



# EXTERNAL REVIEW, PART II

KOTKA MARITIME RESEARCH CENTRE

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KOTKA MARITIME RESEARCH CENTRE PUBLICATIONS  
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## EXECUTIVE SUMMARY

Merikotka (Kotka Maritime Research Centre – KMRC) was established in 2005 in response to concerns in the Finnish society related to risks of maritime and especially tanker transport in the Gulf of Finland. Of primary concern was the risk to the sensitive marine environment in this special part of the Baltic Sea. KMRC was set up as a strong network of academic and public partners who carried out research in areas related to maritime safety and risk, the marine environment and maritime logistics. The initial focus was widened after 2014, when KMRC changed its initial set-up, became an independent research association and concentrated on the facilitation of research. The new topics included a number of contemporary issues like, e.g., sustainability of maritime transport. The changes in the set-up are also reflected in important guidance and governance documents of KMRC, such as the KMRC Strategy Update 2019-2021.

KMRC has invited external reviewers in regular intervals (2010 and 2014) to assess the work of the centre and to provide recommendations for the further development of the centre. This report provides the assessment of one of two external reviewers invited in 2019 to assess the research output from KMRC during the period from 2015 to 2018 and to provide recommendations for the future development of KMRC. The assessment was done on the basis of specific Terms of References providing the focus for this exercise, which was to assess the quality and potential of the research, the success of multi- and interdisciplinary collaboration within KMRC as well as KMRC's research impact, societal impact and innovative capacity. The assessment involved a document review related to the research output of KMRC followed by an interview session in Helsinki where representatives of the four main academic partners in KMRC were present.

KMRC combines the work of four strong academic partners in Finland and the research output presented during this review exercise is at an excellent academic level. At the same time, not so many examples for multi- and interdisciplinary collaboration were found during the assessment. In respect to the impact of the research undertaken, it was concluded that the resulting picture in this category is diverse. While the publications produced by the academic partners in KMRC have a strong impact on the research community, the impact on society could not be verified at a high level. However, in terms of innovative capacity KMRC's academic partners score quite high.

While the work of the academic partners in KMRC is outstanding, the reviewer could not always identify the role that KMRC as an institution or association plays in the initiation, development and follow-up to the research activities undertaken in KMRC by these partners. The reviewer has therefore concentrated on the institutional or organizational development of KMRC in his recommendations at the end of the assessment.

KMRC as a network has significant potential. The future development will depend on how successful KMRC will be in strengthening its institutional and organizational capabilities. The current research agenda and the strategy update for 2019-2021 strongly point in the right direction. However, more efforts are needed to implement these strategies into the daily work of KMRC as a strong research network. The recommendations therefore focus on issues that could help to strengthen KMRC's institutional and organizational capabilities and include strategic elements, such as the enhancement of a comprehensive research agenda to serve as the main guidance document for the centre. Furthermore, KMRC should consider raising its own visibility through appropriate activities, such as publishing own reports and policy papers. KMRC should also consider to concentrate on further facilitation of research uptake in policy making.





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# 1 | INTRODUCTION

Kotka Maritime Research Centre (KMRC) “Merikotka” was established in 2005 as a network of higher education institutions in Southern Finland with the objective to promote research on maritime safety and shipping related environmental issues. The core part of the centre is formed by the academic partners University of Helsinki, the University of Turku, Aalto University and XAMK (the South-Eastern Finland University of Applied Sciences). They are supported by the city of Kotka and the Region of Kymenlaakso and other partners of KMRC. There are dedicated stakeholder groups who work closely with the centre.

Reports about the status of activities were compiled in 2010 and 2014. Both reports are the result of reviews made by external parties and include a number of recommendations for the further development of KMRC. Several strategy documents have been developed as a basis for the work of the centre in more recent years. The current strategy document is the KMRC Research Agenda 2017 – 2020 with an updated KMRC Research Strategy 2019 - 2021.

In line with these documents, an External Review has been undertaken in April 2019 and the results of this external review are submitted with this report. The External Review was carried out on the basis of Specific Terms of References (ToR) which are attached to this report in the Annex. According to the ToR the main objective of the review is to assess:

- To which extent the quality of research is at an appropriate level and can be compared with other international research centres,
- What potential and innovative capacity the research activities carried out at KMRC have,
- To which extent multi- and interdisciplinary collaboration has been achieved within KMRC,
- The impact created by the research activities of KMRC with special emphasis on the societal impact.

For this purpose, two external reviewers were invited to carry out an assessment in line with the ToR mentioned before. Each reviewer was tasked to submit a separate report. KMRC submitted a self-assessment and a background documentation about the history of the centre and its work (a list of the documents is provided in the Annex of this report). The reviewers analysed the background documentation and were given the opportunity to meet with KMRC staff and the academic members of KMRC for a one-day interview session to clarify any questions in relation to the background documentation. For the drafting of the assessment report, the ToR provided for the necessary guidance and priorities.

This report starts with a review of the research undertaken since 2015 and provides an assessment of the quality of the research undertaken. The report ends with recommendations to be considered for further developing the KMRC. This report also includes a short review of the history of KMRC (which is available in the Annex of this report) in order to understand the original motivation of setting up the centre.

The views expressed by the external reviewer in this report are the personal and professional views of the reviewer and do not necessarily represent the views of World Maritime University (WMU) or its parent organization, the International Maritime Organization (IMO), a specialized agency of the United Nations.



## 2 | REVIEW OF THE RESEARCH UNDERTAKEN BY KOTKA MARITIME RESEARCH CENTRE

The specific review of the research activities undertaken during the period 2015 – 2018 is given in this section in line with the specifications outlined in the ToR for this review.

### 2.1 Identification of a benchmark for the research output review

The objective of the review as stated in the ToR is to evaluate “KMRC’s standing in comparison with internationally established research units or institutions in the same field of research”. This section therefore identifies benchmark institutions that could be used for the purpose of this assessment.

#### 2.1.1 Benchmark institutions for KMRC

The objective of KMRC was originally to work as a physical centre with staff members on site and have close cooperation with other academic partners.<sup>1</sup> One example for such partnership would be the Ocean Frontier Institute in Halifax, Canada (OFI).<sup>2</sup> This Institute was established in 2016 and provided an initial funding of CAD 227 million. It is located on the campus of Dalhousie University in Halifax, Canada. OFI is operated in partnership between Dalhousie University, Memorial University of Newfoundland and the University of Prince Edward Island. There are other universities in Canada that provide support and a number of international partners are linked to the institute. There are a number of similarities between OFI and KMRC in terms of the general set-up of work in both organizations, even though the areas of research and the size of the two organizations are very different. Since OFI is focussed on ocean issues and deals to a very small degree with maritime topics only, it might not be an ideal benchmark. This is also true when considering that KMRC does not carry out its research in mainly one central place, as the OFI does with significant premises at the campus of Dalhousie University that serve as the academic heart of the institute.

