

REPORT

GCE BLUE MARITIME GLOBAL PERFORMANCE BENCHMARK 2020



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The Blue Maritime cluster in Møre is a leading ocean-based cluster

GCE Blue Maritime is one of three Global Centers of Expertise in Norway – the highest level in the hierarchy of Norwegian Innovation Clusters. To become a GCE, a cluster must prove that it has established a systematic collaboration between the participating companies, a partnership characterised by dynamic relations with innovative power. The GCE-clusters must also have a strong potential for growth in national and international markets and together form a robust innovation system.

The Blue Maritime cluster was originally a tight vertically structured cluster, with world-leading designers, equipment suppliers, yards, shipping companies and other specialised service providers. The companies in the cluster are world-leading in all the parts of the value system. Companies such as Skipsteknisk, Ulstein Design, Havyard Design and Marine Teknikk design the world's most advanced offshore vessels that perform different operations in some of the most challenging environments at sea. The shipping companies, including Bourbon, Island, Havila and Olympic, operate the ships serving the offshore fields across the globe and control a fleet that is young, advanced and equipped with world-leading equipment. The vast majority of the vessels are produced by local shipyards such as Kleven, Vard and Ulstein. The yards in turn use equipment – motors, propulsion, winches, dynamic positioning etc. – produced locally by Kongsberg Maritime CM¹, IP Huse and Brunvoll, all located in the cluster. However, from 2015 onwards there have not been many new orders for offshore service vessels. Reduced orders from offshore shipping companies mean that market relations and innovation impulses from the shipping companies to the rest of the cluster were cut off, thus weakening the internal linkages in the cluster. The cluster has reinvented itself, with new value chains and linkages. The new transition towards exploration cruises has not yet been profitable and the coronavirus likely puts a severe damper on demand for years to come. As a result, the cluster might be forced to reinvent itself once again in a period where the former reinvention was supposed to reap rewards.

In the remainder of this report, we will divide the cluster into four separate segments: Shipping companies, yards, equipment suppliers and other specialised services. Since the designers play a crucial role in the product innovation in the cluster, we will also present some separate numbers for this group. Still, designers will mainly be included in the group with companies offering specialised services. A selection of the leading companies within the four areas is shown in the figure to the right to illustrate the width of activities in the cluster.

Figure 1 – The four segments in the cluster with company illustrations.



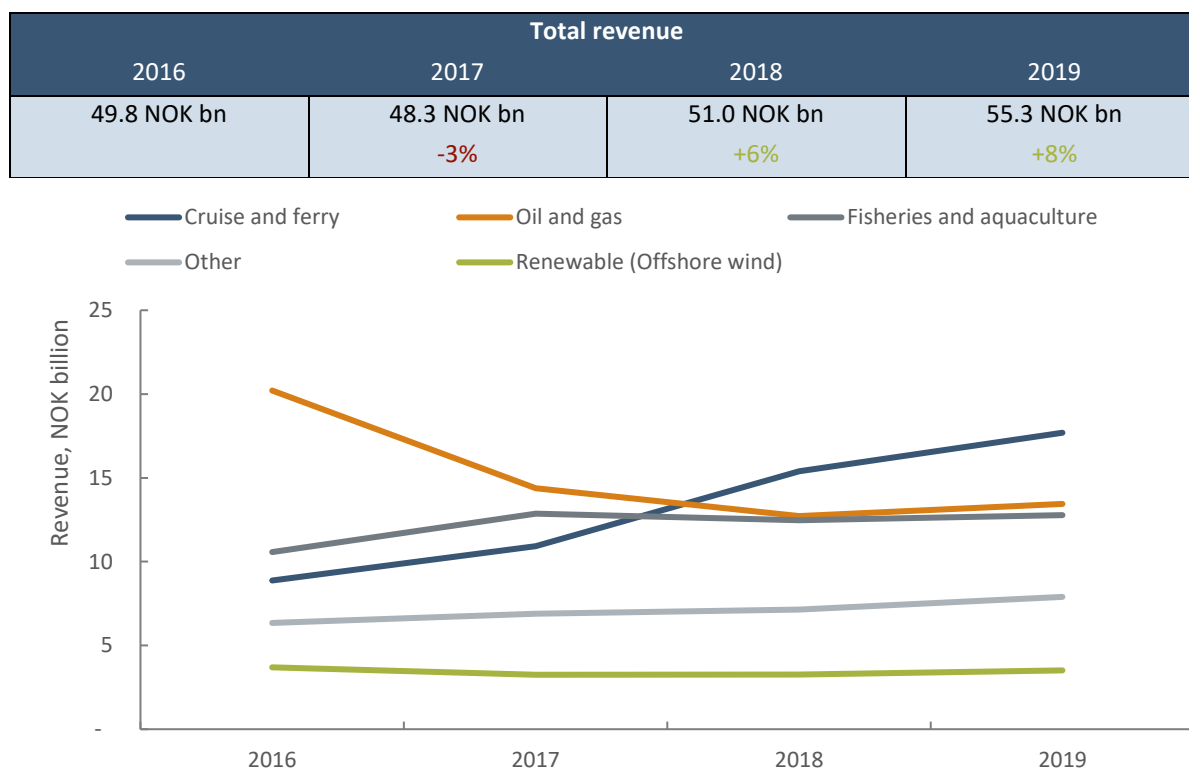
¹ Former Rolls Royce

Key developments

The cruise segment has driven activity up over the past years – but has not been profitable for the yards

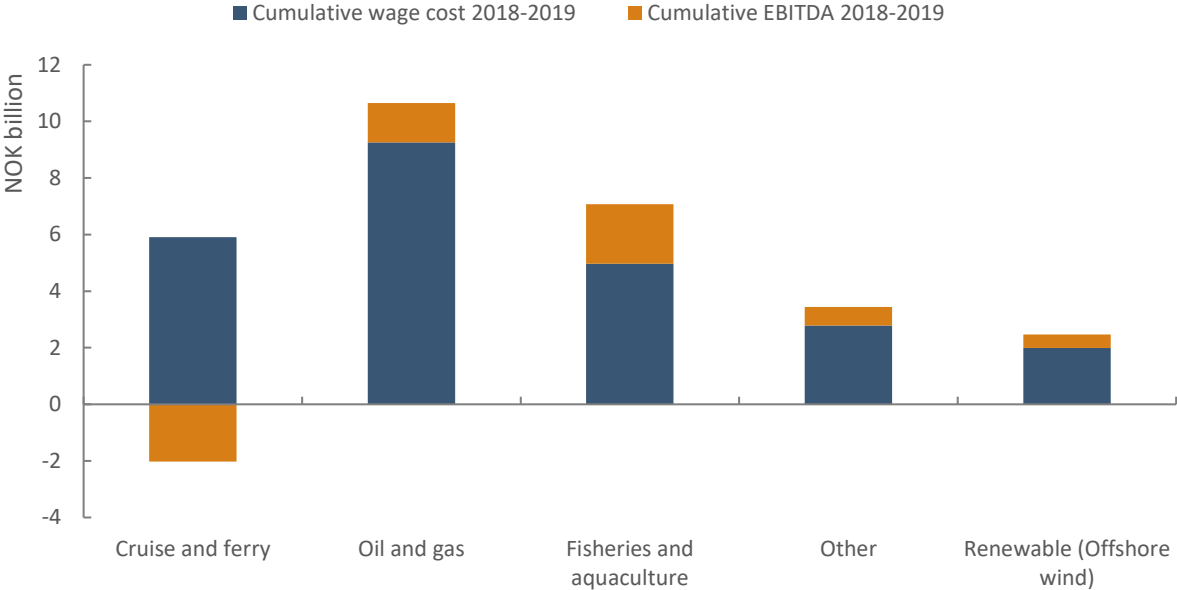
The Møre cluster experienced increasing revenues in both 2018 and 2019. The increasing revenues are mainly driven by a surge in the cruise segment. Both Norwegian and international cruise companies have chosen the Møre cluster's expertise for equipment, services and assembling of their new cruise vessels. Income from offshore oil and gas market segments declined from 2016 to 2018 before growing slightly in 2019. Fisheries and aquaculture have been a stable and solid market over the past years, with income from these segments growing by 20 percent from 2016 to 2019. In total, revenue grew by 6 per cent in 2018 and another 8 per cent in 2019. Combined revenue for the cluster amounted to 55,3 billion NOK in 2019, which is above 2011 levels. Still, the combined revenues in 2019 are almost 12 billion NOK lower than the peak levels from 2014.

Figure 2 – Market segmented revenue in the Blue Maritime Cluster. 2016-2019. Source: Menon Economics (2020)



The cruise segment has been the most critical factor for increased revenues in the Møre cluster but has not been a high value added segment so far. Cumulative value added for 2018 and 2019 reveals that oil and gas still is the most critical segment in terms of value creation, accounting for almost 40 per cent of value added. The cumulative value added for oil and gas is more than 10 billion NOK for 2018 and 2019, followed by fisheries and aquaculture with 7 billion NOK and cruise with 2,7 billion NOK. Large negative profit margins at the big yards outfitting cruise vessels drive the low value added-to-revenue relationship in the cruise segment.

Figure 3 – Cumulative value added in 2018 and 2019 separated into wage cost and EBITDA by customer market segment.
 Source: Menon Economics (2020)

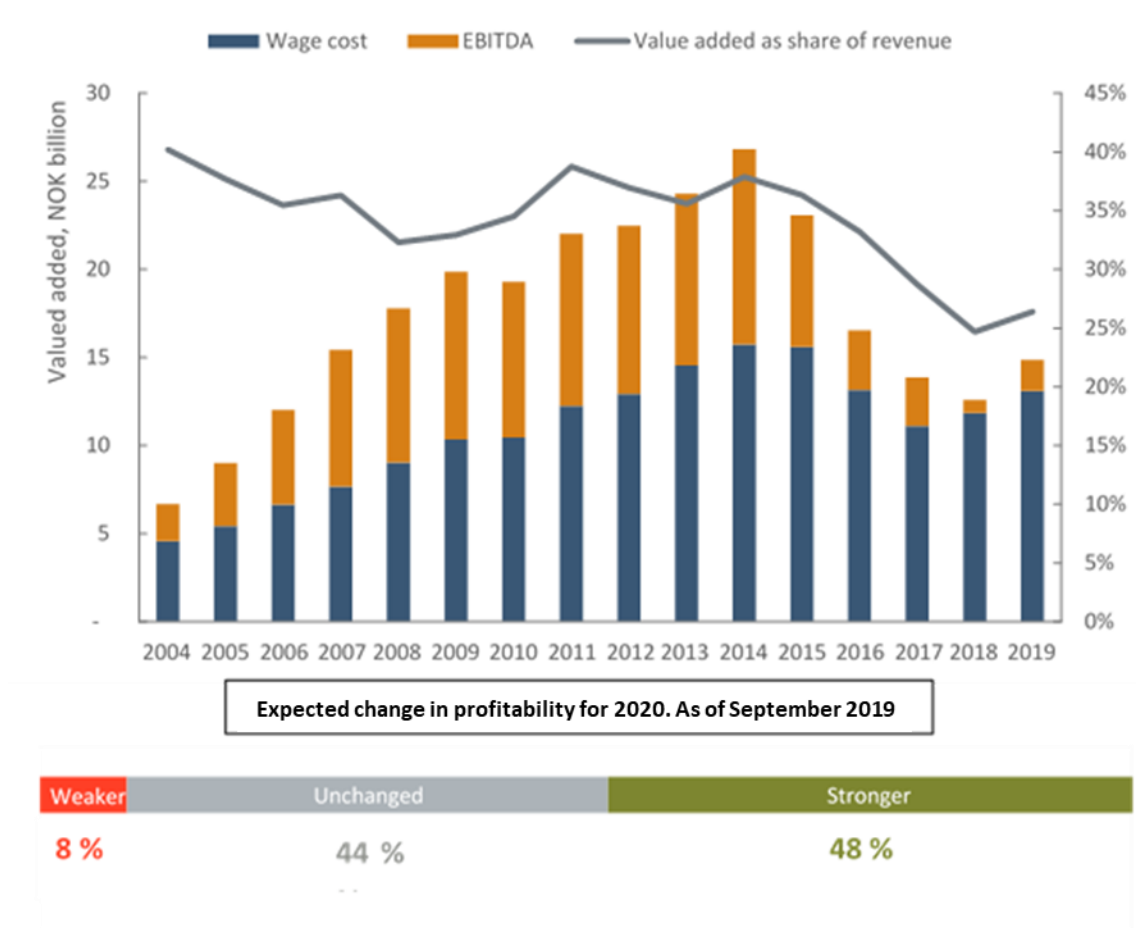


Value added grew for the first time since 2014

The persistent oversupply of offshore vessels has affected and still does, both activity and profit margins among most companies in the cluster. Expedition cruise vessels, ferries, fishing vessels and wellboats have, to a large extent, replaced earlier revenue from offshore markets among the land-based companies in the cluster. However, with the historically profitable deliveries towards offshore segments primarily replaced by less profitable deliveries towards cruises, profitability and value added in the land-based segment have taken a tumble since 2014. Reduced offshore investments in combination with the oversupply of vessels have affected both activity and day rates negatively, substantially decreasing value added among the shipping companies.

2019 showed a long-awaited increase in value creation for the cluster, driven primarily by growth in the land-based segments. Value-added from the offshore and wellboat shipping companies increased slightly as well. From the survey results in last year's cluster analysis, the companies expected both increased revenue and improved operating margins in 2020, suggesting further growth in value creation and a bettered ratio between value added and revenue.

Figure 4 – Value added split by wage cost and EBITDA. Bottom: Expected change in profitability for 2020, as of September 2019. Source: Menon Economics (2020)

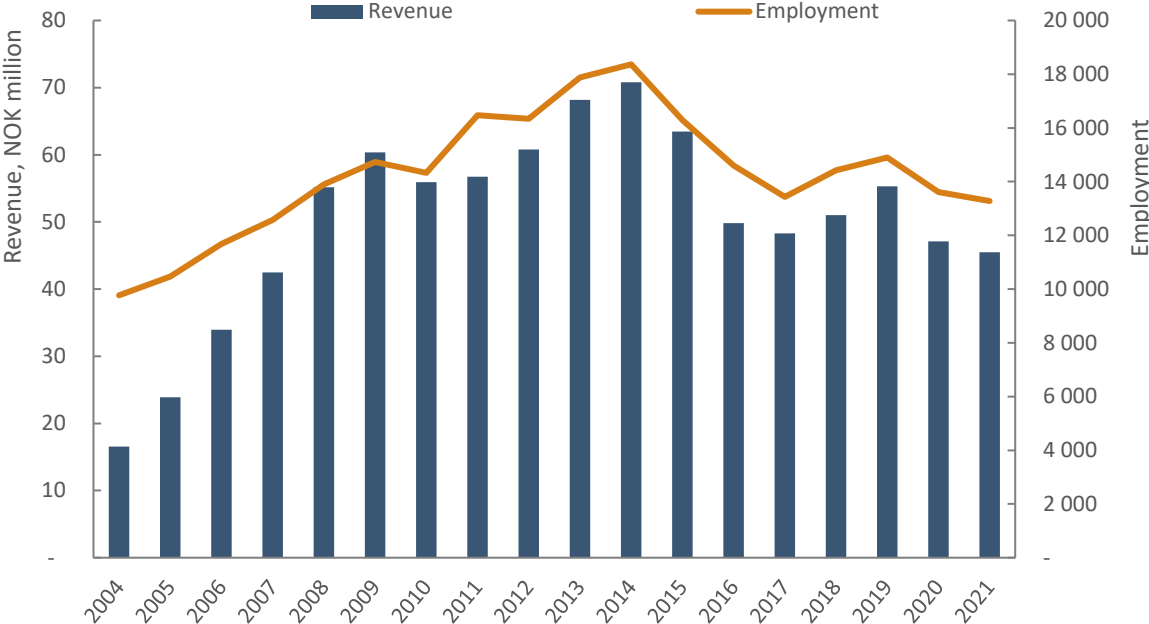


The coronavirus worsens the outlook significantly

Profitability and activity appeared to be on the rise one year ago, with non-offshore market segments driving the surge. The coronavirus has altered those expectations drastically.

