



SEUS
Smart European
Shipbuilding



Funded by European Union



Instructions of ShipCo board game

Game Objective

The goal is for players to collaboratively complete the **shipbuilding process** by progressing through all phases of the game: **Design, Planning, Manufacturing, Assembly, and Delivery**. Players take on specific roles (Engineer, Designer, Manager, Supervisor, or Software Developer) and complete tasks, resolve challenges, and use bonus cards to succeed.

Game Concept

- **Objective:** Players work collaboratively to simulate the shipbuilding process, complete tasks, overcome challenges, and integrate data-driven tools into their workflows.
- **Target Audience:** Professionals or learners in the shipbuilding industry to understand roles, workflows, and the benefits of digital transformation.
- **Key Learning Goals:** Understand the interdependencies of roles, recognise the impact of delays, and promote data-driven solutions.

Card Designs

Role-Specific Task Cards

Each task card is colour-coded to represent a specific role and includes the following elements:

- **Role Title:** Engineer, Designer, Manager, Supervisor, or Software Developer.
- **Collaborative:** Collaborate with another player to complete a shared task or resolve a challenge. Both players roll the dice, and their combined roll must meet a target value.
- **Task Description:** A specific task relevant to the role.
- **Success Condition:** Dice roll requirement, collaboration, or bonus card use.
- **Reward:** Advancement on the board or bonus cards.



ENGINEER
Task Card

Test Propulsion System Efficiency

- Run diagnostics on the propulsion system to optimize fuel efficiency. Roll a 5-6 to succeed.
- Use the *Real-Time Monitoring Tool* for a +1 to your roll.
- Advance three spaces.



DESIGNER
Task Card

Develop Modular Design for Manufacturing

- Create a modular design to streamline the assembly process. Roll a 5-6 to complete.
- Collaborate with the Engineer for a +2 to your roll.
- Both Designer and Engineer advance one space.



MANAGER
Task Card

Negotiate with Stakeholders

- Stakeholders demand changes that increase costs. Roll a 5-6 to negotiate a compromise.
- Use the *Digital Collaboration Tool* to reduce the success threshold by 1.
- Advance one phase and avoid penalties for delays.



SUPERVISOR
Task Card

Resolve Conflict On-Site

- Handle a dispute among workers over conflicting instructions. Roll a 3-6 to resolve the issue.
- Use the *Real-Time Communication Platform* for instant resolution.
- Gain a bonus card and move forward one space.



SOFTWARE DEVELOPER
Task Card

Integrate Feedback System into CAD Software

- Add a feedback feature to CAD tools for quicker revisions. Roll a 5-6 to succeed.
- Use the *Real-Time Feedback Tool* to bypass delays.
- Designers automatically succeed on their next task involving design revisions.

Challenge Cards

Designed to simulate obstacles and real-world delays.



Bonus Cards

Bonus cards represent data-driven tools that enhance workflows.



Game Setup



Select Roles

Each player chooses or is assigned a role: Engineer, Designer, Manager, Supervisor, or Software Developer. Each role comes with specific **task cards** and responsibilities.

Prepare the Board

Place the board on a flat surface and organise the card decks:

- **Task Cards:** Separated by role.
- **Challenge Cards:** Common deck for everyone.
- **Bonus Cards:** Players reuse the Bonus cards. Common deck for everyone.

Distribute Starting Cards

Each player starts with a task card.

Set Tokens and Dice

Place a token at the starting point of the **Design Phase**.




Use 1 or 2 six-sided dice for movement and task rolls.

Gameplay Rules

Turn Order

Players take turns rolling the dice and moving forward along the path.

Spaces on the Board

 <p>Task Tile</p>	 <p>Challenge Tile</p>	 <p>Bonus Tile</p>
<p>Draw a task card corresponding to your role. Complete the task by rolling the dice. If successful, follow the card's reward instructions. If unsuccessful, lose a turn or face a penalty.</p>	<p>Draw a challenge card. Resolve the challenge by:</p> <ul style="list-style-type: none"> • Rolling the dice. • Collaborating with another player. • Using a bonus card to bypass the challenge. <p>If resolved, follow the reward instructions. If not, all players may face penalties.</p>	<p>Draw a bonus card. Bonus cards represent tools or strategies. These can be used during your turn to:</p> <ul style="list-style-type: none"> • Skip penalties. • Automatically succeed in tasks. • Gain extra dice rolls.