In the maritime area, especially in Europe, it was difficult to find comparable institutes. More suitable benchmark institutions that one could use for this assessment are national maritime clusters or similar organizations. One example would be **Lighthouse, the Swedish Maritime Competence Centre in Göteborg, Sweden**.<sup>3</sup> Lighthouse was set-up in 2006 in close cooperation between Chalmers University of Technology, the School of Business, Economics and Law of the University of Gothenburg and the Swedish shipowners, who provided initial funding in the range of SEK 100 million. Lighthouse also had close links to the region of Västra Götaland in which Gothenburg is located. The work was carried out in six main themes which were

<sup>1</sup> For more background on KMRC’s origins and development, please, refer to the Annex where a short overview is given.

<sup>2</sup> <https://oceanfrontierinstitute.com/>

<sup>3</sup> <https://www.lighthouse.nu/>



marketed as “ships” (cargo ship, eco ship, business ship, info ship, safe ship, ergo ship). Projects of this network were also supported by VINNOVA, Sweden’s innovation agency. The funding modalities changed after 2015 and today other partners, such as Linnaeus University are members. Lighthouse today has moved away from an initial arrangement of two universities mainly and related industry partners to a more national competence centre with a clear focus on all aspects of shipping. Similar initiatives exist in other countries in Europe where maritime clusters have been formed mainly in order to create synergies between the partners, strengthen the industry sector and create more significant impact.

### **2.1.2 Similarities and differences between the benchmark institutions and KMRC**

There are a couple of differences between KMRC and the two benchmark institutions mentioned before, which should be highlighted in this section.

#### **Location and link to major members**

OFI and Lighthouse reside on the premises of their major academic partner. This also applies to a number of the maritime clusters, which have their main office close to major stakeholders. KMRC is located in Kotka, the city that initiated KMRC. However, while OFI and Lighthouse enjoyed full financial support from their initiators, KMRC is not in the same position. When the initial funds for Lighthouse came to an end in 2015, the network opened up and was able to attract new members which allowed to form a national competence centre with all stakeholders involved in maritime issues on board in the major location for shipping in Sweden. The reviewer is not in the position to evaluate this aspect of KMRC, as this is also outside the ToR. However, it seems that the general situation of Lighthouse before 2015 is more similar to the general situation of KMRC and that the initiative to transform Lighthouse into a national Swedish competence centre has resulted into a situation that is more different from KMRC today.

#### **Funding and main purpose of the institutions**

OFI and Lighthouse were set-up with generous funding to carry out research. In the case of OFI, research is supposed to be carried out in support of Canadian Government priorities in relation to ocean issues. In the case of Lighthouse, research was initially supposed to be carried out to support the Swedish shipowners in their efforts to remain competitive in a global market. Both institutions received funds to set-up research programmes and administered these programmes. This does not seem to be the case for KMRC, even though Lighthouse changed after the initial phase and from 2015 on became more a facilitator of research efforts of its members and a lobbyist for further funding of research of its members. This aspect would be more in line with developments of KMRC in more recent years.

**Set-up of research activities**

The set-up of research activities is quite different at OFI compared to Lighthouse and other clusters. OFI has own research facilities and hosts staff members to operate the institute. Lighthouse was not conceptualized to host own research staff. The research activities are carried out at and by the individual member organizations. KMRC seem to be in between these two approaches.

**Publications**

Members of OFI and Lighthouse publish their research results. The same applies to other maritime clusters. In the academic publications no specific references are made to OFI or Lighthouse. This is also true for most of the KMRC publications. However, Lighthouse has published project reports and prestudies after 2015 under its name to raise its profile.

**Outreach**

OFI and Lighthouse are engaged in a number of outreach activities to give back to society and follow principles of engaged academic institutions. KMRC<sup>5</sup> has embraced principles of sustainability and included a number of outreach elements in its strategic documents.

**2.2 Overview about the research output from KMRC for this evaluation**

Before the evaluation of the research output from KMRC can be undertaken, a short overview about the basis for the evaluation in terms of research projects of and publications from KMRC should be given in this section.

**2.2.1 Research projects in KMRC**

The submitted documentation does not allow for detailed comments on all the research projects carried out by KMRC over the years. The reviewers were given access to annual reports of 2016 and 2017, which have been submitted prior to the evaluation. These reports are rather general in nature and only highlight the top projects. However, this was helpful to get an impression of the topics covered and the nature of activities involved in the different projects. Furthermore, KMRC provided lists with statistical data for projects in KMRC for 2017 and 2018 as well as a list of project funding volumes and staff involved during the period from 2015 to 2018.

<sup>5</sup> One example would be the Ocean School of OFI – an educational and public engagement program to foster ocean literacy, for more details refer to: <https://oceanfrontierinstitute.com/about-ofi/engagement-literacy>

The three tables below give an overview about key developments in research projects between 2015 and 2018.

**TABLE 3-1: KMRC PROJECT VOLUMES 2015 - 2018**

Project volume (EUR)	Total	KMRA	Aalto	University of Helsinki	University of Turku	XAMK (KyAMK)
2018	2.661.556	331.252	615.786	508.676	756.000	449.842
2017	3.305.284	297.093	1.000.000	892.000	578.000	538.191
2016	2.033.594	177.502	579.542	798.000	150.113	328.437
2015	1.860.484	218.648	798.000	798.000	141.972	201.373

**TABLE 3-2: KMRC PERSONNEL INVOLVED IN RESEARCH 2015 - 2018**

Active fulltime staff	Total	KMRA	Aalto	University of Helsinki	University of Turku	XAMK (KyAMK)
2018	31	5	11	9	4	2
2017	33	7	10	9	5	2
2016	34	4	9	16	3	2
2015	38	6	7	19	3	3

**TABLE 3-3: KMRC PERSONNEL IN KOTKA 2017 - 2018**

Full-time staff in Kotka	Total	KMRA	Aalto	University of Helsinki	University of Turku	XAMK (KyAMK)
2018	12	5	0	4	1	2
2017	14	7	0	3	2	2

Earlier review reports of KMRC from 2010 and 2014 (refer to the list of documents provided for this assessment in the Annex) list project volumes at EUR 1.6 million (2010) and EUR 2.2 million (2014). They also refer to KMRC personnel between 35 and 52 over the different reporting periods.

