceptional circumstances.

Tracing and isolating

The goal must be to identify and break every transmission chain, and those who are already ill or have been exposed to the virus must be isolated to effectively prevent the spread of the virus.

The containment strategy is based on the objective of keeping the effective reproduction number (R) as low as possible. It is imperative to trace those who have been exposed to the disease and isolate them. Tracing infections is very labour-intensive because the target must be that 80 per cent of those who have been in contact with a person with the disease must be reached within 24 hours of the diagnosis. In Singapore, which has a similar population to that of Finland, 1,300 people are dedicated exclusively to a very efficient tracing process. We estimate that contact tracing in Finland will require slightly more human resources as our processes are not quite efficient enough and the personal tracing of individuals who have potentially been exposed to the virus is more difficult because of the long distances in the country.

Tracing is possible without smartphone applications, but such tools will be useful in improving the coverage and outcomes of tracing. In Norway, the mobile application Smittestopp has been downloaded by 60 per cent of the population. The application sends an automated text message to the user if they have been in contact with someone who has tested positive for COVID-19. Mobile applications such as Smittestopp are compliant with the General Data Protection Regulation (GDPR), although GDPR does place a number of restrictions in their use and features. The European Commission has emphasised that the use of tracing applications must be voluntary and subject to consent. They must also be approved of the health authorities.

The Finnish Government has reported that the development of a mobile tracing application is in progress. The development of this application should be expedited as a matter of priority. The Norwegian example has shown that there is a clear demand for such apps among the general public. Many Asian countries have introduced mobile technologies as a disease control tool on a much wider scale. For example, in South Korea, mobile phone location data is used for tracing and contacting those who are known to have been exposed to the virus. In Taiwan, location data is used to monitor compliance with quarantine orders.

In addition to tracing carried out by the officials, it would also be important to give employers the necessary powers to stop the spread of the virus at the workplace. This, however, would require a temporary amendment to legislation. At the moment, employers are informed about a COVID-19 infection among their employees several days after the diagnosis.

Measures proposed for the business community:

- The business community will assume the necessary responsibility to ensure that a tracing application is introduced as widely as possible and that employees are duly informed about the correct procedure in case of a positive test result.
- Companies are actively involved in the development of tracing applications and the related mobile technologies

Measures proposed for the state:

- The necessary testing capacity should be built during May, enabling the tracing of 80% of those who have been in contact with a COVID-19 carrier within 24 hours.
    - The tracing operations should be adequately staffed, utilising the resources of both the public and private sectors.
    - Finland should also immediately introduce a mobile app for the more efficient tracing of infections and referral of the right people for tests and treatment.
    - The Communicable Diseases Act should be amended so that tracing and isolation orders can be issued by physicians other than the one in charge of communicable diseases in the municipality.
- The provisions on statutory access to information should be reviewed for the purpose of employee safety so that healthcare providers are able to notify the employer immediately if an employee tests positive for coronavirus.

Vaccination

> *The goal must be to have a safe and effective COVID-19 vaccine widely available in Finland once one is one the market in 12–18 months' time.*

Ultimately, it will not be possible to fully contain the COVID-19 pandemic until a vaccine is available. There are currently several vaccine development projects underway throughout the world. A vaccine is expected to be on the market in 12–18 months' time. Although Finland produces high-level academic medical research, there is currently no commercial vaccine development in Finland, and we have no capacity to produce vaccines. In Finland, all vaccines are sourced by the authorities.

Globally, the major challenge will be the limited production capacity of the COVID-19 vaccine: in the short-term, the demand will far exceed the supply. The risk for Finland in this situation is that there will not be enough vaccine available or that we will not even be among the countries to be supplied with the vaccine in the first stage. Finland can improve its access to the COVID-19 vaccine by offering partnerships in phase 2 and 3 trials to companies working on the development of the vaccine. Finland is a preferred clinical partner in this situation because of the integrity of our authorities, comprehensive registers, good professional reputation and an interesting population base and disease profile. Through vaccine development partnerships, Finland could stand a better chance of securing early supply of the vaccine.

Measures proposed for the business community:

- Once the COVID-19 vaccine is available, companies will make it a policy to encourage their employees to take the vaccine and, if possible, arrange vaccinations for their employees

Measures proposed for the state:

- Businesses, public authorities and research institutes (THL) should form a consortium to perform clinical trials for COVID-19 vaccines. The project should urgently be allocated public and/or trust funding (of about EUR 15 million).

Immediate support measures

The goal must be for the Government to make the necessary decisions to offer additional support measures for businesses and ensures their rapid deployment. The adequacy and feasibility of the support measures should be closely monitored. The bankruptcies of viable businesses must be avoided.

The Finnish Government has introduced several measures as a response to the rapidly deteriorating business environment. These measures are aimed to avoid unnecessary bankruptcies to shorten the time it will take to recover from the crisis and to avoid temporary layoffs turning into permanent redundancies. The focus of the direct subsidies in Finland has until this point been on business development. Comparing the GDP-adjusted investments of different countries in terms of direct support (all forms except loans), at 3 per cent, Finland ranks between the two traditional benchmark countries, Sweden and Germany (Figure 3). Compared to many other countries, Finland has adopted a fairly limited arsenal of instruments for supporting companies and sustaining demand (Figure 4). Direct support measures should be specifically targeted at securing the short-term liquidity, the rapid revival of consumer demand and improving short-term operative capabilities. At the same time, measures aimed at developing Finland's long-term competitiveness should be initiated.

Figure 3: The amount of Finland's reported support measures in international comparison

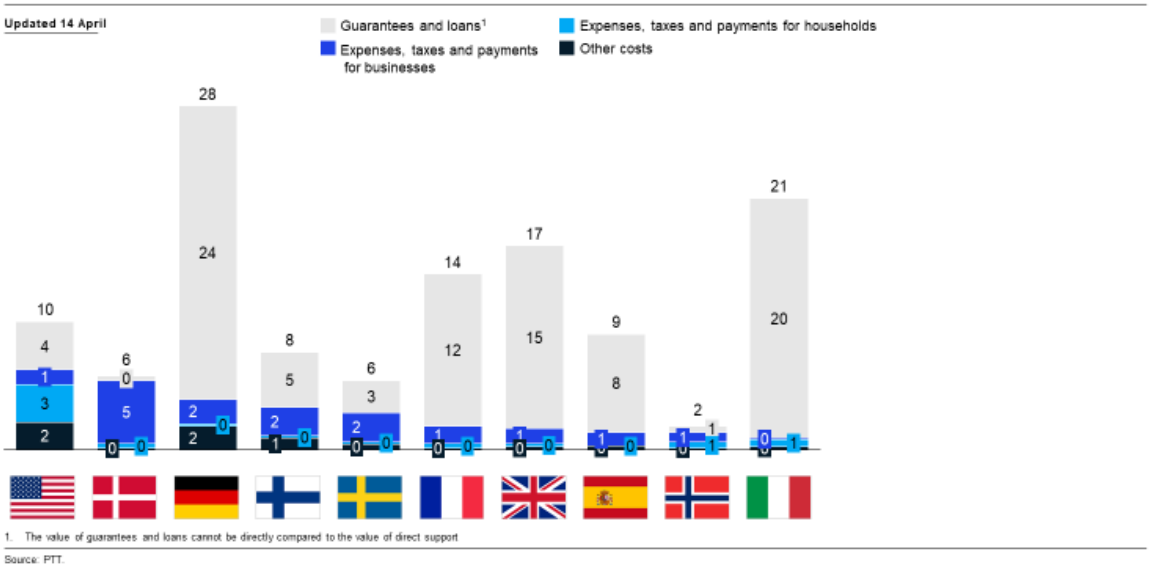
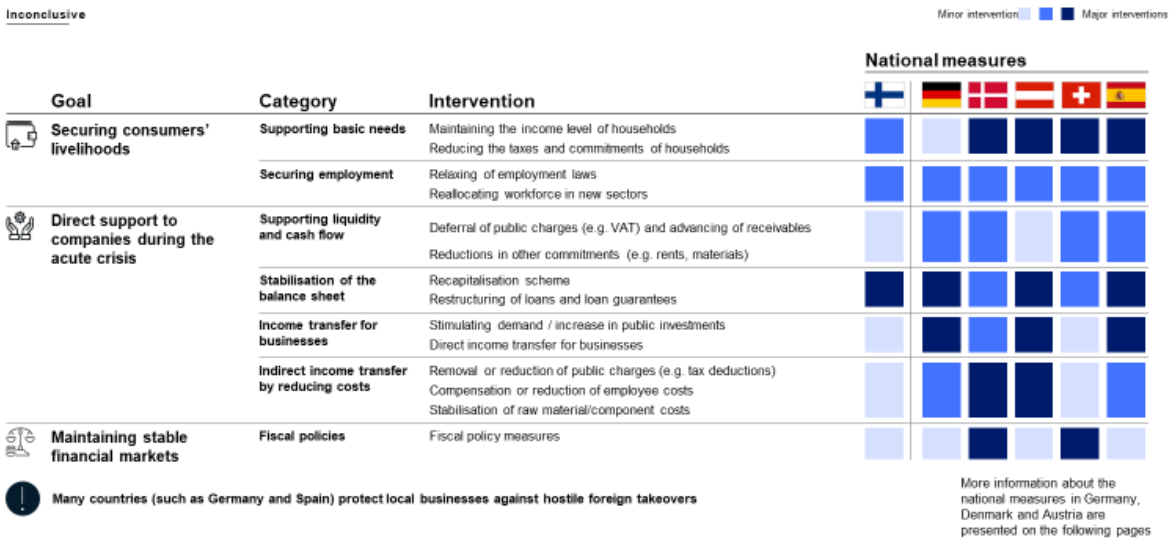


