

Formal Project Management approach and Lean Manufacturing principles as tools to solve some today problems of Vietnamese shipyards

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Vietnam Marine Technology and Engineering

Ship Design

Marine Engineering

Project Management

Consultancy

QUALITY—EFFICIENCY—ON TIME DELIVERY

Formal Project Management approach and Lean Manufacturing principles as tools to solve some today problems of Vietnamese shipyards

- Presentation
- Vietnam shipbuilding today strength and weakness
- Skill gap to be filled
- Introduction to formal Project Management
 - Definition and Framework
 - P.M. and Corporate Organizations
 - Skills for Project Managers
- Introduction to Lean Manufacturing
 - Definition and Principles
 - Basic tools and techniques
- 10 point for improve your organization
- Conclusions

Mr. Michele Lauriero



- Italian Naval Architect and Marine Engineer
- About 18 years of overall professional experience
- More than 6 years working in Viet Nam
- Main fields of expertise:
 - ship design – marine engineering
 - project management
 - lean manufacturing – quality management systems
- Member and Chartered Engineer of R.I.N.A. (UK)
- Member of the PMI – Project Management Institute (USA)
- Project Management Certifications PMP®, CSM®
- Certifications in “Lean Management”
- Six Sigma – Green Belt

Strong Points

- Top 5 shipbuilding countries in terms of tonnage
- Long tradition on building ships
- Recent strong improvement of the technological level
- Very good maritime universities
- High level of skills of workers and engineers
- Relative low level of labor cost
- Open and foreign friendly business system



Potentially a very good operator in the global shipbuilding market

Weakness factor

- Deficiencies in Project Management
- Chronical delays in delivery
- Perception as “not reliable” for many shipyards
- Shipyard process-efficiency to be improved
- Quality management system to be improved



In reality still struggling to create confidence and credibility on both local and international market

There is clearly a “gap” in the management skill set



WHAT'S THE "GAP" AND HOW CAN FILL IT?

Restart focusing on two main principles of each business:
Effectiveness and **Efficiency**



1. Becoming EFFECTIVE



Capable of producing a desired output or result.

GETTING THINGS DONE (according CUSTOMER EXPECTATION)

2. Becoming EFFICIENT



Capable of producing desired results without wasting materials, time or effort.

CUTTING WASTES (and MAXIMIZE THE PROFIT)





A **project** is a **temporary** endeavor undertaken to create a **unique** product, service or result.

Project management, is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

Characteristics of a project

- Unique
- Limited in time
- Complexity
- Team effort
- Constraints (time, scope, cost, quality)



Project management is an old discipline applied informally since the beginning of humanity!



Giza Pyramids (2560 BC)



Great Wall of China (206 BC)



Colosseum (80 AC)



Eiffel Tower (1889)

PROJECT MANAGEMENT: From “art” to “science”

Around middle of 20th century, project management start to become a formal discipline based on standardized tools, techniques and knowledges.

A new professional role start to be necessary to coordinate the complexity of new projects: **the project manager.**

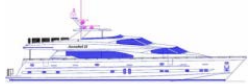


The first modern project management application:
In 1950s the U.S. Department of Defense start to apply modern project management tools and techniques to develop the POLARIS (sub-marine launched ballistic missile)

SHIPBUILDING AS PROJECT BASED INDUSTRY



SPECS



- **Unicity**
- **Complexity**
- **Time constrained**
- **Cost constraint**
- **Scope constraint**
- **Quality constraint**

Is “build a ship” a project?



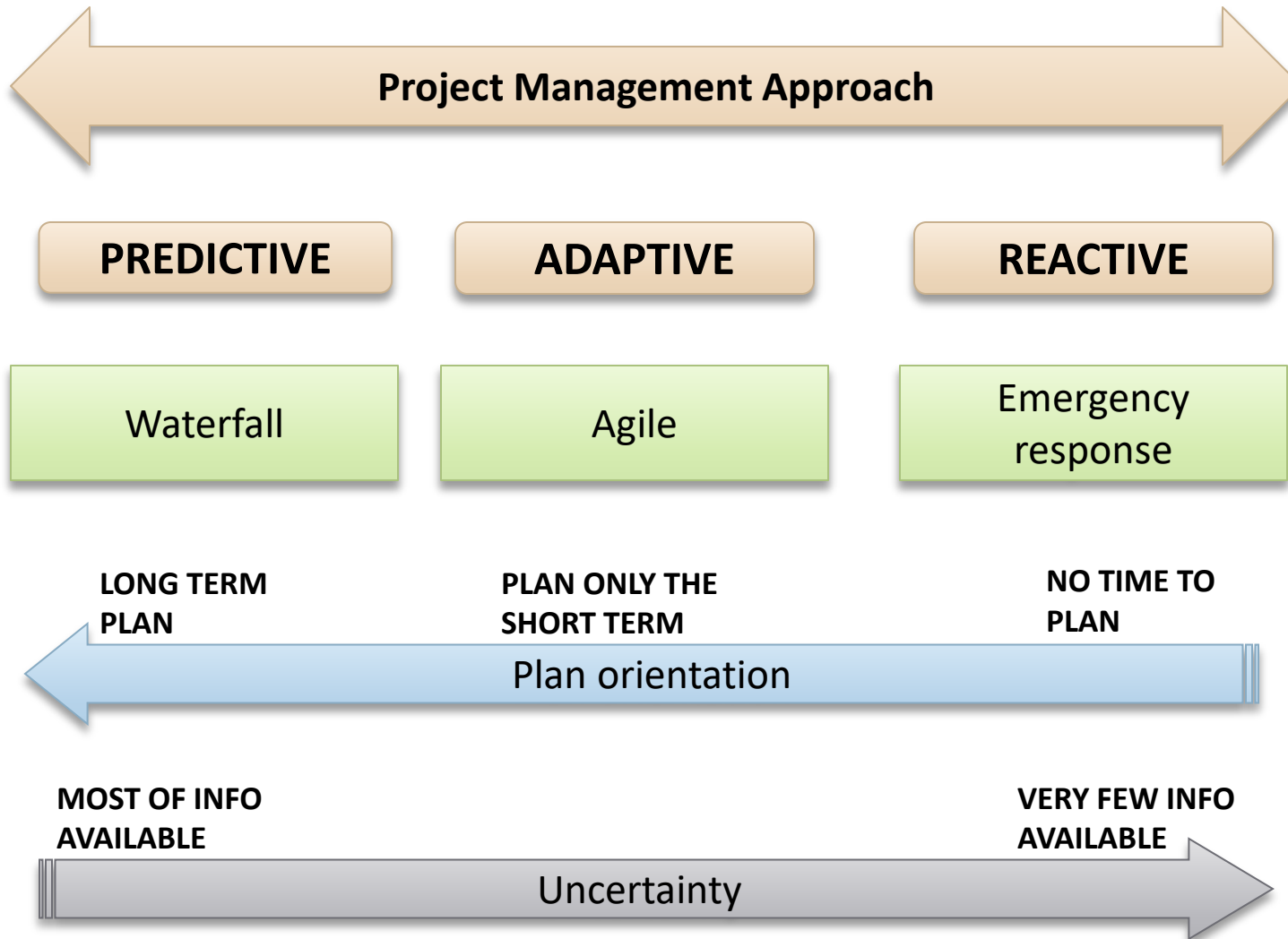
Why apply a formal PM approach in shipbuilding?

