# DG Reform - Digitalisation of the Maltese Maritime Administration

Phase III
Final Project Presentation
2022

**Funded by the European Union**

tm
Transport Malta

# Contents

# 1

Project Overview & Objectives

## Project Overview

The Objective of this project was to provide support to the MSD in devising the remaining modules of the Target Digital Maritime Architecture and in drafting the technical specifications which will lead to the procurement for the development of:

- Vessel Management System
- Seafarer Management System (the remaining components)
- Maritime Analytics System
- Payment and Billing Management System
- Case/ Contact Management System.

An analytical study was carried in order for the MSD to bridge any gaps in the knowledge of the current state identified in Phase I and produce the Technical Specifications which did not fall within the scope of Phase II and which would support TM in procuring the future system.

The project intended to also assist MSD in compiling a Capacity Building Plan and Strategy which will help prepare the MSD staff in meeting the Business Objectives of the Directorate, aiming at further improving its position as a leading maritime administration that delivers services of the highest quality.

## Main Challenges

- Manual processing and issuing of certificates results in inefficient, lengthy and costly processes;

- Lack of information reuse as manual paper based systems are used.

- Lack of clarity on the skills, abilities and resources needed in order to achieve the strategic intents set out by the Directorate

## Specific Objectives

- Assist in the optimisation of processes within the Maltese maritime administration which were not catered for in Phase I;

- Developing technical requirements, and integrated principles from Phase II, for the digitalisation systems for the Merchant Shipping Directorate;

- Enhancing capacity of the MSD to improve its services and transition into a fully digitised service

# 2

Project Approach

# Our Approach

In order to accomplish the envisaged objectives of the project we took an approach and action plan based on PwC's tried and tested Transform methodology.

We have applied such approach and action plan to Transform successfully many public sector clients, to guide organisations through the implementation of major changes which are designed to add value, obtain and sustain strategic competitive advantage.

Furthermore, we also leveraged PwC's distinctive BXT philosophy to enable transformation within the Merchant Shipping Directorate by taking a people centric approach to elicit perspectives and views on changing the way things work based on three pillars:

**B**usiness, e**X**perience and **T**echnology.



The philosophy: *BXT*

**Business**
The business change required to shift the way an organization operates

**Experience**
The human-technology interface required to create a useful and engaging experience

*Transformation*

**Technology**
The technology required to embed the new solution in a company's system

# Summary of Project Phases, key tasks and deliverables

| 1 | Phases | Phase 1 - Kick Off | Phase 2 - Strategy and Assess | Phase 3 - Design | Phase 4 - Finalise and Review |
|---|---|---|---|---|---|

**2  Activities**

| | | | |
|---|---|---|---|
| Communicate and agree on the most-suitable methodological approach for the project stakeholders | Develop Strategic Action Plan and timeline for preparation of the Technical Specifications | Propose the Best-fit To-Be System for each component | Bring together all outputs from the various completed phases of the project and ensure that the desired outcomes and benefits have been achieved |
| Establish the integrated project management processes between the PwC team, DG Reform and the Beneficiary | Develop a current state analysis | Formulate of the most suitable Technical Way Forward, Requirements and underlying specifications | Organise an event to present the results achieved and actions taken throughout the project |
| | Carry out an organisational analysis | Design and develop job specific competencies including the necessary assessment framework | |
| | Understand and assess the workforce competencies required | Develop a Knowledge Management Strategy | |
| | | Formulate respective Succession and Upskilling plans | |

**3  Deliverables**

| | | | |
|---|---|---|---|
| Kick-off meeting | Deliverable 2: Strategic Action Plan | Deliverable 6: Technical Specifications for a Maritime Analytics System | Final Event Presentation |
| Presentation outlining objectives and methodological approach | Deliverable 3: Technical Specifications for the Vessel Management System | Deliverable 7: Technical Specifications for a Seafarer Management System | Deliverable 10: Final Report |
| Stakeholder Matrix | Deliverable 4: Technical Specifications for a Case/Contact Management System | Deliverable 8: Capacity Building Strategy for the MSD Workforce | Project Closure |
| Communication Protocols | Deliverable 5: Technical Specifications for a Payment & Billing Management System | Deliverable 9: Training Plan for the MSD Workforce | |
| Deliverable 1: Inception Report | | | |

# Phase 1 - Kick Off

A kick-off meeting was held in November with key stakeholders from the DG REFORM, DG MOVE, European Maritime Safety Agency and the Merchant Shipping Directorate to:

- Provide an understanding to the key stakeholders on the proposed project methodology and action plan. PwC clearly articulated from the outset the tasks to be undertaken and their timelines;

- Identify and confirm the full set of relevant stakeholders to be involved in the project and outline the envisaged roles and responsibilities;

- Confirm the project objectives and deliverables to ensure that both the project team and the identified stakeholders fully understand the underlying drivers behind this initiative;

- Confirm the project management approach including governance, escalation and progress reporting procedures;

- Discuss the envisaged Project Risks and discuss their mitigation strategies.

## Inception Report

Following the kick-off meeting, PwC prepared an Inception Report with the aim to provide a common understanding among parties on the implementation approach of the project. PwC proposed an approach and action plan based on a tried and tested Transform methodology and PwC's distinctive BXT (Business, Experience, and Technology) philosophy. The proposed approach and timelines established four distinct phases for the project delivery, previously identified, with Phases 2 and 3 being the core phases of the project.