Figure 4: International comparison of support measures



Securing short-term liquidity

The aim is to rescue viable businesses during the epidemic and to save jobs.

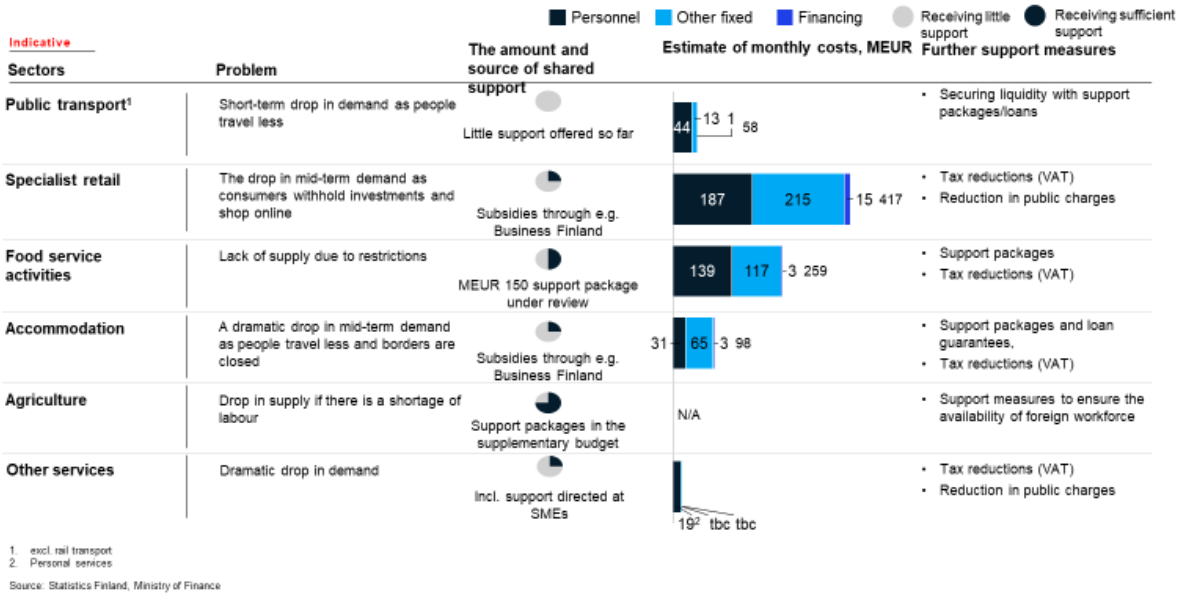
Due to the exceptionally serious crisis, many small and medium-size service businesses are facing an acute cash crisis as even though demand has evaporated their overheads still need to be covered. In the second wave, industrial subcontractors will also come under threat. According to a survey conducted by EK among companies on 16 April 2020, 16% of employers are under risk of bankruptcy. While we have not yet seen a massive increase in the number of bankruptcies, the outlook for the next few months is dismal.

The recent government decisions on VAT and increasing Finnvera's guarantees to 90 per cent are steps in the right direction. Protecting the security of supply pathways, as necessary, with guarantees and support worth EUR 45 million, and supporting other business development are also steps in the right direction. Examples include direct subsidies worth EUR 1.45 billion to businesses of different sizes and Tesi's (Finnish Industry Investment Ltd) EUR 150 million stability programme to help ease companies' liquidity problems; however, further measures will be needed. Decisions should be made

as a matter of urgency on schemes such as the carry-back system proposed by trade and industry organisations, by which companies may carry back their trading losses. In other words, under the carry-back system, businesses are eligible for tax refunds up to a certain level. Moreover, models should be developed to target new measures based on practices adopted by benchmark countries, including industry-specific ones, in the hardest hit fields as an incentive not to lay off employees.

Accommodation and food service activities, specialist retailers, the service sector in general and public transport are among the sectors that have been first and hardest hit by the sudden crisis. These sectors will need additional measures for viable businesses to survive and for unnecessary bankruptcies to be avoided. The monthly expenses of food service activities currently stand at EUR 260 million, with less than half of this sum allocated to overheads not related to employment costs. Because food service activities have been widely affected by the official COVID-19 regulations, the businesses are in urgent need of support to cover such costs. In the accommodation sector, the monthly costs are estimated at almost EUR 100 million, with only one third of this accounted for by employment costs that can be rapidly reduced through temporary layoffs. Owing to restriction on foreign travel and tourism, the accommodation sector is facing a long-term decline and, therefore, measures to stimulate domestic demand and ease the burden of overheads are vital.

Figure 5: Costs and necessary further measures in critical sectors



With regard to labour market measures, the temporary introduction of the fast-tracked co-determination procedure should be extended until the end of 2020. It is to be expected that a need for rapid adjustments will be necessary long into the summer and autumn, as the ripple effects of the initial impact on the worst-hit service sectors reach manufacturing and construction.

Measures proposed for the business community:

- The business community recommends that property owners charge substantially reduced rents in sectors that have been hardest hit by the COVID-19 crisis (e.g. hotels, restaurants, specialist retail). The business community is expecting public sector operators to lower their rents to the same degree.
- The business community also emphasises that the support measures are intended exclusively for businesses suffering from the crisis and to stimulate new growth. Subsidies should never be applied for on false grounds and the business community condemns such conduct as morally unacceptable

Measures proposed for the state:

- The state will use direct subsidies and compensations to keep businesses afloat in fields where operations have stopped as a result of regulatory measures or recommendations (e.g. restaurants).
    - The state will subsidise rents in the sectors hardest hit by the COVID-19 crisis (e.g. hotels, restaurants and specialist retail) and expects property owners to reduce rents to the same degree
- The acute cash shortage that many companies are facing must be alleviated by urgently introducing the carry-back system in Finnish corporate taxation.
- To mitigate the risk of temporary layoffs leading to permanent redundancies, crisis subsidies for businesses should be introduced for sectors where the support is tied to a company's ability to offer jobs
- The temporary introduction of the fast-tracked co-determination procedure is to be extended until the end of 2020

Reviving consumer demand

> *The goal must be rapid revival of consumer confidence to restore domestic demand to the pre-COVID-19 level.*

The only sustainable response to the crisis in the service industry is to stimulate domestic demand once society is ready for reopening. In addition to feeling safe when conducting business, people should also have sufficient security with regard to their personal finances in order to generate consumer demand so that it is as close to the pre-COVID-19 level as possible.