A formal P.M. approach is a valid support to satisfy the general ship building contractual requirements:

- Deliver the ship in time
- Building cost \leq Contractual price
- Compliance to the specifications
- According customer defined quality

Secondary but at same time very important benefits:

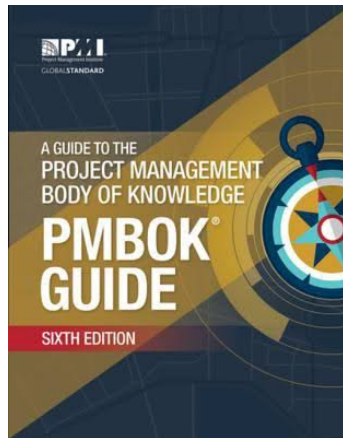
- Proper risk management
- Team coordination
- Better communications
- Keep stakeholder engaged



- **PMI - PMBOK**
- PRINCE2
- ISO-21500
- Lean Project Management
- The Agile Manifesto
- The SCRUM guide



PMP® Most important and best recognized PM certification worldwide



PMBOK: Guide to the Project Management Body of Knowledge

Issued by the Project Management Institute (USA), it's the most used and quoted compendium in project management field

PROJECT MANAGEMENT LIFE-CYCLE

Project life-cycle

Phase distribution of the scope development

Example: shipbuilding project



Product life-cycle

Phase distribution of the whole product life.

Project life cycle is normally a part of the product life cycle

Example: cargo ship life-cycle



Project Management life-cycle

Phase distribution of the activity done by the project team to carry out the project's objectives.

1. INITIATION

Formal definition and starting

2. PLAN

Define what to do, how to do, baseline time and cost...

3. EXECUTION

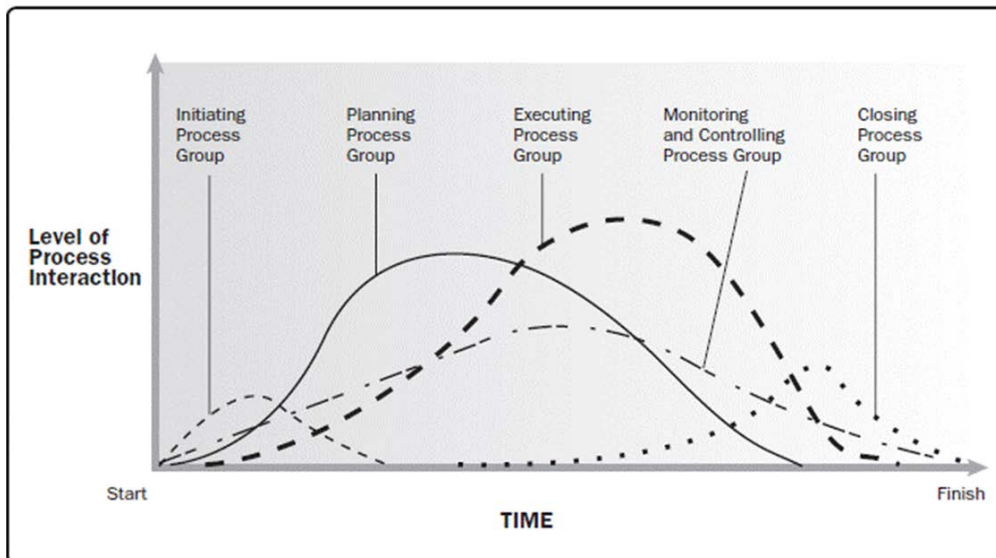
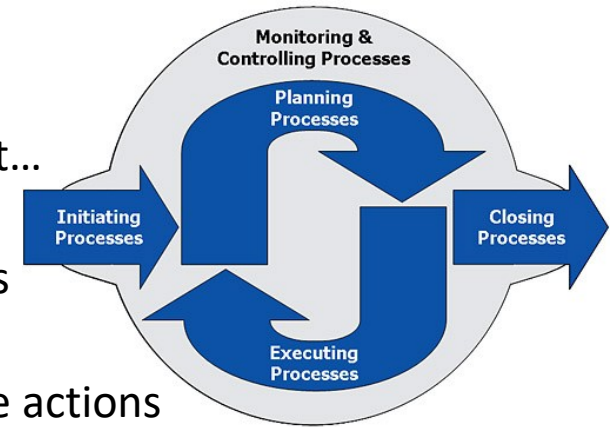
Perform the project work and create the deliverables

