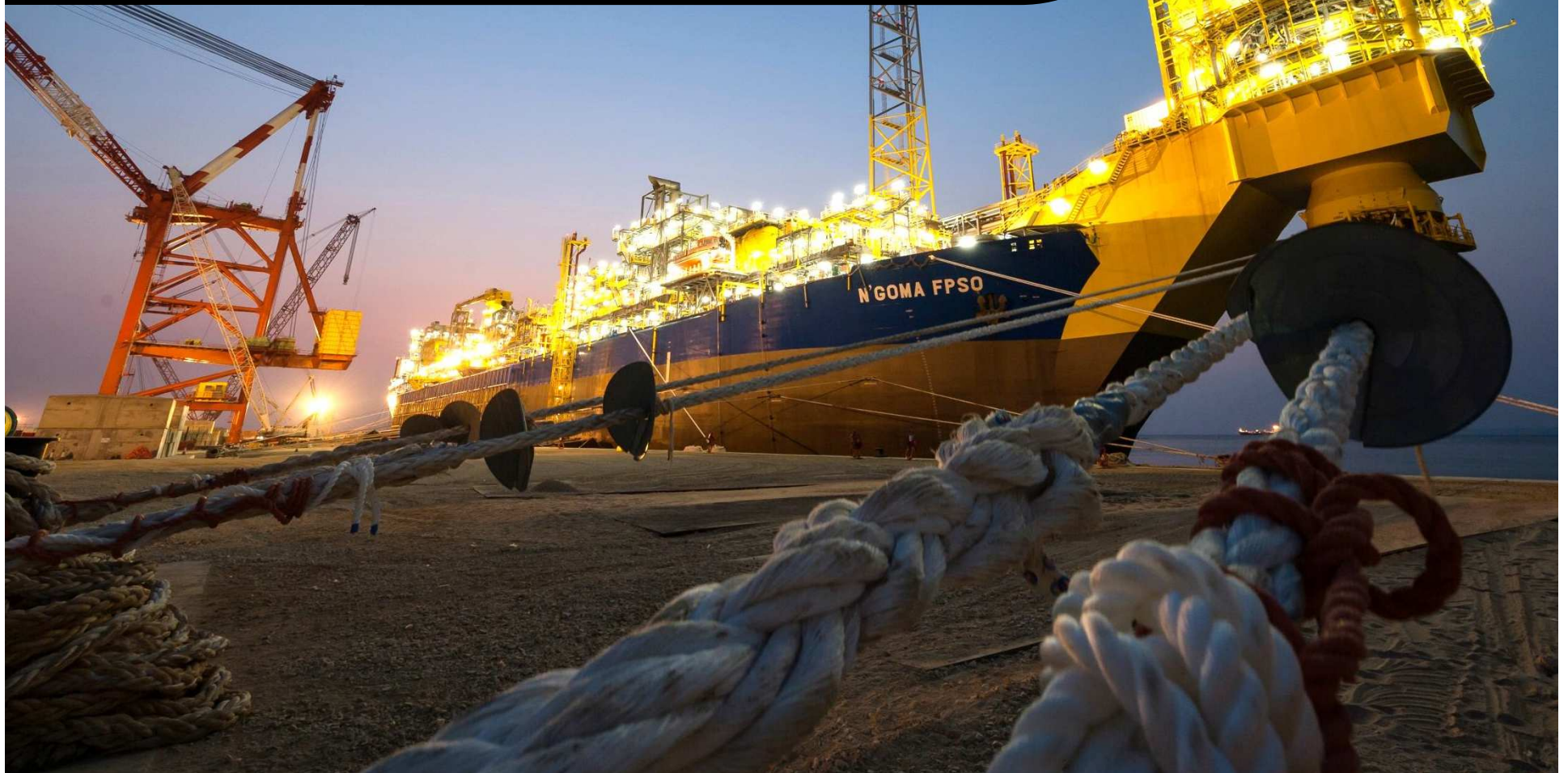


Projects & Operations

Bernard van Leggelo

Group Executive MD

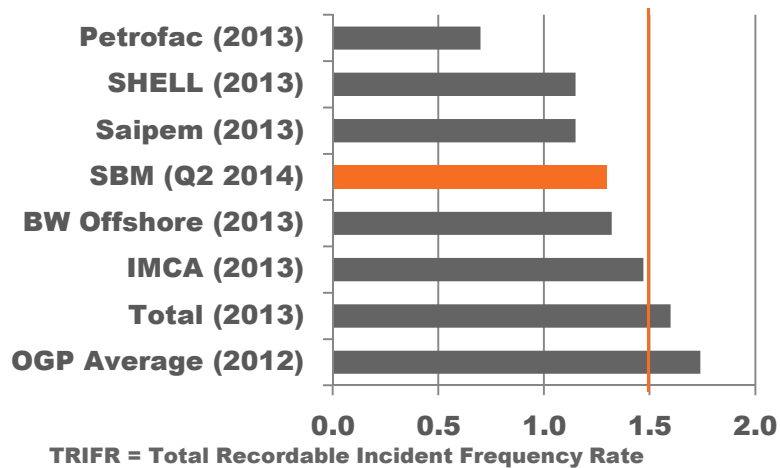
September 19, 2014





HSSE & Social Performance

TRIFR 2014 – vs. Industry 2013



Key Policy Elements

- ✓ HSSE will not be compromised to achieve any other business objectives
- ✓ Managers are responsible to encourage active participation and input from all personnel
- ✓ People and assets are safeguarded by identifying hazards & eliminate or managing the risk
- ✓ All SBM personnel strive to understand and implement the HSSE requirements pertaining to their work

Our Goals

No Harm

- 12 Life Saving Rules SBM wide
- 'Post – Push – Show – Practice'
- ISRS (International Sustainability Rating System) being implemented

No Leaks

- Developing Process Safety Management
- Strong focus on Equipment Reliability
- Operator Competency training

Environmental Protection

- Eco efficiency KPI's in SBM fleet operations

Sustainability and Social Performance

- Listed in Dow Jones Sustainability Index

Focus

- Global engagement with staff – Life 365 and Life Day 2014
- Management involvement
- Strengthening of HSSE Competencies: Leadership and Culture, Safety - Observations programmes, Supervisor HSSE training
- Standardizing safe working practices in the field





Quality at SBM Invest In Our Future

- Flawless delivery of world-class product
- From project execution to hydrocarbon delivery
- Our personnel work-as-one for product assurance
- Cascading quality objectives throughout our organization
- From quality awareness and site surveillance programs to monitoring our asset integrity
- Safe and reliable for operational excellence
- The result is Pride in our work

QA Be proud to build the largest FPSOs in the history of SBM Offshore

Let's do it right the **first time**

SBM
OFFSHORE

Engineer, Procure, Construct, Operate

- Equipment criticality levels - assessed probability and consequence of failure
- Vendors approved for specific products
- Regulatory Compliance, Class requirements, Client participation
- Comprehensive Site QA surveillance program
- Asset integrity maintenance and management

Continual Improvement

- New product development, patents
- Incident Investigation, Lessons Learned
- Continuous feedback from SBM's worldwide operating fleet into Group Technical Standards

QUALITY IN ACTION

PRECISION
Use the right tool for the job.
GETTING IT RIGHT THE FIRST TIME.

PLATE STORAGE
Properly store plates above ground level.
GETTING IT RIGHT THE FIRST TIME.

VERIFY
Have you received the right part for the job?
GETTING IT RIGHT THE FIRST TIME.