Mortgage and loan repayment holidays introduced by banks to boost demand and consumer confidence have already improved the solvency of households by an estimated EUR 500 billion. Consumer confidence can be boosted through moderate and predictable taxation: higher taxation will erode consumers' purchasing power. Increasing the tax credit for household expenses would be one practical way of stimulating the economy and creating jobs throughout Finland and enabling a return to normal.

Public operators must be expected to assume a counter cyclical approach during the crisis: necessary investments are not postponed and are even brought forward if possible. In addition, several planned investment projects will improve Finland's competitive capability and promote the principles of sustainable development. It would be in Finland's best interests to be on the frontline of the green recovery, and we should strive to make better use of the European Union funding instruments available in this area. Public finances will face great challenges because of the coronavirus crisis and the local authorities will face unprecedented budgetary pressures. However, the countercyclical fiscal policy demands that local authorities continue public procurement without disruptions.

Measures proposed for the business community:

- The business community should grant households mortgage and loan repayment holidays and defer loan repayments for SMEs as necessary during the acute COVID-19 crisis.
- The business community should adopt appropriate safety practices at work and for conducting business to minimise the risk of infection as society gradually reopens

Measures proposed for the state:

- The state should avoid further erosion of purchasing power, which is already affected by widespread temporary layoffs, through fiscal policies
- The state should honour the agreed public sector investments and, where possible, even bring them forward
- The state should emphasise lifecycle thinking and security of supply in public procurement.

Improving operative conditions in the short term

> *Enabling the cost-effective mobility of the workforce and goods so that Finnish businesses are not placed under threat at any point of the COVID-19 crisis because of failures in this area.*

Restrictions on mobility have had immediate consequences in several industries through difficulties in sourcing foreign workforce, which is essential for continued operations, and logistics. Many of these issues are critical for the security of supply and economic activity. The Government and public officials must guarantee effective procedures to ensure the undisrupted continuation of operations in a crisis situation.

The need for foreign workforce is particularly high in agriculture, where approximately 16,000 seasonal workers are required. Half of these vacancies can be filled through Finnish recruitment campaigns, which have been met with great enthusiasm. However, training a large number of new workers poses another challenge for employers. However, as the demand for foreign workforce remains high, it is necessary to raise the current quota of 1,500 persons, to use all available political instruments to enable the mobility of workers and, if necessary, organise the quarantine of returnees in Finland. The manufacturing business must be guaranteed sufficient and rapid procedures to obtaining foreign workforce for maintenance and installation work at plants in a flexible manner. If the coronavirus crisis is prolonged, it is most likely to create heavier losses for the construction sector than are currently envisaged. It is vital to keep any disruptions resulting from a shortage of labour as minimal as possible. In this respect, the passenger traffic of ferries arriving in Finland is of crucial importance to the Finnish economy.

Transport operations in trade and industry should be secured at all times, including during the COVID-19 crisis. Because today's value chains are global, it is essential that businesses can rely on transport within the European Union as well as outside. Operating the main trunk routes at competitive cost is critical for production plants in Finland to avoid unnecessary interruptions. In EU decision making, Finland should emphatically promote undisrupted transport of goods within the single market and smooth access at external borders.

Measures proposed for the business community:

- The business community is prepared to test all foreign workers arriving Finland

Measures proposed for the state:

- The seaways essential for foreign trade are secured through state measures to maintain as normal a level of exports and imports as possible. It is also essential to secure manufacturing's cargo air traffic capacity between Finland and China

- The availability of foreign workforce is secured by increasing the quota for seasonal agricultural workers, by using political instruments to promote the of mobility of workforce, organising the quarantine of returnees in Finland as necessary, and by allowing flexible practices in the hiring of maintenance and installation resources
- Safe passenger transport by ferries must remain in operation to secure the availability of foreign workforce

Long-term measures to support competitiveness

> *Unlike in the previous two financial crises, the goal is to enable a faster recovery and restoration of relative competitiveness than in key benchmark countries.*

In addition to short-term measures, it is also important to determine the methods by which Finnish economy can return on a strong growth path without delay, unlike in previous financial crises, following the planned fast initial recovery. Since the recession of the early 1990s (when the GDP shrank by 6.0% in 1991) and the 2008 financial crisis (when the GDP shrank by 7.8% in 2009), it has been typical of the Finnish economy and employment to lag behind in growth compared to our benchmark countries. After the 2008 financial crisis, Finland's competitiveness deteriorated in relation to other EU countries, which managed to keep their competitiveness at the same level or even improve it.

COVID-19 will amplify the impact of several megatrends and, as a result, some sectors will not be able to return to a pre-crisis situation and will need adjustments and special measures. With the changing operating environment, the ways in which we as society work must be placed under scrutiny and the methods by which we support the sustainable renewal of our businesses and strengthen their future business capabilities must be reviewed.

The above focus areas require a more concerted investment in RD&I, training and competence development, digitisation and sustainable circular economy. It is crucial at the same time to adopt robust employment policies and to create private investment incentives and a favourable environment for competitive business operations. It is best to implement necessary structural reforms now that they can still effectively shorten and ease the crisis.

The appropriate method of safeguarding the sustainability of public finances is not to leave business owners and entrepreneurs to foot the bill for the crisis at the expense of a healthy business environment, as this would only inhibit a prompt return to growth. It should be remembered, however, that the measures taken to support businesses are, ultimately, about preserving employment and protecting our welfare state.

The crisis has imposed major developmental challenges for the EU and international trade. Owing to the structure of our business and industry, resolving them in a manner that further consolidates the European Single Market while bolstering the structures of international free trade is vital for Finnish economy and wellbeing. At the same time, the crisis has also shown us that the level of European security of supply must be raised to a whole new level.

The planning of the work to rebuild the Finnish post-COVID-19 society is just beginning. To achieve success in this endeavour, it would be crucial for all sectors and fields involved to gather together to discuss and share their views and expectations.

For the business community to sustain its ability for continued investment in product development, staff retraining, innovation and ensuring the security of supply, the following government measures are required:

- The state will continue to determine Finland’s strategic resources in the changing global situation and enable strong investment in selected focus areas
- The state will ensure that sectors competing in global markets are provided similar conditions for growth as their counterparts in benchmark countries following the crisis
- The state will endorse and actively participate in the sustainable development investment projects of the EU
- The state will accept the challenge of ambitiously reforming Finnish society so that our international competitiveness and economic resilience can be preserved in the future
- The state has the responsibility to create a favourable climate for investment and innovation

Safety measures

In order for society to return to more normal conditions we need to be able to ensure safe conditions for work, consumption and movement. Employers will have to be able to allow their employees to return to their workplaces without a risk of infection. The risk of infection for customers and partners will also have to be minimised. And to make it possible to return to normal, it will also have to be safe for people to move between homes and workplaces, leisure activities and other venues. With such measures we can reduce the risk of disease and restore consumer confidence and enable the gradual revival of service sector demand.