KMRC has originally started to work on safety, logistics and the marine environment. This is still reflected in the 2014 assessment report.<sup>6</sup> However, the focus has changed after 2014 and has been expanded. The KMRC Research Agenda 2017-2020 lists research areas that are supposed to facilitate interdisciplinary research:

Understand and develop the functioning and dynamics of ship operations and technology, maritime traffic, logistics, and maritime policy making;

- Assess the environmental and safety risks related to maritime traffic, acknowledging the joint effects with the other, cumulative, stress factors;
- Estimate the positive and negative impacts of maritime traffic on regional wellbeing, safety, and environment;
- Develop new intelligent tools for navigation, maritime spatial planning and management purposes; and
- Produce information for education and decision making, to support the sustainable development of maritime traffic.

Detailed lists of projects were not provided. However, the 2016 and 2017 annual reports list a number of projects and provide descriptions of the research activities.

The 2016 report features the 30-miles-project as the top project of KMRC. This project was aiming at a development of smaller ports at a distance of 30 miles from each other to facilitate water tourism. Other projects included a Research Centre for Arctic Shipping and Operations (Aalto), operational risk management for wintertime navigation (Aalto), governance of Baltic herring and salmon stocks (University of Helsinki), sustainable growth in the Gulf of Bothnia (University of Helsinki) as well as simulator training for cargo handling and oil recovery (XAMK).

The 2017 report features the Digiport project as the top project of KMRC. This project was focusing on digitalization in ports. In addition to the already mentioned projects of the 2016 report, new projects on ballast water and invasive species, oil spill response and emissions from shipping were mentioned.

### 2.2.2 Publications from KMRC research activities

In order to evaluate the publication output from KMRC, several sources have been included into the documentation provided to the reviewers. The 2014 report provides initial figures about the earlier publication activities of KMRC. The first numbers are recorded for 2010 with a modest beginning of 9 published articles. This number increased to 34 articles in 2014.

For the period 2015 – 2018, an overview file has been submitted in the form of an Excel document. In addition, a bibliometric analysis has been prepared for KMRC by the Helsinki University Library covering the period from 2014 to 2018. Since the two documents are covering different periods of time, it was difficult to validate the numbers given in the bibliographic analysis.

The list of publications includes all members of KMRC. The bibliographic analysis includes

<sup>6</sup> Varsta, P. (2014), see list of documents included for this assessment in the Annex.



the contribution of the three universities – Aalto, University of Helsinki and the University of Turku, only. It considers all together 119 publications, including publications from 2018 which would not have been cited frequently at the time of the analysis which was the end of 2018.

The following table gives an overview about the manuscripts covered by the bibliographic review and their citations.

**TABLE 3-4: OVERVIEW OF MANUSCRIPTS PUBLISHED BY THE UNIVERSITIES IN KMRC**

Organization	Web of Science Documents	Categorized Normalized Citation Impact	Times Cited	% Docs Cited	% Documents in Top 10 %
Aalto University	73	2.20	783	79.45	36.99
University of Helsinki	37	0.73	252	64.86	5.41
University of Turku	22	0.37	43	45.45	4.55

As far as the individual coverage of research areas and the impact is concerned, the following two tables provide an overview.

**TABLE 3-5: OVERVIEW OF RESEARCH AREAS COVERED IN THE PUBLICATIONS BY THE UNIVERSITIES IN KMRC**

Research Area	Web of Science Documents	Categorized Normalized Citation Impact	Times Cited	% Docs Cited	% Documents in Top 10 %
Baseline for all items	119	1.55	1006	69.75	24.37
Engineering Marine	26	1.51	106	57.69	23.08
Operations Research and Management Science	25	3.24	474	96.00	60.00
Engineering industrial	23	3.29	421	95.65	60.87
Oceanography	18	1.43	83	66.67	16.67
Engineering Civil	17	2.59	114	70.59	41.18
Environmental Sciences	13	1.54	239	84.62	30.77
Engineering Environmental	12	1.64	184	83.33	25.00
Marine & Freshwater Biology	11	1.28	65	81.82	27.27
Engineering Ocean	9	2.10	57	44.44	33.33
Transportation	9	1.53	68	44.44	22.22

TABLE 3-6: PUTTING KMRC PUBLICATIONS IN THE NATIONAL CONTEXT OF FINLAND

Research Area	KMRC			FINLAND			SHARE
	Web of Science Documents	Categorized Normalized Citation Impact	% Documents in Top 10%	Web of Science Documents	Categorized Normalized Citation Impact	% Documents in Top 10%	% of National Docs
Engineering Marine	26	1.51	23.08	68	1.45	19.12	38.2%
Operations Research and Management Science	25	3.24	60.00	381	1.28	15.49	6.6%
Engineering Industrial	23	3.29	60.87	318	1.24	16.04	7.2%
Oceanography	18	1.43	16.67	312	1.28	13.46	5.8%
Engineering Civil	17	2.59	41.18	426	1.31	17.37	4.0%
Environmental Sciences	13	1.54	30.77	3185	1.47	17.30	0.4%
Engineering Environmental	12	1.64	25.00	979	1.43	19.92	1.2%
Marine & Freshwater Biology	11	1.28	27.27	561	1.32	15.33	2.0%
Engineering Ocean	9	2.10	33.33	42	1.25	19.05	21.4%
Transportation	9	1.53	22.22	136	0.94	11.76	6.6%

The tables indicate that Aalto University is the academic member in KMRC which has published most manuscripts in the reporting period. Aalto University is leading in terms of overall numbers and citations. Especially in Marine and Ocean Engineering, Aalto leads the research area on a national basis and has a high reputation internationally. This is also confirmed by other parts of the bibliographic analysis, when, e.g., consideration is given to the nature of the journals in which manuscripts are published and the impact that these journals have.

The reviewer had a closer look at a few randomly selected manuscripts of KMRC member institutions as part of this evaluation. It was noted that there were only very few manuscripts where the authors provided an indication of their affiliation with KMRC. The reviewer did not find specific references to KMRC projects in these manuscripts.

It was also noted that KMRC does not produce reports or other publications institutionally, other than the annual report of KMRC.

### **2.2.3 Dissemination activities of KMRC**

The documentation provided for the evaluation lists a few activities through which KMRC disseminates some of its research results in order to increase its societal impact. This is mainly done through seminars and public events during, e.g., the Maritime Festival in Kotka.

## **2.3 Evaluation of the research and publication activities of KMRC**

Following the introduction of benchmark institutions and the overview about research and publications of KMRC member institutions in previous sections, an evaluation in line with the specifications provided in the ToR for the research output and the strategy of KMRC should be given in this section.

### **2.3.1 Focus and strategy of KMRC research in general**

KMRC is looking back at 15 years of its development. The initial ideas that led to the establishment of KMRC in 2005 did not fully materialize, i.e., a physical centre with a group of researchers to perform research on site. Instead, KMRC has been transformed into a research network of mainly four strong academic partners with a different focus but the expressed intention to work together. This network is supported by local and regional stakeholders who work together in order to support research activities carried out by the centre mainly focussing on logistics, shipping operations and their impact on the environment. Kotka as a major maritime centre on the south coast of Finland is an ideal host of such a research community.