The report also included a proposal of indicators to monitor the project during its implementation, and indicators that could be followed by the Commission and the national authorities for monitoring the outcome(s) as well as the impact of the project after the conclusion of the contract.
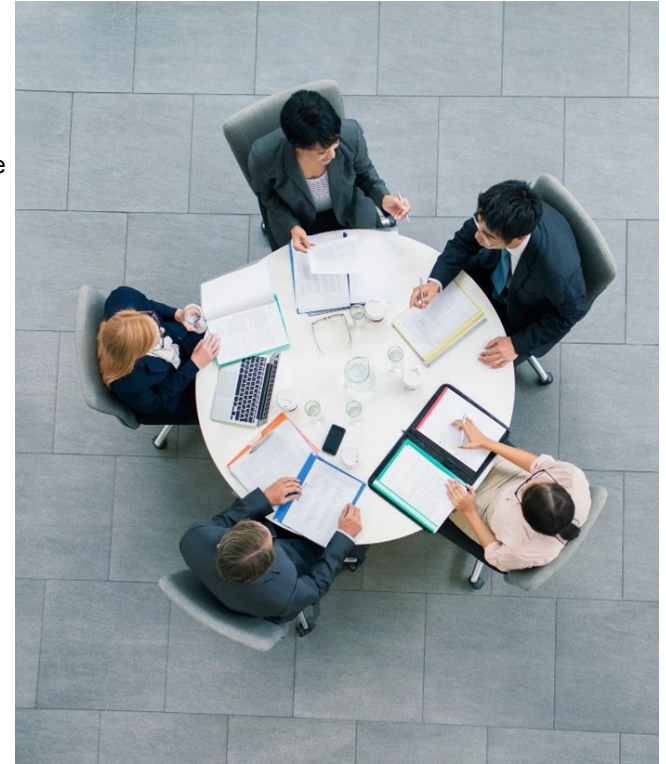
# Phase 2 - Strategy and Assess

**Strategic Action Plan**

PwC defined and analysed the potential overarching Implementation Approaches, and with MSD identified that Agile would be the best-fit approach to implement the overall solution.

PwC defined an Action Plan which identified and analysed from a high level the various internal and external dependencies in implementing the Digital Maritime Architecture as a whole so as to understand how such will impact the implementation.

PwC together with MSD agreed that a BPQR approach will be the best fit procurement method for the Digital Maritime Architecture. For such a procurement process, it was recommended that the BPQR award will be based on a 70% technical / 30% price weighting whereby the financial score is a straightforward calculation based on the total price offer, exclusive of VAT but including any discounts, and the technical score will be calculated based on several criteria.

# 3

Workstream 1 - Specifications to Actualise the Digital Maritime Architecture

# Phase 2 - Strategy and Assess (cont'd)

**Current State Analysis**

In order to avoid any duplication of efforts and overlaps, a workshop was held with stakeholders from within the MSD to confirm the processes analysed in Phase 1 and identify any new or amended processes that the respective departments carry out. To carry out the analysis of the new/amended processes efficiently and effectively PwC disseminated a Process Release Definition document. This served as a guide to coordinate workshops depending on the pending processes that needed to be assessed.

PwC built on the approach used in Phase I. Therefore, PwC's proven three-step business analysis methodology was employed in order to identify, understand, assess and map the existing "As-Is" situation of the new/amended maritime processes.

Process Discovery → Process Assessment → Process Mapping
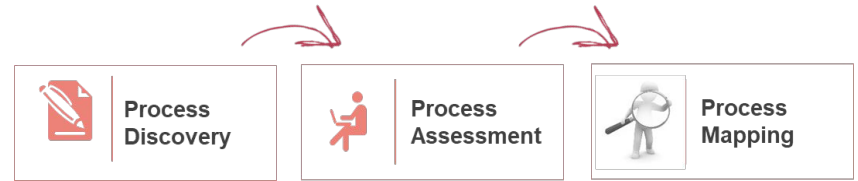
Observations and recommendations from the "As-Is" processes were taken into consideration to define and identify the most suitable "To-Be" scenarios in terms of process, people, legal, technology and information perspectives. Process Maps were produced for the new/amended processes by using Business Process Modelling Notation (BPMN) which is a commonly used graphical notation used for specifying business processes. Subsequent workshops were held with key stakeholders of the MSD to discuss further and provide their feedback on the proposed "To-Be" processes and scenarios.

# Phase 2 - Strategy and Assess (cont'd)

**Interactions with other Systems**

Most Directorates still rely heavily on manual processes based on paper documentation and physical passing of information. Even so, MSD makes use of other technology solutions to manually regulate internal processes such as:

- **Microsoft Outlook -** MSD uses this email client to communicate with clients and stakeholders.
- **FoxPro -** MSD uses this legacy system to track the location of physical files related to Vessel registrations within the Directorate.
- **Microsoft Excel -** MSD extensively uses Excel spreadsheets to maintain updated records of the status of particular processes.
- **Seafarer Portal -** A new system which has been recently implemented which replaces the preceding system - Personnel Director. The Seafarer Portal improved the efficiency of internal processes by increasing the visibility of all actions and accesses to the public, reduced the dependency on manual interventions through automated workflows and procedures and is maintaining an ongoing record of all actions that take place on the system.

# Phase 2 - Strategy and Assess (cont'd)

**Fleet Management System Analysis**

Multiple workshops related to the Fleet Management System (FMS), which is the electronic fleet register currently adopted by the MSD, were held with MSD to align with the business system analysis. The objective of the workshops was to analyse both the frontend and backend of such a system. MSD walked through the processes that are available in the Fleet Management System, how they are carried out and how data is stored in the Database.