Task Completion

Rolling the Dice

- Players roll the dice to attempt a task or resolve a challenge.
- Success thresholds are defined on the card (e.g., roll 4-6 to succeed).

Using Bonus Cards

Players may use a bonus card at any time during their turn to:

- Automatically succeed.
- Gain a reroll.

Progressing Through Phases:

Each phase has specific objectives:

- **Design Phase:** Focus on creating drawings and addressing initial tasks.
- **Planning Phase:** Manage resources and resolve budget-related challenges.
- **Manufacturing Phase:** Acquire and inspect materials.
- **Assembly Phase:** Coordinate on-site activities and resolve delays.
- **Delivery Phase:** Finalise and deliver the ship.

Players must complete a minimum number of tasks or resolve specific challenges in a phase to move to the next one.

Winning the Game

Collaborative Mode

All players win together by completing the shipbuilding process and reaching the end of **Delivery Phase**.

Game Mechanics

Key Mechanics

Each role has unique tasks, reinforcing their importance in the shipbuilding process. Tasks require specific dice rolls or collaboration.

Collaboration: Some tasks and challenges require players to work together, combining dice rolls or sharing bonus cards.

Dice-Based Actions: Success in tasks and challenges is determined by dice rolls, influenced by bonus cards and collaboration.

Strategic Use of Bonus Cards: Bonus cards offer tools to bypass difficulties, succeed in tasks, or assist others.

Challenges: Introduce unpredictability and simulate real-world delays or problems.

Boosting collaboration: Players can roll an even/odd number to use the bonus card from their team members.



This project has received funding from the Horizon Europe Framework Programme (HORIZON) EU programme under grant agreement No 101096224.

GO

Design

Delivery

Planning

Assembly

Manufacturing

ENGINEER

Task Card

Analyze Structural Integrity of the Hull

Task description

Bonus requirement

Reward

DESIGNER

Task Card

Card name

Task description

Bonus requirement

Reward

MANAGER

Task Card

Reallocate Budget for Unexpected Costs

Task description

Bonus requirement

Reward

SUPERVISOR

Task Card

Organise Worker Teams

Task description

Bonus requirement

Reward

SOFTWARE DEVELOPER

Task Card

Develop a Real-time Communication Platform

Task description

Bonus requirement

Reward

CHALLENGE

Challenge Card

Material Shipment Delayed

Challenge description

Effect

Reward

BONUS

Bonus Card

Simulation Software

Bonus description

Effect

Instructions of ShipCo

Select Roles: Each player chooses or is assigned a role: Engineer, Designer, Manager, Supervisor, or Software Developer. Each role comes with specific task cards and responsibilities.

Prepare the Board: Place the board on a flat surface and organise the card decks.

Task Cards: Separated by role.

Challenge Cards: Common deck for everyone.

Bonus Cards: Players reuse the Bonus Cards. Common deck for everyone.

Distribute Starting Cards: Each player starts with a task card.

Set Tokens and Dice: Place all player tokens at the starting point of the Design Phase. Use 1 or 2 six-sided dice for movement and task rolls.

Download Manual

BONUS



Bonus Card

Real-Time Communication
Platform



Enables instant communication between teams and stakeholders.



If the Manager resolves it, they advance one space.

BONUS



Bonus Card

Digital Documentation Platform



Centralised access to updated documents and instructions.



Avoid penalties from miscommunication or outdated information.

BONUS



Bonus Card

Simulation Software



Allows players to simulate and test designs or systems.



Automatically succeed on any task involving design testing or structural analysis.

BONUS



Bonus Card

Real-Time Feedback Tool



Streamlines the feedback process for quicker revisions.



Skip delays caused by waiting for stakeholder or team feedback.

BONUS



Bonus Card

Team Coordination Dashboard



Streamlines collaboration between roles.



Add +1 to dice rolls for collaborative tasks or reroll failed attempts.

BONUS



Bonus Card

Compliance Tracker



Tracks adherence to safety and regulatory standards.



Skip penalties related to regulatory or compliance issues.

BONUS



Bonus Card

Resource Allocation Assistant



Provides optimal strategies for reallocating materials and resources.