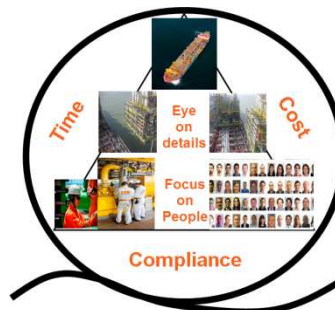
STONES
Quality Incentive Program

Quality Poster & Logo Competition

DM 80 PM 80 WIN

GEORGE JERAID

MUHAMMAD ALI BIN ABDELKARIM



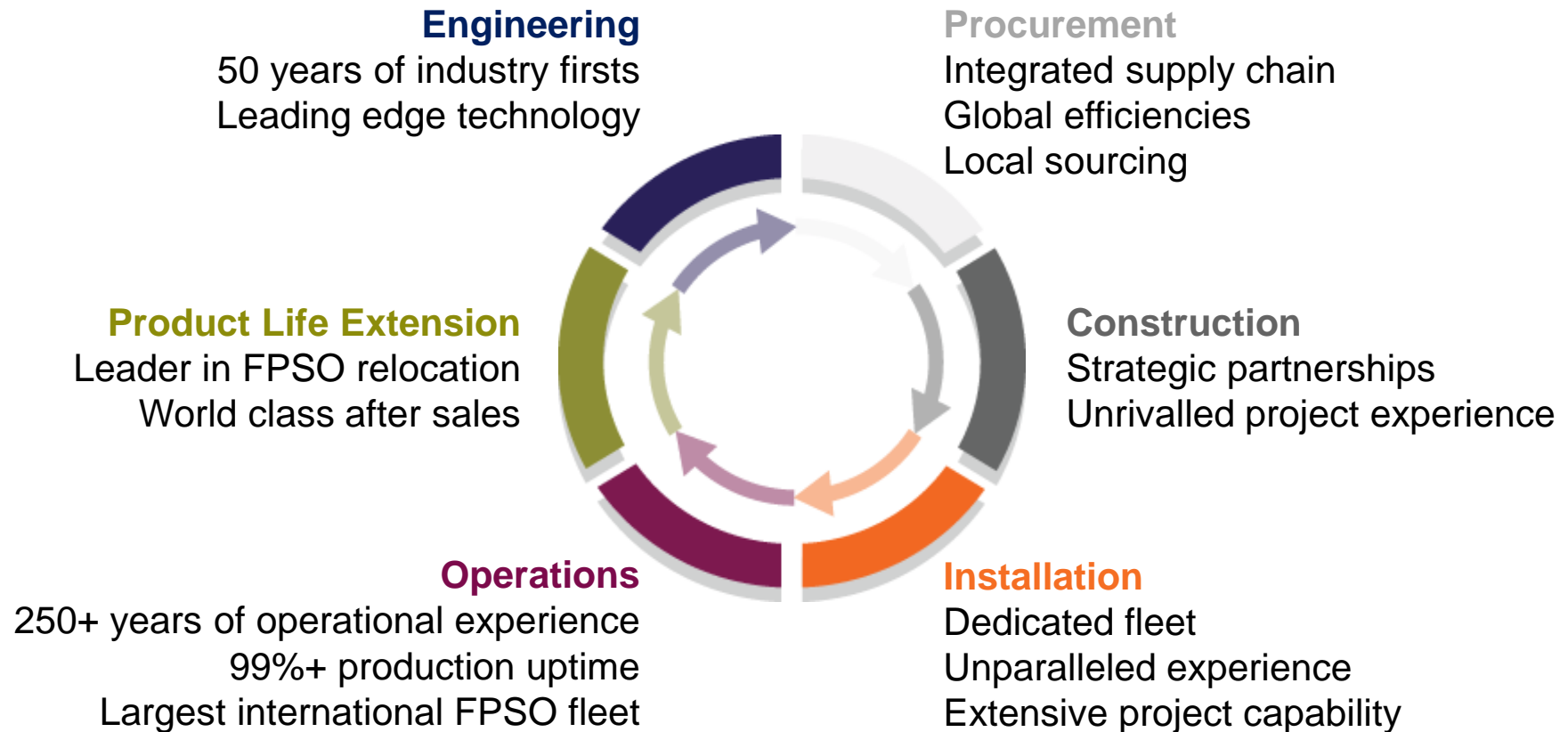
Tack Weld Quality
定位焊质量

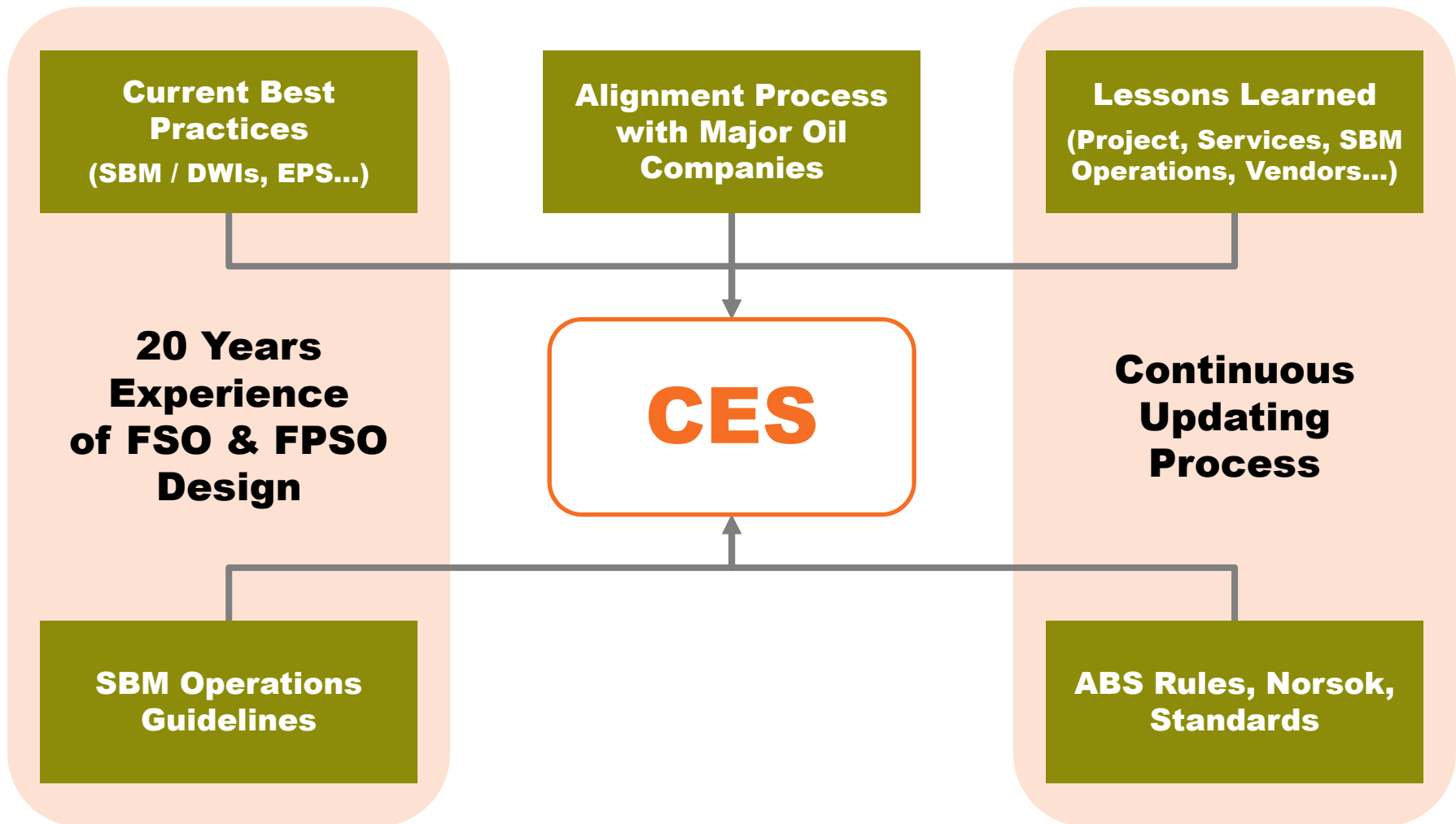
Tack weld too small for the joint, unlikely to support material.
定位焊太短。