*Front-end Analysis*

The system at its current state serves to keep track of all the vessels registered and the processes each vessel is undergoing; however, the actual processes are mostly performed outside the FMS system. The submission and vetting of required documents and completion of due payments, which form part of most processes, are performed separately from FMS. Hence the system is successfully recording the process instance but not guiding the process itself. Moreover, despite the correlation between several processes covered in FMS, the system does not establish a link between processes which are dependent on one another and presents each process independently. The functionalities are made available to the user in an unjoined manner without encompassing them in structured workflows.
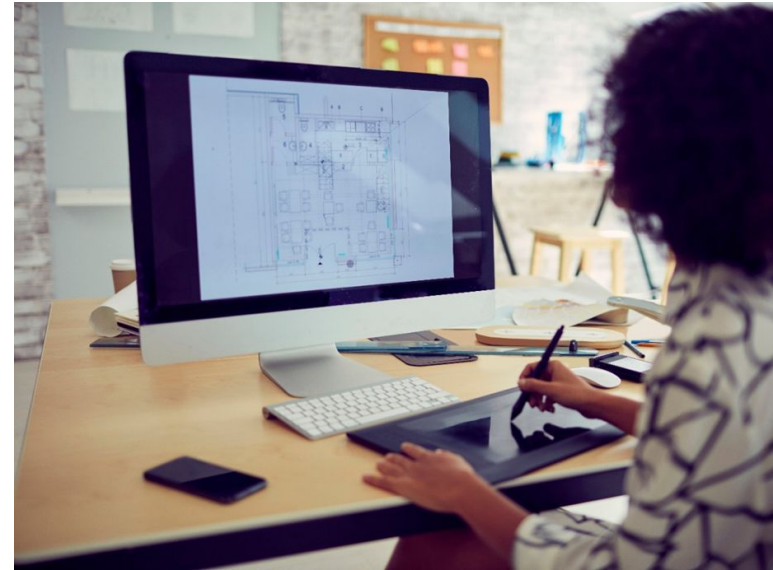
# Phase 2 - Strategy and Assess (cont'd)

*Back-end Analysis*

PwC assessed the usability of the tables which hold the core functionality of the processes covered in FMS. It was highlighted that significant amount of entities are not being used. Although the system is mainly used by the Registry Department, the intention of FMS was to cater also for other departments within the MSD. On the other hand, there are other tables which were used at the initial stages after FMS was implemented but were made redundant over the years. PwC presented the current data model of the FMS in accordance with the information provided during the workshops by MSD.

*Reporting*

Currently, MSD does not utilise any analytical tools nor do they have visibility of the status of the processes performed, except by manually reviewing information recorded in Excel Spreadsheets. Nonetheless, the Registry Department keeps record of certain statistics, including the number of new Vessel registrations, the number of certificates issued etc. These figures are auto generated (through predefined logic) at the end of every day.

# Phase 2 - Strategy and Assess (cont'd)

**Phase II Analysis**

As part of the current state analysis, PwC reviewed and assessed the findings and recommendations of the 'To-Be' Data and Document Management System taxonomy stemming from Phase II of the 'Development of a Data and Document Management System within Transport Malta', which was carried out by KPMG.

In the Information Taxonomy, KPMG presented a hierarchical structure representing the classification, categorisation and labelling of the types of documents and data used by MSD. From the proposed information taxonomy, it was derived that KPMG put forward a number of entities, each of which having distinctive categories, data fields and sample content. KPMG also identified links between categories within entities and the respective entities.

PwC took into account the Information Taxonomy presented in Phase II and integrated its principles in the proposed 'To-Be' scenarios to ensure interoperability between the Digital Maritime Architecture and the Data and Document Management System.
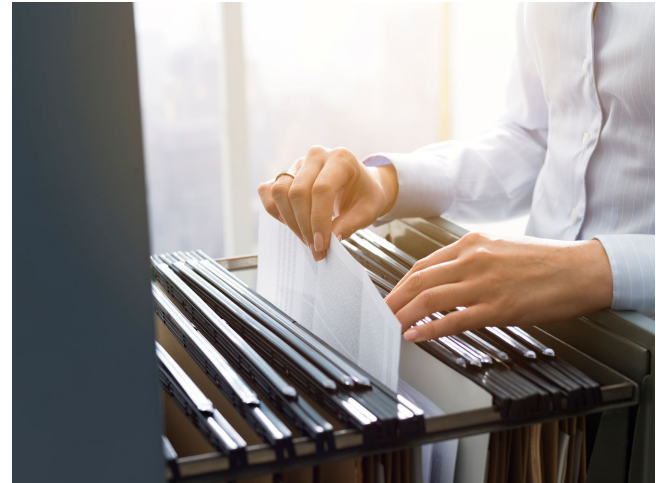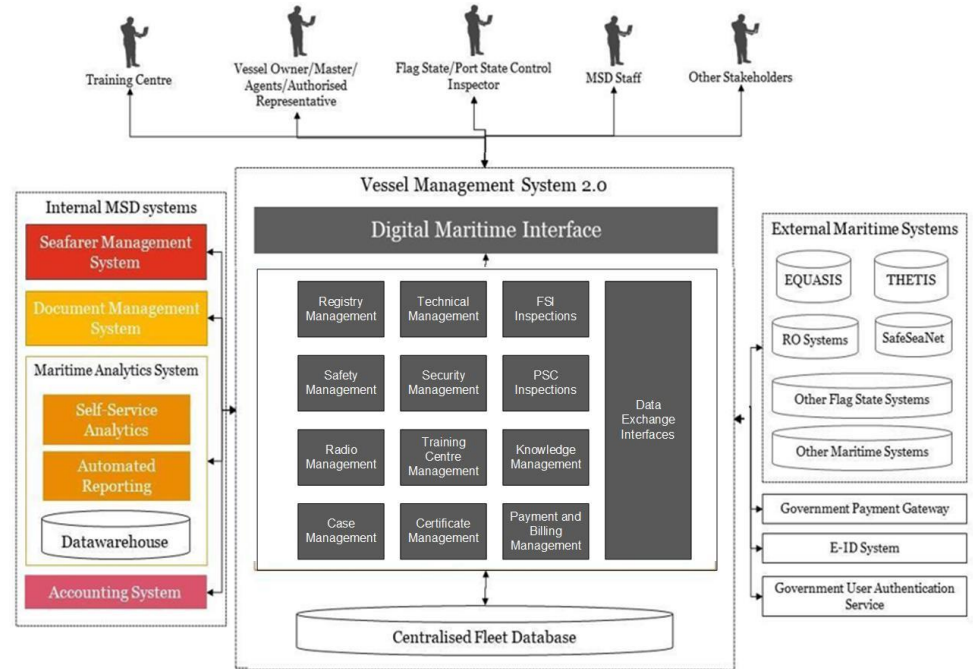
# Phase 3 - Design