Automatically resolve resource-related challenges or tasks.

BONUS



Bonus Card

Digital Quality Assurance Tool



Verifies the quality of materials and work processes.



Automatically succeed in tasks involving quality checks or inspections.

BONUS



Bonus Card

Crisis Management Tool



Provides strategies to adapt quickly to unexpected challenges.



Gain an extra turn after resolving a challenge card.

BONUS



Bonus Card

Workflow Monitoring Tool



Provides real-time updates on task progress and dependencies.



Automatically succeed on tasks requiring coordination or monitoring.

BONUS



Bonus Card

Real-Time Expense Tracker



Optimises budget allocation and reduces delays caused by financial issues.



Add +1 to any dice roll related to budgeting or resource allocation tasks.

BONUS



Bonus Card

Predictive Maintenance



Detects potential equipment failures before they occur.



Automatically resolve challenges or tasks involving equipment or machinery issues.

BONUS



Bonus Card

Digital Collaboration



Streamlines communication reducing errors and improving efficiency.



Instantly resolve one challenge related to miscommunication. Move one space forward.

CHALLENGE



Challenge Card

Material Shipment Delayed



Critical materials are stuck in customs.



All players lose one turn unless the Manager resolves the issue by rolling a 4-6 or using the Resource Allocation Assistant.



If the Manager resolves it, they advance one space.

CHALLENGE



Challenge Card

Miscommunication Between Teams



Key updates didn't reach the right teams on time.



All players lose one turn unless the Supervisor or Software Developer uses the *Real-Time Communication Platform*.



If resolved, gain a bonus card.

CHALLENGE



Challenge Card

Budget Overrun



Unanticipated costs have thrown the budget off track.



Manager must roll a 5-6 to reallocate funds or all players lose one space.



Use the *Real-Time Expense Tracker* to reroll or succeed instantly.

CHALLENGE



Challenge Card

Worker Conflict on Site



Disagreements among workers disrupt progress.



Supervisor must roll a 4-6 to resolve or all players lose one turn.



Use the *Team Coordination Dashboard* to move a step forward.

CHALLENGE



Challenge Card

Regulatory Changes



New regulations require significant design changes.



Designer and Manager must collaborate to resolve by rolling a combined 6+.



Use the *Compliance Tracker* to skip this challenge.

CHALLENGE



Challenge Card

Design Revision Delay



Stakeholder feedback requires extensive design changes.



Designer must roll a 5-6 to implement changes or lose two turns.



Use the *Real-Time Feedback Tool* to skip.

CHALLENGE



Challenge Card

Equipment Failure



Critical equipment fails during testing.



Engineer must roll a 4-6 to fix it or lose one turn.



Use the **Predictive Maintenance Tool** for instant success and move a step forward.

CHALLENGE



Challenge Card

Stakeholder Dispute



Stakeholders demand changes that conflict with the current plan.



Manager must roll a 5-6 to negotiate or all players lose one turn.



Use the *Digital Collaboration Tool* to resolve instantly.

CHALLENGE



Challenge Card

Stakeholder Approval Delayed



Approval for design changes is delayed, halting progress.



Designer must roll a 4-6 to expedite approval or lose one turn.



Use the *Real-Time Feedback Tool* to move a step forward.

CHALLENGE



Challenge Card

Budget Approval Delayed



Final budget approval is delayed, halting progress.



Manager must roll a 5-6 to resolve or lose two turns.



Use the Real-Time Expense Tracker for automatic success.

DESIGNER



Task Card

Revise Hull Design for Space Efficiency



Optimise the hull design to improve interior space efficiency. Roll a 4-6 to succeed.



Use the *Simulation Software* bonus to automatically succeed.



Advance two spaces and gain a bonus card.

DESIGNER



Task Card

Develop Modular Design for Manufacturing



Create a modular design to streamline the assembly process. Roll a 5-6 to complete.



Collaborate with the Engineer to roll twice.



Move a step forward.

DESIGNER



Task Card

Create Optimised Layout for Compartments



Design an efficient layout for ship compartments. Roll a 4-6 to complete.



Use the **Digital Documentation Platform** to ensure instant completion.



Advance three spaces.

DESIGNER



Task Card

Sketch and Validate New Hull Design



Develop and validate a new hull design for speed optimisation. Roll a 4-6 to succeed.