Larger tack, stronger joint, more durability.
合格的定位焊。



SBM Unique Value Proposition; Delivering the Full Product Lifecycle







Conventional Project Execution

Basic Engineering

Detailed Design & Procurement

Construction & Commissioning

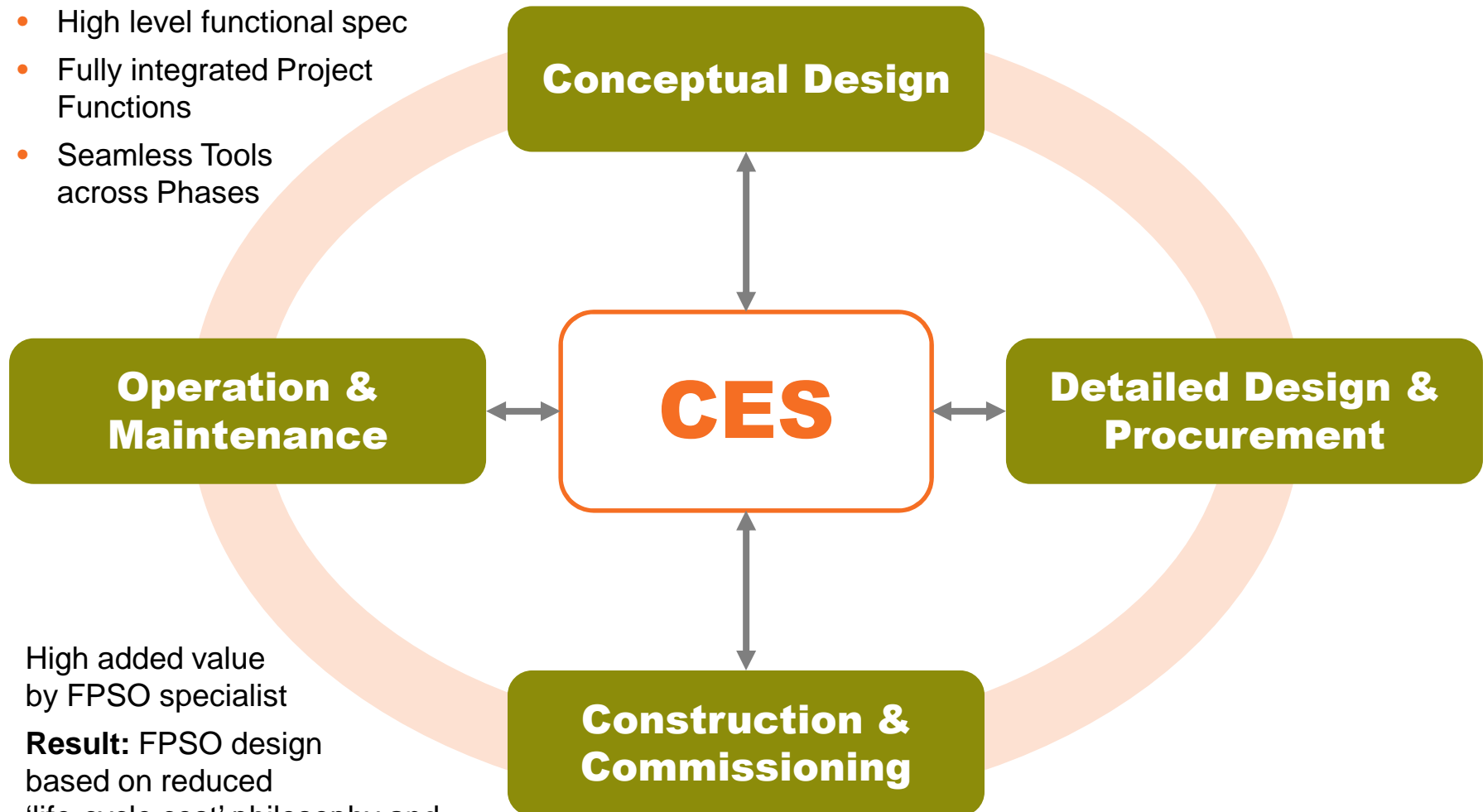
Operation & Maintenance

- Use of sub-contractor to work out client concept based on client standards
- Multiple parties; different parties
- No continuity between projects
- Difficult learning process