**Digital Maritime System Technical Architecture**

The Vessel Management System will target the management of information related to vessels registered with the Maltese Flag and their processes with the MSD. It shall consist of several subcomponents which would be related with groups of MSD Processes that the various MSD Departments execute.

Technical Architecture of the Vessel Management System will be comprised of the following subcomponents:

- Digital Maritime Interface
- Registry Management
- Technical Management
- Safety Management
- Security Management
- FSI Inspections
- PSC Inspection
- Radio Management
- Training Centre Management
- Knowledge/Case Management
- Certificate Management
- Data Exchange Interfaces

# Phase 3 - Design

**Vessel Management System Digital Interface**

The Digital Maritime Interface will be the common interface to the Vessel Management System through which users will access the platform. Two types of users are envisaged:

| Public User interface for external stakeholders: | Private User Interface for MSD users |
|---|---|
| • Allowing for external stakeholders to login, apply and pay for services online in a self-service manner.<br>• Shall be responsive and mobile-friendly to the full-extent possible following all the current standards and best practices of User Experience/Centered Design.<br>• Must contain a registration process that will allow for one to register to use the system following which the MSD will then verify, validate and approve an account for use. | • Allow MSD users to authenticate themselves via Active Directory Single Sign On and process the requests for services that clients have applied for via the public UI.<br>• Most processes shall depend on online payment for services from the client before the system can conclude the application process.<br>• Shall be categorised further depending on the Department and operational grade of the MSD users. |

# Phase 3 - Design

**Vessel Management System Data Model**

As the MSD collects a wealth of data and information, PwC prepared a high level data model based on the processes captured in Phase I, the analysis carried out in Phase III and the deliverables in Phase II.

Such a data model will serve as the basis of formulating the MSD's "to-be" Data Model and associated Data Dictionary which will allow for the MSD to define and document information on all the data it collects such as its meaning, relationships, ownership, usage, and format. It is envisaged that such an enterprise-wide data taxonomy will be the basis that will allow for the data to be shared across all components of the "to-be" solution architecture in order to enable business processes within the Directorate to be executed in an efficient manner.

# Phase 3 - Design

**Components in the Vessel Management System - Data Exchange Interfaces / Integration**

Each Module is to be integrated as required with external systems which the MSD uses daily in its operations. This will allow for the platform to interface with third-party systems such as EQUASIS, THETIS and LRIT in a user-defined manner and using commonly used data interoperability standards.

Moreover, the "to-be" Solution must integrate with a number of electronic Government Shared Services.

Further to the above mentioned systems, the VMS should be able to integrate with External Maritime Systems and other systems which may deem necessary during the contract lifetime.

# Phase 3 - Design

**Vessel Management System - Implementation Approach**

An Agile approach was recommended for the purposes of implementing the Vessel Management System with various Business Releases covering the implementation of the entire VMS functionality.

Such an agile approach to implementing the VMS will allow the MSD to start reaping benefits from the implementation from the outset of the project by digitalising those components which are perceived as low hanging fruit as opposed to other components which are more complex such as the Registry and Technical Management.

It is envisaged that during the implementation, the Awarded Contractor carries out the following activities (not exclusively):

- Project Initiation & Mobilisation
- Global Systems Analysis and Systems Design
- Business Releases including:
  - Technical Analysis and Design
  - Implementation
  - User Acceptance Testing
  - User Training
  - Data Migration
  - Production Deployment
  - Go-Live Readiness
  - Go-Live
- Post-Implementation Maintenance and Support

# Phase 3 - Design

**Technical Specifications for Maritime Analytics System**

The objective of the Maritime Analytics System is to transform and visualise the data managed by the Vessel Management System within the MSD. Moving forward, the MSD will utilise the Maritime Analytics System to apply advanced reporting and analysis in order to service insight from data, enable consistent and reliable access to accurate organisation-wide records and provide a single touch-point where detailed reports can be filtered on user-defined criteria.

In accordance with the analysed processes carried out by the MSD and the components within the VMS architecture, a list of reporting requirements specific to each component was defined. During the implementation of the Maritime Analytics System, it is expected that such requirements will be analysed and translated into appropriate data visualisations.

