Norway's Transformational Capability 2021

Executive Summary

Ny Analyse

abelia

What does the Transformational Capability 2021 survey indicate?

The Transformational Capability survey measures how well Norway performs in relation to other comparable countries in relevant areas, such as Human Capital, Entrepreneurship, Innovation and R&D, and Technology and Digitalization. This year, the survey also includes a new parameter, Sustainability, which has become an increasingly relevant factor in recent years. The ranking identifies Norway's strengths and weaknesses in a wide range of important areas and serves as a foundation on which new measures, improvements and reforms can be built. This executive summary presents the main findings from the Transformational Capability survey carried out in 2021. This is the sixth edition of the survey, which was launched in 2016.

The Transformational Capability survey was developed in pursuit of three different objectives:

1. Monitoring the development of indicators that are central to Norway's transformational capability

Transformation is driven by some businesses expanding, while others downsize or fail, and new ones are established. Normally, approx. 45–50 per cent of fledgling businesses fail within just a few years. At the same time, a sizeable share of the workforce finds new employment. The scope of this process, and how successful the subsequent adaptation to new circumstances is, depends on a number of factors. A primary objective of this report is to measure how Norway performs with respect to this and other transformational drivers over time and in relation to other countries.

2. Developing a comparison model better tailored to Norwegian conditions than many established rankings

There are a many different international rankings of innovation and adaptability. The Transformational Capability survey specifically covers factors critical to Norway's adaptability. As an example, this means that the share of the population with doctoral degrees and an education in technology will be more relevant than the share of the population who can read and write. Well-reputed rankings of research and education outcomes will also be more important than the amount of money spent in these areas. However, broad competence is also an important factor, and is measured by the population's basic competence and use of digital aids.

3. Facilitating promotion of targeted measures to improve Norwegian adaptability

The Transformational Capability survey identifies Norway's strengths and weaknesses compared to other mature economies. This may serve as a basis on which to develop effective measures to strengthen Norway's adaptability and competitiveness over time. Based on the strengths and weaknesses identified in the survey, Abelia hopes to help provide concrete measures and strategic areas. The Transformational Capability survey aims to inform the development of business and industry policy, ensuring growth and jobs in the years to come.

**

The following pages present a summary of Norway's ranking in the five different parameters, as well as an overview of strengths and weaknesses in key areas for successful economic transition. For

more information about methods and the background for the findings presented in this executive summary, please see the full report (in Norwegian) on our website: omstillingsbarometeret.no.

SUSTAINABILITY

	NORWAY'S RANKING	
GREEN PRODUCTIVITY	**2021**	**2019**
Metric: Value creation and resource utilization from a sustainability perspective **Assessment:** Norway climbs in the area of green productivity in 2021, due to a combination of increased value creation and reduced greenhouse gas emissions. It is important to note, however, that emissions still remain high.	7	9
PUBLIC SECTOR	**2021**	**2019**
Metric: The role of the public sector in the transition to sustainability **Assessment:** Norway drops in 2021, primarily due to a relatively weak position on climate policy compared to other countries. We are also ranked lower on green aid.	10	7
GREEN RESEARCH	**2021**	**2019**
Metric: Public funds allocated for environmental research **Assessment:** We climb to 5th place in 2021, up from 8th in 2019. This improvement reflects a long-term trend. We were down in 14th place in 2016. The rise is attributed to an increase in funds allocated for environmental research.	5	8
RENEWABLE ENERGY	**2021**	**2019**
Metric: Production and consumption of renewable energy and electricity **Assessment:** Iceland is the only country ahead of us in this area in 2021, just like in 2019. This high ranking reflects our long-term strategic focus on renewable electricity. Meanwhile, Norway's total energy mix still includes a lot of fossil energy.	2	2
NATURAL ECOSYSTEMS AND EMISSIONS	**2021**	**2019**
Metric: Greenhouse gas emissions, biodiversity and habitats, agriculture **Assessment:** Norway's weakest ranking in Sustainability. We achieve a slight improvement in 2021 due to reduced emissions, but we are still below average. We also have low scores on biodiversity and habitats, as well as agricultural environmental efficiency.	16	23
ENABLING TECHNOLOGY	**2021**	**2019**
Metric: Digitalization in enterprises and investments in new technology **Assessment:** We drop to 10th place in 2021, down from 7th place in 2019. This negative trend has persisted since 2016. While Norwegian businesses have stepped up their digitalization efforts, other countries outperform us. In addition, we are ranked low on investments in new technology.	10	7