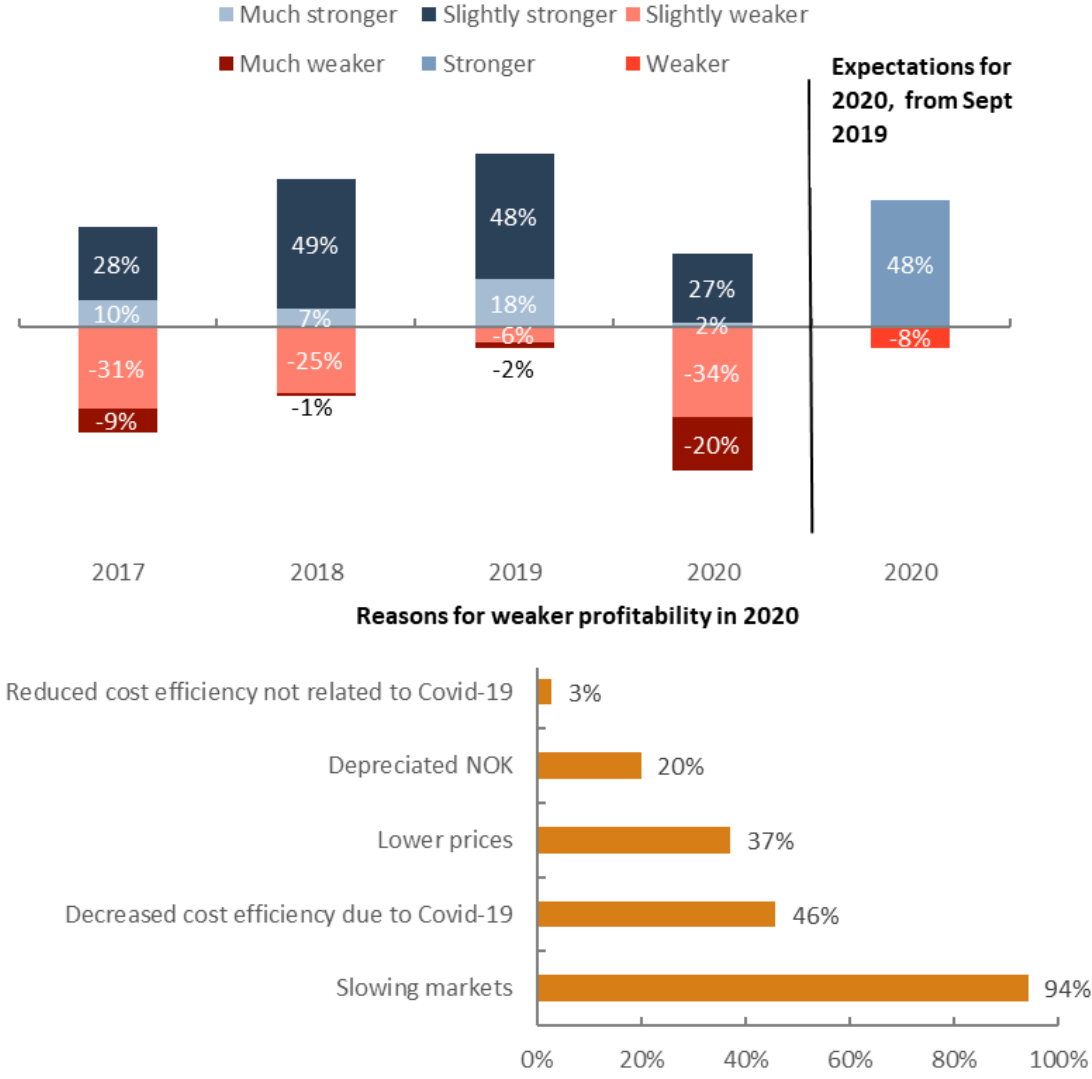
After two consecutive years of revenue growth, the cluster now expects a fall in both revenue, profitability and employment. The cluster expects a combined reduction in revenues that adds up to more than 8 billion NOK in 2020. The fall will continue in 2021 when total revenue is expected to be down close to 20 per cent compared to 2019. The cluster companies expect to have about 1 500 fewer employees by the end of 2021, compared to the start of 2020.

Figure 5 – Revenue and employment in the Blue Maritime Cluster. Source: Menon Economics (2020)



Expected profitability in 2020 has decreased substantially since last year's cluster analysis. Now, only 29 per cent of the surveyed companies expect stronger operating profits compared to the previous year's survey, when 50 per cent of the companies expected better profitability in 2020. Slowing markets are affecting profitability for more companies than temporary higher costs due to COVID-19. 94 per cent of companies expecting reduced profitability sights slowing markets as an explanatory factor. Reduced cost-efficiency due to COVID-19 is cited less than half as often as a reason behind reduced profitability.

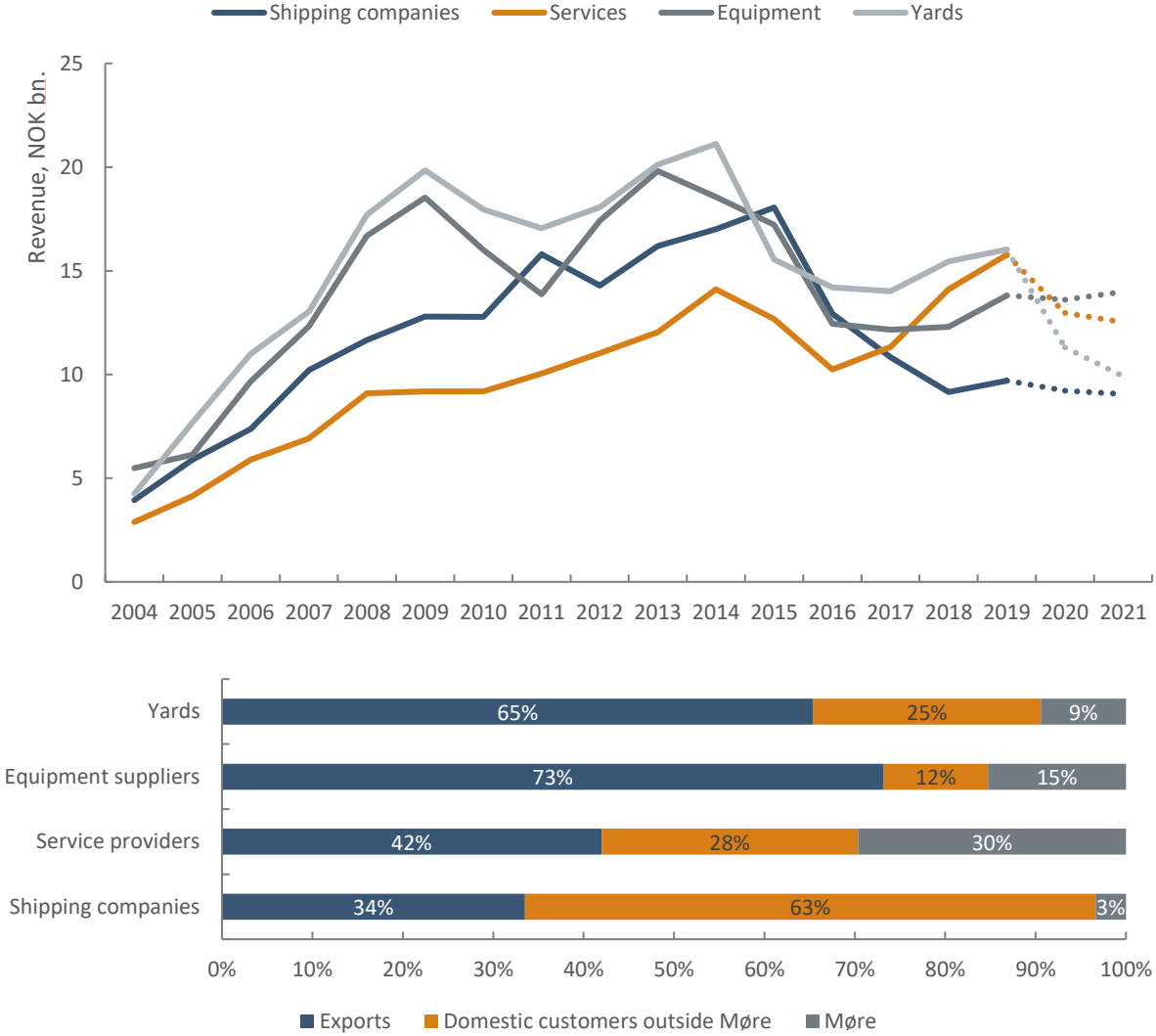
Figure 6 – Top: Expected change in profitability compared to the previous year. Bottom: Prevalence of reasons cited for weaker profitability in 2020 by the cluster companies. Source: Menon Economics (2020)



On a more positive note, about 30 per cent of the cluster companies still expect increased profitability in 2020. Those expecting increased profitability in 2020 compared to 2019, claim that they have managed to become more cost-effective, have experienced market growth and higher selling prices for their products or services.

The yards look to be hit the hardest by this year's turn of events. They expect revenues to be halved by 2021, compared to 2019. Differing reliability on the local yards for income results in a substantially different outlook for the service providers and equipment suppliers. The equipment suppliers get close to three-quarters of income from exports. They are more diversified across demand impulses than a large portion of service providers which get a higher percentage of income from the local yards. The equipment suppliers still anticipate their revenues to surpass 2019 levels in 2021 while the service providers expect a 20 per cent drop in the same period. The offshore shipping companies expect declining revenue in both 2020 and 2021, while the wellboat operators expect continued growth.

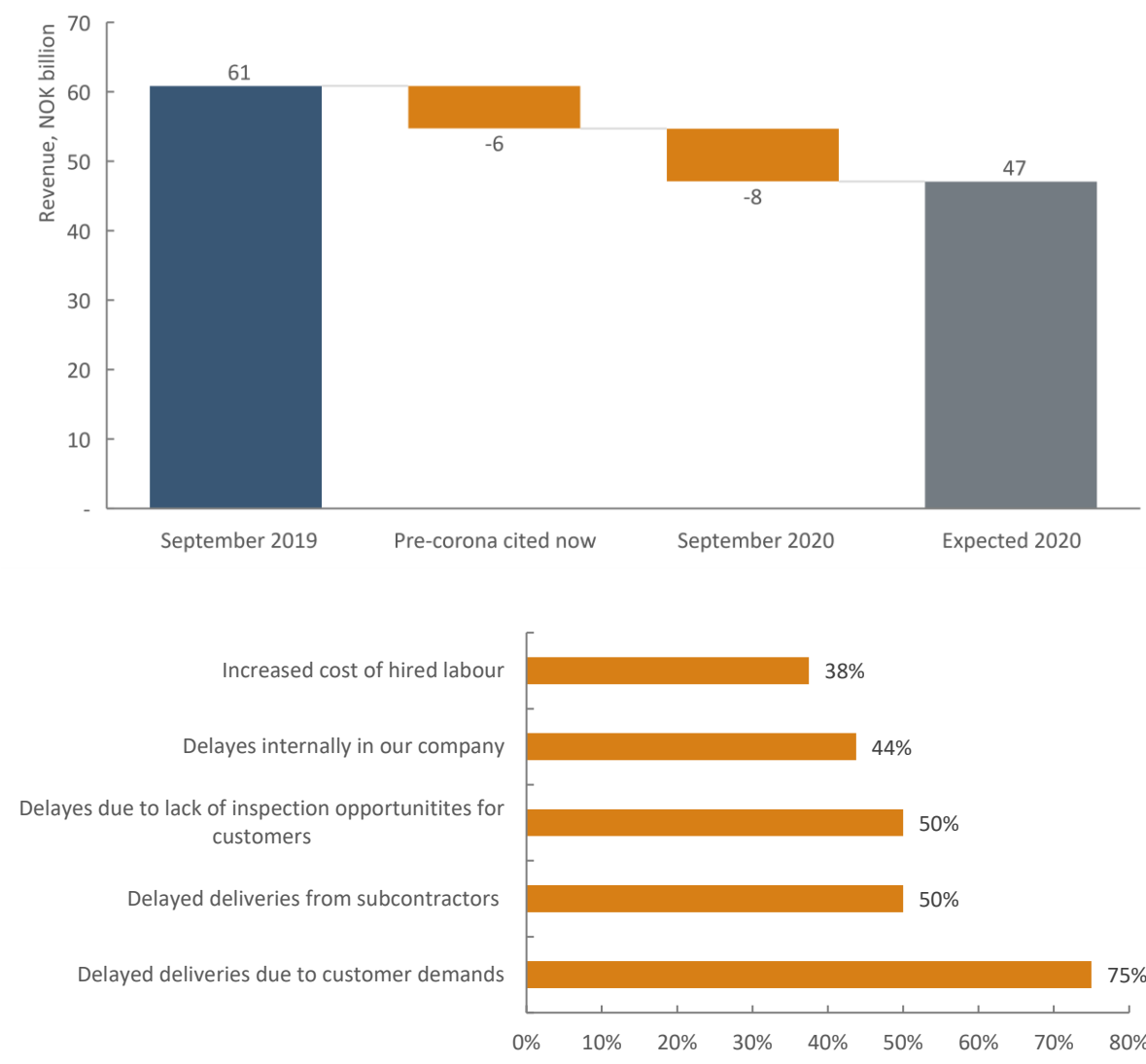
Figure 7 – Top: Revenue by the four major types of maritime companies in the cluster. Bottom: Income geographical market segmentation for the four major types of maritime companies. Source: Menon Economics (2020)



Identifying the corona effect

In this year's survey, we have asked the cluster companies how they expected their revenues to develop in 2020 just before the coronavirus outbreak. From last year's survey responses, the cluster expected combined revenue to increase by 10 per cent from 2019 to 2020. The pre-corona expectations now sighted suggest a flattening of revenue was expected as of February/March 2020. We see two possible explanations for the discrepancy in expectations between September 2019 and February/March 2020: One is that the cluster companies' expectations for 2020 changed in the period between September 2019 and March 2020. On the other hand, it might be hard to give an accurate estimate for contra factual development in revenues for 2020 after the outbreak of Covid-19. Compared to expectations as of September 2020, the current outlook for revenue in 2020 is 23 per cent lower. Against the counterfactual expectations now stated for a corona free 2020, the actual outcome will be about 15 per cent lower.

Figure 8 – Top: Expected revenue in 2020 as of September 2019, pre-COVID-19 and September 2020. Bottom: Prevalence of reasons cited companies experiencing decreased cost-efficiency due to COVID-19. More than one alternative possible. Source: Menon Economics (2020)



Looking closer at the reasons why companies experience decreased profitability due to COVID-19, one of the most important reasons is delayed deliveries due to customer demands. The global pandemic makes it harder for customers to inspect their purchase and makes finishing projects less urgent. Around 50 per cent of the companies answer that delayed deliveries from subcontractors are causing reduced profitability. Also, 44 per cent answer that there are internal troubles causing delays, and 38 per cent has experienced increased cost of hired labour due to costly COVID-19 measures.

Competitive analysis

In this chapter, we benchmark the cluster's performance to both national and international actors. The Blue Maritime Cluster developed slightly better than the benchmark of Norwegian maritime companies in 2019, but the gap in productivity between the cluster and the benchmark was still significant in 2019.

At a segment level, the shipping companies are still struggling within the offshore segment, as debt is high and fleet utilisation low. The large equipment suppliers continued to struggle with low profitability, but margins are improving. Services, on the other hand, represents the most stable and profitable segment in the cluster. The large yards in Møre og Romsdal still struggle with low profitability.

National benchmark analysis

It is hard to get the complete picture of the development in the Møre cluster based solely on an analysis of financial data for the cluster companies. We, therefore, compare the performance of the Møre cluster companies to a Norwegian benchmark, consisting of companies from the same market segment.² This method offers an opportunity to determine whether development in the cluster is explained by market conditions, or by factors within the cluster itself.