4. MONITORING & CONTROL

Measure progress and performance taking corrective actions

5. CLOSING

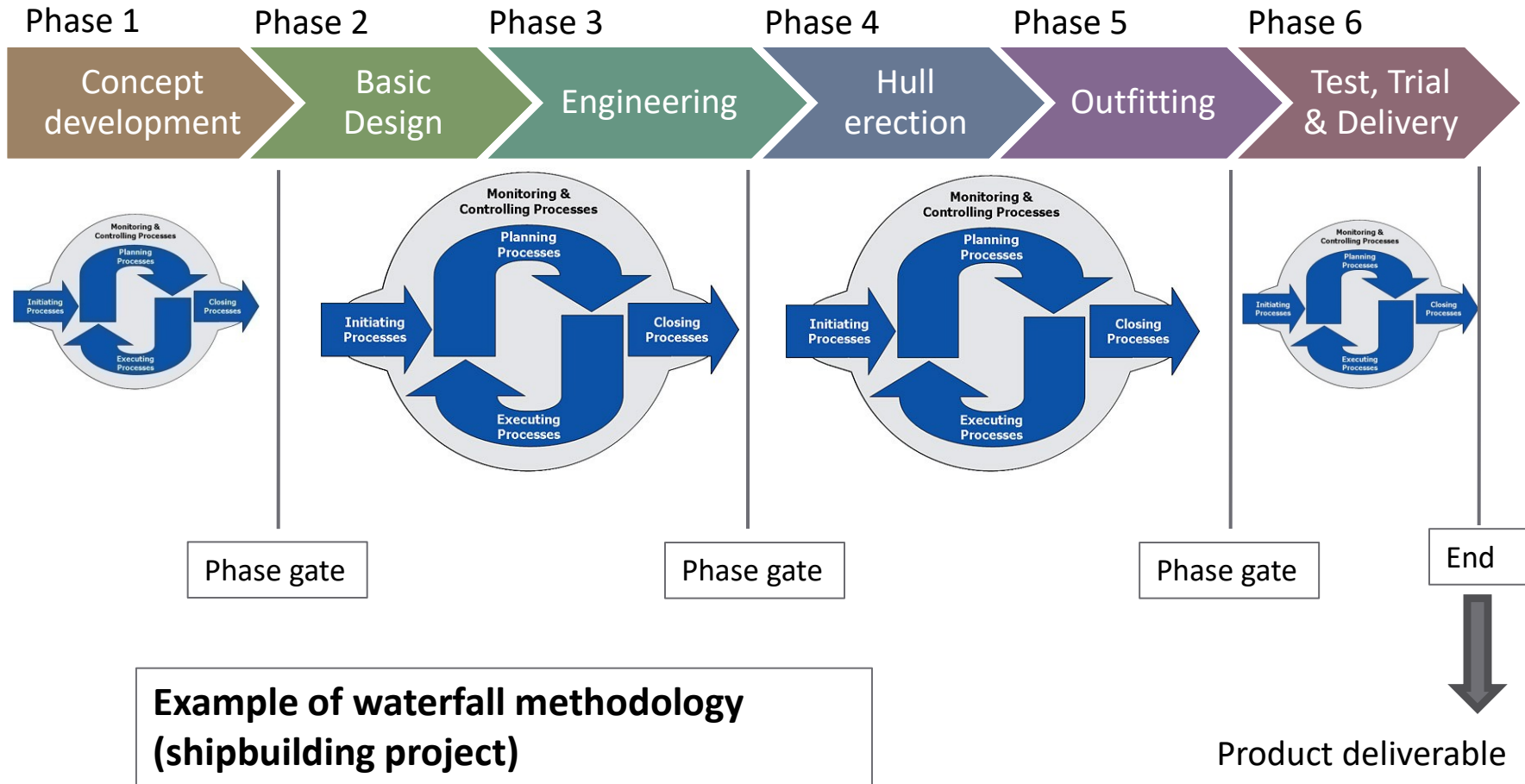
Formal delivery of results to Client and collect lesson learnt



Common mistakes about project life cycle:

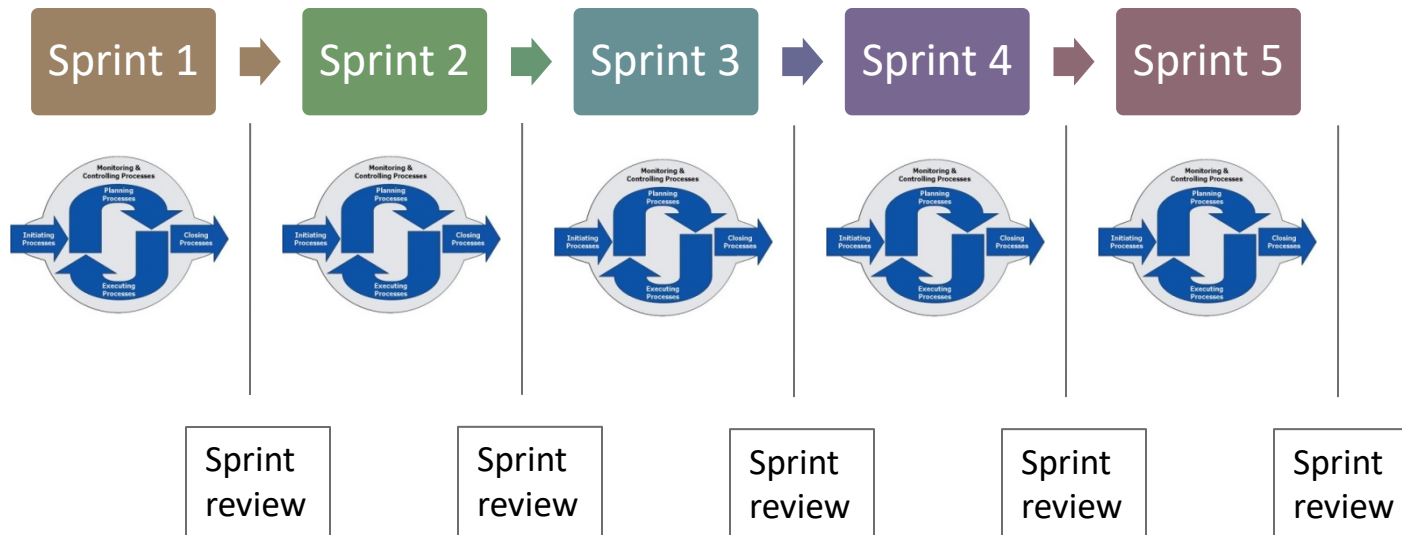
- Planning is done only one time, at beginning of project
- Monitoring and control is done only in parallel to execution
- Monitoring and control is a discrete time activity