Safe work

> *The goal is to identify the people who are infected before they come to work and thus minimise the spread of the virus in the workplace.*

Those infected are identified with screening. This can involve a number of tools, such as an application developed for assessing the risk of infection, temperature checks at the entrance to the workplace (with thermal cameras or contactless thermometers) or monitoring any changes in employees' health with personal thermometers (with their consent).

The spread of a possible virus infection can be minimised in the workplace by enabling sufficient physical and temporal distancing between employees and ensuring that the virus cannot spread via contaminated surfaces. Physical distancing can be achieved by rearranging workstations or restructuring production lines in a new way so that employees are further apart. In addition to physical distancing, it may be necessary to install physical barriers between co-workers to prevent droplet infection. Alternatively, or on top of that, employees can also be provided with appropriate personal protective equipment (PPE). Other premises in the workplace, such as the canteen or restaurant, will have to be redesigned so that it is possible to maintain safe distances. Lunch breaks can also be staggered at different times for different teams to secure more room for everyone. Contacts between different teams should also generally be kept to a minimum to be able to control possible transmission chains.

In addition to physical distancing, it is also important to make sure that the virus cannot spread via contaminated surfaces. This can be done by marking any regularly used areas ("risk areas") and making sure that employees are aware of the spaces frequented by lots of people. Reducing any stages of work that require physical contact will also help reduce the risk of infection. Measures such as increasing the number of contactless door handles and devices will reduce the risk. In addition to physical changes, it is also important to create clear new behavioural guidelines for employees. The purpose of such measures is to ensure that people do not increase the risk of infection with their own behaviour. To support these measures, it is also necessary to carry out cleaning in a visible way and report about it and this way create a culture where safe working practices are valued and further developed to reduce the risk of infection.

Safe consumption

> *The goal is to enable safe consumption transactions in order to restore consumer trust if the COVID-19 crisis persists.*

Enabling safe consumption is important for two reasons: new practices will allow opening of shops, restaurants and other services without increasing the risk of infection too much, and safe practices will enhance consumers' feeling of safety and this way encourage them to conduct business also outside of the home. Just as safe work, safe consumption aims at minimising the risk of infection. This can be achieved by avoiding unnecessary interaction, using appropriate PPE, preventing infection via contaminated surfaces and inhibiting contact with infected people through screening.

Avoiding contact can be furthered by informing customers about off-peak times in shops and continuing the dedicated shopping hours for risk groups. Shops can also decide on the maximum number of people that can be safely allowed in the shop at the same time, and then check with manual or automatic calculation that no more people are allowed in at any given time. Physical distancing in supermarkets can be furthered by installing proximity sensors on shopping baskets and trolleys which will alert people if they are too close to others. In Finland, customers have been widely encouraged to avoid cash and favour contactless payment for quite some time now. Supermarkets have installed plexiglass at checkouts to protect staff. Staff safety will also have to be considered outside checkout areas by ensuring that staff and/or customers have appropriate PPE (e.g. face masks) to lessen the risk of infection.

Keeping the surfaces clean is particularly important in environments where customers have to open the doors of refrigerated units, weigh fresh produce on scales and compare products on shelves. Many supermarkets already offer customers the use of hand sanitisers at the entrance. This could be further improved by programming the entrance gates to open only after the hand sanitiser device has been used. Refrigerated units and other shelves or cabinets can be equipped with motion detectors that open the doors automatically or extra handles that people can use with their elbows rather than hands.

Usually it is impossible to avoid all kinds of contact, which is why frequent cleaning and disinfection is paramount in busy areas. Communication about cleaning is also very important in order to rebuild consumer trust. As is communication in general in the current situation. An epidemic can produce both emotional and rational fears. Both should be considered when planning various practices and communicating about them.

Safe movement

> *The goal is to enable safe movement of consumers and commuters by public transport so that the achievements of safe work and consumption are not compromised.*

Safe movement is based on three cornerstones: avoiding contact, ensuring clean surfaces and wearing PPE. The best way to avoid contact is to allow for physical and temporal distance between staff and passengers. This can be done by rearranging seats and their use and installing extra protection (e.g. plexiglass) to prevent droplet infection. Encouraging people to travel at off-peak periods will also reduce the risk of infection.

It is important to make sure that the virus does not spread between passengers via contaminated surfaces. Vehicles will therefore have to be disinfected at regular intervals. Hand sanitisers could also be made available in means of public transport to minimise the spread of the virus. In addition, staff and/or passengers may be obliged to wear appropriate PPE (e.g. face masks) to reduce the risk of infection.

Implementation of safety measures

Industries and businesses are in a key role in securing safe work and consumption. In Finland, a number of companies have already established their own committees to make detailed plans about the concrete steps that will facilitate efficient and meaningful work combined with a reduced risk of infection. In addition to these, EK will launch a systematic campaign to distribute this information to a wider audience. The campaign will include multi-channel communication, cooperation with "flag-bearer" companies and distributing information via EK's member associations.

Municipalities and cities are usually responsible for ensuring safe movement. They will therefore need all the necessary support to be able to change their practices in order to minimise the risk of spreading the virus for their part. Without safe movement, minimisation of the spread of the virus would be quite challenging in our society, and the other practices for safe work and consumption would lose some of their impact.

The key challenge in reopening our society is how to increase consumers' sense of safety and security as regards both their personal health and economy. In addition to the implementation of safety measures, it is also important to raise awareness about these measures and this way boost people's feeling of safety as regards their health. It is essential to take into account the fact, however, that returning to normal does not mean returning to the time prior to the COVID-19 outbreak. To reduce the likelihood of a second wave of the pandemic, people will have to change their behaviour both at work and in their free time.

Measures proposed for the business community:

- The business community has started two projects to rebuild employees' and consumers' trust which will be essential in the controlled restarting of the economy.
- EK's member associations are committed to supporting their member companies in developing and implementing the extra practices necessary for ensuring a safe work environment with regard to COVID-19. These practices will also include training and communications.
- Companies will start COVID-19 committees that will consider the need for extra safety measures for preventing the spread of the virus that are appropriate for their sectors.
- A group of selected Finnish companies will volunteer to function as example companies and demonstrate what these extra safety measures required for COVID-19 should be. Companies will also communicate to their customers and partners about new safety-enhancing practices, which will in part increase consumers' feeling of safety in society.

Measures proposed for the state:

- Supporting municipalities and individual actors to guarantee safe public transport.
- Supporting smaller business if and when the implementation of extra measures required by COVID-19 necessitates investments. This mechanism could include a direct financial subsidy earmarked for safety measures that could be recovered if the company fails to prove the implementation of such measures within a certain (limited) time period after having received the subsidy.

Risk description: What are the risks contained in the chosen strategy?

The containment strategy presented in the report also includes risks that have to be acknowledged.

The effective implementation of the strategy will be compromised if cooperation between the public and private sectors is unsuccessful and it is not possible to use all the resources of society.

Lack of protective equipment caused by the prolonging of the crisis and delays in domestic production could lead to significant negative consequences. The risk of production delay can be reduced by introducing national face mask standards as France has done.

It will fundamentally undermine our ability to contain the spread of the virus if we do not utilise the testing capacity of the private sector and we do not increase the amount of testing to the target level. If there are problems with testing, contact tracing and isolation, we cannot prevent the emergence of new transmission chains. Failure to exploit tracing technologies would weaken our ability to understand the real prevalence of the disease and risk efficient access to care of those exposed to the virus.

It is paramount for our society that people are able to feel safe and for confidence to increase. If it were to last longer than expected, lack of confidence would undermine the revival of private consumption and corporate propensity to invest. These would then extend the economic crisis.