Møre developed worse than the benchmark in 2019

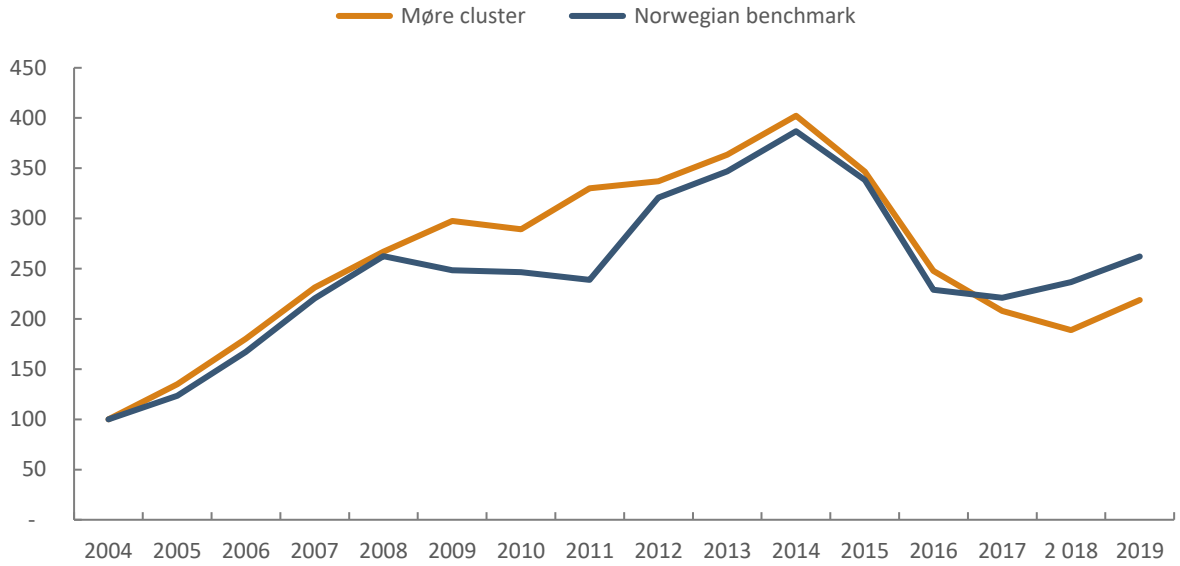
In the figure below, we compare the value added in the Møre cluster to the Norwegian benchmark. The two graphs are highly correlated, except a gap for the five years before 2013, which indicate that the development of the Møre cluster is to a large extent driven by market characteristics.

Both the cluster in Møre and the baseline of similar companies in Norway performed exceptionally well in the period from 2004-2008. Value added almost tripled in this period. In the following three years, however, the Møre cluster continued the same trajectory with an annual growth rate of 8 per cent and outperformed the Norwegian benchmark. Since 2011, the Norwegian benchmark has caught up and has been growing at a similar pace. The performance of offshore shipping companies and other oil and gas-related companies explains the increase in value added in this period. By 2014, the national benchmark caught up with the Møre cluster and they developed at a similar pace until 2017. Since, the national benchmark outperforms the Møre cluster.³

² The benchmark consists of maritime companies with similar market focus and activity as the companies in the Møre cluster. The development in the benchmark is weighted so that the composition of different activities in the Norwegian benchmark is the same as in the Møre cluster.

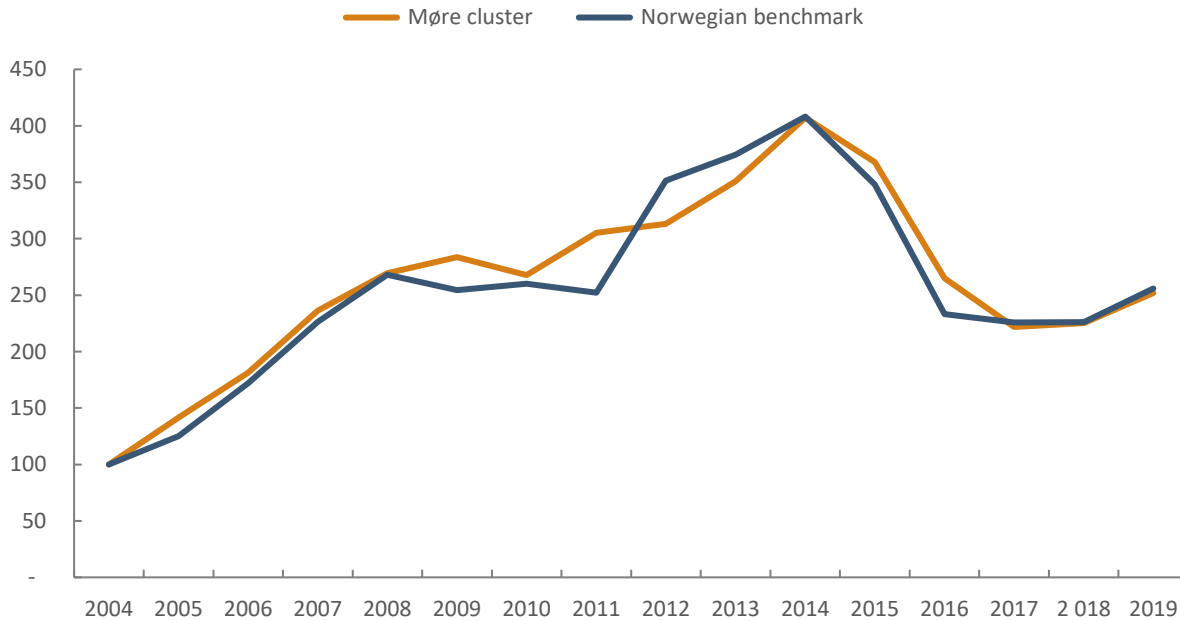
³ In last years' report we wrote that the Møre Cluster caught up with the national benchmark in 2018. This result hinged upon adjustments made to the Vard financials. This year we use unadjusted numbers, which makes up the difference.

Figure 9 – Indexed development of value added for the cluster and the Norwegian benchmark, Source: Menon Economics (2020)



The story changes somewhat if we account for the fact that all the large Norwegian shipyards are located inside the Møre cluster. As a consequence, one could argue there is no suitable comparison elsewhere in Norway for these companies. By removing the four largest yards from the Møre cluster, the story remains in most part the same. Still, for the most recent years, we see that the gap between the Møre cluster and the national benchmark is closed completely.

Figure 10 – Indexed development of value added for the cluster and the Norwegian benchmark excluded "big four" shipyards. Source: Menon Economics (2020)

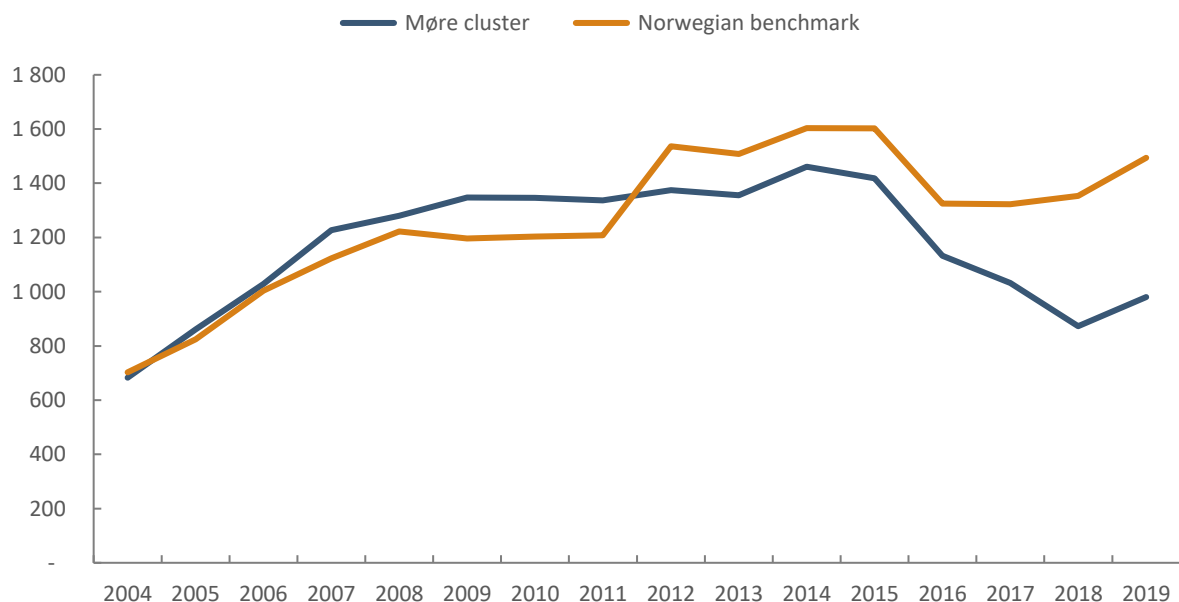


The productivity gap remains

In 2017, the gap in productivity increased in disfavour of the Møre cluster companies. This development was driven by growth for the offshore shipping segment in the benchmark. This trend continued in 2018, and in 2019 the difference between the Møre cluster and the national benchmark is still large compared to the years prior to 2017. The gap indicates that the Møre cluster's competitiveness is still facing challenges in times to come.

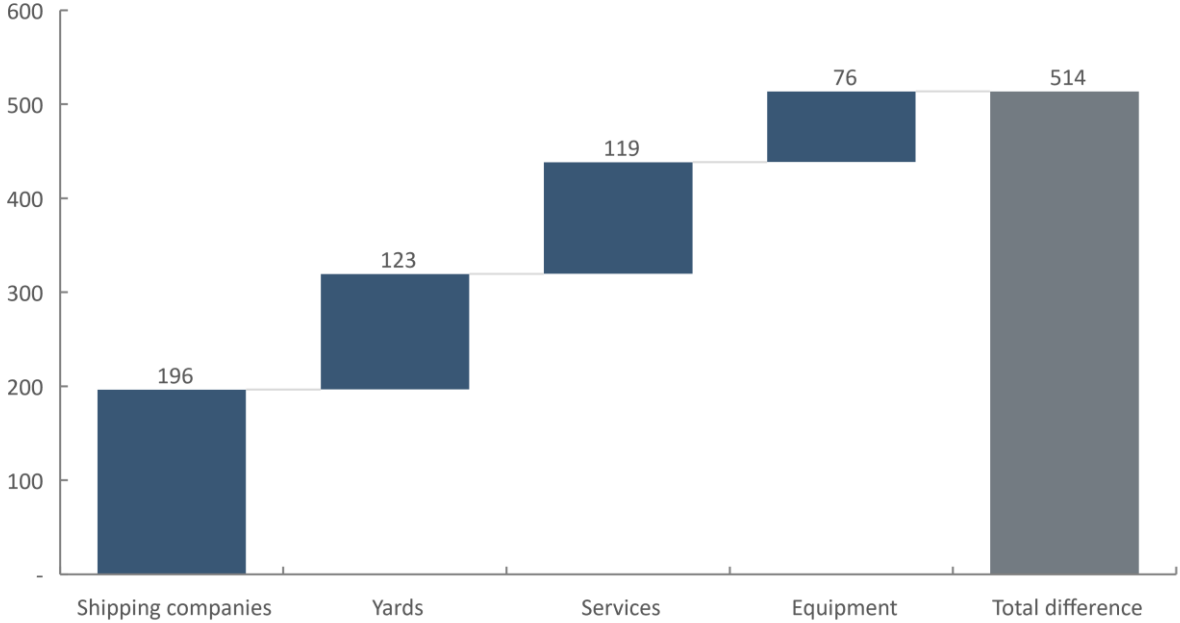
There are several potential explanations for this decline. The first is that the traditionally tightly integrated value chain, once the key feature of the Blue Maritime cluster, is becoming "looser" and the cluster linkages are weakened. As many of the shipping companies have not ordered ships for years, the yards have been forced to find new customers and new relationships. More generally, customers and suppliers outside the region have become more important. These characteristics can affect productivity as they influence both products and services demanded, business models and relationships.

Figure 11 – Value added per employee. Source: Menon Economics (2020)



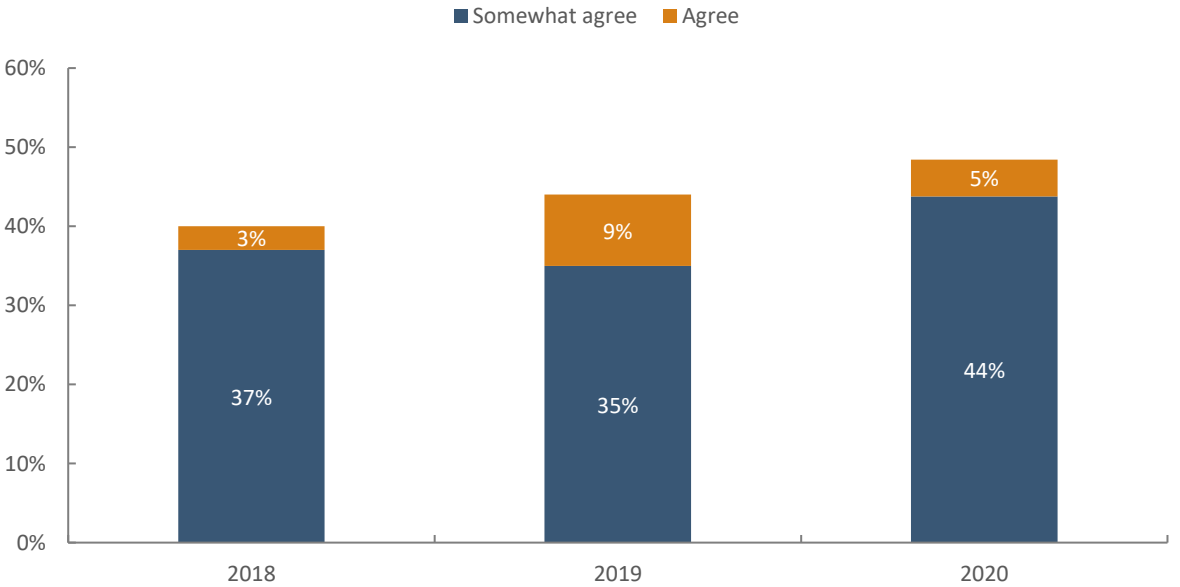
The graph illustrates the value added per employee in the two groups. It shows that value added per employee increased by more in Møre compared to the benchmark between 2008 and 2011. In 2012, the benchmark caught up and passed Møre. Again, this was driven in part by the introduction of productive offshore companies like DOF Subsea. Productivity in the cluster remained stable from 2009 and increased slightly before falling rapidly in 2014. Productivity in both groups fell between 2014 and 2016. In 2017, value added per employee in the cluster was back at the 2006-level. Value added per employee for the cluster was somewhat below that level in 2019. The shipping companies mostly drive the gap between the cluster and the national benchmark. They account for almost 40 per cent of the difference, followed by the yards and service companies at just below 25 per cent each.

Figure 12 – The difference in productivity (measured in value added per employee) between the blue maritime cluster and the national benchmark – decomposed into four maritime groups. Source: Menon Economics (2020)



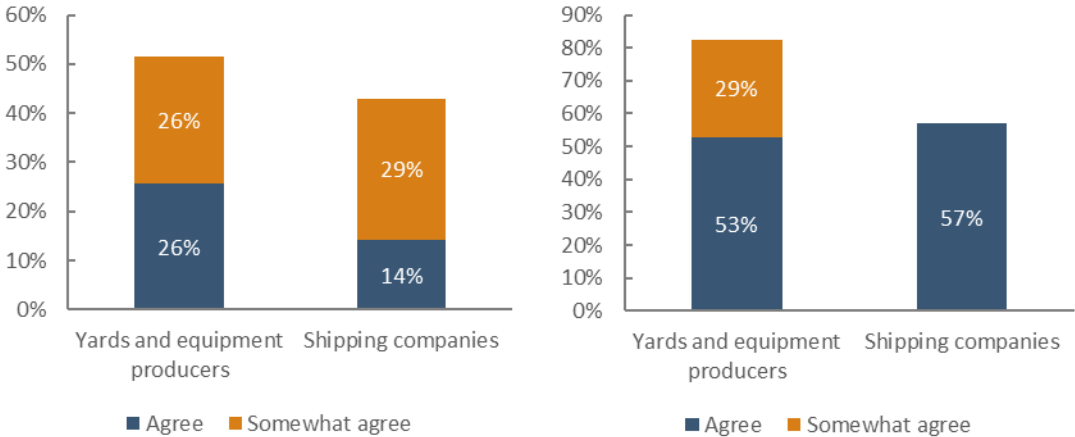
The productivity gap might have multiple explanations. When asked about whether parts of the company's expertise have been outdated because of the restructuring they are undergoing, almost 50 per cent agree or somewhat agree with the statement. If the cluster is going to be successful in the future, the the people employed there must have the "right" competence to succeed in transitioning into new market segments and be profitable. Over the last three years, survey results indicate that a larger percentage of the companies' expertise is becoming outdated or they are becoming more aware of the problem.

Figure 13 – Parts of the company's expertise have been outdated because of the restructuring we are undergoing. Source: Menon Economics (2020)



Other explanations for the relatively worse development in productivity might come from changes in the cluster integration. Our survey indicates that over 50 per cent of the yards and equipment producers to some extent agree to the statement that procurement outside Møre has become more important than earlier. Also, the shipping companies agree to this statement, but to a lesser extent. In 2018 the orderbooks of the equipment suppliers shifted towards the same market segments as the yards. A shift towards the cruise and yacht segment meant that what looked like a cluster disintegration, could be temporary. After the global pandemic in 2020, it will be interesting to see if a weakened cruise and yacht market might again lead to disintegration.

