

## Discovering the Unexploited Skills of Dual Ship Officers

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By studying the ships officers program as a Dual officer, the students from SIMAC end up with skills that enable them to act on the bridge as well as in the engine room.

A holistic approach to the entire vessel operation is one of the beneficial skills which dual officers get from their studies. However the majority of dual officers are not employed as dual officers, but instead they are working as single officer Marine Engineers or Master Mariners.

### **The dual officers are not making use of their dual skills**

Having this in mind, two lecturers at SIMAC sent out a questionnaire to approximately 400 former dual officer students, all in all 158 responded to the questionnaire.

The main purpose of the questionnaire was to study if the Dual officers have unexploited skills or possibly a lack of skills.

The questionnaire revealed that 47% of the 158 respondents find that they have unexploited skills and that 21 % of the respondents are experience a lack of management and practical skills [2].

### **Difference in tasks and skills**

To operate a ship with dual officers the vessel must reorganize its organization. This task has been shown to be more difficult than expected because reorganization takes time and demands innovation in the daily routines on board the vessels and in the shipping companies.

When recruiting new employees to man the vessels, it seems that the shipping companies only ask for single officer applicants. The reason for this could be that there is a general lack of knowledge of what the dual officer program consists of and which skills the dual officers have after completing their education.

However the dual officers are often used in the land organisation of the shipping companies because of their dual skills and their wide knowledge about shipboard organisations. This is indicated in the extract below from the questionnaire:

*“I almost have to answer that, but in reality the dual education, in my perspective, has not existed long enough to make a mark in traditional shipping organizations. I often see that primarily you have either nautical or technical areas of responsibility, not often both at the same time. Nevertheless if you are employed in a shore based shipping company it makes sense to have the dual training, as it is a great advantage having the complex ship knowledge among especially senior single trained colleagues where you often get the role as the “go-to-guy” in different situations. The essence being that the dual skills are informally implemented, but at least exploited [1].*

### **Conclusion**

Our analysis shows that every fifth dual officer has experienced inadequate skills that can be split up into management and practical skills.

Almost every second dual officer feels they are not fully using their skills. These skills could be used for restructuring shipboard organization.

Because a lot of companies are not aware of how they can use the dual officers there is a need for better information on which skills the dual officers have.

**Keywords:**

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Upgrade

**References**

[1] Questionnaire, publish date: 2013-08-20, expire date: 2013-09-19.

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**Introduction** The dual officers are trained both to act on the bridge and in the engine room.

Not many would doubt the fact that the dual ship's officers have broad capabilities, but how many of the dual-educated officers have skills that they do not use in their daily work on board ships? This is question we have chosen to examine. The purpose of the study is to find out how these potentially unexploited skills can be activated via revised job functions in the maritime land organizations.

In contrast with the potentially unexploited skills that dual officers hold, we have chosen to investigate whether there are areas where they have a lack of experience. The aim of this is to have a look if there could be any advantages from making some adjustments to the dual ship officer program.

Furthermore, we will investigate which training activities that can increase their skills are the most preferred.

Finally, we have chosen to investigate whether dual officers believe that networking meetings, which of course is an activity that has had much success in recent years, can help to enhance one's skills. To identify the dual officers' potential competencies, a questionnaire was developed that was distributed to approx. 400 former graduates.

To look at the matter from the maritime industry's point of view, we have further decided to investigate the industry's attitude and experience of dual officers. For this study, we have also prepared and distributed a questionnaire to 16 maritime leaders who have to do with dual officers.

**The reason for the dual ship's officer training**

In 1995 the Danish parliament set up a committee aimed to come up with suggestions on how Denmark could continue to maintain its position as a leading maritime nation still using Danish seamen on board the ships. This was based on the development in Danish shipping, where fewer and fewer Danish seamen are being hired in favour of foreign ones.