In a national context, KMRC is probably the leading centre of its kind in Finland. However, outside of Finland it is not so well known and has also so far mainly focussed on the region through cooperation and interaction in the context of the Gulf of Finland and the Baltic Sea. It is stated that KMRC has a wider geographical ambition and also influences the work of the IMO to name one example. However, this is probably driven by only one partner (Aalto) and the efforts related to this issue may not be so much developed in the context of KMRC. On a

national level, KMRC has not engaged with important stakeholders in its focus areas. While some national organizations, such as SYKE or TRAFI are part of KMRC, no links seem to exist to national associations of shipowners, ports or other logistics providers.

Especially when comparing KMRC in this respect to the benchmark institutions, it is noted that these institutions are strategically related to important stakeholders on a national or even international level who engage with these institutions and participate in the governance structure of these institutions. Such engagement has created strong commitment, which is reflected in adequate funding of the benchmark institutions. KMRC depends on baseline funding from Kotka and otherwise generates an income through research. However, the research funds are generated through successful funding applications in competitive bidding. The benchmark institutions administer or administered funds that can be used by their member institutions for research activities. This has helped these institutions to significantly raise their profile on a national or international level.

While KMRC facilitates research activities of its members, it has not developed a visible and strong identity of its own. The benchmark institutions often publish own reports or insight that help to give them a strong voice to the benefit of their member institutions. They can therefore effectively lobby for their organizations and interact with important stakeholders in politics and administration in order to shape the discussions related to their focus areas. KMRC has considered these aspects in the 2019 – 2021 KMRC strategy update. The objectives and ideas stated in this document provide a possible way forward to address aspects stated in this section.

### 2.3.2 Research excellence and the extent and impact of multi- and interdisciplinary collaboration in KMRC's research

Issue	Rating
Research excellence	Excellent – Outstanding on an international level
Research quality	Excellent – Outstanding on an international level
Extend of multi- and interdisciplinary research	Emerging – Fair
Impact of multi- and interdisciplinary research	Emerging – Fair



**Research excellence and quality**

The research excellence and quality in KMRC is excellent to outstanding when considering the publications of KMRC member institutions. In some areas (ocean and marine engineering), KMRC member publications lead on a national and international level. However, KMRC is advised to review how actively it is shaping/facilitating the development of these publications. Publishing of manuscripts is a core activity for every academic and is not necessarily linked to an involvement of an academic institution with KMRC.

When looking at individual research projects, it is clear that the research projects are on an excellent to outstanding level. They often involve international partners and funds are obtained from international donors. Research results are disseminated to a variety of international stakeholders.

However, within KMRC the level of publications and research project differs. Aalto is a very strong partner – both in terms of publications and research projects. Their efforts and success significantly contribute to the overall rating in this category. KMRC is advised to review how much it contributes to the motivation of Aalto to undertake research and publish results.

The situation in the benchmark institutions is a bit different in this point. Both institutions are mainly facilitators of research as they administer or administered large research programmes. As such, they do not list all projects and publications done by a member institution. Especially when it comes to publications, they only list/show publications that are related to the activities of the benchmark institution or have been funded by that institution. KMRC is advised to review the issue and to develop an approach that would help linking publications and projects closer to the work of KMRC and only show those publications that are the result of projects undertaken within the context of KMRC. This would also facilitate the performance assessment of KMRC. KMRC is also advised to promote to its members that if publications result from KMRC activities, KMRC should be mentioned in those publications. This would help to promote the work of KMRC and may also result in KMRC becoming a more attractive entity for research funds providers.

**Extent and impact of multi- and interdisciplinary research**

Research in KMRC has initially been undertaken in three main areas with a focus on safety, logistics and the environment. Each area was coordinated by one of the academic partners in KMRC and the work seem to have been developed without high levels of interaction between the partners in KMRC. This is the impression created when reviewing previous annual reports. Projects, where partners work together, like in the case of the ongoing BALTIMARI project, seem to be the exemption rather than the norm.

It therefore remains to be seen if KMRC will be able to develop more interdisciplinary research activities. Effective cooperation across scientific disciplines is not easy to be achieved. The benchmark institutions seem to struggle in this respect as well. Both institutions have organized their work in separate areas that do not always invite for strong multi- and interdisciplinary research across the areas. The KMRC Research Agenda 2017 – 2020 provides five research areas in a format that invites for interdisciplinary research. This is a welcome change compared to the situation before with three relatively separate areas (safety, environment and logistics). KMRC is advised to carefully monitor if and how the changed research areas contribute to and foster multi- and interdisciplinary research.

### 2.3.3 Impact on the research community

Issue	Rating
Impact on research community	Excellent – Outstanding on an international level

The impact of the research produced by KMRC members on the research community in general can be rated as excellent to outstanding. This is in line with statements made in the previous section. The reports provided in preparation of this evaluation clearly show that the publications of the research activities are frequently cited. The citation numbers are on a level which is above an international average. As such, the impact on the research community can clearly be verified in terms of citations, which means that the research produced by KMRC members is discussed in the research community. This is a strong indicator that an impact has been achieved.

The impact of research on the research community can also be measured in other terms. The number of PhD students and post-doctoral fellows would be another indicator. The number of invited keynote presentations is also an indicator for the reputation that an individual researcher enjoys in the research community. In line with this, other indicators of the reputation of an institution or an individual researcher could be considered here, such as

- Membership in review or advisory panels of academic or international organizations or government bodies
- Membership in working groups of academic or international organizations or government bodies
- Awards or other forms of recognition, donations or research grants received by institutions or individual academic institutions

No specific information on those issues has been provided by KMRC for this evaluation. KMRC is advised to consider the elements raised above and to develop a position on those elements. This would be a strategic decision and also relates to the nature of KMRC. If indeed KMRC is profiling itself further as a research facilitator, it should identify the right indicators that can be clearly linked to the efforts made by KMRC as an organization.

When comparing KMRC to the benchmark institutions, it is difficult to make an assessment in this category. No specific information is given by these institutions on their priorities in this respect. Both institutions provide funds for open access publications to ensure that their research results are widely disseminated. It is recognized that many of the publications shown on the KMRC website are open access publications as well. However, it was noticed that more open access publications are listed for 2019 only and that the situation before 2018 is different and not all academic partners seem to have made open access publications a priority.