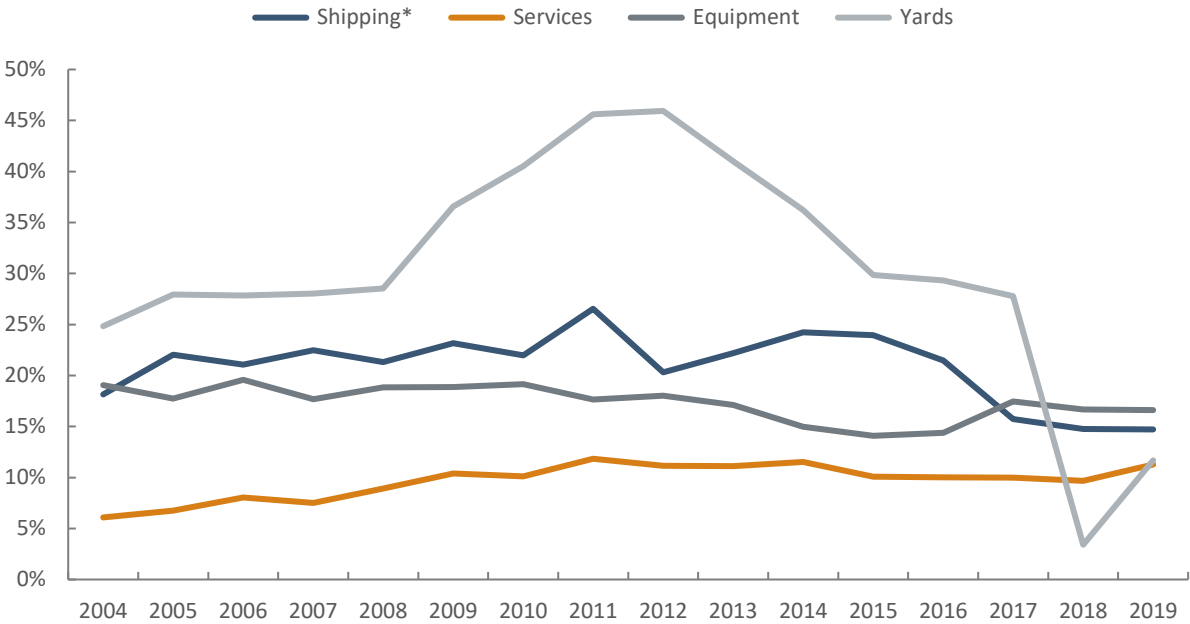
Figure 14 – Left: Procurement companies outside Møre have become more important. Right: Customers outside Møre have become more important. Source: Menon Economics (2020)



The Møre cluster's share of value added

A more intuitive way of looking at the cluster's development compared to the domestic industry is to examine the cluster's share of domestic value added. The Møre percentage of domestic value added can illustrate the cluster's "domestic market share". Overall, the development has significantly differed between the segments over time.

Figure 15 – Møre's share of the value creation in the maritime industry. Source: Menon Economics (2020)

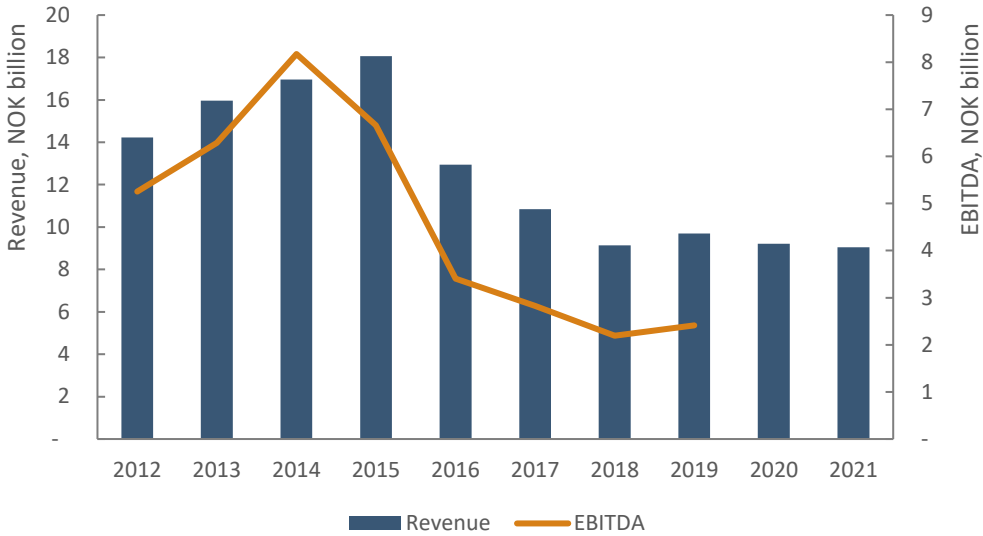


There is substantial variation in the relative performance at the segment level, as seen in the figure. The shipping segment has experienced a steep decline in market share, driven by the Farstad/Rem-exit, decreasing by eight percentage points between 2014 and 2017. In 2019 their market share was at 15 per cent of the national market. On the other hand, the equipment suppliers in Møre have performed relatively well, delivering 17 per cent of the value added nationally, in 2019. For the equipment suppliers, it is also important to note that this increase is partly explained by the extraordinarily poor performance of some of the leading companies in the benchmark in the first three years following the oil crisis in 2014.

Yards is the segment where Møre used to have the largest national share of value added, at around one-third of the total value added for yards. This year Møre's percentage of value added in the segment is down to 12 per cent. The design and services segment is the most stable segment when it comes to Møre's share of the national value added and has been around 10 per cent over the last decade. In 2019 they had a 12 per cent share of the national value added.

Shipping companies

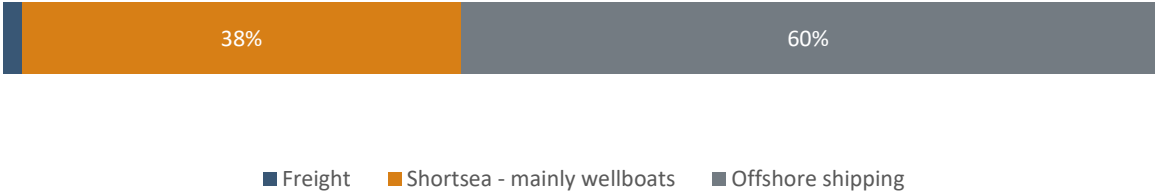
	Revenue	Value added	Employment
The shipping companies in 2019	9.7 NOK billion	6.8 NOK billion	3 600



Revenue increased by 6 per cent in 2019 for the shipping companies in the Møre cluster with 2019 representing the first year of growing revenues since 2015. In 2019 value added amounted to NOK 6.8 billion. Employment increased by 1 per cent from 2018, and the shipping segment employed 3 600 people in 2019. Going forward, the shipping companies expect aggregated revenues to decrease by approximately 7 per cent in 2021, compared to 2019 levels.

Within the shipping segment, there are two main categories of companies which constitutes the driving force. These are offshore shipping companies and wellboat companies. These segments have experienced significantly different development since 2014.

Figure 16 – Share of total shipping revenues in 2019 by type of shipping company. Source: Menon Economics (2020)

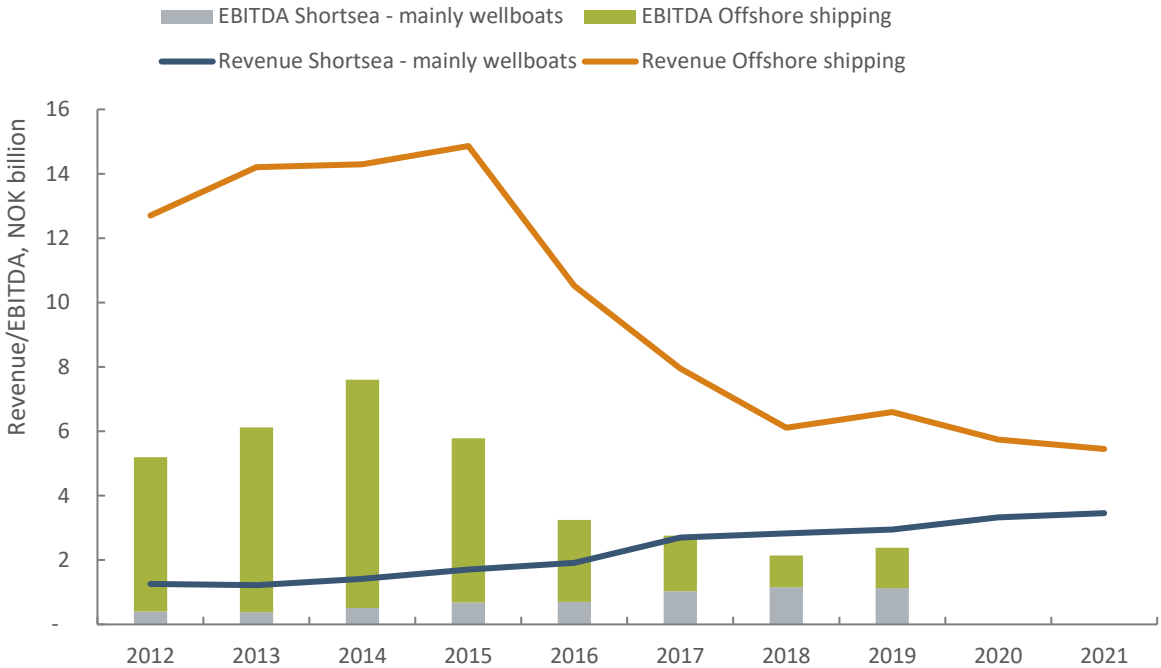


On aggregate, the shipping companies have experienced a fall in revenues from 2014 to 2019, by more than 40 per cent. This overall trend does not represent the development of the wellboat segment. From 2014 to 2019, the wellboat segment has increased its combined revenues by almost 110 per cent and expect continued growth in 2020 and 2021. The wellboat/service companies have thrived by offering services like transport of smolt and

fish to the aquaculture industry. Looking at the orderbooks, we see that aquaculture vessels are in high demand, making up the entire orderbook for medium-sized yards in the Møre cluster.

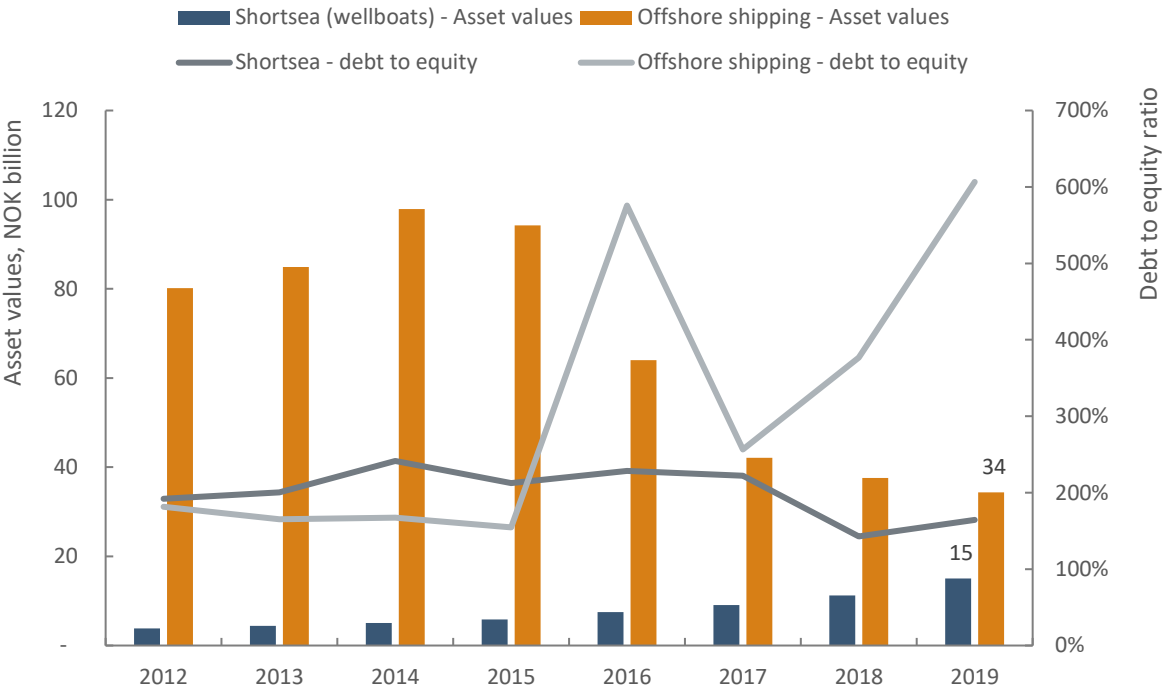
Still, the offshore shipping companies are larger than the wellboat segment, which explains why the shipping segment in aggregate has shown a downward trend since 2014. Overall, the offshore shipping companies have more than halved their revenues since 2014.

Figure 17 – Revenue and EBITDA split by segment. Source: Menon Economics (2020)



The offshore shipping companies have increased their debt-to-equity ratio markedly over recent years. In 2019, the debt-to-equity ratio from these companies amounted to 600 per cent. The poor development of debt-to-equity is driven by faster than expected reductions in asset values compared to expectations at the time of investments and continued price pressure in the offshore shipping markets. Total asset values among the offshore shipping companies in the cluster are at a third of 2014-levels while cumulative EBITDA for 2016-2019 is 10.8 NOK billion compared to 26.3 NOK billion for 2012-2015. The wellboat segment, however, is increasing asset values with a flurry of newbuilds since 2014.

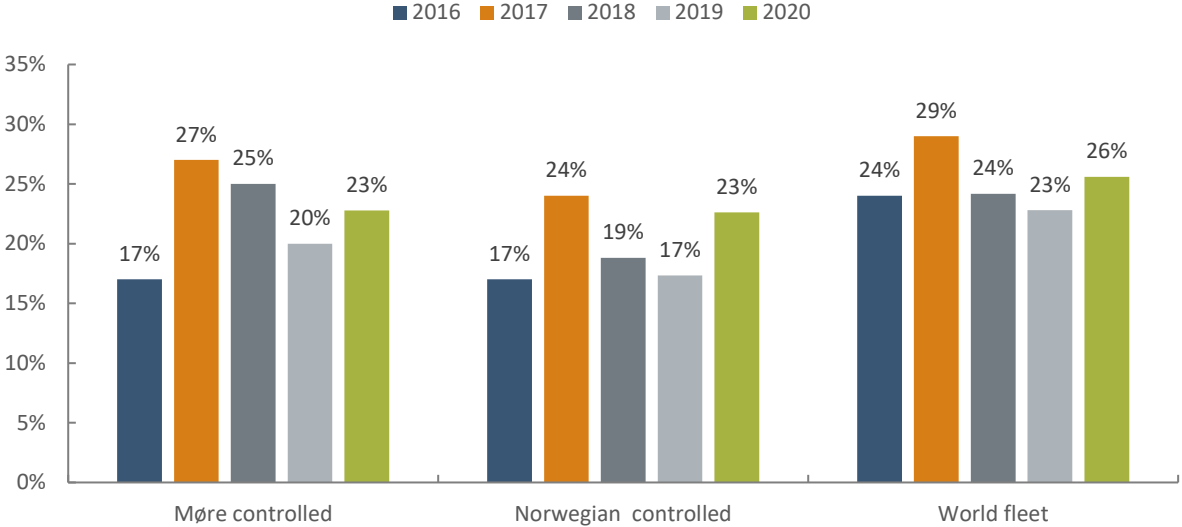
Figure 18 – Asset value and debt to equity split by segment. Source: Menon Economics (2020)



Offshore shipping companies

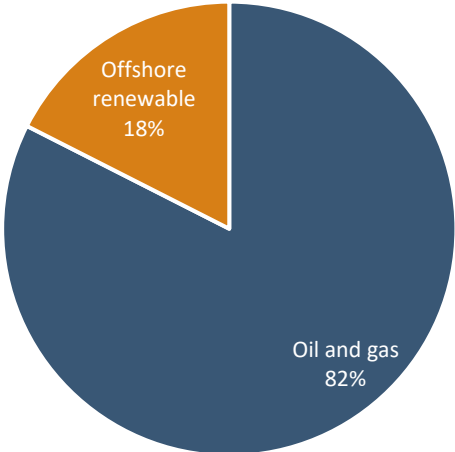
After the oil-price shock in 2014, the global offshore shipping industry was severely affected by the subsequent downturn in the oil and gas markets. As a result, reduced activity in combination with plenty newbuilds entering the market increased the share of laid up offshore vessels. Since last year’s positive development, the offshore market has gone through another downturn in activity. The downturn has led to an increase in the share of laid up vessels, both in Norway and globally. The offshore shipping companies in Møre now have the same percentage of ships laid up as other Norwegian companies, but still lower than the global share.