No. of countries surveyed: 24

STRUCTURE & CONTENTS					
GREEN PRODUCTIVITY	PUBLIC SECTOR	GREEN RESEARCH	RENEWABLE ENERGY	NATURAL ECOSYSTEMS AND EMISSIONS	ENABLING TECHNOLOGY
CO2 productivity	Environmental taxes	Environmental research	Renewable energy – supply	Emissions	Integration of digital technology in enterprises
Material productivity	Climate policy	Research on renewable energy	Renewable electricity – supply	Biodiversity and habitats	Investments in new technology
	Green aid		Renewable energy – consumption	Agriculture	

HUMAN CAPITAL

	NORWAY'S RANKING	
EDUCATION – GRASSROOT	**2021**	**2019**
Metric: Grassroot participation in education (incl. further and continuing education) **Assessment:** Norway's ranking in educational participation is still high, but down from previous years. This is largely attributed to other countries increasing their share of the population pursuing higher education faster than us. A persistently low score for vocational education is another negative factor.	9	7
EDUCATION – POST-GRADUATE	**2021**	**2019**
Metric: Share of population with master's and doctoral degrees (incl. international doctorates) **Assessment:** As in previous years, Norway's performance with respect to post-graduate education is poor. Despite high levels of participation in education in general, relatively few people choose to take a post-graduate degree. The share of international doctoral candidates in Norway is also small.	22	21
EDUCATION QUALITY	**2021**	**2019**
Metric: The quality of the education system **Assessment:** Despite dropping one place in 2021, our ranking remains high. The educational system is considered relevant for the economy, and we have a relatively low number of students per teacher. We also score high on quality in vocational education and training (but somewhat lower on higher education).	5	4
ACCESS TO INTERNATIONAL TALENT	**2021**	**2019**
Metric: Ability to attract and retain international talents **Assessment:** Norway was ranked just above average in 2019, but has since dropped to 15th place. This drop is attributable to our poor retention of international talents. Our attraction rate is around average. We generally score low on the share of international students.	15	11
POPULATION SKILLS	**2021**	**2019**
Metric: Skills within the population **Assessment:** Norwegians are among the most highly skilled in the world. Not only is it relatively easy for employers to find workers, but we also score high on skills at both medium and high levels.	3	3
WORKFORCE PARTICIPATION	**2021**	**2019**
Metric: Employment and unemployment in the labour market **Assessment:** Norway still scores high on workforce participation, even though our ranking drops this year. Employment levels are high, but slowly decreasing. In addition, long-term unemployment among young people has increased.	7	6

No. of countries surveyed: 24

STRUCTURE & CONTENTS					
EDUCATION – GRASSROOT	EDUCATION – POST-GRADUATE	EDUCATION QUALITY	ACCESS TO INTERNATIONAL TALENT	POPULATION SKILLS	WORKFORCE PARTICIPATION
Participation in lower secondary school	Share of population with master's degree or higher	Vocational education quality	Share of international students	PISA scores	Long-term unemployment – young people
Participation in upper secondary school	Share of population with PhD	Relevance of educational system for economy	Talent attraction	Labour availability	NEETS (not in employment, education or training)
Participation in vocational education and training	International students with a PhD	Higher education – quality	Talent retention	Skills – medium level	Employment – age 24-64
Participation in higher education		Teacher/student ratio		Skills – high level	Employment – age 65 and over
Further and continuing education					