Additionally, a list of Non-Functional requirements was defined for which the Maritime Analytics System needs to cater for and adhere to.

# Phase 3 - Design

**Maritime Analytics - Implementation Approach**

Similar to the VMS implementation approach, for the Maritime Analytics System, an Agile approach was recommended. Due to the interdependencies between the VMS and the Maritime Analytics System, the implementation of the Maritime Analytics System should follow the Business Releases of the VMS where when a business release is closed off, the analytics implementation of such business release shall be initiated.

It is envisaged that during the implementation, the Awarded Contractor carries out the following activities (not exclusively):

- Project Initiation & Mobilisation
- Global Systems Analysis and Systems Design
- Business Releases including:
  - Technical Analysis and Design
  - Implementation
  - User Acceptance Testing
  - User Training
  - Production Deployment and Go-Live Readiness
  - Go-Live
- Project Closure
- Post-Implementation Maintenance and Support

# 4

Workstream 2 - Capacity Building Strategy and Training Plan

# Phase 3 - Design

**Capacity Building Strategy - Organisational Analysis**

This workstream initiated with an organisational analysis workshop held with the project team and senior managers with the aim to obtain a clear understanding of the strategic objectives of the MSD. The workshop involved a review of the organisational structure, main responsibilities of each department and known gaps in terms of current and required capabilities.

PwC, together with the MSD, carried out a PESTEL analysis to explore external factors impacting skills and capacity requirements within the organisation. The analysis highlighted the political, economic, socio-cultural, technological, environmental and legal considerations impacting the MSD's macro environment, including what forces of change the Directorate is exposed to, and which forces it could take advantage of to positively impact the Directorate's talent. This further involved an internal analysis identifying known strengths and weaknesses impacting skills requirements.

Subsequently, a number of interviews were held with the MSD Senior Managers to identify the competencies required across the organisation for all unique roles. The purpose of these interviews were to define a Competency Framework by functional and technical skills, categorised at three levels to be scalable across different levels of seniority.

# Phase 3 - Design

**Capacity Building Strategy - Development of a Competency Framework**

The Competency Framework distinguishes between two types of competencies: Core Competencies and Job Specific Competencies. Such competencies were further classified as follows:

- **Core Competencies**
  - **Self Management** - These are a unique set of competencies which are required to maximise one's performance and achieve professional goals.
  - **Relationship Management** - These are a unique set of competencies which are required to maximise the profession's performance and achieve collective goals.
  - **Operations** - These are a unique set of competencies which are required to maximise personal and organisation performance and achieve operational goals.

- **Job Specific Competencies**
  - **Technical Skills -** These are the abilities and knowledge required to carry out specific tasks within one's role.
  - **Human Skills -** These are the skills required to relate to one another and engage effectively with different sets of people.

# Phase 3 - Design

## Capacity Building Strategy - Development of a Competency Framework

A survey was created and distributed to all employees spanning all areas of the Directorate so as to solicit their input regarding both the Core and Job Specific Competencies believed to be necessitated for the Directorate to achieve its goals.

The Competency Survey was divided into two Sections:
- Section 1 focused on Core Competencies, in which employees were invited to select up to nine competencies from a long list of potential competencies which were identified during the previously carried out research, and discussions held with the MSD.

- Section 2 focused on Job Specific Competencies, in which employees were invited to select up to ten technical competencies from another long list of potential competencies which they deem required for their specific roles.

# Phase 3 - Design

**Capacity Building Strategy - Development of a Competency Framework**

Subject to the results captured by the Competency Survey, a workshop was held in which the MSD senior management identified the Core Competencies which they deemed that are essential for MSD employees to fulfill their job requirements and prosper within the Directorate. These were further selected based on their strategic alignment and link to the MSD's mission and vision.

In identifying the Job Specific Competencies, individual meetings were then held with department/unit heads to gain a clear insight into the roles and responsibilities as well as the knowledge, skills and aptitudes required from each unique job role. This led to the identification of Job Specific Competencies across the entire Directorate. Each Core and Job Specific Competency was then defined to outline what these expected skills and behaviours would look like within the MSD.

# Phase 3 - Design

## Capacity Building Strategy - Competency Mapping & Assessment

PwC divided the identified competencies into three proficiency levels, each with an average of four behaviour descriptors per level. Level 1 generally involves basic knowledge, skills and abilities while Level 3 involves advanced level knowledge, skills and abilities. These different competency levels were mapped to each role within the Directorate through a series of meetings with the MSD Senior Management.

The next step involved the development and implementation of Competency Assessments for all personnel within the MSD. The methodology was first agreed upon, which involved the Senior Management team assessing all personnel within their remit. The behavioural descriptors of each competency mapped to their role was assessed on a scale. This scale then translated into overall scores, in which a score of less than or equal to 2 was deemed as low (red), a score between 2.1 and 3 was deemed as medium (amber) and a score greater or equal to 3.1 as high (green). A number of workshops were then held in order to identify the skills gaps which should be addressed, together with identifying subject matter experts to be selected as in-house trainers.