#### 2.3.4 Societal impact of KMRC

Issue	Rating
<b>Societal impact of KMRC</b>	Fair – Good

The societal impact of the work of KMRC is rated as fair to good. The reason for this is that KMRC has mainly highlighted the research aspect of its work, but not developed a number of initiatives that are targeted at the society at large. The question is of course how societal impact is defined. Research provides benefits to the society in general and KMRC members are doing relevant research on issues related to pressing questions in the region. One could argue that the initial motivation to establish KMRC were public fears in relation to the risk of oil pollution in the sensitive waters of the Gulf of Finland. This was a topic that allowed KMRC to provide for strong societal impact. However, this topic has become less prominent in KMRC's work and the risk perception in the local community seems to have changed as well.

Looking at today's activities, it is not so clear what the main target group for KMRC is. When looking at the main academic members, it is clear that Aalto focussed in recent years among others on Arctic Shipping which may or may not be so relevant for the region. The contribution of the University of Turku is related to logistical concepts and the digitalization of ports, which is clearly relevant for a city like Kotka, but it is unclear how much work was done with Kotka as the focus of activities. The marine environmental aspects, which are led by the University of Helsinki, seem to relate to a wider audience and may or may not be so relevant for the region. However, many of the efforts in this category still focus on oil spills. XAMK, the fourth academic partner in KMRC, has expertise in logistics and safety areas and can complement the work of the other universities. With its local focus on the region of Kymenlaakso, it is a local

player that could contribute to regional issues a lot better and provide links between the region and the other universities. However, not many projects have been noticed during the review where joint work is undertaken. There seem to be differences among the target groups of the individual academic partners and this could be an obstacle for KMRC to develop a clear focus on certain groups in the society.

However, in the opinion of the reviewer the question how societal impact is created is a key question for KMRC as an institution. It is noted that KMRC has competition in Finland. There is a Finnish Maritime Cluster, which is maintained by the Finnish Shipowner Association and includes at least Aalto and the University of Turku. KMRC would be advised to further develop its own clear profile and also discuss what impact it wants to create for which groups in the society.

It is noted that KMRC organizes own events. This is one way of creating impact in the society by disseminating research to a wider target group. KMRC could also participate in consultations and promote its work by contributing to discussions of pressing issues. Policy briefs or targeted reports are another option for a research organization to create impact in the society. A strong indicator for societal impact is the ability to provide for research uptake in policy making. This could be an area for KMRC to consider for further development. It is already included in the KMRC Strategy Update 20192021 but no effective verification of the effects of this strategy change could be made at the time of the review.

However, when considering societal impact, very simple things can also be considered in the context of an engaged academic institution. In this concept, academic institutions give back to the local population that provides for the funds of these institutions through tax payments. Typical measures include a wide range of activities for the local population, including educational offers or awareness raising measures. It is understood that KMRC participates in local events, such as the Kotka Maritime Festival. This may be an area for further development.

### 2.3.5 Entrepreneurial and innovative capacity of the research of KMRC

Issue	Rating
Entrepreneurial and innovative capacity	Very good – Outstanding on an international level

The entrepreneurial and innovative capacity of the work of KMRC is rated as very good to outstanding. KMRC member institutions deliver research on a wide range of topics. A number of these projects have direct relevance to the future development of the maritime industry in



Finland as they relate to shipbuilding or the port and logistics industry. The work on Arctic Shipping of Aalto and the digitalization of port services related work of the University of Turku are good examples in this context. The work of XAMK on inland waterway transport also falls within the entrepreneurial type of research of KMRC.

The research of other KMRC partners may not be focussed on business solutions, but can still be considered as innovative. The reviewer studied examples of the published work of partners from the University of Helsinki and found the ideas and concepts of the work undertaken as highly innovative. This applies to the idea of Bayesian networks for the evaluation of complex relationships between ecological indicators and environmental factors to name only one example or the utilization of sociocultural values in fisheries governance to refer to another example.

The assessment of the entrepreneurial and innovative capacity of the research of KMRC is very much related to the assessment of the excellence of research. The research outcomes of the individual partners of KMRC rank high in all these categories. However, KMRC should reflect how it can contribute to this outcome and what it can do in order to facilitate that such results can be achieved.

The benchmark institutions concentrate their efforts in helping the networks they represent to focus on specific areas and to promote the results achieved. Lighthouse as an example has categorized its early work in thematic areas, the so-called ships (e.g. ergo ship, cargo ship, eco ship etc.) and has been actively engaged to create strong partnerships between the industry and administration stakeholders of the organization with the academic partners in the network. This has helped to promote the results of its members significantly and this could be the role that KMRC could play more actively.

### 2.3.6 Quality of the research environment of KMRC

Issue	Rating
Quality of the research environment	Fair – Good

The quality of the research environment of KMRC should be rated as fair to good. In the opinion of the reviewer the set-up of KMRC has created a number of challenges that seriously impact the capabilities of KMRC. The individual academic partners in KMRC are part of well-funded and well-equipped universities who belong to the leading category of universities in their areas of focus. They have the necessary technical and personnel related pre-conditions to engage in first class research activities. Instead of focussing on the individual academic partners, the reviewer would like to offer a few comments in relation to the research environment that can be created by KMRC.

KMRC operates on the basis of a relatively small budget provided by the City of Kotka. Other income has to result from the research activities. This is unusual for an academic organization expected to facilitate interdisciplinary research and involve a number of academic partners in various academic undertakings. All benchmark institutions have been provided with baseline funding that allows them to effectively shape certain research developments in their areas. The original 2004 proposal for the establishment of KMRC aimed at this direction.

KMRC today funds a limited number of personnel and is located in Kotka. There is mainly the Executive Director and the Director of Research. Some of the staff members are funded through research and involved in research activities of KMRC. There are no own research laboratories etc.

The benchmark institutions are hosted by the strongest academic partner of their network and have access to the facilities provided by that partner. However, offices of clusters do not necessarily have to be at the premises of their strongest member institution. What is important that they have the ability to engage and interact with their stakeholders in order to create visible benefits to these stakeholders so that value is seen in the existence of this cluster, network or academic institution.

With the City of Kotka which provides the name for KMRC, KMRC is located in the right area. However, KMRC is advised to review its relationship with and to identify more specifically how Kotka can benefit today from the existence of KMRC and what added value KMRC can create for the region.

### 2.3.7 Future potential of KMRC

Issue	Rating
Future potential of KMRC	Good - Excellent

The future potential of KMRC should be rated with good to excellent. The reviewer has given this range in order to highlight that the potential depends on the strategic development of KMRC. Options for further development of KMRC exist. It depends on KMRC if and how these options can and will be utilized.

The academic output presented by KMRC today is created by its academic members. It was noted that KMRC is not the only larger centre for maritime and marine related research in Finland. There is, e.g., a Finish Maritime Cluster in which shipowners and shipyards are actively working with academic partners who at the same time are essential partner in KMRC.