ENTREPRENEURSHIP

NORWAY'S RANKING

ENTREPRENEURSHIP ACTIVITIES	2021	2019
Metric: Number of new entrepreneurs **Assessment:** Norway climbs in 2021, primarily due to improvements in entrepreneurial employee activities (entrepreneurship on behalf of an employer). This is a reflection of Norway performing well during the pandemic.	12	14

START-UP OPPORTUNITIES	2021	2019
Metric: Competition intensity, perceived start-up opportunities **Assessment:** Our ranking is still good, but somewhat lower than previous years. Competition is less fierce, but potential entrepreneurs perceive their start-up opportunities to be somewhat weaker.	4	1

EDUCATION AND TRAINING	2021	2019
Metric: Knowledge-building for entrepreneurs from authorities and educational institutions **Assessment:** Norway climbs from the bottom to the top on this parameter. The improvement is attributable to a higher score for public entrepreneurship programmes and entrepreneurship programmes in higher education.	3	18

BUREAUCRACY AND TAXES	2021	2019
Metric: Business taxation, days and procedures required to start a business **Assessment:** Norway ranks relatively high, and climbs one spot in 2021. We score slightly above average on taxation, and we are among the best in terms of how many days it takes to establish a business, and the number of procedures required for start-ups.	7	8

MOTIVATION	2021	2019
Metric: Perceived abilities and intentions of starting a business and fear or failure **Assessment:** Norway climbs two places, as more Norwegian entrepreneurs have a better perception of their ability to start a business. We still score low on the number of people with intentions of starting a business. Meanwhile, few people in Norway have a fear of failure.	16	18

FINANCING	2021	2019
Metric: Availability of financing for entrepreneurs, access to credit **Assessment:** Considerable climb in this area. This is largely attributable to financing for entrepreneurs in Norway being perceived as better and more available, both in absolute terms and relatively(compared to other countries).	10	21

No. of countries surveyed: 22

ENTREPRENEURSHIP ACTIVITIES	START-UP OPPORTUNITIES	EDUCATION AND TRAINING	BUREAUCRACY AND TAXES	MOTIVATION	WORKFORCE PARTICIPATION
Early-stage entrepreneurship	How fierce is local competition?	Public entrepreneurship programmes	Total tax rate – businesses	Perceived ability to start a business	Financing for entrepreneurs
Entrepreneurial employee activities	Perceived opportunities to start a business	Quality of business schools	Number of days required to start a business	Intention of starting a business	Credit access
New businesses ownership rates		Entrepreneurship education – through secondary	Number of procedures required to start a business	Fear of failure	
		Entrepreneurship education – higher education			

INNOVATION AND R&D

	NORWAY'S RANKING	
SCOPE OF R&D	**2021**	**2019**
Metric: Research funding as share of GDP, researcher density **Assessment:** Norway drops one place this year, but remains in the top tier. We are in first place on research in the public sector, and we also score high on research in higher education and researcher density. As for research in the private sector, we score around average.	**5**	**4**
CLUSTERS AND KNOWLEDGE COLLABORATION	**2021**	**2019**
Metric: Cluster status and scope of knowledge collaboration **Assessment:** Norway drops to 15th place in 2021, after ranking in 13th place in 2019 and 8th place in 2018. This negative trend is attributable to increasingly low scores on cluster status, business to business collaboration and university-industry collaboration.	**15**	**13**
INNOVATION ACTIVITIES	**2021**	**2019**
Metric: Number of innovative businesses **Assessment:** Norway is among the best in the world on innovation activities. This is attributable to improvements in all of the variables in the sub-dimension: product/process innovation, organizational innovation, and marketing innovation.	**3**	**10**
INTERNATIONAL R&D	**2021**	**2019**
Metric: R&D collaborations across national borders **Assessment:** Norway's ranking drops in 2021. This is largely due to a lower score on businesses with international collaborations. Meanwhile, this is Norway's best-scoring variable, as our performance is otherwise below average.	**15**	**13**
R&D QUALITY (TOTAL)	**2021**	**2019**
Metric: Quality of research and innovation **Assessment:** We drop one place, but remain near the top. Norway scores very high on scientific publication, but less so on the number of patents. The latter reflects a long-term trend since 2018.	**6**	**5**
R&D QUALITY IN ACADEMIA	**2021**	**2019**
Metric: University rankings **Assessment:** This sub-dimension is based on the Shanghai Index, which ranks universities worldwide. Generally, this ranking remains relatively stable, which is also the case for Norway in 2021, scoring around average.	**12**	**12**