Figure 19 – Share of the respective groups' offshore fleet that is laid up. Source: Clarkson/Menon Economics (2020)



As of today, the offshore shipping companies are still highly reliant on the development in the offshore oil and gas markets. More than 80 per cent of their combined revenue comes from oil and gas. There has been considerable attention towards renewable energies in the offshore market such as offshore wind. Still, only 18 per cent of the offshore shipping companies combined revenues come from these sources of operation.

Figure 20 – Offshore shipping companies combined revenue split by market segment. Source: Menon Economics (2020)

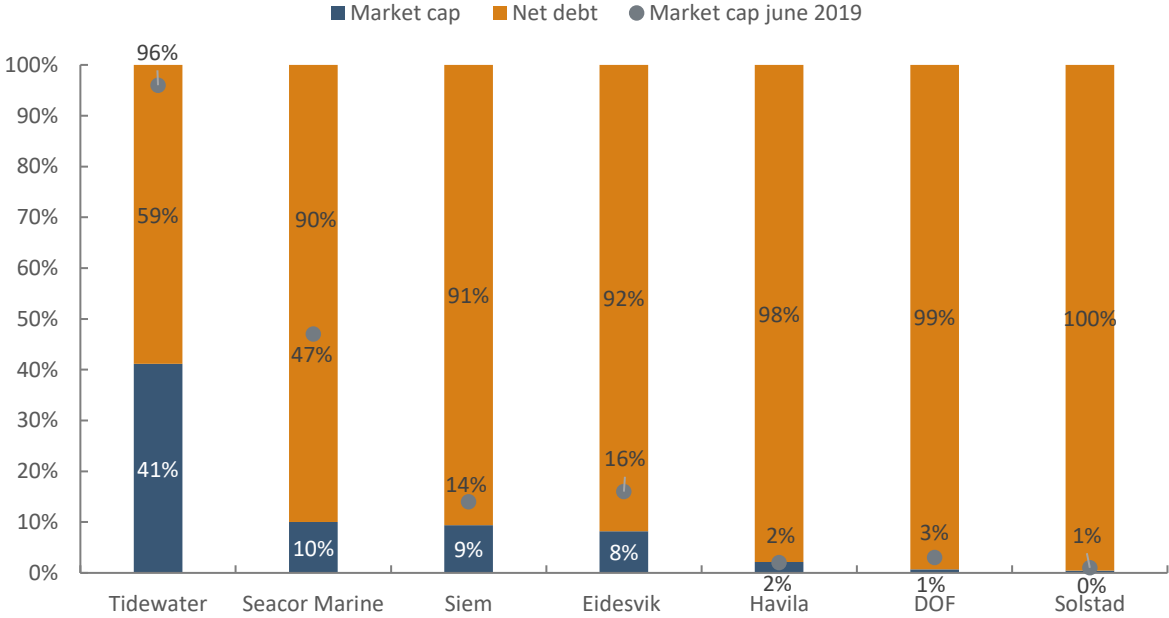


High levels of debt could make it harder to compete with international shipping companies

Offshore shipping companies are still finding themselves in challenging market conditions. Both Norwegian and international offshore shipping companies have seen their market capitalisation decline markedly over the past years. Declining market capitalisation indicate that investors are concerned about future profitability for these companies and in general for the oil and gas market. The Norwegian shipping companies seem to be worse capitalised than their international counterparties. Higher levels of debt could make the Norwegian offshore

shipping companies less flexible, due to higher financial costs, and make it harder to compete with less indebted international competitors.

Figure 21 – Market capitalisation and net debt for offshore shipping companies. Source: Company reports Q2 2020 and Yahoo Finance.



Land based segment

Yards

	Revenue	Value added	Employment
The yards in 2019	16.0 NOK billion	0.6 NOK billion	3 100

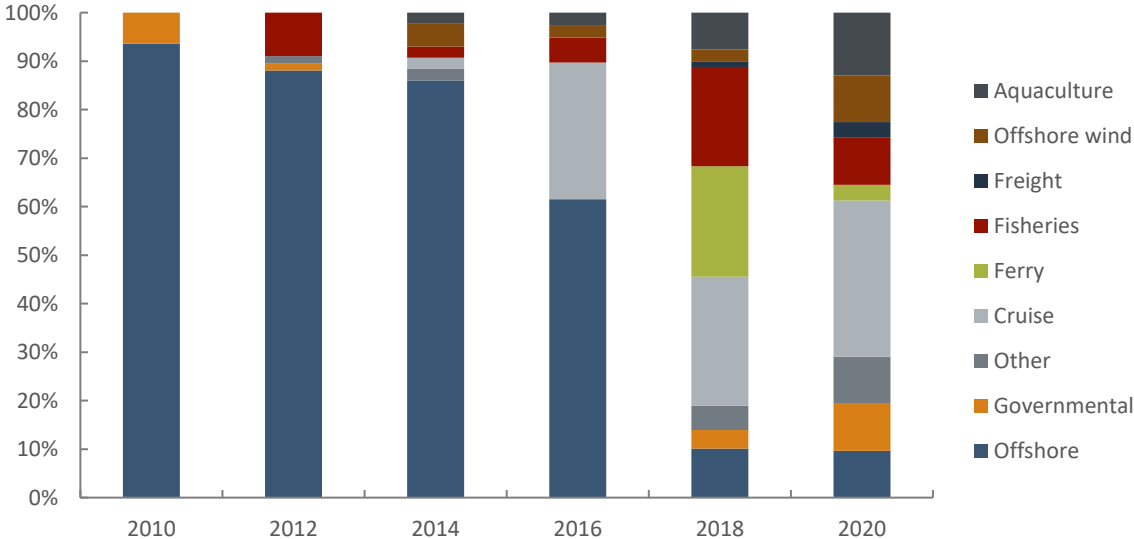
Møre og Romsdal is still the most critical region for shipbuilding in Norway. In this region, a vast majority of offshore vessels have been built, and in recent years the large yards have focused on building exploration cruise vessels. In 2019, approximately 3 100 people were employed directly at the yards in Møre.

There is not one single main driver that can explain the development for all yards in the Blue Maritime Cluster at once. The discussion is most informative when centred around two main groups of yards, the large yards⁴ building offshore vessels until recently, and the medium-sized yards⁵ not building the larger offshore vessels.

The big yards were all in on offshore vessels – now expedition cruise vessels

Between 2010 and 2014, the large yards in the Møre cluster mainly built vessels for the offshore shipping companies. Still, in 2016 around half of their orderbooks consisted of offshore vessels. In more recent years, the large Møre yards have positioned themselves well within the expedition cruise market accounting for a large percentage of orderbook value from 2016 on. In parallel with the orderbooks emptying of offshore vessels, the large Møre yards have become more diversified and now have a variety of vessel types in their orderbooks.

Figure 22 – Segmented orderbook for the large yards. Share of total vessels in orderbook. Source: Menon Economics and Maritimt Magasin

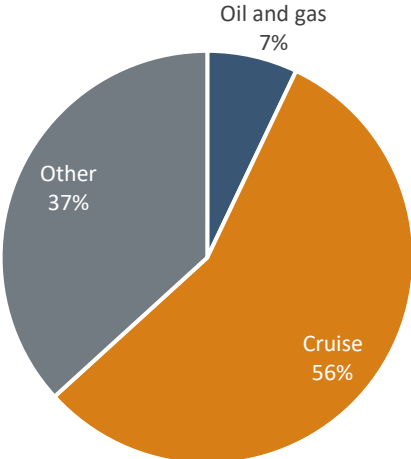


⁴ Large yards consist of Vard, Ulstein, Kleven and Havyard

⁵ Medium sized yards consist of: Myklebust, Fiskerstrand, Vegsund Slip, Aas Mek., Larsnes Mek, Promek, Sletta

The big yards have diversified their orderbook in terms of the number of vessels, but a large portion of orderbook value stems from expedition cruise vessels. Ulstein and Vard have a similar relative orderbook value profile in terms of expedition cruise vessels with their remaining orderbook value mostly lying within governmental orders and offshore renewables/oil and gas vessels. Havyard, however, has not entered the expedition cruise market. Newly, Havyard delivered the last vessel in a series of 13 battery-powered ferries to Fjord1, and their current orderbook mainly consists of offshore wind vessels and fish carriers. Green Yard Klevens orderbook is for all practical purposes empty.

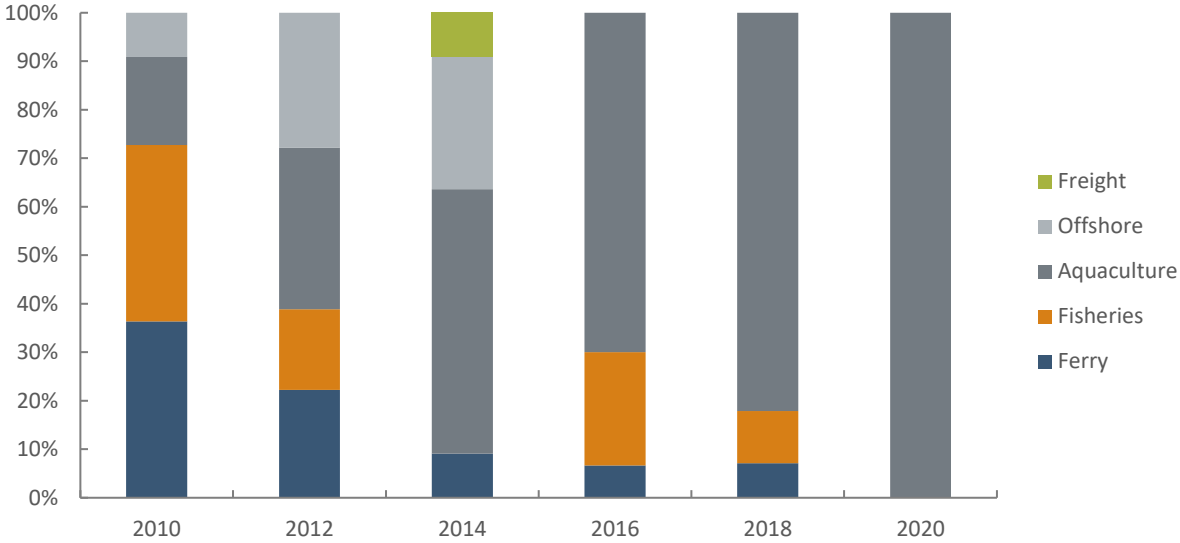
Figure 23 – Distributed orderbook value by vessel type at the big yards. Source: Menon Economics (2020)



Medium-sized yards – historically better diversified compared to large yards

The medium-sized yards in the Møre cluster had a more diversified portfolio of ships during the offshore boom, compared to the larger yards. In recent years, the medium-sized yards have become single market focused in newbuilds, building vessels for the growing aquaculture shipping segment. In 2020, all newbuild orders at the medium-sized yard were orders from the aquaculture industry, totalling around 30 aquaculture vessels. Amongst the aquaculture companies that have placed orders for new vessels, we find heavy-weighters such as Sølvrans, Salmar and MOWI.

Figure 24 – Segmented orderbook for medium-sized yards. Share of total vessels in orderbook. Source: Menon Economics and Maritimt Magasin

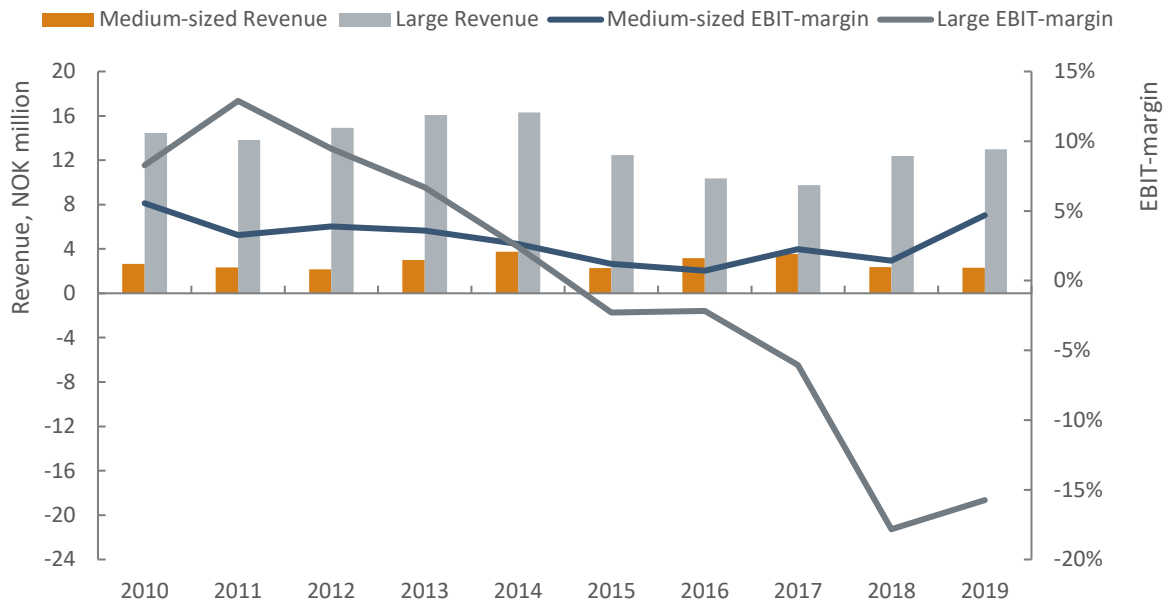


It is, however, important to stress that newbuild orderbooks will not predict future income distribution as well among the medium-sized yards as the large ones. Repairs, upgrades and modifications on existing vessels make up a significant amount of income at the medium-sized yards, and the market segmentation on this revenue is in most cases more diversified than their newbuilds.

The big yards are losing big money – the medium-sized are earning medium money

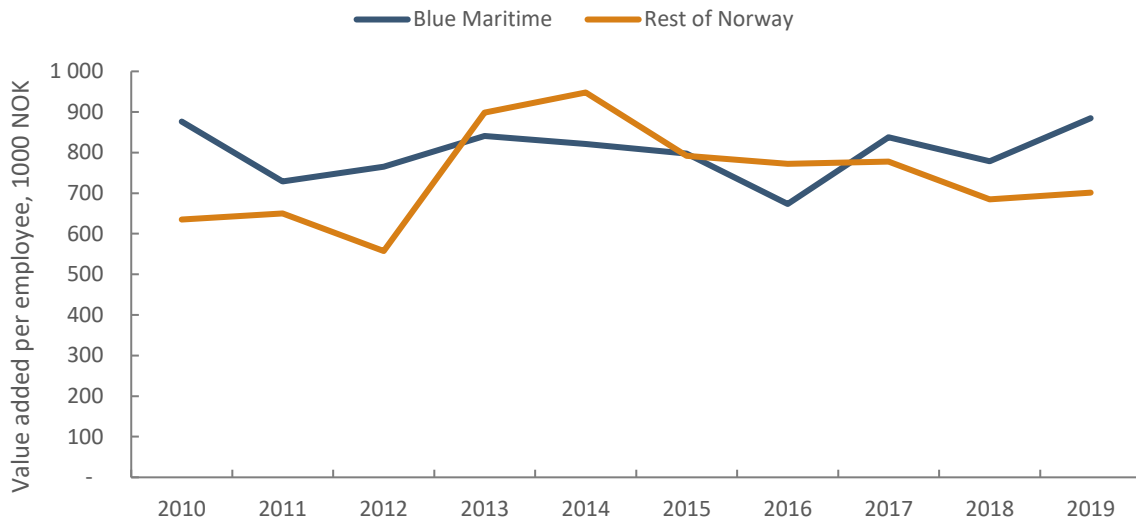
Even though the large yards have diversified their orderbooks, they still struggle to deliver profitability. The large yards combined EBIT-margin was -16 per cent in 2019, down from 2 per cent in 2014. The large yards have experienced a downward trend in EBIT-margin since 2011. The medium-sized yards in Møre though, have managed to stay profitable for the last ten years and have a more stable EBIT-margin. In 2019 they had a combined EBIT-margin of about 5 per cent, which is at about the same level as seen in 2010.

Figure 25 – Revenue and EBIT-margin separated into medium-sized and large yards. Source: Menon Economics (2020)



The medium-sized yards in Møre are also competitive when compared to other medium-sized yards in Norway outside of Møre. The value added per employee was about 0,9 million NOK in 2019, compared to 0,7 million NOK in medium-sized yards outside of Møre. Over time the medium-sized yards in Møre have remained a relatively stable value added per employee of around 0,8 million NOK.