This assessed the employees' level of ability in each of the required competencies, at the required level, which formed the basis for the Skills Gap Analysis.

| | | Department Name - Role Name | Department Name - Role Name | Department Name - Role Name | Department Name - Role Name | Department Name - Role Name |
|---|---|---|---|---|---|---|
| | | Employee Name | Employee Name | Employee Name | Employee Name | Employee Name |
| Regulatory & Audit Compliance | Mapped to Level 1 | 3.0 | 1.6 | 3.0 | 2.4 | 2.2 |
| | Mapped to Level 2 | | | | | |
| | Mapped to Level 3 | | | | | |
| Digital First | Mapped to Level 1 | 2.0 | 2.0 | 2.0 | 2.0 | 2.8 |
| | Mapped to Level 2 | | | | | |
| | Mapped to Level 3 | | | | | |
| Self Motivation and Initiative | Mapped to Level 1 | 3.5 | 1.3 | 3.5 | 2.8 | 2.0 |
| | Mapped to Level 2 | | | | | |
| | Mapped to Level 3 | | | | | |

*Example of Competency Assessment output for a department*

## Skills Gap Analysis & Competence Inventory Tool

A Skills Gap Analysis report was then developed, summarising the overall Core and Job Specific competency scores. This highlighted employee strengths as well as low scoring areas, which were then prioritised for the identification of training needs per individual and department. The identified training needs then formed the basis for development of the MSD's Training Plan. PwC also developed a Competency Inventory Tool on MSD's own knowledge sharing platform, Sharepoint, as a repository to house all the competencies identified in a searchable manner. This allows users to navigate through a full list of competencies within the framework.
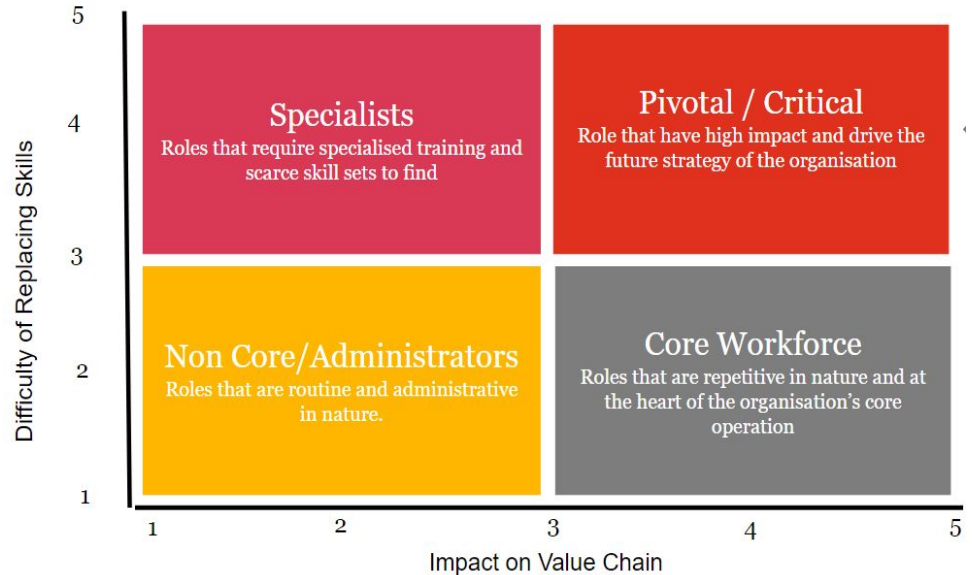
# Phase 3 - Design

## Capacity Building Strategy - Succession Plan

Succession planning was carried out with the Senior Management in order to map out all unique roles present in their teams within a given matrix. This involved grouping roles into four categories based on the difficulty of replacing skills and the impact of that role on the value chain.

Through discussions with Senior Managers, all roles within the directorate were segmented into one of four quadrants; specialist, pivotal roles / critical, non-core roles / administrators, and core workforce. This led to identifying which roles are deemed as pivotal and therefore require succession planning.

Also as part of succession planning, PwC provided guidance for selecting successors for pivotal roles and actions to be taken once successos are identified.
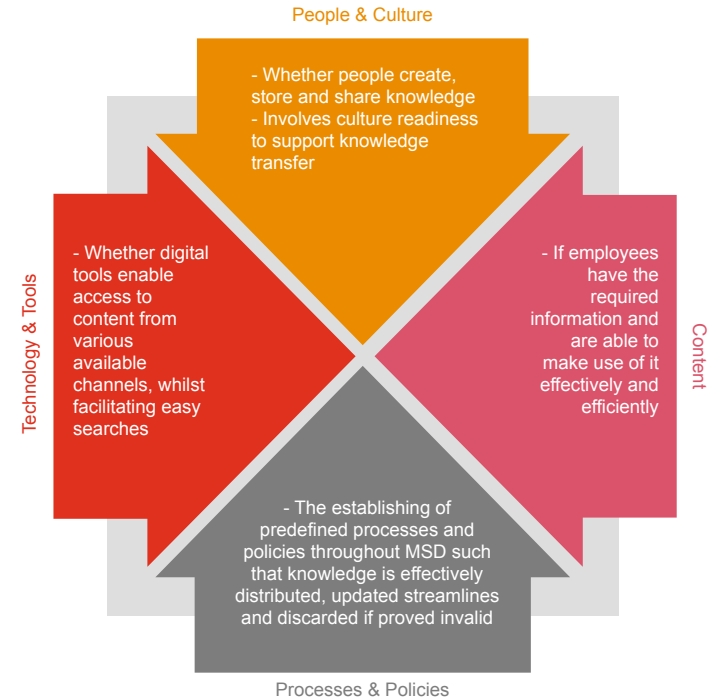
# Phase 3 - Design

## Capacity Building Strategy - Knowledge Management Strategy

A number of workshops were held with MSD's senior managers and managers where the planned and continuous management of tools, processes, systems, structures and cultures were discussed in order to improve the creation, sharing and use of knowledge critical for decision-making.