PROJECT LIFE-CYCLE vs. PROJECT MANAGEMENT LIFE-CYCLE

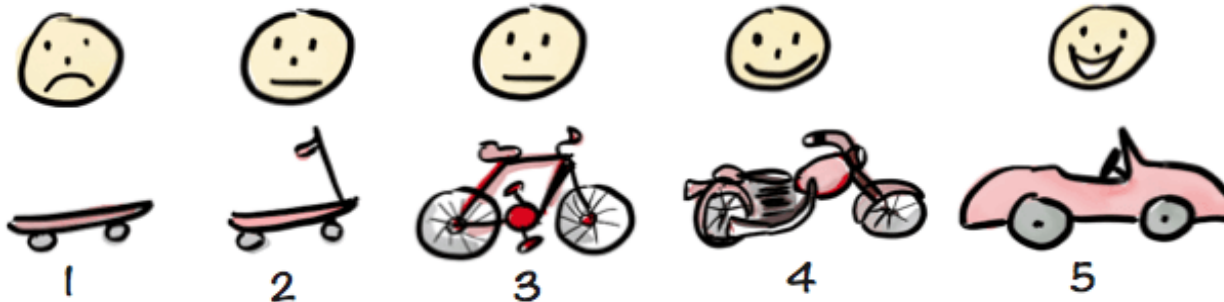


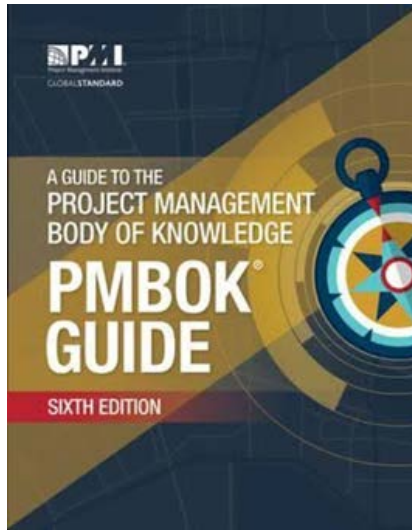
Example of “agile” approach (SCRUM methodology)

Sprints have fix duration: 1 to 6 weeks

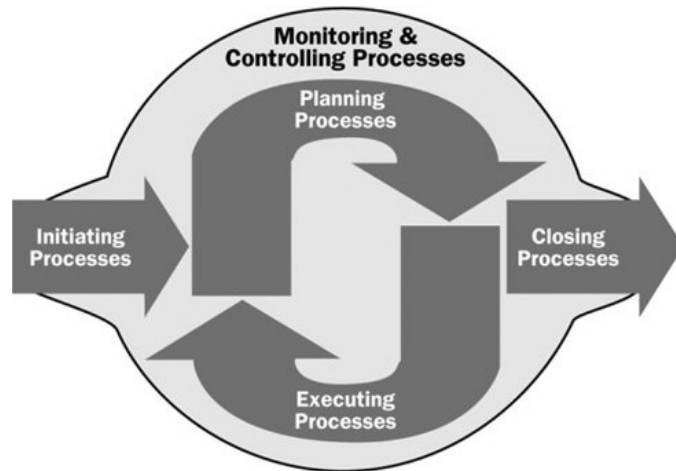
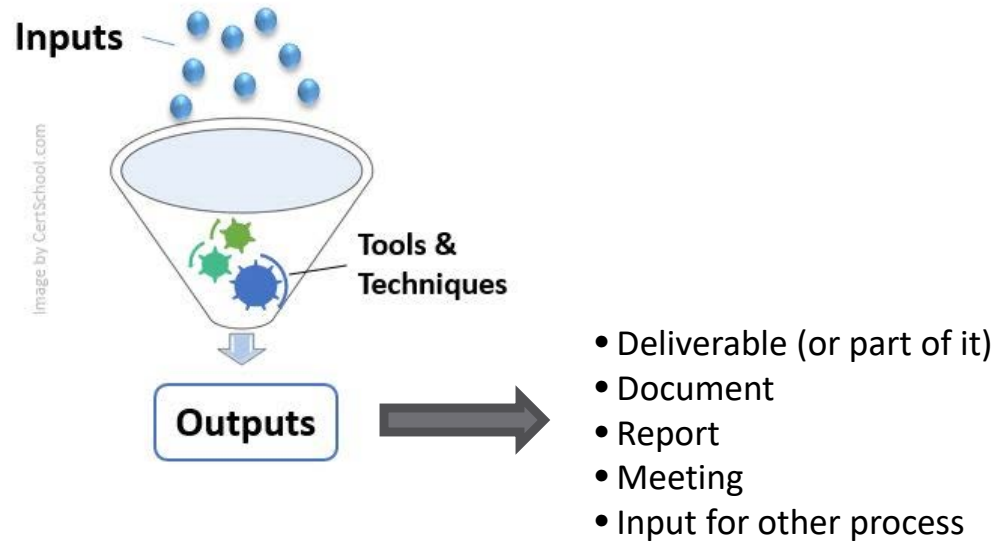


Product deliverable:





What is a process?