The future development of the COVID-19 disease and epidemic also pose a significant risk. We must prepare for a second wave of the epidemic. However, the effective implementation of the containment strategy will boost our ability to cope with a possible second wave.

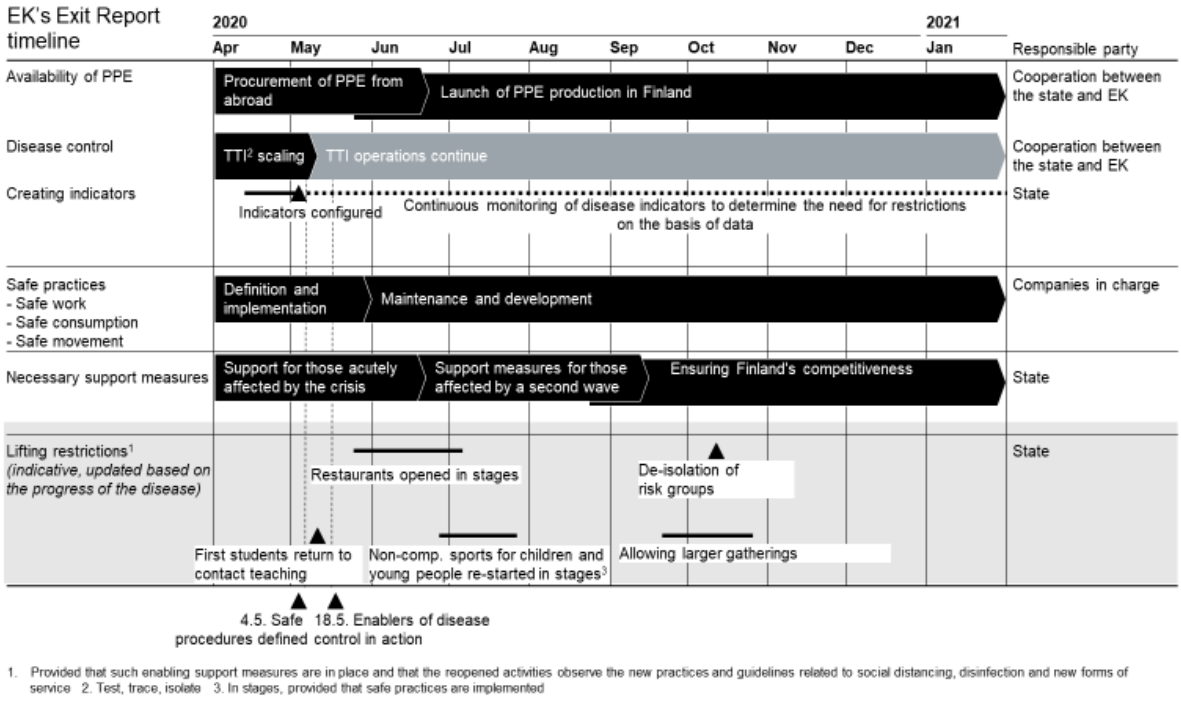
A delay in the recovery of the rest of the world will directly affect Finland’s chances to pull through the crisis. The unity and future of Europe will define the long-term success of Finland. If the COVID-19 crisis is prolonged, there is also a risk of increased protectionism.

Moreover, if a vaccine cannot be developed within the estimated 12 to 18 months or if we are unable to get a sufficient amount of vaccine in Finland, this will also pose a risk. But this risk can be mitigated by actively participating in international vaccine development together with pharmaceutical companies.

Target timetable: Reopening society and economy gradually from mid-May onward

A fast-recovery scenario is a very important and possible goal for Finland. We can increase the probability of achieving this goal with our own actions by encouraging the growth of private demand in domestic service production. The key to this is a gradual return to more normal everyday life combined with determined virus containment measures and safe work, consumption and movement. Figure 6 below shows the timetable based on the current epidemic situation, and we believe that the above-mentioned targets can be achieved within the limits of this timetable.

Figure 6: Possible exit timetable



1. Provided that such enabling support measures are in place and that the reopened activities observe the new practices and guidelines related to social distancing, disinfection and new forms of service 2. Test, trace, isolate 3. In stages, provided that safe practices are implemented

The first requirement for achieving the timetable is the availability of the necessary PPE. We will have to be able to secure the availability of the necessary PPE for healthcare and other sectors (0.5-1.0 million per day in healthcare, 3.7-5.3 million per day in other sectors). We will also have to ensure disease control as soon as the easing of restrictions begins. Disease control will require a sufficiently high level of testing, tracing, isolation and treatment (i.e. daily capacity of 12,000 tests, 1,300-1,800 people tracing transmission chains with the necessary tools and capacity of 400-500 ICU beds). We estimate that these factors could be achieved by mid-May. Restrictions and recommendations could then be gradually eased after that. The situation should be monitored with unambiguous indicators published daily.

At the same time, safe practices (safe work, consumption and movement) should be employed on a large scale. These practices must be defined by 4 May and put into operation by the end of the month, after which their use and development will continue until the end of the COVID-19 epidemic. This will be done with the selected example companies and industry-specific organisations.

The timetable of the necessary support measures is divided into three periods. The first period, currently ongoing, is targeted at businesses that are now struggling to survive. These include restaurants, hotels, event organisers and specialist retail. The aim of the support measures is to prevent a huge wave of bankruptcies and layoffs turning into redundancies. The second period will take place in July-September when support will be needed in those sectors that are hit later by the epidemic. These will probably include industrial subcontractors. The third period will concern the long-term improvement of Finland's competitiveness which will also require support measures. In previous crises, it has been characteristic of the Finnish economy and employment to lag behind in growth compared to our benchmark countries. After the 2008 financial crisis, Finland's competitiveness deteriorated in relation to other EU countries, which managed to keep their competitiveness at the same level or even improve it.

The main milestone of this timetable will be the large-scale introduction of the COVID-19 vaccination in Finland, which according to current estimates will not happen until 12-18 months from now. All the measures listed above will build a bridge until this final solution for the COVID-19 epidemic has been reached.

Leading the implementation of the COVID-19 roadmap

Besides Sweden, Germany and New Zealand, we have studied other countries and their strategies and roadmaps to manage the epidemic. We have particularly focused on countries with successful practices: South Korea, Denmark, Norway and Austria. Even though these countries have very different administration cultures, their approaches to crisis management do share three common factors ("best practices"):

1. **Comprehensive and accurate situational awareness based on confirmed facts has been achieved to form the basis for crisis management.** Information flows freely between various administrative branches, such as healthcare, critical procurement, public economy, business economy and social services. These responsible and well-informed parties convene daily to ascertain that everyone has concurring views about the situation. Necessary quantitative and qualitative data has been collected for the update of the situation as planned before instead of gathering pieces of information from here and there.

2. **Decision-making and implementation are conducted together in the group responsible, not in silos.** The strategic management make the strategically important decisions on the basis of their preparation, and the executive parties take care of efficient implementation of these decisions. Strategic decision-making has not been left for the executive parties since they are usually unwilling to take the responsibility and also lack a coherent overall view. In a crisis, this would also slow down the execution of important matters. In good governance, it is furthermore important that while these two roles have been separated, the parties engage in daily dialogue and the decision-makers actively monitor the timely implementation of the measures.

3. **Public and private sectors cooperate towards the common goals to be able to respond to a crisis of this magnitude.** No single party would be able to manage a crisis such as COVID-19 alone. Collaboration between various parties with mutually complementary competencies will improve their ability to respond to such an extensive crisis as this in an efficient and timely manner. Necessary measures are synchronised together in order to make the best use of available competence and capacity.

The business community has organised itself according to the best practices in sections that are coordinated by EK. The business community is ready and willing to present resources and competence to support the work of the Finnish Government and administrative organisation. EK's Exit Group proposes to the business community the establishment of an executive committee to support the implementation of the recommendations in this report and any new ideas.

