

Project design and implementation Cycle of Seminar

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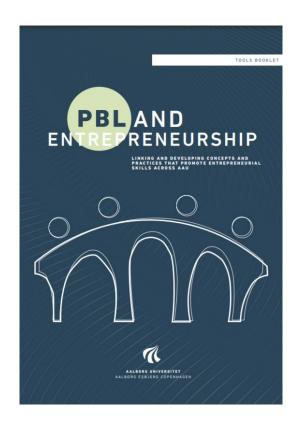
24 November 2023





Introduction

How can we define entrepreneurship?



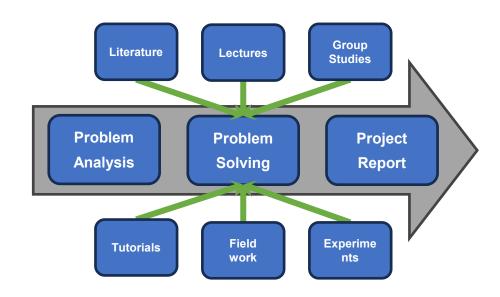






Problem-Based Learning (PBL)

- Students develop as self-directed life-long learners
- Students can identify and address complex scientific problems
- Students can define their own learning needs
- Students can seek relevant information and knowledge to address complex problems
- Students are competent communicators and collaborators







Entrepreneurial Competencies

- Challenging to design a project
- Multiple aspects to consider
 - Ideas & Opportunities
 - Resources
 - Into Action







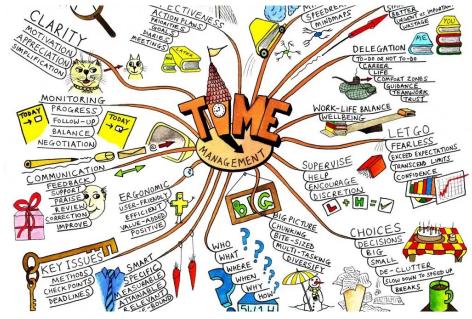
Ideas & Opportunities

- Defining project objectives
- Brainstorm Importance of innovation
- External Collaboration
- Group Creation









https://ingelsoong.com/how-to-make-a-mind-map/

Ideas & Opportunities

- Clearly defined objective:
- o Bad:

"Upgrade the organization's IT infrastructure"

- Why?
 - No specified objective.
 - No specific timeframe.
- Good:

"Upgrade the organization's IT infrastructure to reduce downtime and enhance system performance, achieving a 30% decrease in system-related issues within the next six months."

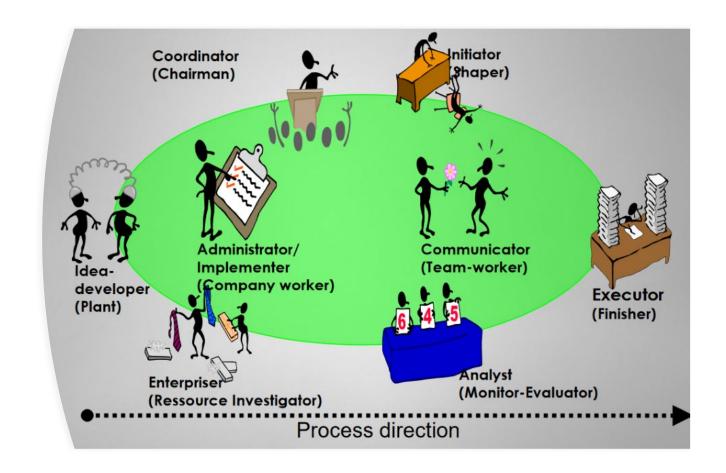






Collaboration

- Teamwork
- Knowledge sharing
- Roles
- Conflicts







Resources

- Manpower
 - Skillset
- Courses/Lectures
 - Lectures to obtaining the right competences
 - Learning general theory
- Literature
 - Project specific learning
- Tutorials
 - Support for project specific tools etc.
- Field work
 - Find unforeseen problems





