FIRST STEPS OF CREATING AN IMMERSIVE SCENARIO FOR IMPROVING NAVAL SKILLS.

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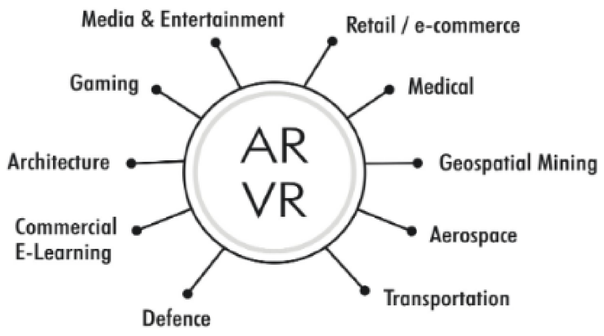
MOTIVATION OF THE WORK

The maritime industry plays a major role in the **European economy** and is an important contributor to the blue economy. Since the 2008 economic crisis, there has been an increased focus on innovation-driven processes, including the digitalisation of industrial processes and the rising demand for more sustainable practices. These, alongside geopolitical and socio-economic changes on a global scale, are placing considerable stress on the labour market. In order to meet these challenges, present and future skills shortages must be identified and addressed, to safeguard the wellbeing of maritime communities and the overall competitiveness of the industry.



Augmented Reality and Virtual Reality Markets by Segments

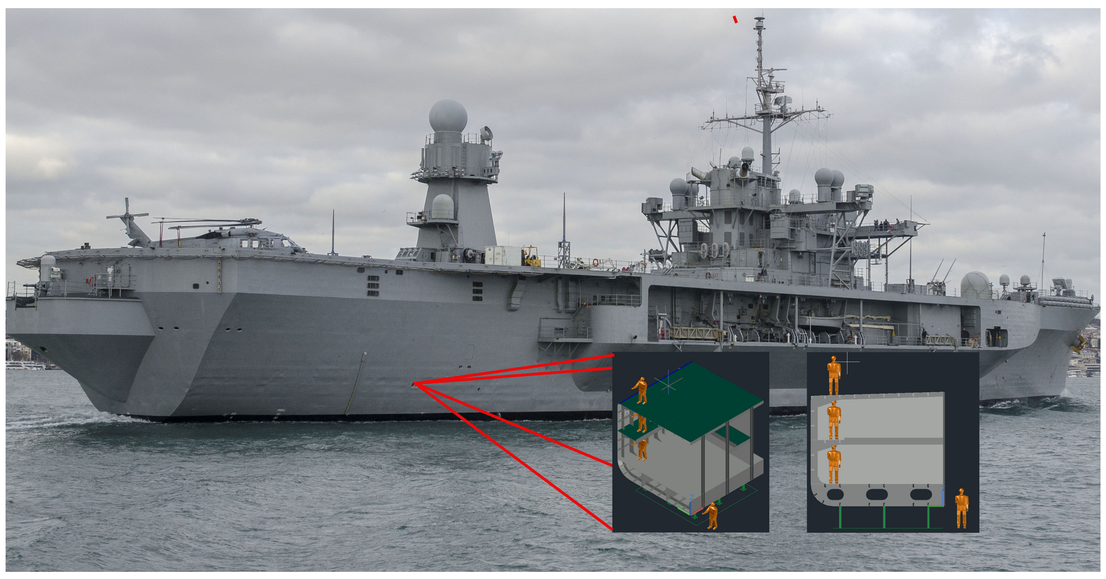
Our objective are:

- **Developing** a skills strategy that addresses the main drivers of change to the maritime industry, in particular shipbuilding and offshore renewable energy.
- **Collaborating** for being able to bridge the gap between training professionals of naval construction and renewable maritime energy and industry needs.
- Students can find himself in situations of risk when **performing** repair, maintenance or installation work.

Virtual Reality (VR) and Augmented Reality (AR) technologies play a crucial role in the fields of digital entertainment, information and workspace. We are sure that education can be also a field where VR/AR technologies can fulfil their potential.

NAVAL LEARNING CASE OF USE

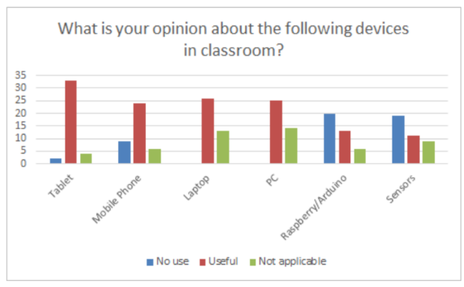
Focused on a public vocational center of Maintenance and Control of Ship and Boat Engine, in Ferrol, Galicia, Spain called, CIFP Ferrolterra. An innovative idea arises from a group of teachers with the purpose of implementing the training of some modules, in the area of metal constructions. They decided to build a block of a ship with longitudinal structure. The scope of this scenario is to provide a more realistic and engaging way to train the students, as well as to give better versatility and functionality to the initial project.



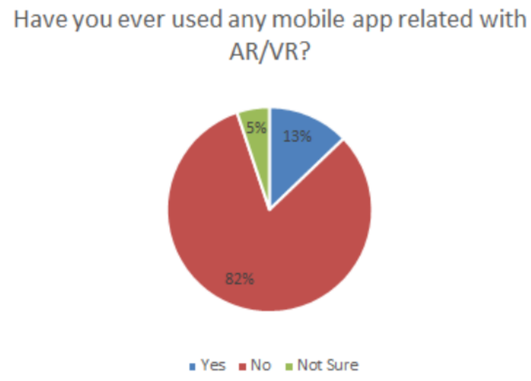
STUDENTS' AWARENESS ON AR/VR TECHNOLOGIES

A survey was conducted of almost 40 (39) students of Maintenance and Control of Ship and Boat Engine Vocational School, which are studying superior level in the area of metal constructions. Our goal was to select participants from these courses, as we are trying to examine if the teachers can adapt AR/VR material in their naval courses.

Students opinion about devices in class.



According to the survey, about 95 % of the participants have used at least one electronic medium (list-serv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment in their courses. As a result they have used a variety of devices in the classroom in order to discuss and to complete their assignments. AR/VR Mobile Usage



The vast majority of the participants (82 %) have not used any mobile application related with AR/VR. This means that the participants who are familiar with the AR/VR technologies may have used pc-based AR/VR applications.

RESULTS

Some expected results, from the side of this group of teachers and us as a team are:

- **Greater alignment** of industry needs and occupational profiles with training and curricula.
- **Identification** of future skills and competence needs and the development of corresponding training and curricula.
- **Validation** of training and education pathways for effectively increasing employability and career opportunities.

REFERENCES

[1] F. M. D. et al. Virtual and augmented reality game-based applications to civil engineering education. In *2017 IEEE Global Engineering Education Conference (EDUCON)*, pages 1683–1688, April 2017. doi: 10.1109/EDUCON.2017.7943075.

[2] M. P. et al. Ocean literacy for workforce development in the shipbuilding and offshore renewable energy sectors in europe, in support of the blue economy : The mates project: Maritime alliance for fostering the european blue economy through a marine technology skilling strategy. In *OCEANS 2018 MTS/IEEE Charleston*, pages 1–7, Oct 2018. doi: 10.1109/OCEANS.2018.8604936.