What is the business community doing now and committed to doing later?

PPE

Purchases from China

EK has put together a network of Finnish companies in China that are helping the National Emergency Supply Agency with their connections and competence to purchase PPE and face masks in particular from China for the use of social and health care. These companies are doing this pro bono without their own business interests. The head of this network is Risto Siilasmaa and coordinator is Hanna Lauren from EK.

Starting domestic production

The PPE shortage will require the launch of domestic production, for which the Ministry of Economic Affairs and Employment (TEM) set up a working group which includes EK's Jyri Häkämies and Jannika Ranta as members. EK and its member associations mapped the companies interested in the production of PPE. So far it has been publicly announced that three companies will launch production. The process is ongoing, and discussions/negotiations on increasing PPE production in Finland will continue in collaboration with TEM.

Testing

Increased testing will require more intensive collaboration between the public and private healthcare sectors. The Finnish Association of Private Care Providers has submitted a proposal about testing to the Ministry of Social Affairs and Health.

Tracing

A number of projects focusing on mobile tracing technology are under way. Several businesses are involved in these projects.

Safe work - safe conducting of business - safe public transport

EK has started two business community projects to rebuild employees' and consumers' trust which will be essential in the controlled restarting of the economy.

EK and its member associations will encourage and support their member companies in the promotion of safe work and conducting of business. This will involve training and communication.

EK will launch a communication campaign with the flag-bearer companies which will include examples of how various companies have rebuilt their employees' trust in safety or safe conducting of business.

Appendices

Appendix 1: COVID-19

Pathophysiology

SARS-CoV-2 enters the lungs by binding to the ACE2 receptor. The expression of these receptors is high in the type II alveolar cells of the lungs. Therefore COVID-19 is mainly a respiratory illness (Letko M, 2020). The virus can also be found in the intestines (Gu, Han, & Wang, 2020), kidneys and heart. (Zheng, Ma, Zhang, & Xie, 2020)

Transmission and infectiousness

SARS-CoV-2 probably spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes (WHO, 2020). Indirect transmission via contaminated surfaces may also be possible. Preliminary research shows that the virus may survive on plastic or steel surfaces for three days, but the infectiousness of such viruses is so far unknown (van Doremalen, 2020). Estimates about the infectiousness of the virus vary: the basic reproduction number R_0 is approximated between 2.2 and 5.7 (Sanche S, 2020). It is possible that symptom-free people can also spread the virus (Bai Y, 2020). Nasopharyngeal shedding of the virus has been found to be high during 4 to 10 days from the onset of symptoms, during which time patients probably spread the disease (Wölfel R, 2020).

Diagnosis

COVID-19 can currently only be accurately diagnosed at individual level with PCR testing. The sample should be taken from the nasopharynx but, if necessary, a nose or throat swab may also suffice (WHO, 2020). PCR testing can be used to diagnose acutely infected patients but it cannot be used to identify those who have already recovered from COVID-19 (SMC, 2020).

Antibody tests have been developed to theoretically identify those who have already had the infection. At the moment, however, antibody tests are not specific enough (only 67-93% of those who are positive can be identified) for individual-level diagnostics. But at the population level they can already be used to monitor the distribution of the disease (Mallapaty, 2020).

In radiological examinations (chest CT scans and x-rays), double pneumonia and ground glass opacities are typical of COVID-19 (Guan WJ, 2020).

Symptoms and prognosis

Common COVID-19 symptoms include fever (83-99% of the infected experience this symptom), cough (59-82%), loss of appetite (40-84%), tiredness (44-70%), shortness of breath (31-40%), loss of smell (15-30%) and muscular pain (11-35%). The median time from exposure to symptoms is 4 to 5 days.

Symptoms are typically milder in children and stronger in the elderly or people in risk groups. Risk factors include cardiovascular diseases, diabetes, lung disease or cancer.

Approximately 81% of cases of COVID-19 are mild, while 14% are severe (shortness of breath, lack of oxygen or over 50% of the lungs infected when scanned) and 5% critical (acute respiratory insufficiency, shock, multiple organ failure).

According to current knowledge, 26-32% of hospitalised patients require intensive care and assisted ventilation. Mortality in ICU patients varies between 39% and 72%, depending on the study. Survivors' average length of stay in hospital is 10 to 13 days (CDC, 2020).

Estimates about the mortality rate of the disease vary because of the unknown number of undiagnosed patients in relation to diagnosed patients. According to some estimates, mortality is between 0.39% and 1.33%. Mortality increases substantially in the older population (mortality between 10% and 27%) (CDC, 2020) (BMJ, 2020).

It is also possible that some recovered patients may have permanent damage in their lungs (SCMP, 2020).

Treatment

There is currently no officially approved treatment for COVID-19. Treatments such as remdesivir, (hydro)chloroquine, immunotherapy and donated plasma are in experimental use.

Patients receive symptomatic treatment, if necessary, to support vital functions and breathing with a ventilator (CDC, 2020).

Vaccine

There are currently at least 115 vaccines under development for COVID-19, five of them in clinical trials (phase I). Most of the latter are new RNA and DNA vaccines. It will take at least 12 to 18 months until any vaccines will be available (Tung T, 2020).

Appendix 2: Methodology

Epidemiological modelling

This study contained no epidemiological extrapolations to predict the development of the disease, nor are its conclusions based on any disease modelling conducted by any particular party. Instead, this study refers to the real-time COVID-19 statistics released by the Finnish Institute for Welfare and Health (THL). This data has been compared to the profile of the outbreak in a number of benchmark countries and, based on this analysis, we can form general understanding of the linkages between the stages of the outbreak and the control measures (including the introduction and removal of various restrictions).

Macroeconomic modelling

Applying Oxford's Global Economic Model to the scenarios created by McKinsey & Company was the main macroeconomic modelling method in this report. The scenarios were created by combining various hypotheses about the success of virus mitigation and economic regeneration measures. The economic modelling conducted to two of the currently most probable scenarios combines several modelling methods. This enables the study of the dynamic effects of shocks, the calibration of intervention measures and estimates, the combination of adjustment of data and theoretical framework as well as the use of several variables.

Keynesian economics in the short term and monetary economics in the long term have been applied in the model. In the short term, the consumption shock will cause an economic cycle that can be controlled with financial and monetary policies. In the long term, the variables of supply, such as investments, productivity, employment rate and the age distribution of the population, will have an effect on the predictions of the model. The model takes account of both country-specific variables, such as consumption, investments, exports, wages and consumer prices, and macroeconomic drivers, such as trade volumes, competitiveness, raw material pricing, interest levels and capital markets in various countries.

Business modelling

Focusing on the Finnish economy, the business modelling used
a random sample of the main financial data of 10,000 companies. The random sample is based on the structure of Finnish business life. Predicted industry-specific demand is the main hypothesis of the model. Starting values include the shares of the various sectors' gross domestic products (GDP) of the Finnish national economy and the number of employees in each sector. On the basis of the hypotheses, data and starting values, the model calculates the cash flow adequacy for each company with decreasing demand but fixed costs remaining constant. The model also categorises the companies with regard to liquidity and sector. The sample has been collected from the Odin database.

Effect calculations

The costs of the prevention of the spread of the epidemic as regards ICU beds were calculated presuming that the cost of intensive care is EUR 2,000/day and ICU occupancy rate 50-70% for 18 months. It was presumed that tracing will require 1,300-1,800 employees whose average salary is EUR 2,483/month plus 50% employer's contribution for 18 months. The cost of testing

was calculated presuming that approximately 8,000 tests per day are needed, each costing EUR 255-330, for 18 months. The need for PPE was calculated presuming that 1.0-1.5 million face masks per day are needed, each costing EUR 2-5. In addition to these, the overall need for face masks to ensure safe work and consumption may increase to six million per day.