- Yard has strong focus on no change and interface freeze
- **Result:** No optimization, sequential takes time, limited operational input



- Not always client detailed design basis
- High level functional spec
- Fully integrated Project Functions
- Seamless Tools across Phases



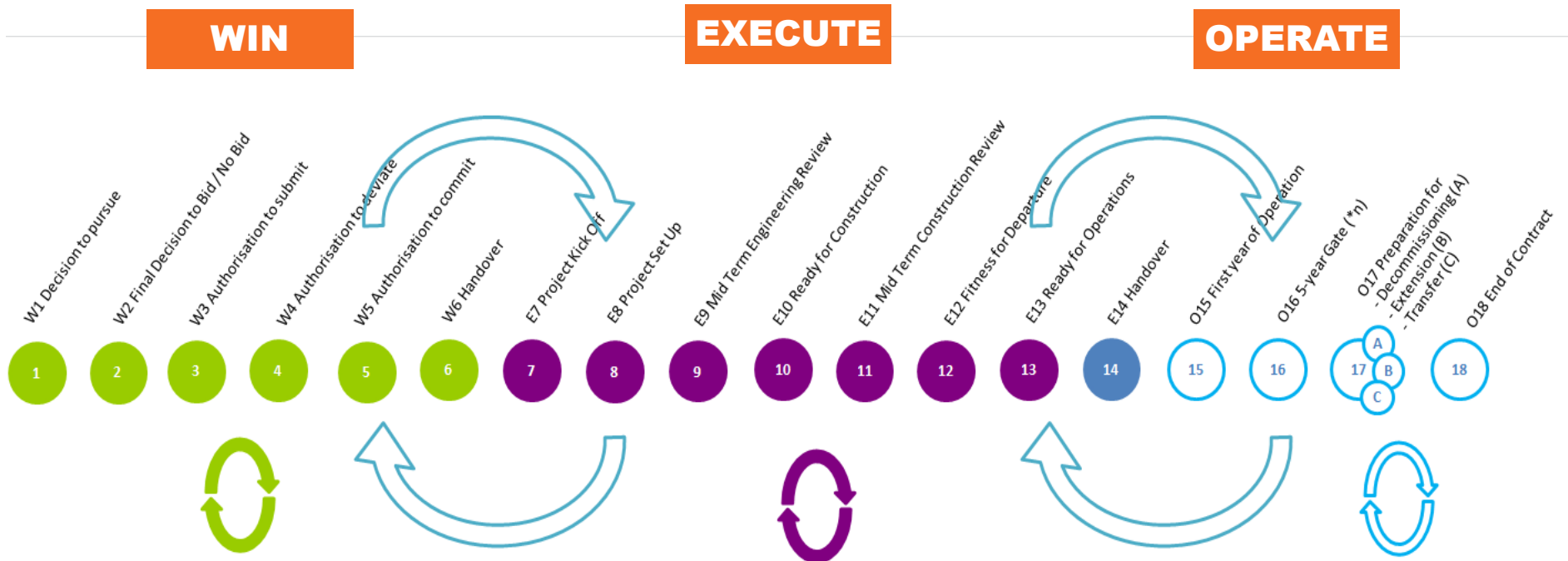
- High added value by FPSO specialist
- **Result:** FPSO design based on reduced 'life-cycle cost' philosophy and competitive delivery