Use the *Simulation Software* to automatically complete the task.



Advance one phase.

DESIGNER



Task Card

Resolve Design Clashes with Structural Components



Collaborate with the Engineer to address design conflicts. Roll a 1-3 to succeed.



Use the *Real-Time Communication Platform* to resolve instantly.



Advance two spaces.

DESIGNER



Task Card



Adjust Weight Distribution in the Design



Ensure proper weight distribution across the ship's compartments. Roll cumulatively 10-12 to succeed.



Collaborate with the Supervisor to roll three times.



Advance two spaces.

DESIGNER



Task Card



Integrate Advanced Materials in Design



Incorporate lightweight, advanced materials into the ship's structure. Roll a 3-6 to succeed.



Use the *Digital Quality Assurance Tool* for automatic success.



Advance two phases.

DESIGNER



Task Card

Refine Design Based on Stakeholder Feedback



Update the design based on detailed stakeholder feedback. Roll a 4-6 to succeed.



Use the *Real-Time Feedback Tool* to skip delays.



Advance two spaces and gain a bonus card.

DESIGNER



Task Card



Create 3D Models for
Virtual Testing



Develop detailed 3D models for virtual simulations. Roll a 2-4 to succeed.



Use the *Simulation Software* bonus to automatically succeed.



Advance three spaces.

DESIGNER



Task Card

Collaborate on Aesthetic Enhancements



Work with stakeholders to add aesthetic improvements to the design. Roll a 4-6 to succeed.



Use the *Digital Collaboration Tool* to ensure instant approval.



Gain a bonus card and advance a space.

ENGINEER



Task Card

Analyze Structural Integrity of the Hull



Evaluate the hull's structural design to ensure safety and stability. Roll a 3-6 to succeed.



Use the **Simulation Software** bonus to automatically succeed.



Advance two spaces and gain a bonus card.

ENGINEER



Task Card

Test Propulsion System Efficiency



Run diagnostics on the propulsion system to optimise fuel efficiency. Roll a 4-6 to succeed.



Use the *Real-Time Communication Platform* for a +2 to your roll.



Advance three spaces.

ENGINEER



Task Card

Validate Compliance of Technical Systems



Ensure all technical systems meet regulatory compliance. Roll a 3-6 to succeed.



Use the *Compliance Tracker* to skip compliance delays.



Gain a bonus card and move forward two spaces.

ENGINEER



Task Card

Simulate Hull Behavior Under Extreme Conditions



Test the hull's performance in simulated extreme weather. Roll a 1-3 to succeed.



Use the *Simulation Software* to complete instantly.



Advance one space.

ENGINEER



Task Card

Simulate Fuel Efficiency of Design



Run simulations to test the fuel efficiency under varying conditions. Roll a 4-6 to succeed.



Use the *Simulation Software* for automatic success.



Advance two spaces.

ENGINEER



Task Card

Inspect Material Quality



Evaluate the quality of materials used for the ship's structure. Roll a 1-3 to succeed.



Use the *Digital Quality Assurance Tool* for automatic success.



Avoid the next challenge and move forward one space.

ENGINEER



Task Card

Optimise Weight Distribution



Ensure proper weight distribution for stability and fuel efficiency. Roll a 4-6 to succeed.



Collaborate with the Designer to your roll twice.



Move forward two spaces.

ENGINEER



Task Card

Prepare Engine Room Layout for Installation



Design and prepare the engine room layout for functionality. Roll a 3-6 to complete.



Use the *Digital Documentation Platform* to skip delays.



Gain a bonus card and advance two spaces.

ENGINEER



Task Card

Resolve Design Conflicts with Materials



Collaborate with the Designer to resolve material compatibility issues. Roll a 1-3 to succeed.



Use the *Real-Time Feedback Tool* to skip delays.



Move forward two spaces.

ENGINEER



Task Card

Collaborate on Structural Adjustments



Work with the Supervisor to make adjustments based on on-site observations. Roll a 4-6 to succeed.



Use the *Real-Time Communication Platform* to complete instantly.

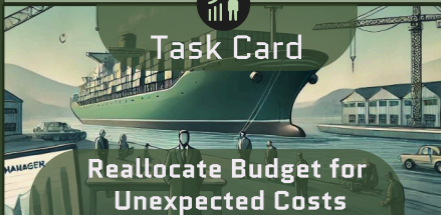


Advance one space.