In order to achieve herd immunity, it was presumed that 70-90% of the population would be infected. In fast herd immunity, mortality would be 0.8%, while in slow herd immunity it would be 0.2-0.5% owing to the higher capacity of intensive care.

General data collection and qualitative methods

The expert views of several different industries and the Exit Group’s own expertise were used for the qualitative analyses. International examples were collected from a number of sources to support decision-making. Data and frames of reference were collected from various public and private sources. Several analyses were tailored for the Exit Group’s meetings. Finland’s disease data was mostly collected from THL’s publications and reliable media sources. International disease data was obtained from sources such as data collected by Johns Hopkins University. Economic estimates were accumulated from major Finnish sources (including Pellervo Economic Research PTT, Bank of Finland, ETLA Economic Research and Ministry of Finance). International sources include the IMF and IFO.

Appendix 3: The global outbreak of the COVID-19 disease

December 2019

Starting in December 2019, several cases of pneumonia with an unknown cause were diagnosed in the city of Wuhan in China (Yang, 2020). The first observations of a new disease were recorded by the health authorities of Wuhan on 1 December 2019, but there are already signs of the spread of the virus in Wuhan in October. (Ma, 2020) The common symptoms included high temperature, dry cough, fatigue and digestive symptoms. Most of the cases could be traced back to a fish market in Wuhan.

January 2020

A previously unknown coronavirus, first named *WH-Human 1 coronavirus*, was identified with DNA sequencing as the cause of the disease in January (Wu, 2020). During January, the virus spread to other provinces of China. Travelling related to the Chinese New Year (25 January 2020) and Wuhan's role as a national transport hub sped up the process (WHO, 2020). In late January (22 January), the Chinese authorities announced that Wuhan and its surrounding area would be put in quarantine as of 23 January and travelling restrictions were imposed (Joshua Berlinger, 2020). By 24 January, the entire Hubei Province had been quarantined with a few exceptions.

A total of 835 laboratory-confirmed infections and 25 deaths had been reported in China by that date. The first cases outside China had also been detected in South Korea and elsewhere. Researchers considered it likely that the virus would spread from human to human (Huang, 2020).

In late January (30 January), the World Health Organisation (WHO) declared the coronavirus a public health emergency of international concern (PHEIC). According to WHO, however, it was not necessary to restrict international trade or travelling because of the coronavirus (Inka Haukka, 2020). In late January (31 January), the United States banned foreign citizens from entering the country if they had been in China within the previous 14 days. Americans returning from the epidemic area in Hubei were also ordered to undergo a compulsory 14-day quarantine (Jackson, 2020).

February 2020

In early February (11 February), the WHO named the disease COVID-19 (coronavirus disease 2019) which is caused by coronavirus SARS-CoV-2 (WHO, 2020). During February, infections were detected in several countries worldwide, and by 21 February, a total of 76,769 global infections and 2,237 deaths had been reported. Around the same time, a new study was published confirming that asymptomatic carriers could also transmit the virus to others (Bai Y, 2020). On the third week of February (22 February), 50,000 people were quarantined in Northern Italy and schools were closed (DW, 2020).

March 2020

In early March (8 March), the entire area of Northern Italy with its 16 million inhabitants was put into quarantine and isolated from the rest of the country (BBC, 2020). On 12 March, the WHO declared the COVID-19 epidemic a global pandemic (WHO, 2020). At that point, there were

125,260 confirmed cases globally (80,981 in China) and 4,613 deaths (3,173 in China) (WHO, 2020). That same day, international share prices reacted sharply to the news of the pandemic, and the stock markets saw their biggest crash since 1987 (Imbert, 2020). After mid-March, most European countries introduced restrictions on people's movement and shop opening hours, and public spaces and schools were closed. Many sports and cultural events were also cancelled(IS, 2020).

April 2020

By the beginning of April, 823,626 cases had been reported globally (464,212 in Europe) and 40,598 deaths (30,089 in Europe). In the second half of April, the number of new infections started to decrease in several European countries, and there had been 2,397,217 cases globally (1,187,184 in Europe) and 162,956 deaths (106,342 in Europe). In April, several European countries (including Germany, Austria, Denmark and Norway) announced their respective plans to gradually ease the restrictions.

Appendix 4: The outbreak in Finland

January 2020

In late January (29 January), the first laboratory-confirmed case of COVID-19 in Finland was diagnosed in a Chinese tourist in Lapland. According to THL, this was regrettable but not unexpected. As far as it is known, this particular tourist did not spread the virus in Finland. It was the ninth case in the EU (Perttu Ruokangas, 2020).

February 2020

In late February (25 February), THL announced that besides mainland China, the risk of infection had increased in Iran, South Korea and in the Italian regions of Veneto, Lombardy, Piemonte and Emilia-Romagna. Anyone travelling in those areas was advised to contact the health services if they experienced symptoms of acute respiratory infection, such as fever, cough and shortness of breath, within 14 days upon return (THL, 2020). About the same time (26 February), the second COVID-19 infection was diagnosed in Finland (the first Finnish citizen), originating in Milan, Northern Italy.

March 2020

In early March (3 March), THL classified the whole of Italy as a coronavirus epidemic area, and Finnair cancelled its flights to Milan. The Ministry of Foreign Affairs also urged people to refrain from travelling to Northern Italy (Näveri, 2020). In the second week of the month (9 March), THL extended its classification to include the Austrian Tirol and the Nordrhein-Westfalen region in Germany (THL, 2020). Soon after this (12 March), THL stopped defining specific epidemic areas and stated that it was now possible to contract the disease in any part of Europe and the world. At that point, there were 109 confirmed cases in Finland(THL, 2020).

In mid-March (12 March), the Finnish Government issued an official ban on public events of more than 500 people until the end of May. The Government also recommended that the organisers of smaller events should consider cancelling events on the basis of risk assessments. People were encouraged to work remotely and to avoid unnecessary travel.

On the third week of March (16 March), the Government issued new measures aimed at slowing the spread of the epidemic. Finland activated the Emergency Powers Act for the first time after the wars. Schools and day care centres were closed. Day care and classroom teaching for years 1–3 would only be provided for children whose parents are classified as essential workers and who are therefore unable to stay at home. Public gatherings of more than 10 people were banned. People over the age of 70 were advised to self-isolate. Borders were closed for inbound passenger traffic except for Finnish nationals and work-based border traffic between Finland and Sweden or Norway (HS, 2020).

At the end of March (28 March), the Parliament approved a decision to close off the region of Uusimaa, allowing only necessary travel across the regional boundary. All restaurants in Finland were also closed. The decision to close off Uusimaa was justified by the fact that the outbreak had progressed further in this region (67% of all the 1,218 reported cases on 29 March). The borders were controlled by the police and the Finnish Defence Forces (HS, 2020).

April 2020

The isolation of Uusimaa ended on 15 April, as there were no longer constitutional grounds for extending the restriction, as the epidemic had now spread in the rest of the country (IS, 2020).

On 22 February, Finland's Prime Minister Sanna Marin stated that Finland would be moving on from the containment strategy to a "hybrid" strategy: test, trace, isolate and treat. Public events of more than 500 people were banned until the end of July.