One of the Commission's proposals was to reorganize the officer training program to make Danish officers more competitive than the cheaper foreign labour. In addition to a thorough modernization of officer training, it was also a proposal from the Committee to change the titles of the head officers of the ships from the Shipmaster, Chief Engineer and Chief Officer for Ship Manager, Maintenance Manager and Navigation Manager. The radical change in education meant firstly that the admission requirement for education was increased. In addition, the basic types of education of the officers were merged to a combined course where first they had to choose a main direction of the education after having acquired the rights to take the duty on the bridge and in the engine room. In addition, the Committee proposed that the training should be designed with a mix of experience at sea and theory in educational institutions. This included the stipulation that the industry is obliged to ensure that no one who completed basic training would be unable to complete the full training due to lack of service at sea as a unit officer.

### **Ship's officer training at SIMAC**

The training of dual ship's officer at SIMAC consists of two parts: a junior program and a senior program.

The junior program lasts 4 years, after which one obtains a title of Bachelor of Maritime Transport and Ship Management. The junior program issues a certificate of competency as a deck officer and engineer, equal to (STCW) A-II / 1 and A-III / 1.

Completion of the Junior Officer program gives access to the Senior Officer program.

At the senior program you choose to specialize as Master (A-II / 1, A-III / 1 and A-II / 2), Chief Engineer (A-II / 1, A-III / 1 and A-III / 2) or Ship Manager (A-II / 1, A-III / 1, A-II / 2 and A-III / 2).

The senior program takes between 6, 12 or 18 months depends on what you choose to specialize in. [1]

## **Analysis of empirical data**

### **Dual officers' experience with use of their skills**

As mentioned earlier, we have sent out a questionnaire to approx. 400 former graduates of SIMAC, of these, 158 responded, giving an overall response rate of 38%

The respondents can be divided into the three different fields of education as follows

Chief Engineer	18 %
Master	45 %
Ship Manager	37 %

Of the total number of respondents 58% (92 persons) are working at sea.

The questionnaire consisted of a mix of quantitative and qualitative questions, but the recurring theme in the questionnaire is whether graduates have experienced lack of skills after graduation, or whether they feel that they have unexploited skills that they have not used in their work [2].

### **The maritime industries' experience with the dual officers**

To clarify the industry's experience and attitude to the dual officers, we sent out a questionnaire by mail to 16 maritime leaders in Danish companies and out of these 9 answered. The questionnaire

consisted of six questions, starting with two quantitative descriptive questions and four qualitative open-ended questions to clarify attitudes and opinions about the dual officers skills and if the dual officers could be used in a different way than today. [3]

### **Unexploited potential of competences**

The examination of the dual officers shows that 47% of the respondents believe that they hold skills that are not being fully exploited in their daily work. [2].

Many respondents expressed the opinion that dual officers involved in single positions such as engineers or navigators have some unexploited skills. Despite that, there are respondents who believe that the dual skills held together by one person provide some good opportunities and a versatility that are in demand in many areas of the maritime sector. However, we see that there are several respondents who say that one can make use of the dual training, although not directly when employed as a dual officer. This means that the dual skills are to some extent being used, even if they are not used in the way they were actually intended.

The most obvious trend in the responses from the dual officers is that companies should be more focused on using dual ship officers in their fleet. When the dual officers are employed in single positions, either as an engineer or mate, the companies are forcing the dual officers to make a choice of career, and this, of course, naturally creates potentially unexploited competencies. In order to use the dual officers properly you would have to think differently and change the culture, and this is something that takes time and resources.

The study of maritime leaders shows that four out of nine believe that the dual officers could be used in a different way than today. Several of the managers indicate that they certainly can be applied more flexibly than today when they gain some more experience. This attitude also shows that it takes some time before it leaves traces in the organization. As one of the leaders points out, it eventually could be an advantage if the system was made so flexible that the dual officer can spend extra time in the department where they need extra experience. Several dual officers point out that the unused skills are useful in land-based positions. This is also indicated in the below extract from the questionnaire:

*“I almost have to answer that, but in reality the dual education, in my perspective, has not existed long enough to make a mark in traditional shipping organizations. I often see that primarily you have either nautical or technical areas of responsibility, not often both at the same time. Nevertheless if you are employed in a shore based shipping company it makes sense to have the dual training, as it is a great advantage having the complex ship knowledge among especially senior single trained colleagues where you often get the role as the “go-to-guy” in different situations. The essence being that the dual skills are informally implemented, but at least exploited” [2].*

The opinion about that dual officers are use full in land-based organisation is shared by the maritime leaders, who believe that the effect of the dual officer’s broad understanding of ship operation will be ideal in land-based positions, some good examples could be superintendent or surveyor.