- 49 different processes
- 5 groups of process
- 10 knowledge areas

The 10 knowledge areas of formal Project Management



PROJECT MANAGEMENT PROCESS

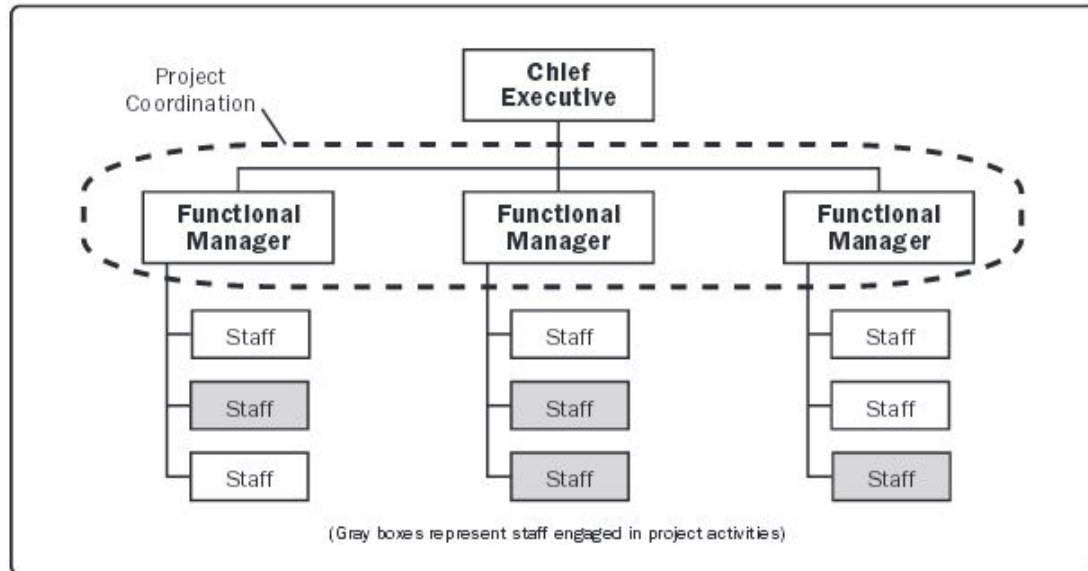
Knowledge Areas	Project Management Process Groups					
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group	
4 Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase	7
5 Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope		6
6 Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule		6
7 Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs		4
8 Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality		3
9 Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources		6
10 Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications		3
11 Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks		7
12 Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements		3
13 Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement		4
	2	24	10	12	1	49

The 49 P.M. processes of the PMBOK 6th Edition

- 49 different processes
- 5 groups of process
- 10 knowledge areas



The best tool-box for the perfect Project Manager



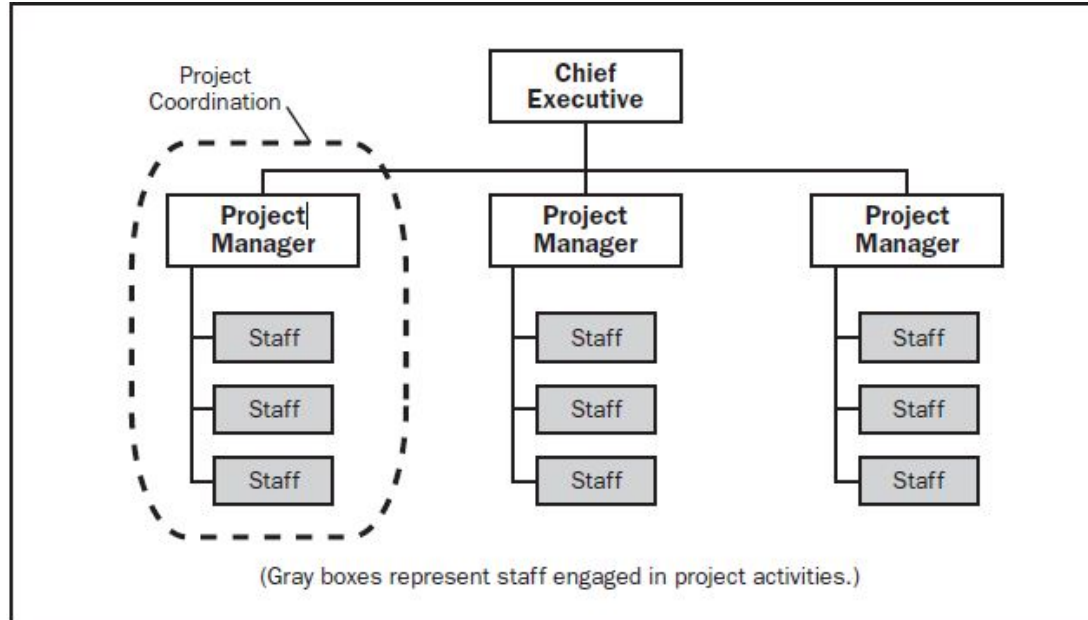
Functional organization



- Clear distribution of authority
- Single “boss”
- Staff grouped by specialty
- Difficult allocation of resource to project



- No Project Manager
- Project coordinated between functional managers
- No clear accountability for project results