The original motivation of the academic partners to join KMRC was understood by the reviewer. However, it is not so clear what the current interests of the academic partners are in KMRC and how they benefit from their membership in KMRC.

Similar issues were experienced by the benchmark institution Lighthouse in Sweden. Lighthouse was originally set-up in order to host a programme initiated by Chalmers, the Business School of Gothenburg's University and the Swedish Shipowners with the objective to contribute to Swedish shipping becoming more competitive through dedicated research on various aspects of shipping. When the programme ended, Lighthouse experienced challenges in maintaining its identity and had to re-define itself. Today, Lighthouse has moved from an organization that administered research funds of a larger research programme to an organization that actively sets a research agenda, promotes research results of its members and engages in resource mobilization efforts to attract further funding for the research activities of its members.

The reviewer sees the potential that KMRC can move in a similar direction. In fact, KMRC has already taken first steps in this direction. The decision to become a research facilitator rather than a research provider was made with the changes of the purpose of the association in 2016. Furthermore, the indicators outlined in the 2019-2021 KMRC Strategy Update provide for good options to more specifically measure the progress achieved by KMRC in this direction.

Another important aspect that determines the future potential of KMRC is how well the centre will be able to sharpen its identity. Right now, not many projects include elements of interdisciplinary research. There are a number of research topics, but they are not always interlinked and often developed by single academic partners in KMRC in an isolated way. Furthermore, it is not so clear who the main stakeholder is in KMRC's strategic concept. That main stakeholder is certainly the City of Kotka. But does Kotka see benefits in the research carried out by KMRC? What are the interests of Kotka in Arctic Shipping, to name only one prominent example of a research area? Does Kotka have these international maritime priorities or is the focus of Kotka more oriented towards the region of the Gulf of Finland? These are only a few considerations in respect to the focus of KMRC.

The other question in this respect is the question about the policy impact created by the research of KMRC. The current policy impact is not very high. The reviewer did not spot many examples of research output that provided for research uptake in policy making. However, being able to actively shape policies is a strong indicator for an effective research centre and seen as very attractive by stakeholders. This is an area in which KMRC can grow significantly. This can be achieved through active participation in policy consultations, publishing policy briefs, more active engagement with stakeholders etc.



## 3 | RECOMMENDATIONS

At the end of the review report, recommendations should be provided in line with the findings identified in the previous section.

### 3.1 Enhance and enrich the current research agenda of KMRC

KMRC is advised to review and expand its existing research agenda with the objective to transform this document into the lead document and compass for the research activities undertaken by KMRC. A research agenda is a strategic plan which can be developed in close cooperation with the major stakeholders and potential funders of research. A well-developed research agenda provides the vision of a research entity and addresses the challenges and trends it wants to cover with its research. It also includes performance indicators, expected outcomes of activities and related timelines. Such a highlevel document, if endorsed by the main stakeholders, can serve as a powerful document to facilitate the further development of a research entity. The existing Research Agenda 2017-2020 and the Strategy Update 2019-2021 are good starting points in this respect.

### 3.2 Clarify the geographical and topical focus of the research of KMRC

As part of the suggested enhancement of the research agenda, KMRC is advised to review the geographical and topical focus of its research activities. KMRC covers a wide range of topics and its research has a diverse geographical scope – from Gulf of Finland related environmental issues to Arctic shipping related themes. KMRC was founded with a regional focus and a very specific mandate related to the risk of oil spills in the Gulf of Finland. This focus has changed and a more general research agenda has been developed, which is wider in context and geographical scope. The reviewer is not in the position to advise which focus is a more appropriate focus for KMRC as this is a matter of strategic planning of KMRC in close consultation with its stakeholders. However, a clear position on these issues will certainly benefit the further development of KMRC.

### 3.3 Improve the links of the different research topics through interdisciplinary work

An important element for the research quality and impact of a research centre is its ability to work in an interdisciplinary way. KMRC is therefore advised to identify ways for further collaboration of the academic partners in KMRC with the objective to engage in interdisciplinary work. The challenges of today are complex and can be more suitably addressed in an interdisciplinary way. Interdisciplinary publications generate more impact. And there are many more reasons why an interdisciplinary approach in research has become the preferred way in contemporary research efforts of leading research centres around the world. KMRC could

therefore benefit tremendously from further adapting an interdisciplinary approach. The diverse focus of its academic members is a good prerequisite. The interdisciplinary focus is also well captured by the KMRC Strategy Update 2019-2021.

### **3.4 Identify possible options for the strategic development of KMRC**

In line with the first two recommendations regarding the enhanced research agenda and the clarified geographical and topical focus of KMRC, it is furthermore suggested that options are identified to create a stronger identity of KMRC as a research network and institution. KMRC today is a research centre with an excellent reputation looking back at 15 years of successful developments. However, KMRC is not the only maritime and marine research provider in Finland. It may therefore be advisable to assess KMRC's position in relation to other competitors and identify what are KMRC's strategic advantages and challenges in comparison with these other research entities. Such assessment may help to discuss the future role that KMRC could play in facilitating further research work.

Furthermore, KMRC has four academic partners in its network. The reviewer is wondering if a discussion has been undertaken whether KMRC should be limited to these four partners or if the research output could be enhanced by adding other partners to the network.

KMRC has defined its role as a research facilitating organization a couple of years ago. An internal review should be undertaken how effectively KMRC is already performing in this role and what other expectations may exist among existing and potential future members in this respect. The KMRC Strategy Update 2019-2021 is a very good starting point in this respect. It is recommended that the question how the Strategy Update can be effectively implemented should become the main focus of such an exercise.

### **3.5 Create a stronger identity for KMRC as a network and institution**

One challenge that was encountered during this review was the difficulty to clearly identify research undertaken by the KMRC academic partners in the context of KMRC. KMRC is fortunate to have strong academic partners who produce excellent academic output. However, it would be beneficial for KMRC if the research undertaken as a result of the membership of KMRC is clearly marked and reference to KMRC is made in, e.g., affiliations of authors listed in publications on websites etc. Such distinct marking will clearly help to better assess the output from KMRC. At the same time, it provides a recognition of the sponsors of KMRC and could make it more attractive to support KMRC or to engage with KMRC.



### 3.6 Raise the visibility through impact-creating dedicated KMRC reports

Another factor that could increase the attractiveness of KMRC and enhance the future potential of KMRC could be the consideration of the development of dedicated, impact-creating KMRC reports or papers on contemporary issues.

If indeed the role of KMRC is to facilitate research, KMRC should use the research results provided by its partners and engage with these partners in order to develop reports on core themes of KMRC. Such reports could show the high level of research undertaken by the network of KMRC and could raise the visibility of KMRC. The suggested reports could be a series of papers under one distinct headline or annual reports on a specific topic or any other suitable format of output that could be published in regular intervals.