MANAGER



Task Card



Reallocate Budget for Unexpected Costs



Material prices have increased unexpectedly. Roll a 1-3 to reallocate funds effectively.



Use the *Real-Time Expense Tracker* to gain a reroll.

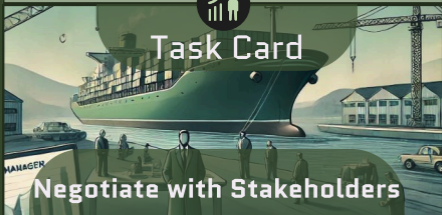


Advance two spaces and gain a bonus card.

MANAGER



Task Card



Negotiate with Stakeholders



Stakeholders demand changes that increase costs. Roll a 4-6 to negotiate a compromise.



Use the *Digital Collaboration Tool* for instant success.



Advance one phase and avoid next challenge.

MANAGER



Task Card



Approve Additional Resources



The Supervisor requests extra resources to resolve on-site delays. Roll a 1-3 to approve.



With the *Resource Allocation Assistant*, success is automatic.



Advance one phase.

MANAGER



Task Card



Resolve Budget Overrun



The project is over budget. Roll a 3-6 to resolve the issue through creative resource allocation.



Use the *Real-Time Expense Tracker* for an additional dice roll.



Avoid from the next challenge and gain a bonus card.

MANAGER



Task Card



Track Progress Across Teams



Monitor the progress of all teams to ensure the project is on schedule. Roll a 4-6 to succeed.



Use the *Team Coordination Dashboard* for automatic success.



Advance two spaces.

MANAGER



Task Card



Mitigate Delays from Regulatory Changes



New regulations require design changes. Roll a 4-6 to reallocate time and budget effectively.



Use the *Compliance Tracker* to skip the delay.



Gain a bonus card and advance two steps further.

MANAGER



Task Card



Optimise Project Workflow



Identify inefficiencies in the project workflow. Roll a 3-6 to resolve.



Use the *Workflow Monitoring Tool* to complete the task automatically.



Advance three spaces.

MANAGER



Task Card



Handle a Crisis of Missing Materials



Resolve the crisis of missing materials by reallocating budget and resources. Roll a 1-3 to succeed.



Use the *Real-Time Communication Platform* to coordinate with all teams and resolve instantly.



Gain a bonus card.

MANAGER



Task Card



Oversee Final Budget Approvals



Finalise the budget for the testing phase. Roll a 4-6 to ensure all costs are covered.



Collaborate with the Supervisor and roll twice.



Advance two phases.

MANAGER



Task Card



Allocate Emergency Funds



An unexpected storm has delayed deliveries. Allocate emergency funds. Roll a 4-6 to resolve.



Use the *Crisis Management Tool* to bypass the challenge.



Advance two spaces and avoid the next challenge.

SOFTWARE DEVELOPER



Task Card



Develop a Real-Time Communication Platform



Build a platform to enhance team communication and reduce delays. Roll a 4-6 to complete.



Collaborate with the Manager and roll twice.

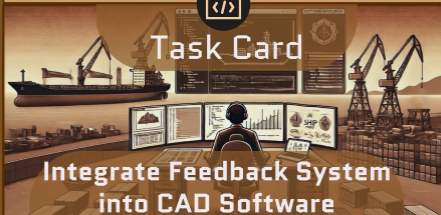


Avoid the next challenge and advance one space.

SOFTWARE DEVELOPER



Task Card



Integrate Feedback System into CAD Software



Add a feedback feature to CAD tools for quicker revisions. Roll a 4-6 to succeed.



Use the *Real-Time Feedback Tool* to bypass delays.



Designers automatically succeed on their next task.

SOFTWARE DEVELOPER



Task Card



Create a Digital Documentation Platform



Develop a centralised documentation tool to avoid miscommunication. Roll cumulatively 6-8 to complete.



Collaborate with the Supervisor and roll twice.



All players avoid following one challenge.

SOFTWARE DEVELOPER



Task Card



Enhance Simulation Software for Engineers



Improve simulation software to handle more complex scenarios. Roll a 4-6 to complete.



Use the *Simulation Software* to add +2 to your roll.