Projectized organization

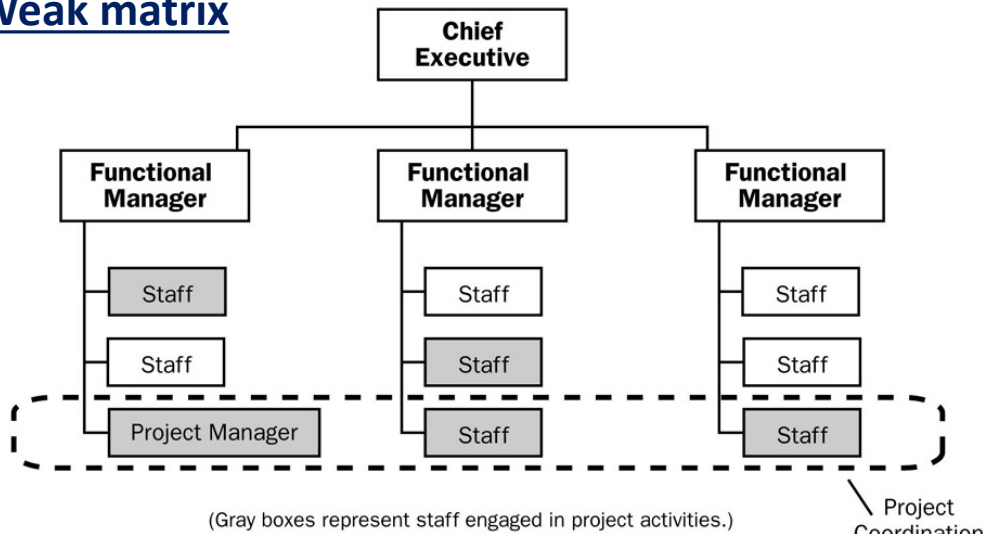


- Strong independence of Project Manager
- Clear accountability of results
- 100% resource availability to the project



- No central management of specialties
- It's like many business units in the same Company

Weak matrix



Matrix organizations

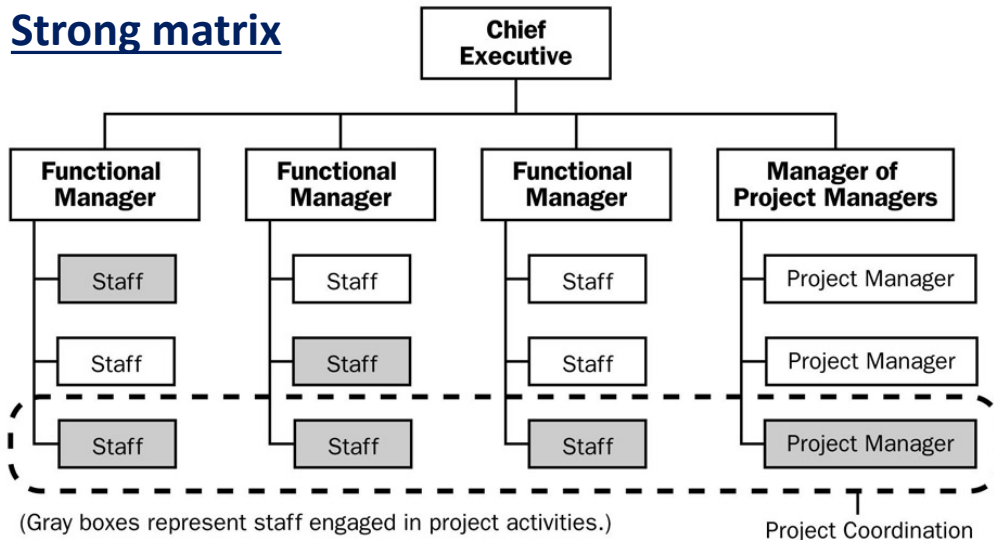


- Balanced distribution of project results accountability
- Staff grouped by specialty
- Good allocation of resource to projects
- Presence of full time Project Manager



- "Double boss" effect
- Possibility of conflicts between P.M. and F.M.

Strong matrix



THE 3 BLADES PROPELLER OF KNOWLEDGE FOR SHIPYARD PROJECT MANAGERS

BUSINESS KNOWLEDGE

- Lessons learned from each project
- Customer relationship and satisfaction
- Market conditions: current and forecast
- Company Strategic Planning
- Business KPI's
- Business Metrics
- Business Marketing
- Process continuous improvement

PROJECT MANAGEMENT KNOWLEDGE

Basics

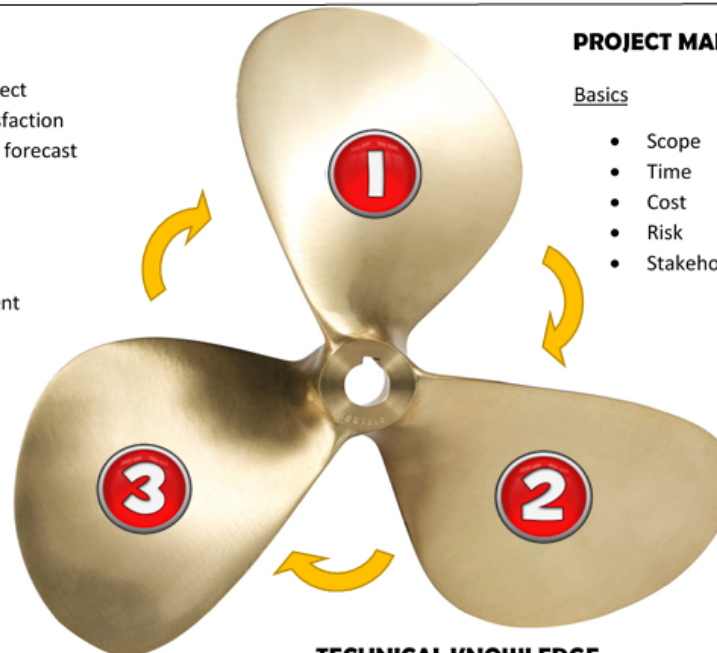
- Scope
- Time
- Cost
- Risk
- Stakeholders