Types of resources



https://blog.ganttpro.com/en/how-to-allocate-resources/

Budgeting

- Crucial in project design
- Fixed costs:
 - Salaries
 - Rent
 - Licenses and permits
- Variable costs:
 - Materials
 - Temporary Staff
 - Travel Expenses





https://blog.ganttpro.com/en/how-to-allocate-resources/





Timeline

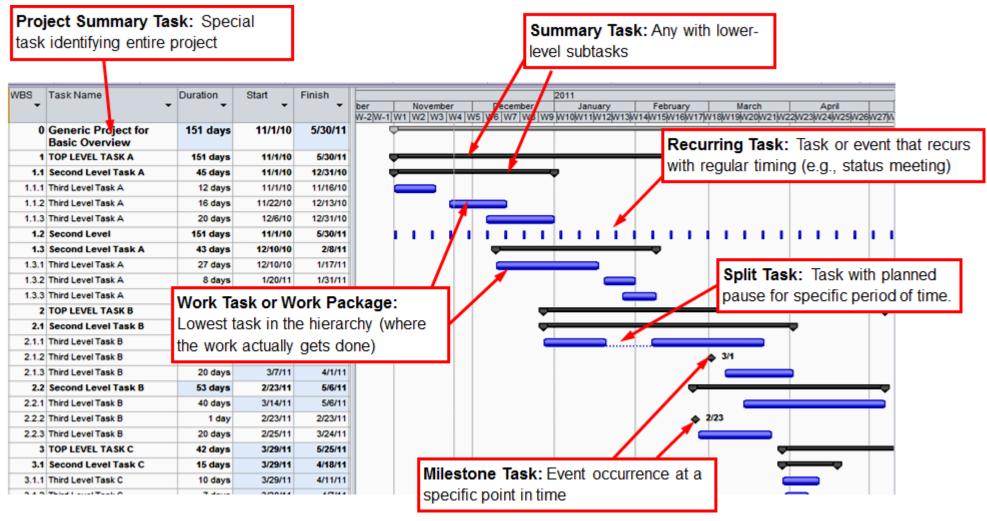
- Define milestones (The end goal is known)
- Backcasting or backward scheduling/planning
- Critical Path Analysis
- Divide into smaller tasks







Gantt Chart



https://www.e-education.psu.edu/geog871/l5_p5.html





Considerations & Risks

- Budget Constraints
- External effects
 - Material shortage E.g., Pandemic
- Milestone not obtained?







Into Action

- Prototype/Analysis
 - Iterative design process
 - Verify the impact of the solution
- Revisit time-schedule
- Highlight new risks/opportunities

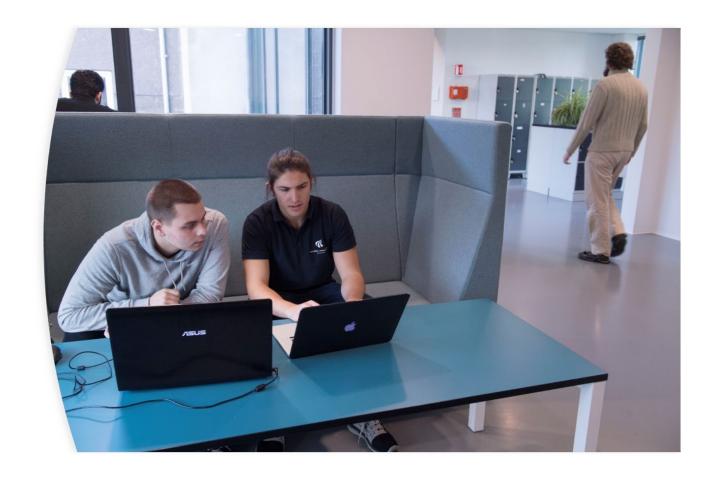






Supervision/Board

- Meetings through the project
 - Internal / External (stakeholder)
- Guidance
- Owner of the project and thereby responsible for the success