Dedicated KMRC reports and papers would underline the important function that KMRC could play as an institution when it demonstrates its ability to connect its academic partners through joint work on such a publication. This could be a very attractive feature for research fund donors and potential academic collaborators.

### 3.7 Identify options for KMRC to facilitate research uptake in policy making

Furthermore, the recommendation should be made that KMRC concentrates more on dissemination of the research results of its partners and in particular focuses on research uptake in policy making. The ability of a research network to shape policy making through relevant background research and deeper insights is a strong indicator for the relevance of a research centre.

The KMRC Strategy Update 2019-2021 lists a number of a vital objectives. However, the research uptake in policy making is not listed in this document. If work is undertaken in this area, it could help to significantly enhance the strength of KMRC as a research centre.

### 3.8 Identify strategic options to improve the funding situation of KMRC

The funding situation has created challenges for the development of KMRC in the past. The level of funding of KMRC today sets limits for the development potential of the centre. The opportunistic funding approach of KMRC through public calls for research proposals will not allow for the development of a comprehensive and concise research programme of the centre.

The issue has been recognized by KMRC and is addressed in the KMRC Strategy Update 2019-2021. The suggestions made in the other recommendations may hopefully help to raise the profile of KMRC so that efforts to address the financial situation will be successful.



# 4 | ANNEX

## 4.1 Terms of References

### 4.1.1 Guidance for the external evaluator (dated 12 February, 2019)

The aim and expected outcome of the assessment Kotka Maritime Research Centre (KMRC, “Merikotka”) research assessment will evaluate the activities carried out within the KMRC network (<https://www.merikotka.fi/merikotka/?lang=en>). Instead of evaluating the research groups separately, the network will be assessed as a whole. The assessment is the first international evaluation to be conducted in the KMRC history and aims at positioning KMRC nationally and internationally. The idea of doing such evaluation was originally proposed in KMRC operational model analysis report published in 2014<sup>7</sup> and the assessment has been initiated by Kotka Maritime Research Association (KMRA). In 2015, a decision was made to change the nature of KMRA from a purely (research and project) administrative organization into one with more expert organization. This change also influenced the need to get feedback on KMRC work.

The target of the assessment is to evaluate

- the quality and potential of research,
- the success of multi- and interdisciplinary collaboration within KMRC, and
- KMRC’s research impact, societal impact and innovative capacity.

The evaluation will provide high-quality feedback on KMRC strengths and weaknesses and identify future recommendations. The results can be utilized in improving KMRC activities during the strategy period 2019-2021: in steering KMRC’s research focus areas and research themes, in improving the quality of interdisciplinary collaboration and in enhancing the interaction between KMRC and society. KMRC 2019-2021 strategy update lists several planned actions which will utilize the evaluation results.

The assessment is carried out by two external evaluators. As an outcome of the assessment, the evaluators are asked to produce assessment reports. Each evaluator produces their own report. The deadline for delivering the report is agreed with each evaluator.

The report shall cover the items listed under evaluation criteria. The evaluation is based on the written material (listed under background material for the evaluator), interviews conducted during the site visit and additional material requested by the evaluator before/during the visit.

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<sup>7</sup> Varsta, P. 2014. Kotka Maritime Research Centre ‘Merikotka’. Current state analysis and a proposition for future operational model (in Finnish).

#### 4.1.1.1 Background material for the evaluation

The following written material will be provided to the evaluator:

- Self-assessment report
- Bibliometric analysis 2015-2018 + list of publications
- KMRC annual reports 2016 and 2017
- KMRC strategy 2019-2021
- KMRC research agenda 2017-2020
- KMRC personnel and project volume figures 2015-2018
- Summaries of the current and past projects including funding sources, consortia and project budgets: [www.merikotka.fi](http://www.merikotka.fi)

The evaluator is asked to familiarize her/himself with the background material prior to the site visit.

#### 4.1.1.2 Interviews

An interview visit will be organized on 25.4.2019. During the visit, the evaluators have a chance to interview KMRC researchers and management and get acquainted with KMRC. The evaluators can conduct the interviews as they find best (who to interview, how to interview etc.). In case of desiring to interview other personnel than the research management (such as researchers or project managers) and/or if the interviewees need to prepare something for the interviews, KMRC would appreciate it if the evaluators would inform about these in advance.

#### 4.1.1.3 Evaluation criteria

In the assessment report, the evaluator is asked to present:

1. A general statement on the focus and strategy of the KMRC research;
2. Numerical ratings and written statements for the following elements:
  - Research excellence, research quality, and the extent and impact of multi- and interdisciplinary collaboration of the research;
  - Impact of the research on the research community;
  - Societal impact;
  - Entrepreneurial and innovative capacity;
  - Strengths and weaknesses of the research environment;
  - Future potential

The scale to be used for the numerical ratings:

1 = emerging; 2 = fair; 3 = good; 4 = very good; 5 = excellent;  
6 = outstanding international level.

3. Recommendations for the future. The recommendations shall support KMRC in developing a roadmap from the present quality to the internationally excellent level and maximal societal impact, and in identifying necessary changes.

For the purposes of defining quality levels, “international” is a quality benchmark. The wording “international level” shall not be equated with work on international themes. Here, “international level” indicates KMRC’s standing in comparison with internationally established research units or institutions in the same field of research. For example, the quality of the interaction between KMRC and society (i.e. the societal impact) may be assessed to “Outstanding International Level” even if the interaction takes place mainly at the national or even local level, if this is the case also in the best international institutions in the same field of research.

## 4.2 Documents made available for review during this assessment

The following documents were provided by KMRC for the external review of the research output of the centre:

### Initial planning of KMRC

- Lahti, S. & Uronen, P. (2004) Merikotka – Kotka Maritime Research Centre, a report commissioned by the City of Kotka and the Regional Council of Kymenlaakso

### Earlier reviews of KMRC

- Lahti, S. & Uronen, P. (2010) Evaluation of Merikotkas operations and a future strategy
- Varsta, P. (2014) Maritime Research Centre Merikotka – Report on current state and a proposal for a future operational model

### KMRC bylaws, rules, strategic documents

- Rules of Kotka Maritime Research Association 2016 (PRH journal number 2016/513159Y, document number 39556479)
- KMRC Research Agenda 2017 – 2020
- KMRC Strategy Update 2019 – 2021

### Documents related to research output from KMRC

- KMRC Research Assessment Self Evaluation Report
- Merikotka Annual Report 2017
- Merikotka Annual Report 2016
- KMRC Publications 2015 – 2018 (Excel)
- KMRC Indicators (Projects etc.) (Excel)
- Bibliometric Analysis for KMRC 2014 - 2018 undertaken by Helsinki University Library

### 4.3 Background to Kotka Maritime Research Centre

This section summarizes the history of KMRC with the objective to list the original motivation for establishing KMRC and the initial concept of work of the centre. Considering other strategic developments of KMRC over the years, this section of the review report provides the basis for the assessments of the outcomes of KMRC today.