Advance

- Human Resources
- Communication
- Change management
- Negotiation
- Procurement
- Quality

Soft Skills

- Leadership
- Decision-making
- Realistic point of view
- Coordination
- Coaching
- Conflict management
- Customer satisfaction
- Stress-resistant



TECHNICAL KNOWLEDGE

Advance (To apply the theory on the field - Practical)

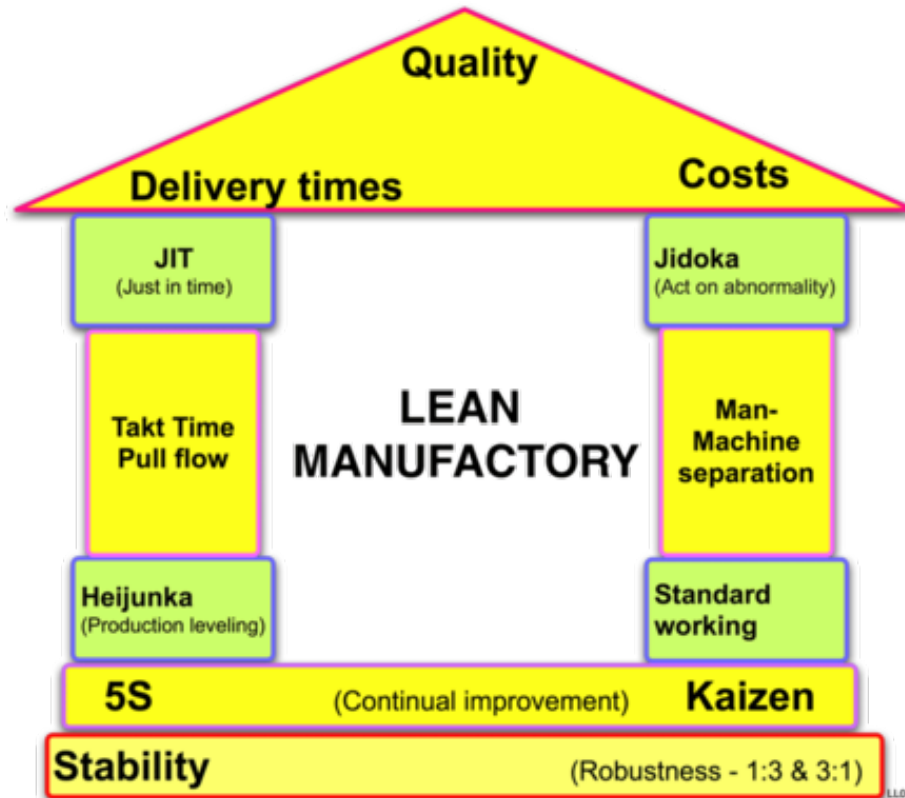
- Mechanical (Propulsion, valves, winch, pumps, etc.)
- Electrical
- Steel
- Surface Preparation and Coating
- Piping
- Safety
- NDT
- Industry Standards

Basics (To understand how the job is performed - Theory)

- Mechanical (Propulsion, valves, winch, pumps, etc.)
- Electrical
- Steel
- Surface Preparation and Coating
- Piping
- Safety
- NDT
- Industry Standards

EXPERIENCE

Author: Fernando Remolina, PMP



Management philosophy derived from the Toyota Production System

Basic principles:

- Work from the perspective of Client
- Maximize the value for the Client
- Reduce the waste
- Identify and create a value creation flow during the production
- Continuous improvement of process
- “Pull” production system (produce what the customer want, when the customer want, just in time)