One of the dual officers believes that the focus should be more on the general understanding of ship operations which the dual officers have accumulated by working in both departments. Likewise, he points out the potential advantages of the company having only one contact on the ship (single point of contact), which could facilitate decision making and create a shorter path from decision to action. This also demands of course a lot from the land organization.

### **Tasks at sea**

Many companies have tried to use dual officers in their shipboard organizations but have since stopped using dual and instead engaged them in single posts. The fact that some companies have not been able to use dual officers on-board their ships could be related to the fact that the dual officers have just taken over the positions held by single officers, therefore they naturally come into the roles and procedures already running on the ships. This idea about the dual officers being linked in periods to either the engine room or the bridge is also not in line with the way they are taught during the senior part of the ship's officer training program, in which cadets are taught each semester either as master or chief engineer and therefore in practice are trained to work in one or the other department.

Thus the holistic mind-set that was actually the idea of the dual training is being lost. As several of the dual officer respondents say it requires a rethinking of ship organization and a break with the traditional division of labour, as well as a rethinking of the structure of the dual training program leading to an independent program and not a merger of two programs [2]. This division may be a contributing factor to fact that they find it difficult to engage and influence their job functions on board the ships.

Some dual officers suggest that the industry consider them to be less competent because they are both in the engine room and on the bridge, and thus have not kept the focus in one area [2]. But this may be due to a misinterpretation of the profession of dual officer ship. Being a dual officer is not a matter of being a specialist in two existing fields but one who is able to consider the ship as one unit. The cause to this misinterpretation could be due to insufficient knowledge about the background, purpose and awareness of the dual training program.

### **Educational competence gaps**

In a former chronicle we describe the finding that lack of skills is something that 21% of the responding dual officers have experienced at one or more points in their careers, . When we take a closer look at which areas the respondents most often experience lack of skills, economy, project- and personnel management is often mentioned [4].

On the practical level, troubleshooting on electrical installations and machinery comes up as one of the areas where skills are lacking. Looking at what the maritime executives believe about the dual officers' lack of skills, they are also of the opinion that they lack practical experience [2]. Several of the dual officers point out that during their time as a ship officer they hardly dealt with practical troubleshooting. This may be due to the past, where the focus was on a knowledge of components rather than the understanding of technical systems in which the components are used.

*One of the respondents answered the following to the question: Have you in your career experienced times when you have experienced lack of skills / qualifications because of your dual training [2]*

***”At the theoretical level, it would have been great with more focus on management and economics in the dual education. Especially when you consider how many of the former class members have now stopped sailing but are employed in leadership positions in the Blue Denmark.”***

### **Why the dual officers are not made use of?**

When the Funder Committee was set up in 1995 it was thought that the Danish shipping needed broad competencies for the Danish officers. The reason was a growing decline in the number of Danish seafarers, a trend the Danish government wanted to turn around.

It was thought that by increasing the skills and making the officers' skills broader, it could make them more attractive at sea compared to foreign seafarers, and thereby increase employment of Danish seafarers [5]. The shipping companies gave as a reason at the time to keep a certain number of Danish

seafarers on board Danish ships, a long-term strategy concerning ship management, manning the company offices, etc.

How does it look today, almost 20 years later? The prediction that the Funder Committee made about the need for the seafarers to have broad skills in ships proved not quite fitting. There is a growing demand for specialists, especially in the tanker, supply and offshore market, which means that the industry does not demand the broader type of education at sea. Especially in the tanker market, the companies say that they cannot use the dual officers because they do not earn enough sailing time in each position, which becomes a problem in the oil companies Vetting Regime [4]. The Oil companies' SIRE program has since 1995 taken a greater and greater effect, and the oil companies control the officer crewing arrangements by officer matrices. They do not recognize, in this context, dual officers who therefore must be mustered in single posts. Generally the greater picture shows that specialists are the ones in demand at sea. So the intention of changing the ship organization and bringing in seafarers with broad competencies has not been shown to hold.