- Long term proven execution methodology and partners
- Shipyard and fabrication yards standard frame agreements with BOQ and agreed preambles thereby reducing risk of contractual difficulties
- Use of “pick and run” strategy for modules avoids additional risk from sea transportation and allows seamless integration scope transition
- Site Supervisors dedicated to a sub contractor from day one to sail away ensuring continuity and ownership
- Very extensive site team for hands on Product Assurance
- Well defined module battery limits
- Maximize testing and pre-commissioning before transport to FPSO
- Integrated Operations for gradual handover for Operation and Preservation
- Well proven set of management tools
- Overall de-risked strategy



A Lifecycle Gate Process





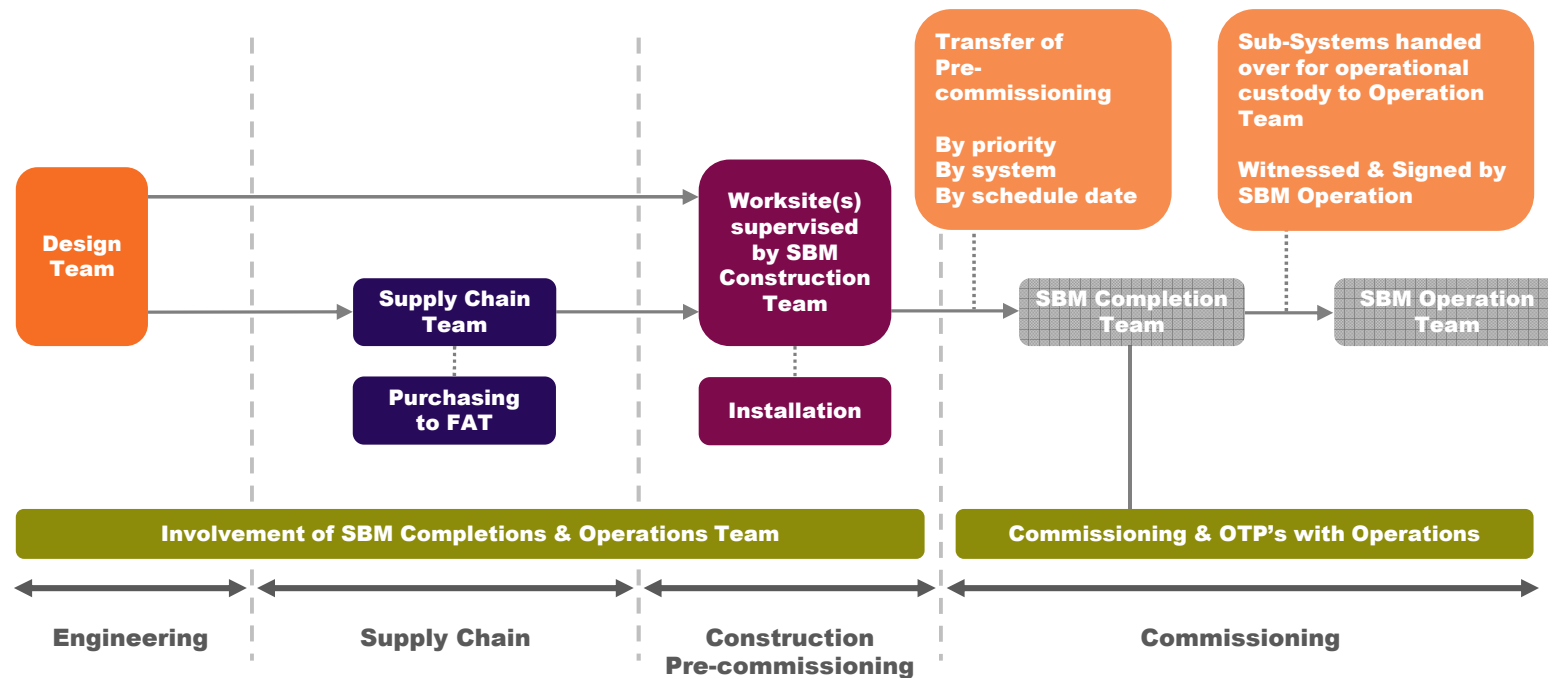
Gate No.	Gate Name	Timing	Primary Question (Level 1)
1	Project Kick Off	When Project secured: Contract or LOI signed.	Is the Project properly handed-over from Sales/Proposals to Operations/PMT and is it ready for execution?
2	Project Set Up	Max. 90 Days after Kick Off	Is the Project now properly set up, with the PMT organized, procedures and tools in place and with a clear project execution strategy and a commitment to the Forecast and plan?
3	Engineering Review (IPR 1)	+/-30% Engineering Progressed.	Is the Project in good order given the technical demands and the current schedules and forecast?
4	Ready for Construction	Within 2 months of Construction starts (multiple Gate)	Do we have the agreements in place and the materials, and drawings/documents available to ensure Construction can make a good and continuous start?
5	Construction Review (IPR 2)	+/-30% Construction Progressed	Are the Construction works proceeding as planned with acceptable performance by all and specified quality.
6	Fitness for Departure (IPR3)	1 month prior to Departure from Yard.	Can the constructed Unit leave the Yard/Facility without carry-over work or unplanned risk?
7	Ready for Operations	When Commissioning completed	Is the Project in a state of readiness to be placed into operation?