5S – IMPROVE THE WORKPLACE ENVIRONMENT











5S Explanation

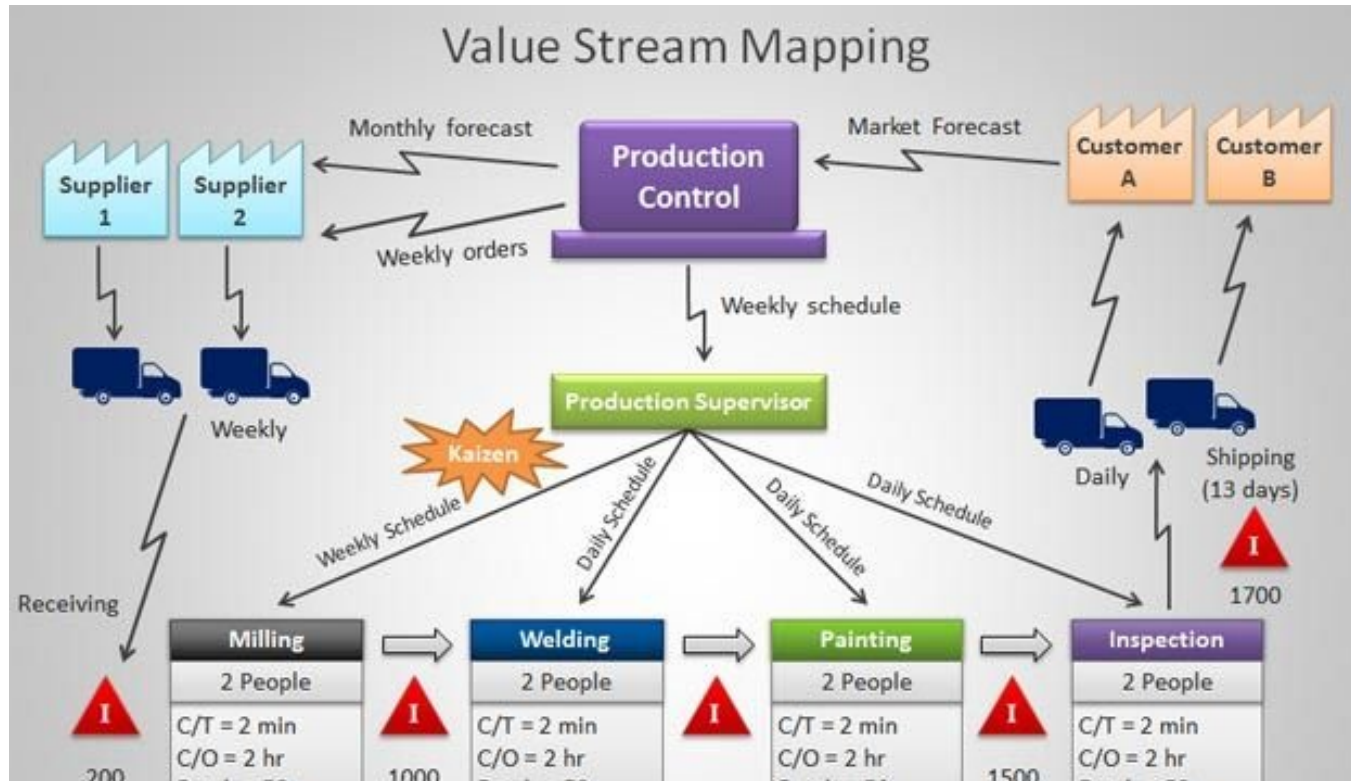


KAIZEN – CONTINUOUS IMPROVEMENT



WASTE REDUCTION – MAXIMIZE THE VALUE

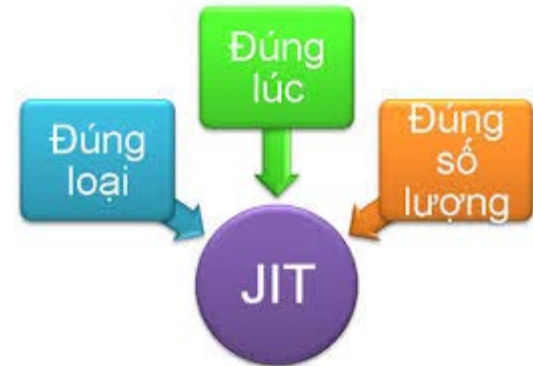
TRANSPORT	INVENTORY	MOTION	WAITING
			
<i>Unnecessarily moving things, equipment, parts, tools and materials from one location to another.</i>	<i>Making more than customer demand, building up unnecessary stocks.</i>	<i>Unnecessary movement; people walking to get things which should be located closer to the point-of-use.</i>	<i>Delays between operations because parts are missing. Stopped work: waiting for parts, machines, or people.</i>
OVER PRODUCTION	OVER PROCESSING	DEFECTS	SKILLS
			
<i>Making too much or too many. Completing a task before it is needed. Making products that the customer hasn't ordered.</i>	<i>Duplicate or redundant operations, performing wasteful steps that are not required. Often because "we always do it this way."</i>	<i>Failing to produce a quality part the first time generating rework or scrap. Not delivering the product or service "right the first time."</i>	<i>Failing to use skills and capabilities of the workforce. Not listening to people, using their knowledge or learning from past mistakes/issues.</i>



- Identify the process step-by-step
- Focus on process creating value for customer
- Eliminate (as far as possible) process not adding value
- Cut wastes
- Optimize material, people and equipment flow

What is Just-in-Time (JIT)?

- Supplies and products are pulled through system to arrive where they are needed, when they are needed
- A management philosophy of continuous and forced problem-solving via a focus on throughput time and reduced inventory
- JIT's mandate: *Eliminate all waste!*



The right thing at the right moment in the right quantity:

- In the warehouse inventory
- In the production line
- In delivery to the customer

10 POINTS ON WHICH INVEST IN THE FUTURE

1. Invest in knowledge and develop soft skills
2. Invest in the figure of Project Managers
3. Move to a “strong matrix” organization type
4. Invest in the implementation of a Project Management Office
5. Talk with your Clients and understand their real need
6. Keep “engaged” all stakeholders of your projects
7. Start with 5S (it doesn't cost nothing)
8. Start implementing a culture of continuous improvement
9. Focus on the real value
10. Cut the wastes

WHAT ARE THE BENEFITS?



Improved quality

Improved efficiency and productivity



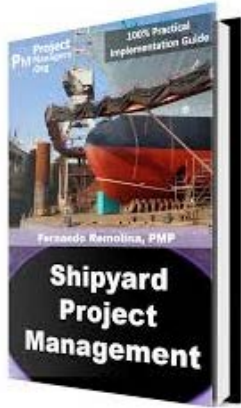
Increased margins



Better work place



Improved Customer's appreciation



Shipyard Project Management

by *Fernando Remolina, PMP*

Edition ProjectManagers.Org



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Shipbuilding and Ship Repair Project Management

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Contact us:

mail.vimatec@gmail.com



Xin cảm ơn

CONTACTS

VIMATEC Engineering™

Vietnam Marine Technology and Engineering Co. Ltd.

2295/8/2A Huynh Tan Phat Street
Nha Be District - Ho Chi Minh City
VIETNAM



www.vimatec.com.vn



mail.vimatec@gmail.com

Mr. Thuan Bui Ngoc

MANAGING DIRECTOR

+84 (0) 903413365

thuanbn.vimatec@gmail.com

Mr. Michele Lauriero

TECHNICAL DIRECTOR

+84 (0) 1237701039

michele.vimatec@gmail.com

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