Project communication

- Communicating ideas effectively
- Creating compelling visuals
- o Presentation of project, where?
- Group exam (At AAU)
 - Companies can be part of the censor team



https://teachinginnc.wordpress.com/2017/08/16/dream-it-project-part-iv/





Evaluation

- Analyzing successes and challenges
- Continuous improvement mindset



https://teachinginnc.wordpress.com/2017/08/16/dream-it-project-part-iv/





Break





Case: ACOMAR

- Master Thesis
 - Initiated by a local company

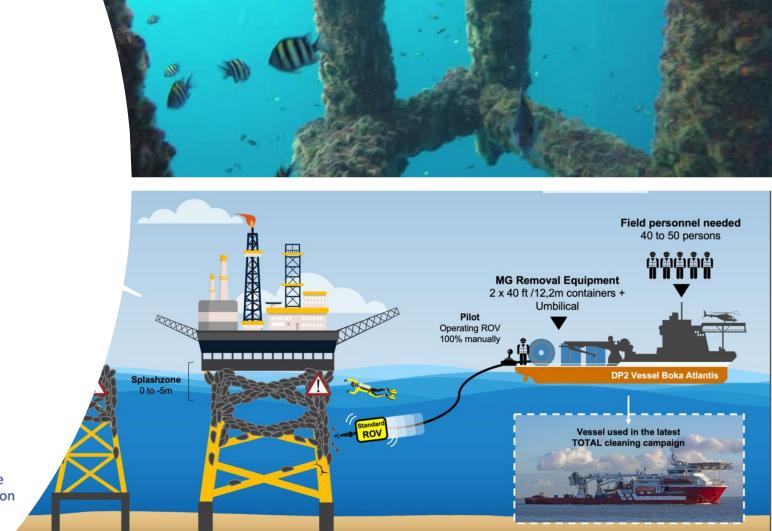






Proof of Concept

- The problem
- Current solution







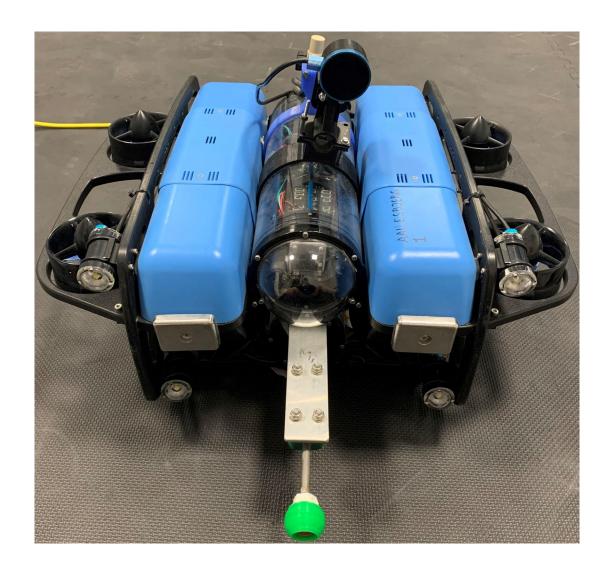






Proof of Concept

- BlueROV2 (Used for semester projects)
- Existing hardware reconfigured
- Collaboration with company







Master Thesis

- Group Project
- 1 Year
- Cooperation with company





















Test facilities

- Corona Lockdown
- Garage Laboratory

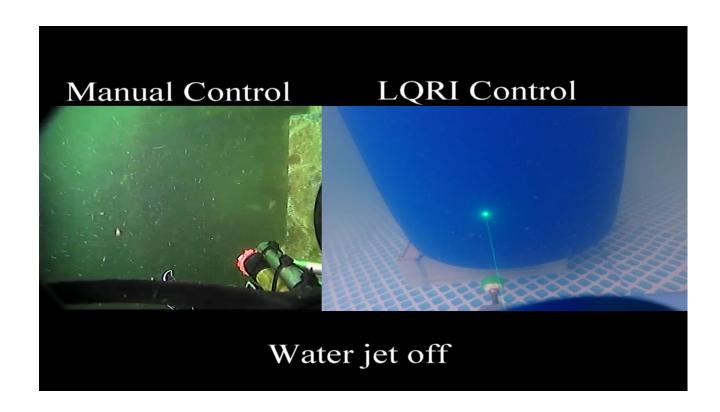






Proof of Concept Completed

- Results in laboratory
- Master thesis
- Phd and employment in company







Beginning of ACOMAR

- Kick-off
 - Results from master-project
 - Brainstorm
- Close collaboration between University and companies







Beginning of ACOMAR

"Develop a specialized fully automated underwater vehicle, which can remove marine growth from underwater structures with the ability to launch from platform, with at least same cleaning efficiency."