Management Dashboards	➔	Project Team and Senior Management reviews the Project's strategic subjects and its future plans and actions.
Project Reports	➔	Project Manager and the Project Leadership reviews the detailed status of the Project in order to identify future actions.
Risk Reviews	➔	Monthly Risk review including quarterly Monte Carlo simulations on cost and schedule.
Contingency Management	➔	Monthly review of the prevailing Contingency set against the assessed risks and opportunities.
Financial Forecast	➔	Monthly review of the budget based upon existing commitments, execution plans, risk review and the updated cost-to-complete estimate and revenue projections.



- The management of interfaces will include engineering, supply chain, construction, completion, operation readiness and operation using specialized SBM tools
- Completions at Project start for Product Assurance
- Operations at Project start for Operational Assurance





Standardisation

- Less optimisation
- Generic solutions wherever possible
- Leverage supplier & contractor know-how

Simplification

- Process Intensification on topsides
- Achieve the same functions with less equipment

Supply Chain

- Frame Agreements with pre-agreed specifications and terms & conditions
- Partners versus vendors



Unique Double Deck Concept

- 2 independent work sites
- Allow safe simultaneous operation
- Dedicated area for offshore operations
- Large storage capacity without affecting operation
- Minimize operation



**Gain of Safety + Gain of Versatility + Optimize Operation
=
Gain of Efficiency**

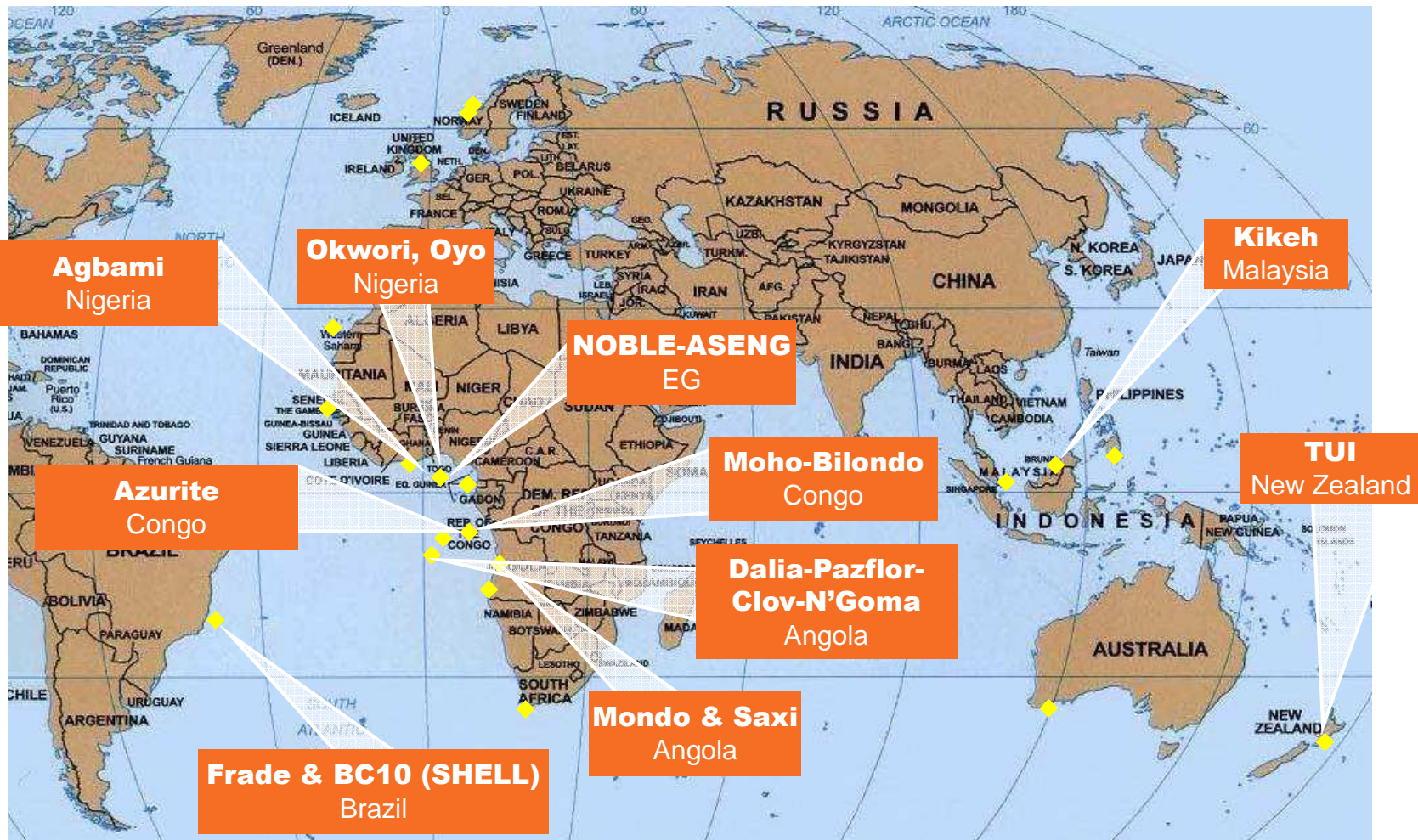


Combination / Redundancy





Normand Installer Main Track Record





Topsides – Layout; 2nd Generation







SBI
OFFSHORE

One Size Up...





Third Generation...leaving quayside





General Overview

Maricá and *Saquarema* FPSOs are nearly identical
Saquarema differences are shown in **Blue**

- Lease: 20 yrs for each FPSO – Client Petrobras
- Fields: Lula Alto (*Maricá*) / **Lula Central (*Saquarema*)** – Brazil
- Contract Award Date: 22 March 2013