The current situation of the epidemic in Finland on 23 April 2020

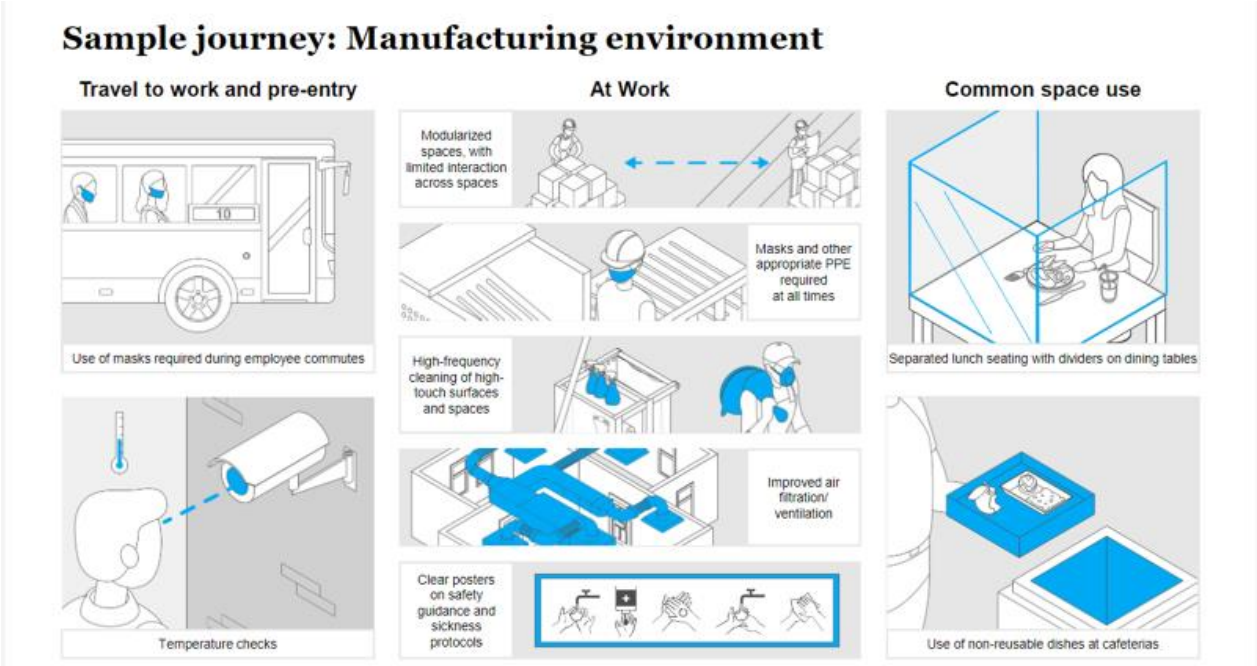
The restrictions in Finland have been effective, and Finland is likely to have reached the peak of the present epidemic or is very close to it. The R_0 of the coronavirus in Finland, indicating the transmissibility of the disease, is close to 1. However, when restrictions are lifted, there is the risk of a second wave of the epidemic.

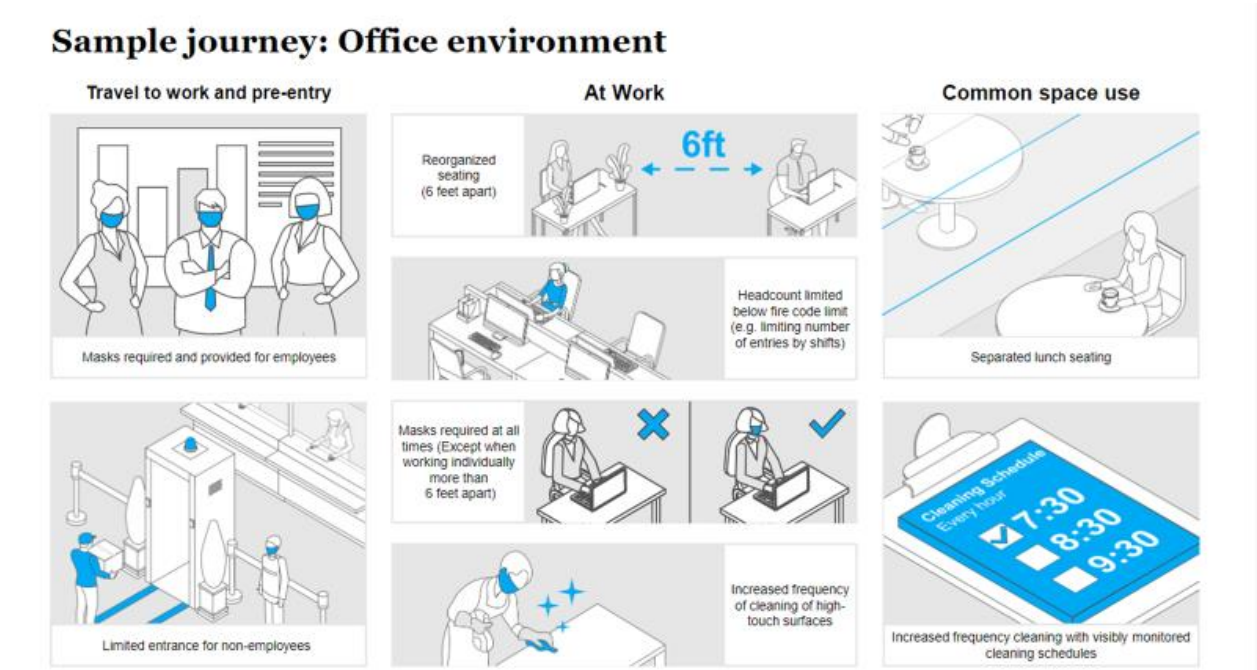
At the time of writing (23 April), the number of confirmed cases of COVID-19 in Finland is 4,284 and the moving 5-day average of transmissions has steadily decreased for 14 days. The number of new infections peaked on 6 April (208 confirmed new cases) (THL, 2020). According to THL's new instructions, all symptomatic patients have been tested as of 16 April. Before that, only hospital patients and those in risk groups had been tested (Lääkärilehti, 2020). This may lead to a rise in new diagnoses in the near future, even though the epidemic itself is already slowing down. The number of new cases has increased particularly in Länsi-Pohja, an area bordering Sweden.

There are currently 206 patients in hospital care, 50% of whom are in Uusimaa. Sixty patients are in intensive care. The number of COVID-19 patients in hospital care has remained stable for about 14 days. The intensive care capacity has not been exceeded but there has been a shortage of PPE, such as FFP2/FFP3 face masks, in hospitals.

At least 172 people are known to have died from COVID-19, many of whom were over the age of 80. The disease has spread in several care homes, where many elderly residents with multiple conditions have taken ill. Compiling statistics on the number of deaths has been challenging, which is why it is not possible to analyse daily developments very accurately (THL, 2020).

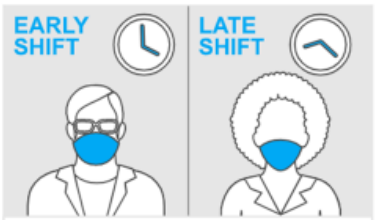
Appendix 5: Examples of safe practices



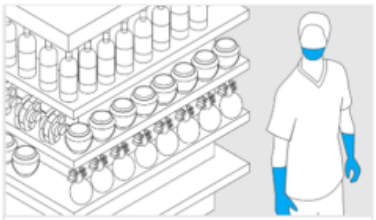


Sample journey: Retail environment

Travel to work and pre-entry



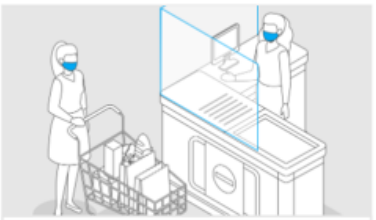
Staggered entry and work shifts



Upgraded PPE encouraged, required and/or provided

At Work

Guidance on no-questions-asked sick leave



Plexiglass shields installed at cash registers

Common space use

Increased cleaning of high-touch surfaces and spaces (e.g., Bathrooms)

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