With the aim to determine the solutions on how to build a knowledge sharing culture within the organisation, four knowledge sharing pillars were explored subject to the organisation's readiness and the steps necessary for improvement. These being; People & Culture, Technology & Tools, Processes & Policies and Content. Each pillar was assessed on a scale of 1 (being lowest) and 5 (being highest).

Corresponding to the four pillars and their respective rating, PwC developed a set of initial recommendations to increase knowledge sharing within the Directorate. These were then prioritised by the MSD, following which PwC has provided an action plan with further details for the implementation of these prioritised recommendations.



People & Culture
- Whether people create, store and share knowledge
- Involves culture readiness to support knowledge transfer

Technology & Tools
- Whether digital tools enable access to content from various available channels, whilst facilitating easy searches

Content
- If employees have the required information and are able to make use of it effectively and efficiently

Processes & Policies
- The establishing of predefined processes and policies throughout MSD such that knowledge is effectively distributed, updated streamlines and discarded if proved invalid

# Phase 3 - Design

## Training Plan for MSD Workforce

In line with the Competency Framework and as per the discussions held with MSD's Senior Management, a Training Plan was developed consisting of training modules that shall be delivered internally and those which should be delivered out by external training providers. Accordingly, PwC provided an overview of the different learning journeys across the MSD's departments, based on training levels and outlined the target training participants, the frequency of the training and the required number of training sessions.



The Training Plan further provides guidance on when the employees should be assessed to determine their training needs. For new employees, this should take place within the first 3 months of employment, while for existing employees, this is primarily to be carried out during the annual Training Needs Analysis. Additionally, guidance was provided on the stage of the employee life cycle when the training should take place. In this regard, PwC recommended that MSD's new joiners should be automatically enrolled onto a training plan to equip them with the skills and abilities required to perform their role effectively and distinguished which in-house training should be delivered within the first 6 months of employment and beyond the sixth month of employment.

## Guidance on carrying out a TNA

Lastly, the Training Plan includes guidance on how the MSD is to carry out a Training Needs Assessment for new and existing staff in the future. This is to ensure a thorough understanding of how the process is to be carried out internally to safeguard the sustained continuation of these activities. PwC has provided a hand over of all the tools created as part of this contract. This have been supplemented by a user guide for internal personnel.

# 5

Recommendations for Further Actions

# Further Actions

**Workstream 1 - Specifications to Actualise the Digital Maritime Architecture**

The outcome from Workstream 1 of this phase, consists of the findings for the current stage of the MSD both from internal and external perspectives, our recommendations for the "to-be" system and its components, and the proposed technical specifications for the implementation of the "to-be" system.

The approach applied to present the deliverables aims to facilitate the MSD to adopt a procurement methodology which is logical in nature and subsequently allow for prospective bidders going forward to submit proposals in a similar nature.

# Further Actions

**Workstream 2 - Capacity Building Strategy and Training Plan**

The outcome from Workstream 2 of this phase involves an "as-is" snapshot of the people and skills requirements of the MSD, together with sets of tools and methodologies which can be used on an annual basis to monitor skills improvement and re-deploy training.

The Training Plan for 2023 and subsequent years should now be implemented. This firstly requires the development of the required training content for in-house training, utilising the knowledge garnered from the train the trainer programme in order to assemble blended training material.

Following the identification of pivotal roles, the next stage is the identification of pipeline employees who would potentially succeed persons currently occupying roles deemed pivotal, and to further develop them to fulfil their potential future pivotal roles. Additionally, the Knowledge Management action plan on prioritised recommendations should be implemented.

# 6 Challenges

# Challenges

**Workstream 1 - Specifications to Actualise the Digital Maritime Architecture**

◼ Capturing the relevant and accurate information for the current state scenarios

◼ Maintaining focused and regular meetings throughout the project

◼ Shifting the perspective from the existing system(s) to the envisaged system (VMS) and properly identifying the expected differences and gaps

◼ Accounting for uncertainties and potential changes in other systems that the VMS will integrate with

◼ Defining the technical requirements in a precise and feasible manner

To overcome the main challenges faced during Workstream 1 of this project, the information on the "as-is" situation and the "to-be" specifications were gathered in an incremental and non-linear manner. This approach provided flexibility for applying changes and adjusting the level of detail to the technical requirements where needed.

# Challenges

**Workstream 2 - Capacity Building Strategy and Training Plan**

■ Ensuring that a thorough and robust list of technical skills is captured within the Competency Framework

■ Ensuring the availability of MSD personnel to attend and participate in required meetings and workshops

■ Internal trainers availability in developing the required training content

■ Ensuring that the implementation of the required training over the coming years is carried out in such a way that MSD personnel can dedicate the required time which can be considerable, while keeping in mind the required digital system user training related to the Maritime Architecture.

To overcome the main challenges faced during Workstream 2 of this project, we compiled a long list of applicable competencies through thorough research of available local and international Maritime skills frameworks, together with working closely with the project team and the senior management team. Moreover, a survey was issued to all employees to garner their first hand insight, which was later validated by the Senior Management Team.

In order to facilitate the attendance of MSD personnel in meetings and workshops, dates for meetings and workshops were set early on to ensure availability of personnel.

During the train-the-trainer course, internal trainers were taught about curating material and leveraging already available information. Moreover, learning outcomes were developed for each competency level to guide the internal trainers further.

Training has been planned in a staggered manner to ensure that MSD personnel can dedicate the required time. This involves a training plan spanning 2023 to 2025 which takes into consideration periods in which system user training would be taking place.