Figure 26 – Value added per employee for medium-sized yards. Yards in Blue Maritime Cluster compared with yards elsewhere in Norway. Source: Menon Economics (2020)

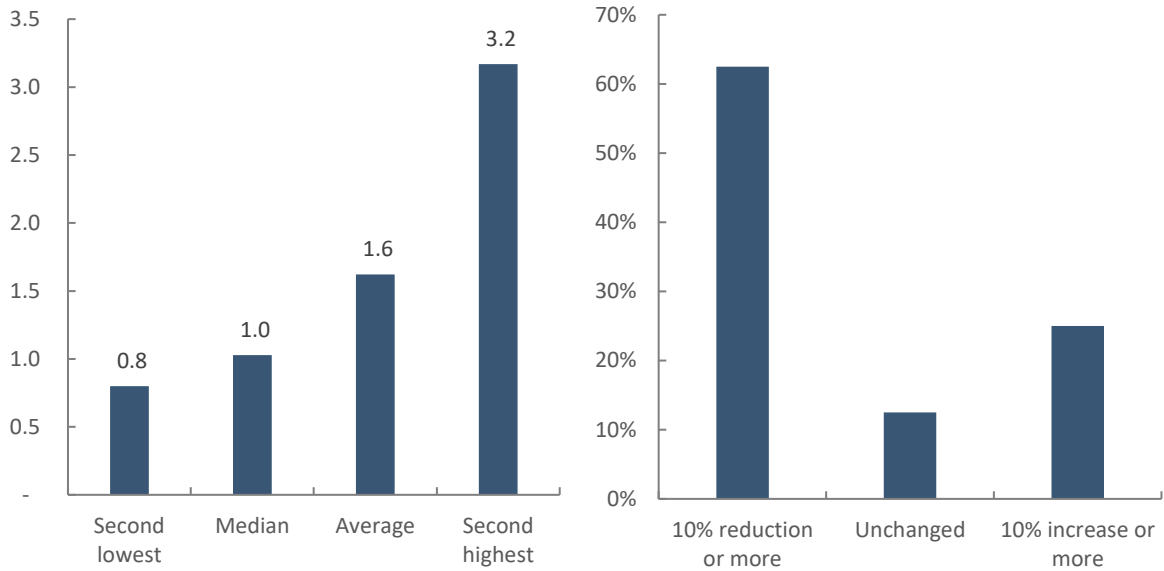


Varying orderbook sizes at the yards

The orderbook size is varying between the yards in Møre. The average orderbook size relative to revenue is 1,6, and the median is 1. The second highest orderbook value as a share of revenue is twice as large as the average

and the second-lowest around half of the average. Given an outlook for continued new orders, most yards in the Møre Cluster would have satisfying orderbooks. However, orderbooks have decreased over the last year for most yards and the outlook for new orders, especially in the exploration cruise segment for the big yards, is worrying.

Figure 27 – Left: Orderbook size relative to revenue in 2019 for the yards surveyed. Right: Current orderbook compared to the orderbook one year ago among the yards surveyed. Source: Menon Economics Source: Menon Economics (2020)



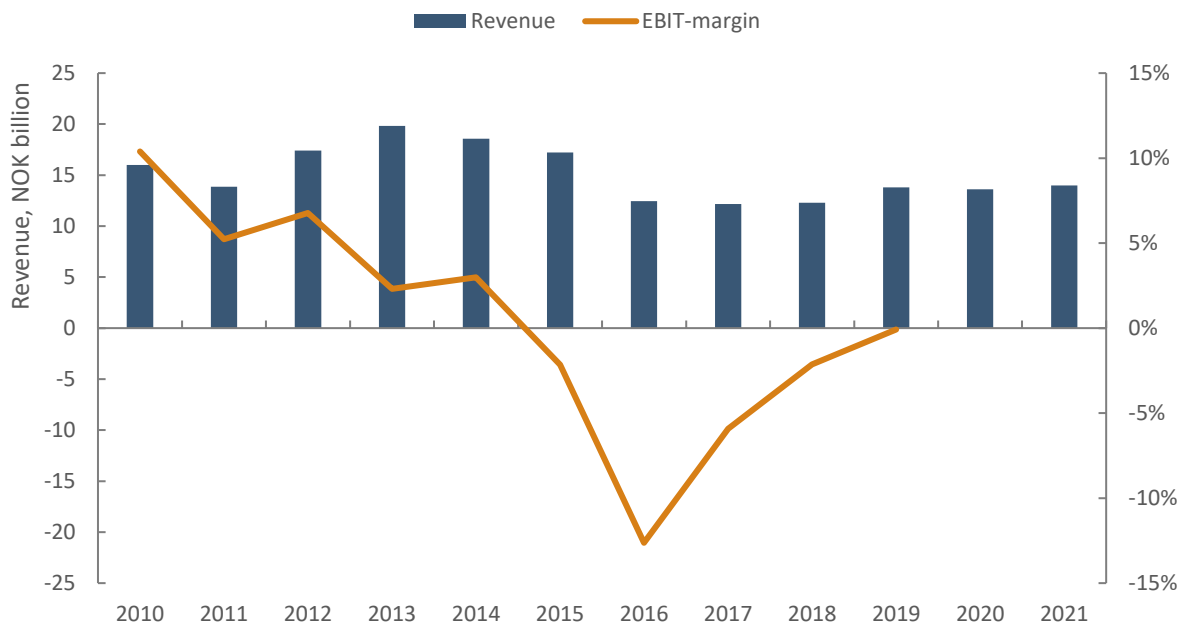
Equipment suppliers

	Revenue	Value added	Employment
The equipment suppliers in 2019	13.8 NOK billion	4.0 NOK billion	4 000

The equipment suppliers had a combined revenue of 13,8 billion and employed around 4 000 people in 2019. As expected, revenue and employment increased in 2019. Income rose by 12 per cent compared to 2018-levels. Increasing revenues affected productivity more than employment, with employment levels rising by three per cent in 2019.

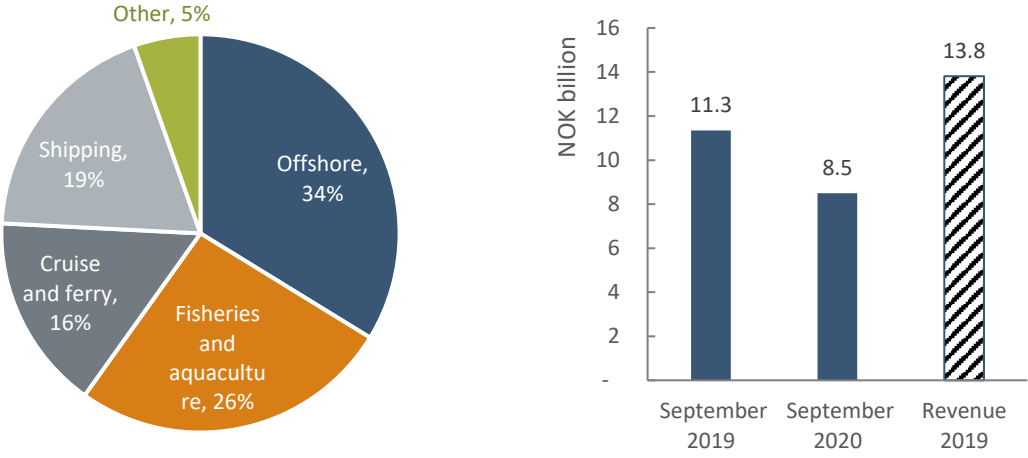
Going forward, the equipment suppliers are expecting a slight decrease of 2 per cent in revenues for 2020, but they still expect to surpass 2019 levels in 2021. The employment level for equipment suppliers is expected to decrease over the coming two years, to around 3 800 employees by the end of 2021.

Figure 28 – Revenue and EBIT-margin for equipment suppliers. Menon Economics (2020)



The outlook for the equipment suppliers as a combined group is substantially better than for the yards. The explanation is found in the market segmentation of income. These companies currently have an income that is well distributed in different markets. Diversification is an advantage in the current market, as some markets are hit harder than others by the ongoing circumstances. Among the most important income sources, the offshore vessels after-market is relatively stable while the outlook for deliveries to vessels for fisheries and aquaculture looks good.

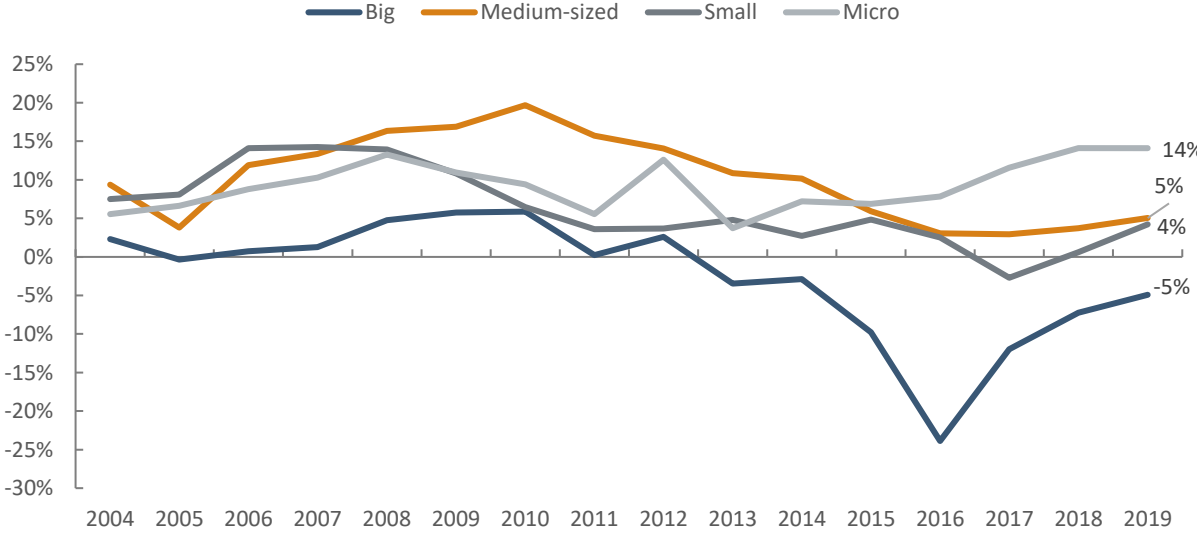
Figure 29 – Left: Revenue split by market segment in 2019. Right: Change in orderbook value for the equipment suppliers. Source: Menon Economics (2020)



The combined EBIT-margin rose to 0 per cent in 2019 after being negative every year since 2015. The lowest point was an EBIT-margin of close to -15 per cent in 2016, and profits have bettered gradually since.

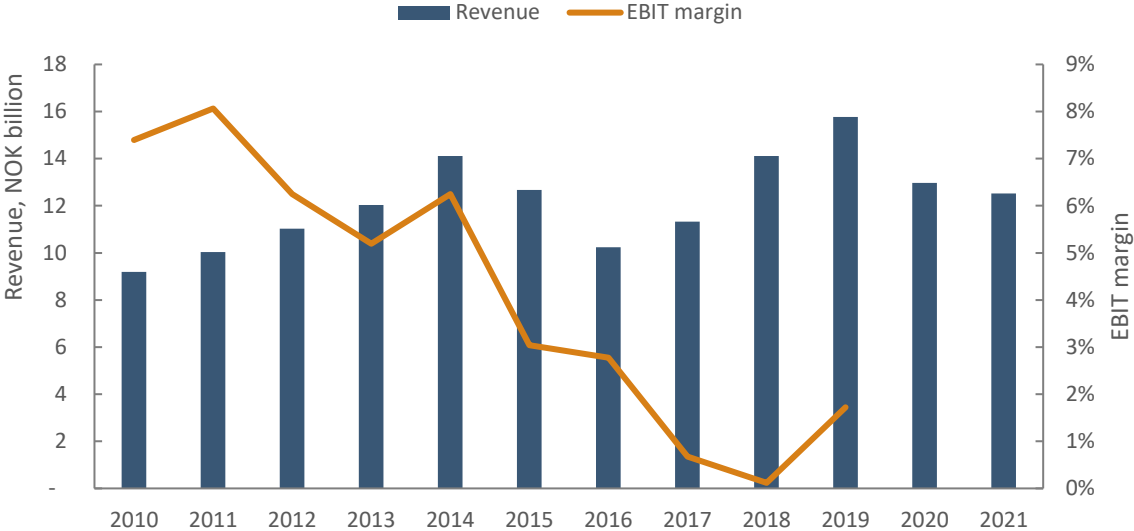
The weak aggregate results on the segment level hide the fact that besides the largest companies in this segment, the remaining companies are still profitable. However, profitability for the small and medium-sized companies in the equipment segment has also fallen in the last years. Still, they delivered a positive net operating profit, illustrating that many of these companies have been able to stay profitable.

Figure 30 – Profit margins (EBIT) for equipment suppliers by company size. Source: Menon Economics (2020)



Service providers

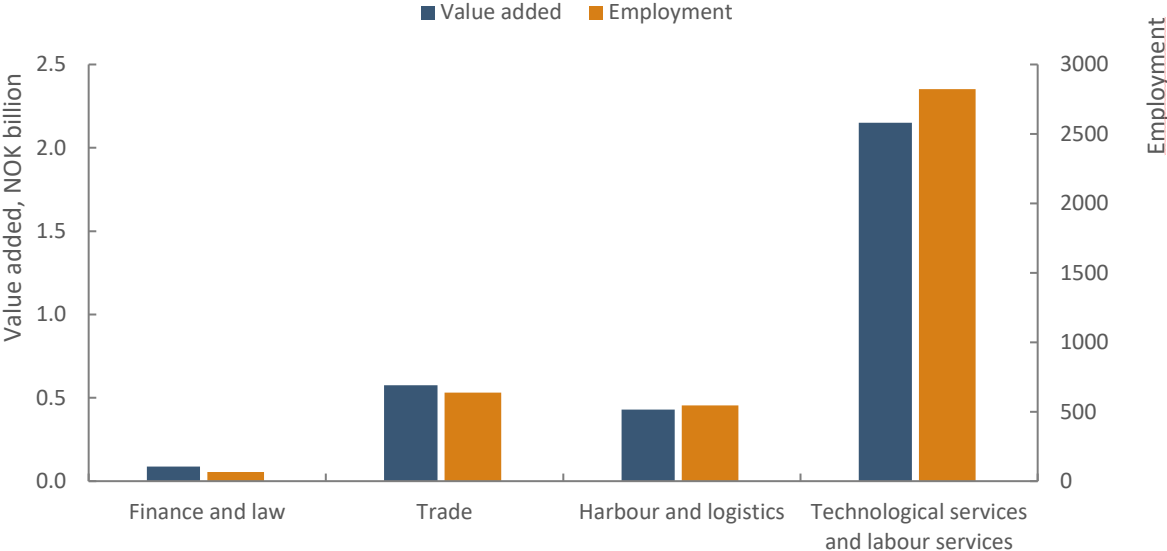
	Revenue	Value added	Employment
The service providers in 2019	15.2 NOK billion	3.2 NOK billion	4 100



In 2019 the service providers had 15,2 billion in revenue and employed around 4 100 people. The segment's value added stood at 3,2 billion in 2019. The service segment consists of companies that provide services to other companies in the cluster or to foreign companies. Their activities include trade, installation and service of ship equipment, and other specialised maritime services like ship design. A large share of the service companies is connected to or serving the yards.

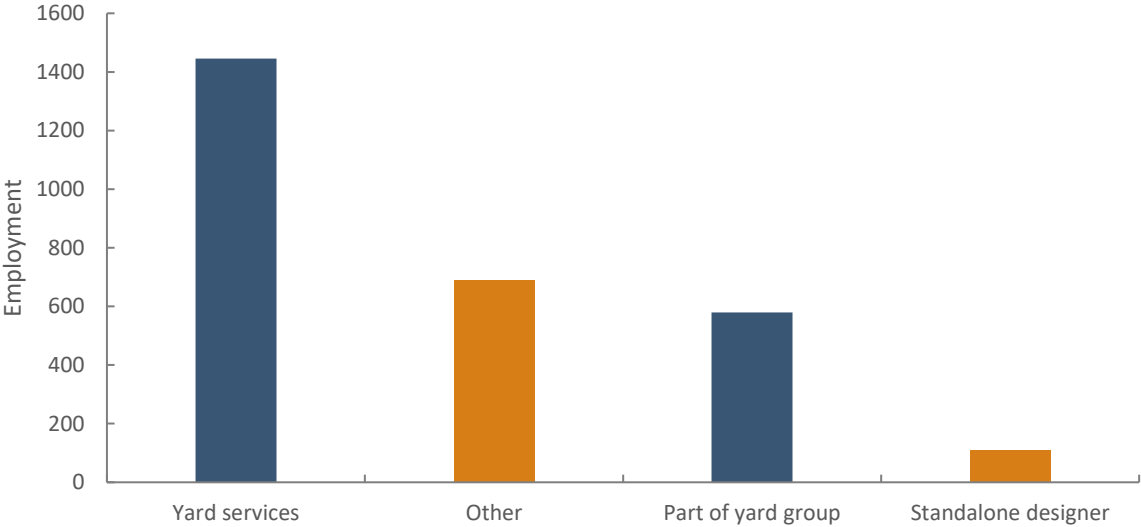
Technological services are the single most important segment among the service providers, including companies providing services like ship design and advanced engineering services. In 2019, these companies accounted for 69 per cent of employment and 66 per cent of value added within the service segment.