No. of countries surveyed: 23–24

STRUCTURE & CONTENTS

SCOPE OF R&D	CLUSTERS AND KNOWLEDGE COLLABORATION	INNOVATION ACTIVITIES	INTERNATIONAL R&D	R&D QUALITY	R&D QUALITY IN ACADEMIA
Public R&D, share of GDP	Academic/business collaboration	Product/process innovation	International joint patents	Scientific publication	Shanghai Index
R&D in businesses, share of GDP	Cluster status	Organizational innovation	Businesses with international collaborations	Patents	
R&D in higher education, share of BNP		Marketing innovation	Businesses operating in international markets		
Share of researchers in workforce					

TECHNOLOGY AND DIGITALIZATION

NORWAY'S RANKING

TAD IN BUSINESSES	2021	2019
Metric: Utilization of technology and digitalization in businesses **Assessment:** Norway drops one place in 2021, but remains near the top. The drop is attributable to a decrease in the adaptation of technology at business level. We score high on the use of cloud services, but only around average on businesses with ICT specialists.	8	7

ICT SECTOR	2021	2019
Metric: Scope of ICT sector **Assessment:** Norway scores near the bottom here. This is because ICT is a relatively small part of national value creation, compared with other countries. In addition, we score low on export of ICT services to other countries.	24	24

CONNECTIVITY	2021	2019
Metric: Internet access and internet speeds **Assessment:** Norway was near the top here in 2019, but dropped a few places in 2021. Our ranking remains good, however. The drop can primarily be attributed to internet speeds in Norway not increasing as fast as in other countries.	6	2

TAD IN THE POPULATION	2021	2019
Metric: Utilization of technology and digitalization among the general population **Assessment:** Norway was ranked in first place in 2019, but dropped to 7th place in 2021. This is attributable to reduced use of the internet and social media among young people. Norway still scores high on internet use among older people and on the use of e-commerce services.	7	1

TAD EXPERTISE	2021	2019
Metric: Availability of researchers and engineers, ICT specialists **Assessment:** We drop one place in 2021, but still score above average. The drop can be attributed to other countries overtaking us on the share of ICT specialists in the workforce. We score consistently high on the availability of researchers and engineers.	10	9

DIGITALIZATION OF PUBLIC SERVICES	2021	2019
Metric: Participation in and development of online public services **Assessment:** Another drop, and we score around average. The drop can be attributed to a weaker position, relatively speaking, on *e-Participation* (participation of population in public services). In a long-term perspective, Norway shows a positive trend, as we scored lower in 2016.	14	12

No. of countries surveyed: 25–29

STRUCTURE & CONTENTS					
TAD IN BUSINESSES	ICT SECTOR	CONNECTIVITY	TAD IN THE POPULATION	TAD EXPERTISE	DIGITALIZATION OF PUBLIC SERVICES
Utilization of cloud services	ICT, share of GDP	Share of households with internet access	Share of population using internet – age 16–24	Availability of researchers and engineers	e-Participation
Businesses with ICT specialists	Export of ICT services, share of total exports	Internet speeds – average download speed	Share of population using internet – age 55–74	ICT specialists	e-Government development
Adaptation of technology at business level			Share of population with moderate proficiency in digital skills		
			Use of virtual social networks		
			e-Commerce		