# 7

Lessons Learned

# Key Lessons Learned

## Setting Expectations

The introductory meeting with the project team was a good starting point for setting expectations and identifying any missing or amended processes that the MSD departments carry out, so as to not duplicate work.

## Identifying and Managing Stakeholders

The MSD's team composition helped to ensure that the project was carried out in a way that covered all angles pertinent to successfully achieving the intended objectives of the project. Being knowledgeable of the stakeholders roles within the project facilitated better project coordination to ensure proper sequencing and timing of activities.

## Project Familiarisation

Throughout the project it was noted that, for some MSD employees, the vision and expectations of the project were not clearly defined. In order to help employees familiarise themselves with the project and understand the digital shift, Digital First training will be provided to the MSD employees.

# Key Lessons Learned

## Human-centric approach

It was vital that a people centric approach was adopted throughout the project in order to assist the MSD employees to follow through such a complex and technical project, especially since most of the employees do not have a technical background.

## Communication

The constant flow of communication and meetings between all stakeholders during all stages of the project ensured that there was full visibility and transparency on the project. This allowed for stakeholders to understand at any point in time what stage the project was at and also to relay any necessary feedback to the project team.

## Collecting Feedback

When collecting feedback through email, it often required further explanation or chasing. In some cases, setting up meetings and gaining feedback during the meetings happened to be more efficient rather than going back and forth through emails.

# Key Lessons Learned

### Scheduling Meetings/Workshops

Since a number of individuals were involved in the project, setting meetings was sometimes difficult due to availability. Therefore, where possible, meetings and workshops were set well in advance in order to find a common date in which all are available and preventing from causing delays.

### EMSA's Support

The support provided by EMSA was essential especially in relation to the integration requirements for the Vessel Management System to communicate with relevant Maritime Digital Systems.

### Implementation Plan

Whilst planning and recommending the implementation approach to be adopted for the Digital systems, it was highly considered that the recommendations and plans put forward are achievable, feasible and realistic.

# 8 Risks

# Risks Identified

This section represent a review of the risks avoided or that occurred during the project as well as the actions taken. These risks could be beneficial when another Member State is carrying out the same digitisation process.

| Processes | |
|---|---|
| **Risks** | **Mitigation** |
| **Push back from Local Shipping Community** | There is a risk that the Local Shipping Community adopts a view or position which will go contrary to the objectives and desired outcomes to be reached, thus jeopardising the successful adoption of measures implemented through this and future related projects. In order to manage this risk, regular and open dialogue with the Local Shipping Community should be established, especially at key stages within the project's delivery, in order to keep them abreast of developments. |
| **Abiding by Local Legislation as well as International Maritime Legislation** | Since Laws and Regulations pertaining to the Maritime Industry are written in a specific approach, there is a risk that while carrying out such engagements, certain process improvements might not be feasible. Therefore, it is important to deeply understand the Local Legislation and International Maritime Legislation so that recommendations for process improvements remain compliant with such laws and regulations. |

# Risks Identified

The below represent risks that were avoided or that occurred during the project as well as respective mitigation actions:

| People | |
|---|---|
| **Risks** | **Mitigation** |
| **Resistance to Change by Internal Stakeholders** | It is important to bring key stakeholders, especially those with a 'stake' in the change, on the change journey so as to generate buy-in early on in the process. A way in which this can be done is to solicit their feedback in order to co-create solutions ensuring the needs of the users being taken into consideration. While embarking on the change journey, communicating a clear vision and objectives of the changes to take place will also help mitigate resistance. |
| **Conflict between External Stakeholders disrupting the project** | There is a risk that Stakeholders disagree between themselves impacting the ability to make project decisions in an efficient manner. Mitigate by approaching and discuss disagreements. Where disagreements persist, these should be escalated and acted upon at a timely manner. |

# Risks Identified

The below represent risks that were avoided or that occurred  during the project as well as respective mitigation actions:

| Technology | |
|---|---|
| **Risks** | **Mitigation** |
| **Resistance to Change Existing Legacy Systems** | There is a risk that internal stakeholders fear the technological change especially if they have gotten comfortable of the daily routine making use of legacy systems. It is important to communicate with the internal stakeholders emphasising on the purpose of the project and the long term benefits of embarking on the digitalisation journey. |

# 9 Conclusion

# Conclusion

As the Merchant Shipping Directorate within Transport Malta is embarking on a process of digitalisation and undergoing a digital transformation of all aspects of its operations, one of the key initiatives is that the Digital Maritime architecture enables Malta to become a truly digital, by default, maritime flag state.

The proposed to-be architecture seeks to simplify and enhance the way processes are carried out by the Maltese Maritime Administration through the use of dynamic digital workflows, intelligent automation, integration and the re-use of data thus enabling the adoption of the once-only principle. Moreover, such an architecture also seeks to provide external stakeholders with a more comprehensive digital user experience, allowing them to benefit from a more modern, efficient and effective user experience as such stakeholders are used to in other aspects of their professional and personal lives.

Whilst applying the technical specifications proposed in this phase, the Merchant Shipping Directorate shall undergo an extensive transformative shift from a predominantly manual operation to new systems being deployed covering the entire Target Digital Maritime Architecture. In accordance with the to-be digital maritime architecture, the digital transformation is expected to include a modular, scalable and interoperable system.

To ensure that the MSD is equipped with the required skills, abilities and resources to achieve its medium to long-term goals, employee performance and skills requirements are to be continuously monitored, at least on an annual basis. Clear oversight of the various people related activities is required, with ongoing training sessions being delivered on a needs basis, depending on their stage in the employee lifecycle and level of upskilling necessary.

# Thank you