#### 4.3.1 Establishment in 2005 and early years of development

The idea to establish KMRC goes back to 2003 when a suggestion<sup>8</sup> was made to the City of Kotka to establish a network of cooperation in the higher education sector of the region of Kymenlaakso with a special focus on maritime issues. A detailed concept was developed that required work of KMRC in the following three areas:

- Safety and risks in maritime transport and the maritime environment
- Technological development and spill response technology in maritime transport
- Logistical systems and business models for the maritime sector

The motivation for the establishment of KMRC is deeply rooted in discussions about the status of maritime safety in the Baltic Sea following the oil spill of the tanker Prestige<sup>9</sup> and especially in the light of efforts to expand Russian oils exports from Russian ports in the Gulf of Finland. This explains the original focus of KMRC and also the location, as Kotka is one of the main ports (90% of chemical cargo from Finland was handled in the ports of Kotka and Hamina at the time of the establishment of KMRC).

The idea was to create a national centre and the original proposal states that there is interest from various stakeholders in Finland to establish such national centre.

Original projections foresaw the involvement of 7-8 professors/lead researchers, 50-60 researchers and 4 additional staff. The required office space was initially estimated at 500 m<sup>2</sup> and projections were made that this could grow up to 1500 – 1800 m<sup>2</sup>. It was also estimated that it would take 3 – 5 years to be fully operational. The required funds were estimated to be in the range of EUR 2 million for the first three years for personnel and operation. Furthermore, an additional EUR 1.5 millions was estimated to be needed for initial investments and premises. It was also estimated that the centre could generate EUR 7 – 10 millions of research grants during a period of three years.

The core priorities in KMRC were already outlined in the 2004 proposal and the documents provided for this review allow for the conclusion that they have remained largely unchanged over time.

<sup>8</sup> Lahti, S. & Uronen, P. (2004) Merikotka – Kotka Maritime Research Centre, a report commissioned by the City of Kotka and the Regional Council of Kymenlaakso (Report provided in the Background Documentation).

<sup>9</sup> The 26-year-old tanker Prestige caused a massive oil spill when sinking in the Bay of Biscay in November 2002 as a result of structural deficiencies. The Prestige departed from Ventspils (Latvia) on its final voyage and crossed the vulnerable Baltic Sea before encountering the structural difficulties in the Bay of Biscay.



### 4.3.2 Developments up to 2014

Two follow-up reports were made available in the background documentation for this review. There is a 2010 report<sup>9</sup> evaluating the development of KMRC until 2009. Another report<sup>10</sup> was issued in 2014 covering the developments at KMRC from 2010 to 2013.

The 2010 report shows that the original estimates for and dimensions of KMRC as envisaged in 2004 were not realized. In 2010, KMRC was operated by 1 Research Director, 3 professors and about 30 researchers supported by 5 administrators on 330 m<sup>2</sup> office space. The funding provided by the City of Kotka was in the range of EUR 625,000 and project funding was in the range of EUR 1.6 millions. Furthermore, industry funding in the range of EUR 67,000 was obtained.

The 2014 report has a different structure and does not allow for direct comparison with previous reports. While the original focus of 2004 was still confirmed in the 2010 report, the 2014 report focusses on a changed environment and changed priorities for the research carried out in KMRC. It refers to issues like sustainability, globalization, new safety challenges for maritime transportation and a changing business environment for maritime logistics.

The 2014 report refers to the administrative model of Merikotka as an independent research association with 12 members (all either from higher education or public administrations) at the time of the report. The 2014 report shows stable to increasing numbers for research projects and publications, as well as staff members.

The report lists about 20 projects per year with an average size of EUR 110,000 of funding. The staff is listed to be between 35 and 52. The total funding is in the range of EUR 2.9 millions.

The 2014 report lists information about publications of KMRC for the first time. Publications have gone up from 9 articles in 2010 with 45 staff members to 34 in 2014 with 43 staff members. Information about the citation indexes of the lead scientists are used to indicate the high academic level of publications at KMRC. Furthermore, societal impact is considered in terms of organization of KMRC seminars, participation in seminars and media appearances.

Despite all success, the 2014 report also refers to a few challenges that KMRC is facing. These challenges relate to:

- KMRC not having succeeded to offer educational programmes as originally planned.
- KMRC is now a research association and activities are carried out by its members at their own premises and not as planned at the premises of KMRC.

<sup>9</sup> Lahti, S. & Uronen, P. (2010) Evaluation of Merikotkas operations and a future strategy (Report provided in the Background Documentation).

<sup>10</sup> Varsta, P. (2014) Maritime Research Centre Merikotka – Report on current state and a proposal for a future operational model (Report provided in the Background Documentation).

- KMRC has mainly a supporting role for the members of the association.
- Issues related to continuity of personnel are mentioned in the report.
- Missing quantitative targets are listed in the report.
- Difficulties in stimulating interdisciplinary research are described in the report.
- It is unclear if and how the participating Universities shape the identity of KMRC.

The 2014 report lists a number of developments at the different partners, but it is unclear how KMRC benefits from such developments and in which way these developments help raising the profile of KMRC.

#### 4.3.3 Developments until 2019

As indicated in the 2014 report already, KMRC has in more recent years worked in the form of an association that serves a network of organizations. This is manifested in the 2016 KMRC rules<sup>11</sup> and also the KMRC research agenda 2017 – 2020.

The KMRC 2016 rules are clear on the support role that KMRC plays for its members (refer to “2. Purpose of the Association and the Quality of Operations”, where it is stated that to “implement its purpose, the association co-ordinates and implements maritime research; organizes support services for the research and education done by its members ...).

The Annual Reports 2016 and 2017 list several projects undertaken by KMRC. Especially the 2017 report provides more figures on the centre and lists 33 employees. However, it is unclear how many of them work at KMRC or if they are at the different organizations who are part of KMRC.

One part of the documentation submitted in advance of this review is the KMRC Strategy Update 2019/2021. This document captures a number of strategic directions and related indicators that could be used to map the development of KMRC in a more specific way. These strategic directions are:

- Boosting cross-disciplinary research
- From research findings to practical applications
- Societal impact

In addition, the need to widen the funding basis of KMRC is highlighted in the document and impactful communications listed as another priority.

<sup>11</sup> PRH journal number 2016/513159Y, document number 39556479



KOTKA MARITIME  
RESEARCH CENTRE