The project is set to be completed with in 3,5 years.





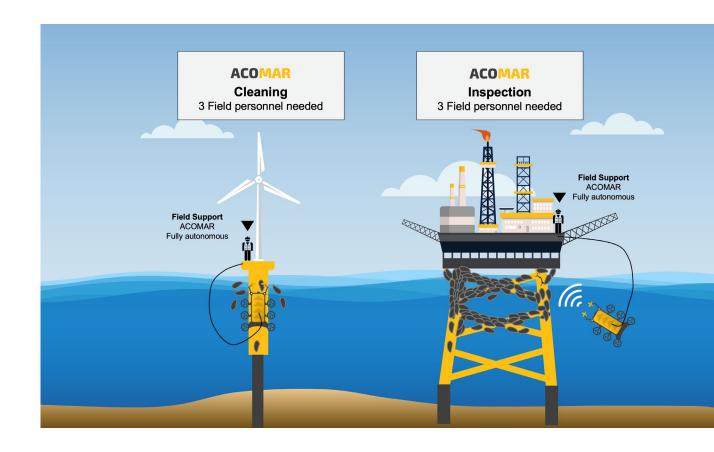


Risks

- The ACOMAR cannot be launched from the platform and the vessel is therefore still a requirement for campaigns. However, the combination of the ACOMAR prototype and the automation algorithms can still improve the inspection and cleaning efficiency.
- The ACOMAR prototype (either electrical, software or hardware) cannot be integrated and a conventional ROV must be used instead. In this case the improvement in inspection and cleaning efficiency will rely on the effect of the automation algorithms.

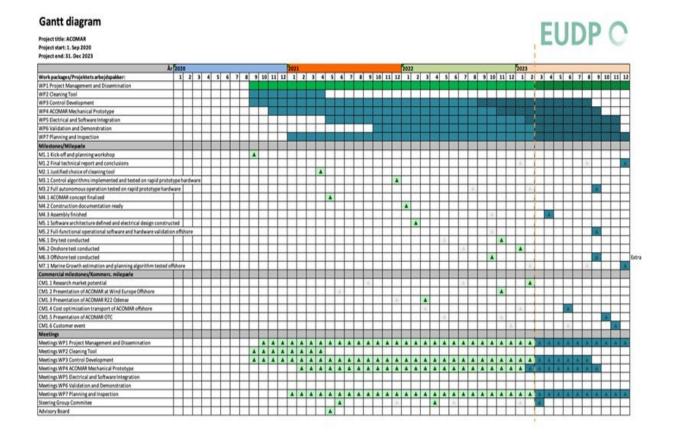






Gant Chart

- Work package
- Milestones (Technical)
- Commercial Milestones
- Meetings







Rapid prototype

- Changed strategy for rapid prototype
- Advantages
 - Able to perform offshore tests
 - Shorter time to market
- Disadvantages
 - Longer time to initial testing
 - More complex vehicle









ACOMAR

- Initial design of vehicle
- Testing in harbor
- Improvements
- Iterative design
- Testing offshore
- Evaluation









Unforeseen risks

- Propellers damaged will cleaning
- Electrical speed controllers suddenly failed





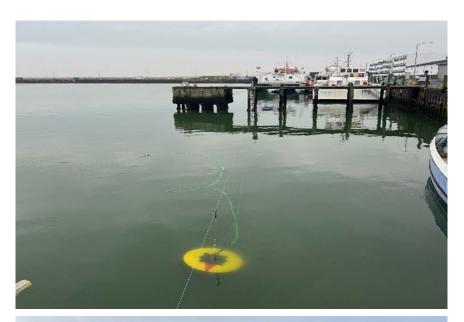


ACOMAR

- Improvements based on offshore experience
- Planned pilot project









Marketing

Status video through project







Marketing

- Promotion of engineering educations
- Press releases
- Promotion of vehicle to industry







Gantt diagram

Project title: ACOMAR Project start: 1. Sep 2020 Project end: 31. Dec 2023



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WP7 - Inspection

- Synthetic images
- Artificial Intelligent/Machine Learning
- Classification/Thickness estimation