Figure 31 – Value added and employment for service providers. Source: Menon Economics (2020)



Most of the employees in technological and labour services are employed in companies offering yard services or in service-sections of the yard groups. Their performance is therefore relatively closely connected to both current and future activity at the yards, as seen in the expectations for future revenues in 2020 and 2021.

Figure 32 – Employment in technological and labour services, split by segment. Source: Menon Economics (2020)

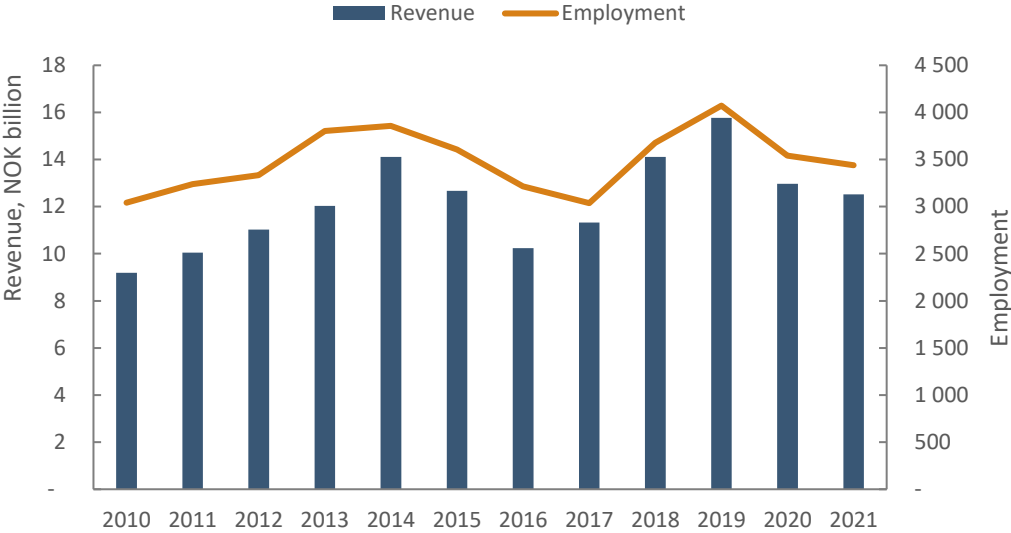


The service segment includes a diverse group of companies, delivering services to a broad set of clients. This makes it harder to benchmark the relative performance of the Møre companies on a segment level. Even within the individual segments, the companies target clients from different parts of the maritime industry, which makes the groups incommensurable.

The revenues in the service segment have increased by almost 40 per cent since 2018. The service providers expect a combined reduction close to 18 per cent from 2019 to 2020. The employment is also anticipated to go

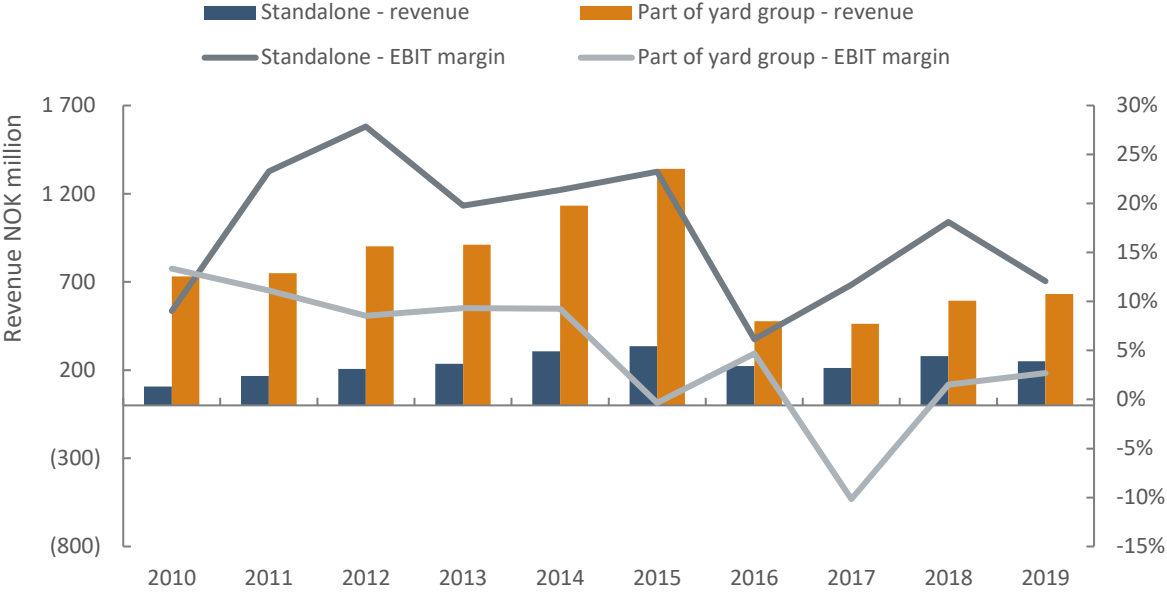
down over the next years, from above 4000 in 2019 to beneath 3500 in 2021. Reduced activity is a consequence of the same development in the market conditions, as seen for the large yards. Therefore, we expect to see a more noticeably reduction for the service segment, compared to the equipment suppliers in the years to come.

Figure 33 – Revenue and employment for the service segment. Source: Menon Economics (2020)



The revenue for the design companies is developing differently for companies which are a part of a yard group, compared to others. Firstly, the revenue for design companies which is a part of a yard group saw a considerable drop in revenue after 2015, and their revenue today is still far below levels seen prior. The revenue for other design companies has been more stable, compared to those which is a part of a yard group. Secondly, the profitability for design companies which is a part of a yard group has been on a downward trajectory since 2010 and reached the bottom in 2017. In 2018 their EBIT-margin saw positive territory again, and it has increased further to around 3 per cent in 2019. For other design companies, the EBIT-margin have also been volatile, going from around 24 per cent in 2014 to 12 per cent in 2019. Compared to the design companies not a part of a yard group, this segment has been more profitable over time.

Figure 34 – Revenue and EBIT-margin for design companies. Source: Menon Economics (2020)



Looking ahead

When new orders for offshore vessels almost disappeared after the oil price shock in 2014, the landbased segment of the cluster found themselves looking for new markets. They have managed to take a prominent position in the cruise market, mainly focusing on exploration cruise vessels. Now, yet again, the Møre cluster finds itself in a sticky situation with deteriorating key markets. This time around the main driving force for sales growth in recent years, the cruise market, is failing to deliver new orders due to the coronavirus.

In addition to now facing uncertain demand, delivering high-quality cruise vessels have not lead to profits for the cluster due to challenges with establishing a cost-efficient supply chain.⁶ A successful transition hence not only hinges on finding new markets but also the ability to make these new markets profitable.

The cluster will have to be more efficient in transitioning towards new markets in the future. Success will hinge upon being able to establish new supply chains fast and efficient or being part of a supply chain with well-diversified demand impulses.

The other option for the cluster companies is to shift some of their focus to less volatile markets. These markets usually are highly cost-focused, which might prove difficult to compete within. For the maritime sector, this could mean a shift towards the markets that Asian companies dominate today. These are countries with lower labour costs which makes it harder for high-cost countries like Norway to be competitive. A shift in technology reducing the disadvantage of higher labour costs could potentially make a transition easier for Norwegian companies and enable them to compete in the more standardized market segments.

New business models for the land-based segment

Companies in the Møre cluster are already looking into different business models. Changed market conditions and demands could make it attractive for businesses to change their way of operating and adopt a different mindset in terms of how to structure their business. In this year's survey, we asked the yards and the equipment suppliers if they have investigated new business models. Examples of new business models could be leasing out equipment instead of selling it, return and reuse of equipment, partnership models where companies maintain and upgrade equipment, leasing of vessels instead of sale and business models where customers get access to equipment through a "pool".

Almost 70 per cent of the yards and equipment suppliers answer that they have tried partnership models or are expecting to investigate partnership models during the next three years. 20 per cent of those companies have already adopted a partnership model.

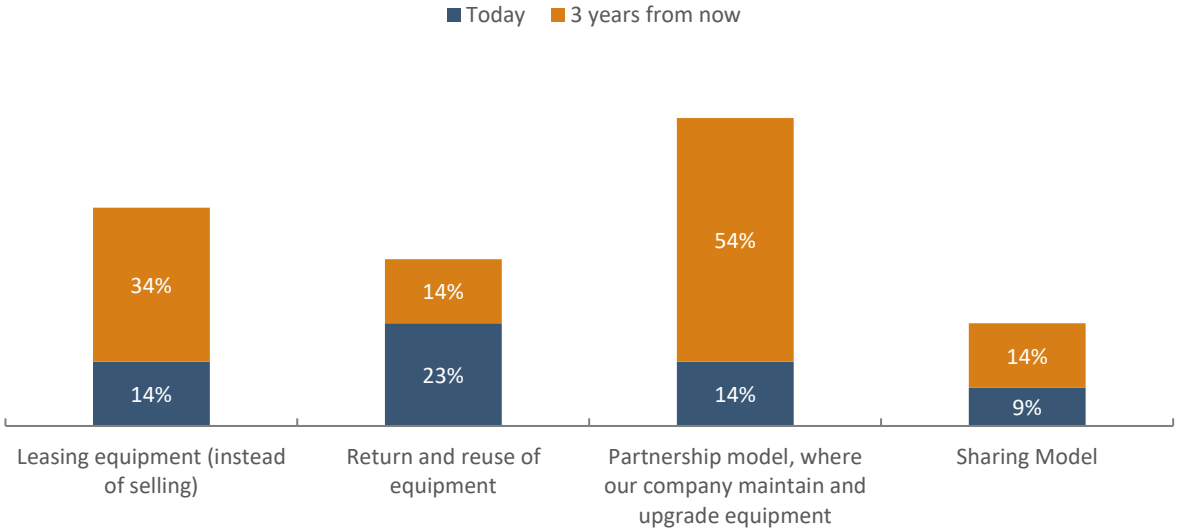
Close to 50 per cent of the yards and equipment suppliers are interested in a business model where they lease out their products instead of selling them. Almost 30 per cent of these companies are using such a model today.

Almost 40 per cent of the yards and equipment suppliers are interested in a business model hinging on return and reuse of equipment. Of the companies interested in return and reuse of equipment, more than 60 per cent are already using this business model.

⁶<https://www.tu.no/artikler/verftsomstilling-derfor-knekker-verftene-nakken-nar-de-skal-bygge-cruiseskip/489663?key=dFnOgZzf>

Around 20 per cent of the yards and equipment suppliers are interested in models that give the customer access to a "pool" of equipment, with almost 40 per cent of these companies stating that this business model is already utilised today.

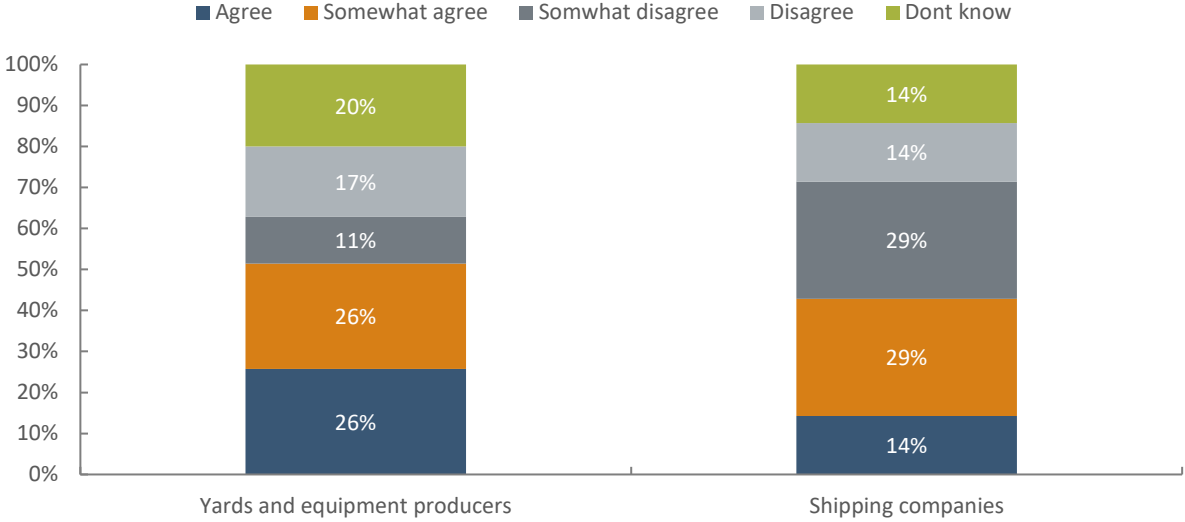
Figure 35 – New business models used or considered by the yards and equipment producers today and in 3 years from now as a percentage of respondents. Source: Menon Economics (2020)



Cluster integration – could become weaker than before

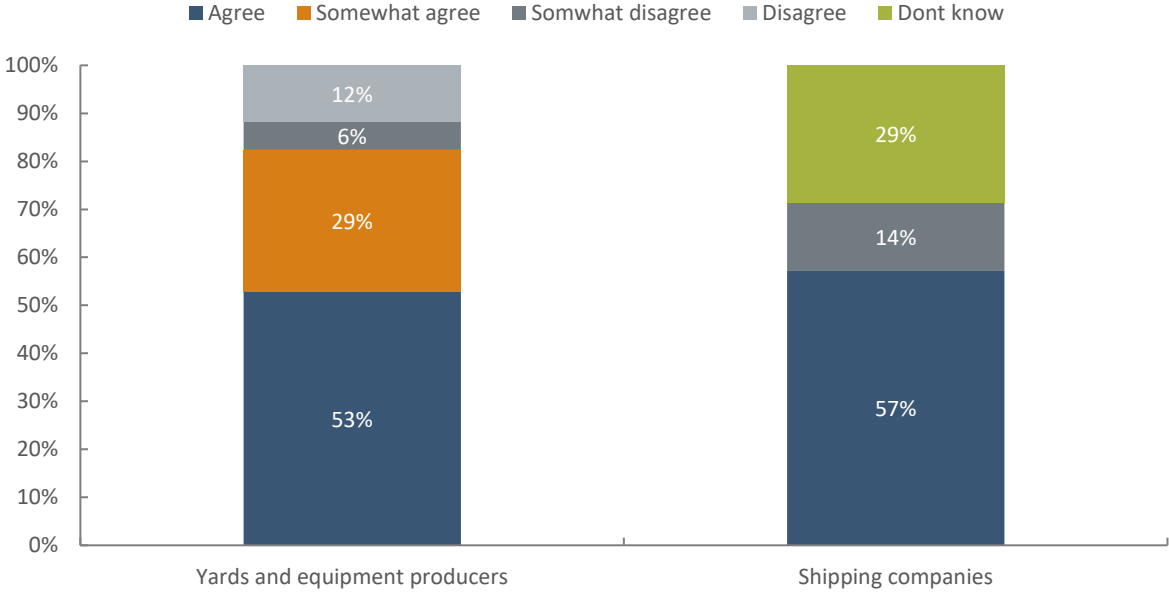
Historically, tight integration is essential for the agglomeration effects that have defined the cluster. Over 50 per cent of the yards and equipment producers to some extent agrees to that procurement outside Møre has become more important than earlier. The shipping companies also agrees to this statement, but to a lesser degree compared to yards and equipment suppliers. In 2018 the orderbooks of the equipment suppliers shifted towards the same market segments as the yards. A shift towards the cruise and yacht segment suggested that cluster disintegration was temporary. After the global pandemic in 2020, it will be interesting to see if a weakened cruise and yacht market might again lead to disintegration.

Figure 36 – Procurement, companies outside Møre have become more important. Source: Menon Economics (2020)



Over 80 per cent of the surveyed yards and equipment producers to some extent agrees to the statement that customers outside Møre have become more important. At the same time, close to 60 per cent of the surveyed shipping companies also agrees to this statement.