One can now see that there is a great migration of skills from the ships to the shipping companies and other maritime industries, which are important for the maintenance of the competencies in the Blue Denmark [6]. So you could say that part of the Committee's reason for amending the education has proved to be true. If you look at the number of Danish seafarers since 1995, the number of Danish officers has increased to over 2,000 in 2000, compared to 1,723 in 1995 [5]. From 2000 to 2011 we will gradually reduce the number of Danish officers to approx. 1,750 (graph is shown in Figure 1). So we cannot conclude that the transformation of education as a result of the Funder report has resulted in a greater number of Danish seafarers.



**Figure 1 Number of officers employed on Danish ships from 2000 to 2011 [7]**

As described earlier, there is a migration of skills from the ships to the shipping companies' organizations, as well as to the other maritime industries [6]. This is what some of the dual officers also point out: a dual officer with practical experience is ideally suited for a job as a superintendent surveyor. The reason why the dual officer is suitable for these positions is their broad knowledge of the technical operation combined with experience at sea [2]. As pointed out in Landlubbers and Seadogs, there are some industries outside the maritime sector where the at sea experience is a major advantage [8]

### **Changing shipboard culture**

In order to be able to use the dual ship officers on board ships it is important to look at the culture on board. It can be difficult to change the culture on the ships. As described in CEFU's analysis of ship's officer students, there is a tendency that sometimes it can be lonely to be the watch keeping officer [9].

Looking at how the ship's officer students perceive the culture in the engine department, it seems as if there is a larger community because of the many common tasks to be solved. When the dual officer is alternating between two very different departments, it is difficult to find your own identity as an officer. Instead they do their best to fit in to the different departments. Some of the dual students point out in that therefore they feel that the responsibility to convince the single officers on board that the dual officer program is a good idea, lies on their shoulders. [9].

As described in Human Factors in the Maritime Domain there is a very strong professional culture in the maritime trade and this culture could well be one of the major reasons why it is so difficult and why it takes time to implement the dual concept [10].

We find that the shipping companies must adjust the organizational structure on board the ships in order to ensure success for the dual officers and ensure that there will be a visible difference when using dual officers in a dual position.

Our questionnaire points out that for the dual graduates the maritime industry's knowledge of the dual training is not sufficient, and therefore the dual officers are not recognized as a potential recruit to the maritime organizations. [2]

### **Evaluation of the dual training program**

Looking at the composition of the dual training, the students express a lack of coherence between the individual subjects during the education, which is necessary in order to produce the interdisciplinary skills which the industry has requested [9]. This trend is also seen in some of the respondents to the questionnaire, where it is pointed out that focus should be more on the dual officer as one education instead of a merger of the two programs (engine and navigation) [2].

It is important that the objective is well communicated. What is a dual officer, what are the competencies and what are the benefits for the maritime industry from using dual officers. It is not just an officer who can navigate and maintain the engine, but a generalist who has an overall view of the ship.

As also highlighted in our questionnaire, troubleshooting is one of the most frequent lack of skills that the dual officers experience after they have graduated, especially troubleshooting on electrical and hydraulic systems [2].

Furthermore there has been too little focus on providing information on-board on how to implement the dual training. No one is probably in doubt about how to act in their respective departments. But again then we just return to a merger of two departments. If you want the dual officers to set new standards in ship operation, then focus must lie on shipping operations as a whole and not as two separate departments put together. [2].

### **Developing the dual officers competences**

To find out if any of the dual graduates have made an effort to rectify a lack of competency, we asked them what type of training activity they have participated in.