Advance one space and engineers automatically succeed on their next simulation-based task.

SOFTWARE DEVELOPER



Task Card



Optimise Cloud-Based Collaboration Tool



Enhance the collaboration tool to handle larger design files. Roll a 4-6 to succeed.



Use the *Digital Collaboration Tool* to ensure success.



Gain two spaces and one bonus card.

SOFTWARE DEVELOPER



Task Card



Integrate Workflow Monitoring Dashboard



Build a dashboard for managers to track team progress in real time. Roll cumulatively 10-12 to complete.



Collaborate with the Manager and roll three times.



Managers gain a bonus card and +1 on all dice rolls in the next phase.

SOFTWARE DEVELOPER



Task Card



Integrate Automated Design Validation Tool



Add automated checks to ensure design compliance with technical standards. Roll a 5-6 to succeed.



Use the *Real-Time Feedback Tool* to gain a +3 to your roll.



Advance two spaces.

SOFTWARE DEVELOPER



Task Card



Develop Worker Training Simulator



Create a training simulator for workers to improve on-site efficiency. Roll a 3-6 to complete.



Use the *Digital Documentation Platform* to ensure success.



Supervisors gain automatic success on their next task.

SOFTWARE DEVELOPER



Task Card



Improve Workflow Integration Between Teams



Ensure all digital tools integrate seamlessly across departments.
Roll a 4-6 to complete.



Use the *Workflow Monitoring Tool* for instant success.



Advance three spaces in the project.

SOFTWARE DEVELOPER



Task Card



Develop Real-Time Incident Alerts



Build a system to notify teams of on-site issues immediately. Roll a 3-5 to succeed.



Collaborate with the supervisor and roll twice.



Supervisors gain automatic success on their next task.

SUPERVISOR



Task Card



Organise Worker Teams



Coordinate workers to meet a tight assembly deadline. Roll a 4-6 to succeed.



Use the **Digital Documentation Platform** to ensure clear instructions and skip delays.



Advance two spaces.

SUPERVISOR



Task Card



Resolve Conflict On-Site



Handle a dispute among workers over conflicting instructions. Roll a 3-6 to resolve the issue.



Use the *Real-Time Communication Platform* for instant resolution.



Gain a bonus card and move forward one space.

SUPERVISOR



Task Card

Verify Material Usage



Inspect and verify proper use of materials in assembly. Roll a 1-3 to succeed.



With the *Digital Quality Assurance Tool*, automatic success.



Avoid the next challenge and advance one step.

SUPERVISOR



Task Card

Ensure Worker Safety



Conduct a safety briefing to ensure compliance with regulations. Roll a 4-6 to complete.



Use the *Compliance Tracker* to guarantee success.



Gain two spaces and one bonus card.

SUPERVISOR



Task Card



Coordinate Cross-Team Efforts



Synchronise efforts between engineers and workers to meet a critical deadline.
Collaborate with the Engineer to succeed.



With the *Real-Time Communication Platform*, complete instantly.



Move two spaces forward.

SUPERVISOR



Task Card



Adapt to Unplanned Changes



Respond to last-minute design changes from stakeholders. Roll a 1-3 to adapt effectively.



Use the *Digital Documentation Platform* to skip delays.



Advance three spaces.

SUPERVISOR



Task Card

Monitor Workflow Accuracy



Ensure all tasks on the assembly line are progressing accurately. Roll a 4-6 to succeed.



Use the *Workflow Monitoring Tool* for automatic success.



Gain a bonus card and avoid the next challenge.

SUPERVISOR



Task Card

Allocate Resources Efficiently



Reallocate resources to resolve material shortages. Roll cumulatively 8-10 to succeed.



Collaborate with the Manager and roll twice.



Advance two spaces.

SUPERVISOR



Task Card



Ensure On-Site Compliance



Check worker compliance with project-specific instructions. Roll a 3-6 to complete.



Use the **Digital Quality Assurance Tool** for instant success.



Advance one phase in the project.

SUPERVISOR



Task Card



Handle Delayed Deliveries



Resolve delays caused by late material shipments. Roll a 5-6 to overcome the issue.



Use the ***Real-Time Communication Platform*** to coordinate efforts and skip delays.



Gain a bonus card and move forward two spaces.



ShipCo