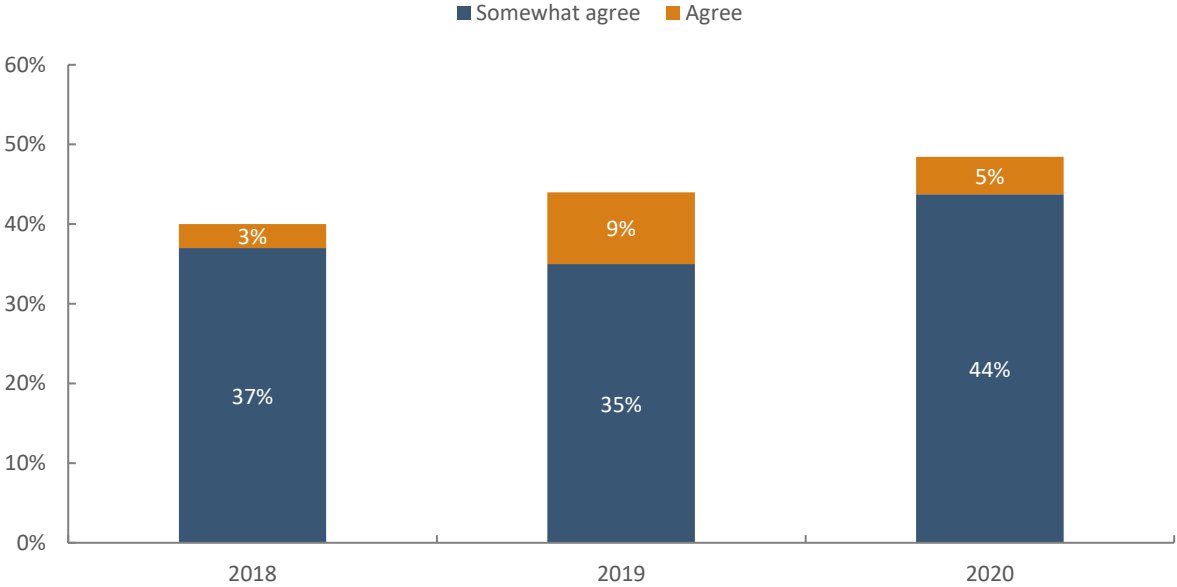
Figure 37 – Customers outside Møre have become more important. Source: Menon Economics (2020)



Digital knowledge is still highly valued going forward

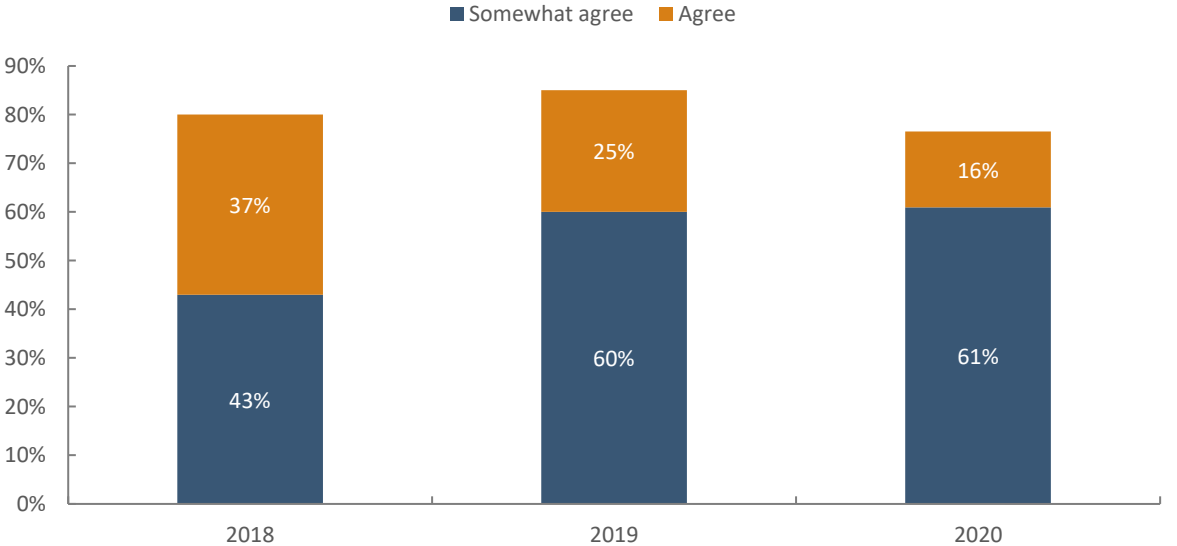
The cluster companies must have the "right" experience to succeed in transitioning into new market segments and to be profitable in traditional market segments. As seen over the last three years, the cluster companies have realised that parts of their company's expertise have been outdated. In 2020, 44 per cent of the companies answer that they somewhat agree and 5 per cent fully agree to this statement.

Figure 38 – Parts of the company's expertise have been outdated because of the restructuring we are undergoing. Source: Menon Economics (2020)



Over the last three years, around 80 per cent of the surveyed companies agree or somewhat agree to the statement that they need to find employees with a different skillset to be competitive in the future. Therefore, the cluster is still expected to go through restructuring concerning their employment situation sometime soon.

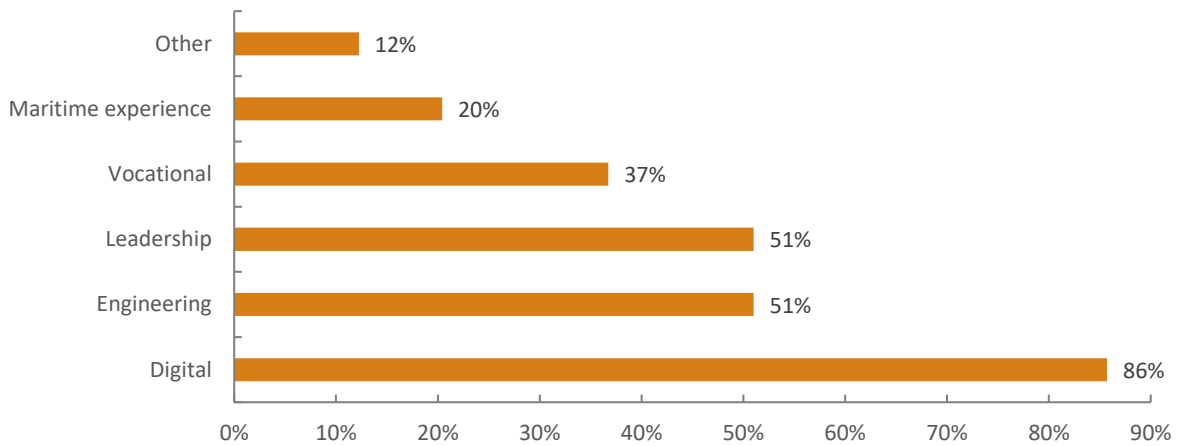
Figure 39 – Our company must employ people with different skillset to remain competitive in the future. Source: Menon Economics (2020)



The companies that expect to hire employees with a different skillset in the future, are looking to hire people with a variety of backgrounds. People with a digital background seem to be the most attractive group of employees, with over 85 per cent of the companies answering that digital competence will be essential to succeed in the future. Around 50 per cent of the companies are looking for leadership and engineering

experience. 36 per cent answer that they will need to hire relatively more people with vocational education and 20 per cent say they will need to hire relatively more people with experience from working at sea.

Figure 40 – What kind of competence do your company need relatively more of to succeed in the future? More than one alternative is possible. Source: Menon Economics (2020)



Digitalization in the maritime sector going forward

Digitalization is a part of the modern-day business life. In the maritime sector too, digitalization is going to be relatively more important in the future, as seen for example in the maritime companies' expectations. To digitalize does not necessarily mean to develop new technologies, it could also take the form of utilizing existing technology. The latter includes adopting systems that collect and make use of large amounts of data.

Klaveness Digital has developed the platform CargoValue, which is an example of utilizing data from shipping. The platform gives the user complete information of the shipping process. Klaveness claims that their product is reducing supply risk, allows for lower safety stock and avoids demurrage due to early warnings of delay. Other platforms that have emerged is ShipOs. ShipOS is an open source operative system for ships. It basically gives software developers to make applications for ships, in comparison to Google Play on Android. This could change the value chain in the maritime industry, by enabling "everyone" to develop systems for ships. Ship owners might be able to make use of such a platform to extract data that could be used to optimize operations.

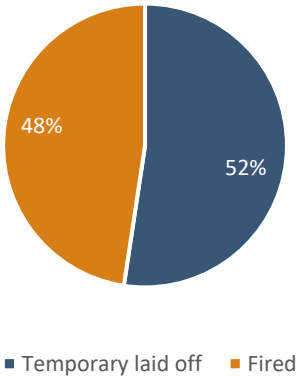
An even more disruptive technology for the maritime sector could be 3D-printing. For example, 3D-printing could be used to make spare parts for vessels. This could result in a more effective supply chain that is able to convert 3D-data to physical objects, as spare parts, close to where the part is needed.

Menon (2018): Maritim kompetanse i en digital fremtid, <https://cargovalue.com>, <https://shipos.org>, E. Kostidi & N. Nikitakos (2018): Is it time for the maritime industry to embrace 3d printed spare parts?

Temporary lay-off special – half of the temporary laid off is expected back to work

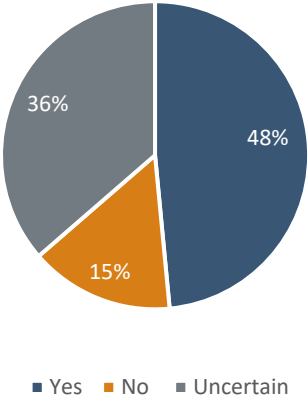
We asked the cluster companies if they had experienced a decrease in employment from 2019 to 2020. Of the surveyed companies, over 25 per cent answered that they have fired employees and 40 per cent have temporary laid off employees. 14 per cent of the surveyed companies report that they have laid off ten or more employees. Also, 14 per cent of the surveyed companies have fired 10 or more employees. For companies that have experienced a decrease in employment, the reduction in employment is distributed almost 50-50 on temporary layoffs and fired employees.

Figure 41 – If your company have experienced a decrease in employment, is this a result of temporary layoffs or fired employees. Source: Menon Economics (2020)



Almost 50 per cent of the companies that have laid-off workers expect their employees to return after their laid-off period. Still, it is worth noticing that there is a large degree of uncertainty considering laid-off employees. Close to 40 per cent say that they do not know whether layoffs are getting their jobs back and 15 per cent answer that layoffs are not expected to return.

Figure 42 – Do your company expect that temporarily laid off employees are coming back to work after their laid off period ends? Source: Menon Economics (2020)



Appendix:

Definitions

Value added

Value added is often used as a measure of activity. Value added is a company's purchases of goods and services deducted from its turnover. Value added is found in the accounts as the sum of EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization) and wage costs. This measure has some key advantages others lack. It avoids double-counting purchases of goods and services, making the measure comparable across sectors. This is important in a cluster such as Blue Maritime where there is a high degree of internal sales. In addition, it can be used to measure the economic contribution or return from the sector to the national economy. This is possible because the measure shows how much is left for the key stakeholders in the industry, meaning employees through wages, government through taxes, creditors through interest payments on loans, and owners through profits.

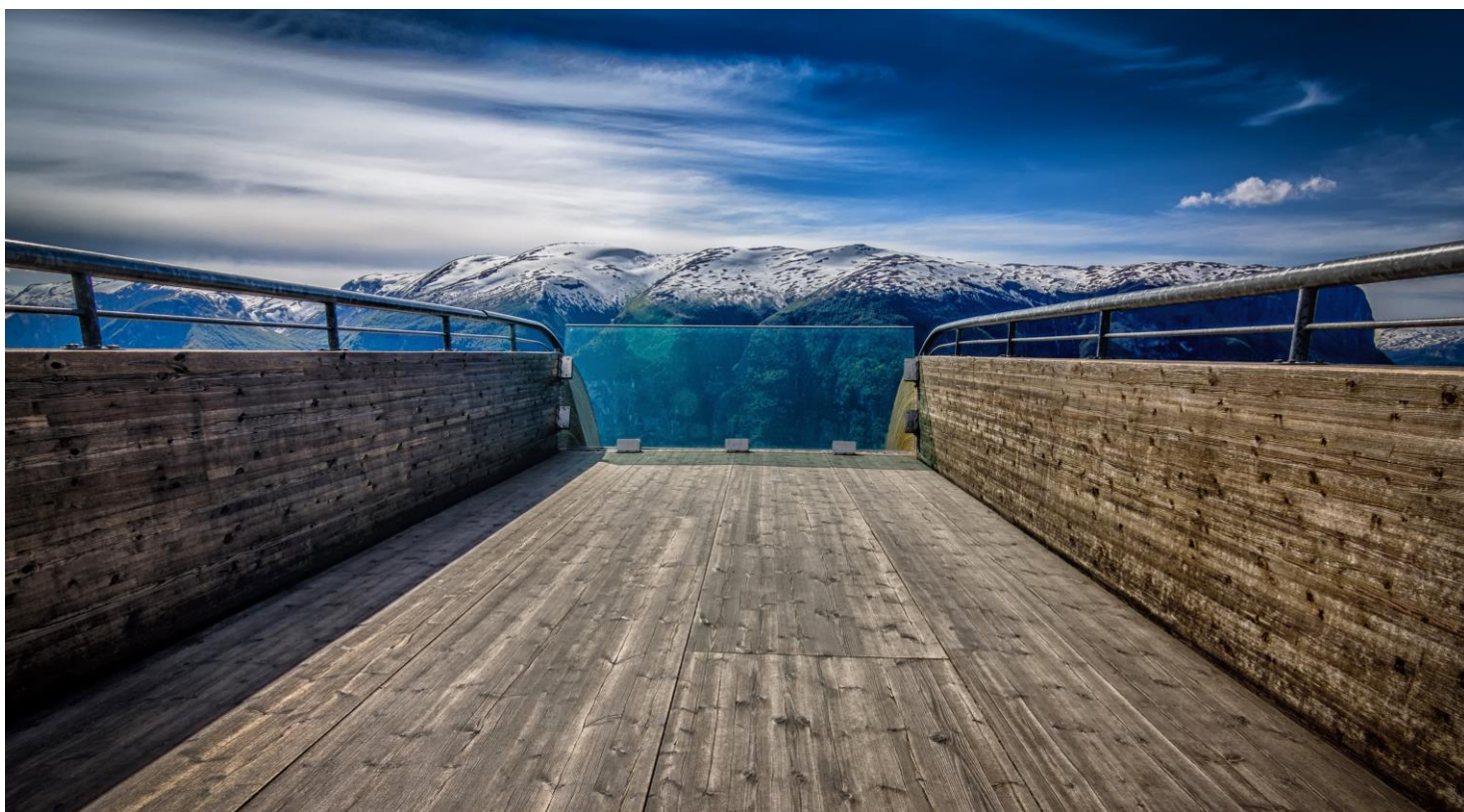
Operating margin as a measure of profitability

Net operating margin is defined as operating profit as share of turnover. In other words, the net operating margin is equivalent to a company's operating net income as a share of its operating gross income, where the term "operating" reflects that financial income items are excluded. The operating margin is perhaps the most commonly used measure of profitability in private companies. A weakness of the measure is that it concentrates on companies' "turnover" rather than value added. For example, consolidation of companies in an industry will lead to fewer goods and services purchased, since some transactions will now be internal. The consolidation will result in an increased operating margin, even though there has not been any direct improvement in profitability. What is more, changes in input mix and the degree of outsourcing might have indirect effects on profitability.

Note on historic numbers:

Bergen Engines is removed from all historic numbers after former Rolls-Royce Commercial Marine, now Kongsberg Maritime CM, is no longer connected to Bergen Engines through company structures. In contrast to for instance Farstad, Bergen Engines has always been located outside the cluster's geographic area. By this argument we have removed Bergen Engines from all historic numbers to avoid misrepresenting the true development in the cluster, while Farstad, for instance, is included in historic numbers until Solstad's takeover.

In last year's cluster analysis, we adjusted Vard Group's 2018 value added share of revenue based on a huge discrepancy in this percentage from the half-yearly report when Vard still reported as an independent group, and the final financial accounts for 2018 after being incorporated into the Fincantieri Group. We thought the difference might largely be attributed to accounting in the takeover process and hence not representing the true underlying value added. Based on the 2019-results from Vard Group we have decided to use their 2018-numbers as in the accounts to make 2019 comparable to 2018.



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