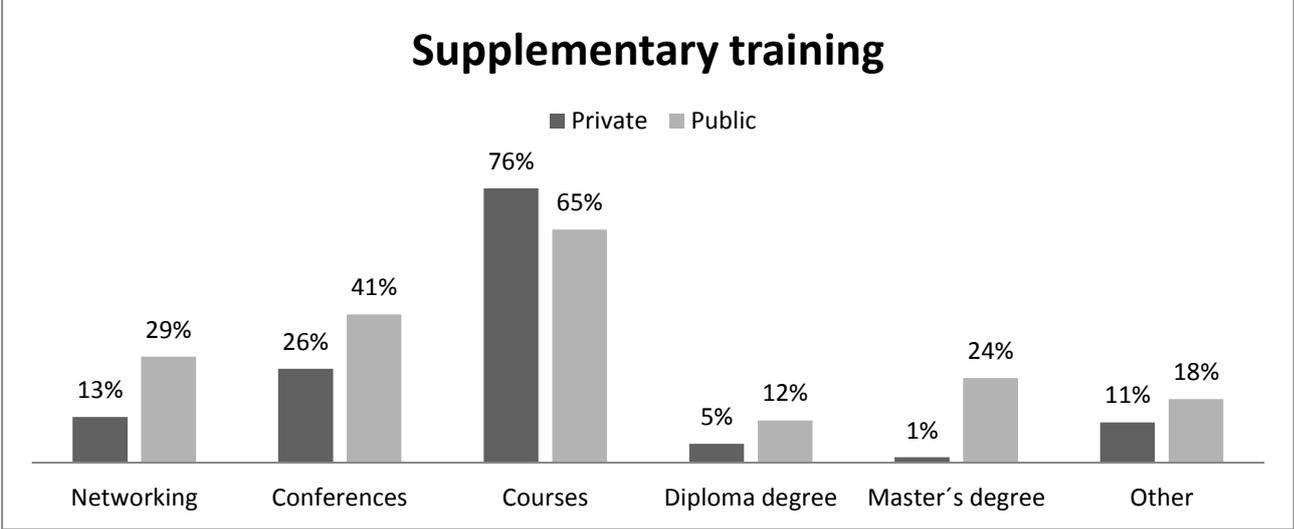
Furthermore, we examined the graduates' opinion on whether the network meetings can contribute to improving skills.

### **Upgrading of qualifications**

The aim of the Danish government's growth plan is to ensure a strong Danish competitiveness through an ambitious education agenda designed to provide a distinctive competence level of the Danish workforce. In that contest it is problematic that just under half (47%) of the dual ship's officers in the Blue Denmark believe they have an unexploited potential [4].

Furthermore it is also interesting to look at how training is divided between the private and the public sector. As seen in the Figure 2 below, it is primarily in the private sector that dual-officers have completed a Diploma / Masters course.

So to accommodate the growth plan, focus should be maintained on the unused potential competence, as well as for a skilled workforce in the private sector.



**Figure 2 Percentage of supplementary training by public/private employed dual officers [4]**

**Network meetings**

A large number of respondents believe that networking meetings are good for sharing knowledge, both in industry and in general, in order to get a glimpse of what goes on in the maritime sector. It is also suggested that it can be used to identify which skills you lack and what direction to go [2]. However, there are some who do not believe that networking meetings can be used to develop skills of seafarers in the maritime industry. Instead they find that it can certainly be used in land-based positions. This matter of opinion could be related to the fact that as a sailing officer you are often bound by a fixed ship organization.

**Conclusion**

Our analysis shows that one in five dual officers has experienced a shortage of skills, mainly in the management field and in practical skills. Furthermore, we can conclude that every other dual ship's officer believes that they do not use their skills fully. These unused skills could possibly be used to restructure the shipping organizations. The most significant reasons for the dual officers not being used is because there is a lack of understanding of what it means to be a dual officer, and the attempt to implement the dual officers in the traditional ship organization, forcing them to choose between departments. Moreover, it seems as though the educational institutions have too little focus on the interdisciplinary character of being dual trained. Despite the fact that the dual officers has untapped skills, there are still many who have participated in training activities to improve skills in specific areas, however a clear trend is that a greater proportion of employees in the private sector has acquired a diploma-/ master's degree.

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