- Conversion duration : 31months / **33months**
- Delivery dates: 23 Oct 2015 / **23 Dec 2015**



Vessel Specification

- VLCC Double Hull Eli / **Leander**
- Hyundai HI; Built 2000
- Crude oil ballasting
- Auxiliary boilers
- Accommodation : 140

Mooring

- Water depth: 2,120 m / **2,130 m**
- Spread-moored
- Mooring lines: 24 off
- Composition: chain-polyester-chain

Process

- Oil capacity: 150 kbpd
- Liquid capacity: 150 kbpd
- Gas capacity: 6 MMm3/d
- Water injection: 200kbpd
- Power generation: 4 x 31 MW



Cidade de Maricá and Saquarema Project Execution Overview

Engineering

Vessel Engineering	SBM Offshore – Monaco Execution Center
Mooring Engineering	SBM Offshore – Monaco Execution Center
Topside Engineering	SBM Offshore – Schiedam and Monaco Execution Center)

Procurement

Marine Procurement	SBM Offshore
Mooring Procurement	SBM Offshore
Topsides Procurement	Asia Scope: SBM Offshore – Monaco Execution Center Brasil Scope: SBM Offshore – Schiedam Execution Center/Rio Office)

Construction

Activity	Contractor	Task	Contractor
Vessel Refurbishment & Conversion	CXG (China)	TS 072 Main compression B	DYNAMAC (Singapore)
TS 005 Lay down area	DYNAMAC (China)	TS 073 CO2 gas compression	DYNAMAC (Singapore)
TS 011 Power generation A	DYNAMAC (China)	TS 074 Gas treatment A	BRASA (Brasil)
TS 012 Power generation B	DYNAMAC (China)	TS 075 Gas treatment B	BRASA (Brasil)
TS 021 Seawater treatment	BRASA (Brasil)	TS 076 Injection gas compression	DYNAMAC (Singapore)
TS 022 Water Injection & Utilities	BRASA (Brasil)	TS 077 KO drums	EBSE (Brasil)
TS 062 Oil processing A	BRASA (Brasil)	TS 078 CO2 membranes	EBSE (Brasil)
TS 063 Oil processing B	BRASA (Brasil)	TS 079 VRU	EBSE (Brasil)
TS 068 Metering Skid	DYNAMAC (China)	TS 264 - 267 Manifold A B C D	DYNAMAC (Singapore)
TS 071 Main compression A	DYNAMAC (Singapore)	TS 289 Flare stack	DYNAMAC (China)



Vessel Ref & Conversion

Yard	Location	Weight (t)
CXG – Steel Renewal	China	4,600
CXG – Steel Conversion	China	12,000
GSI – Main Deck Replacement	China	17,000
GSI – Mooring & Riser Balconies	China	4,000
Total		37,600



Project Execution Locations

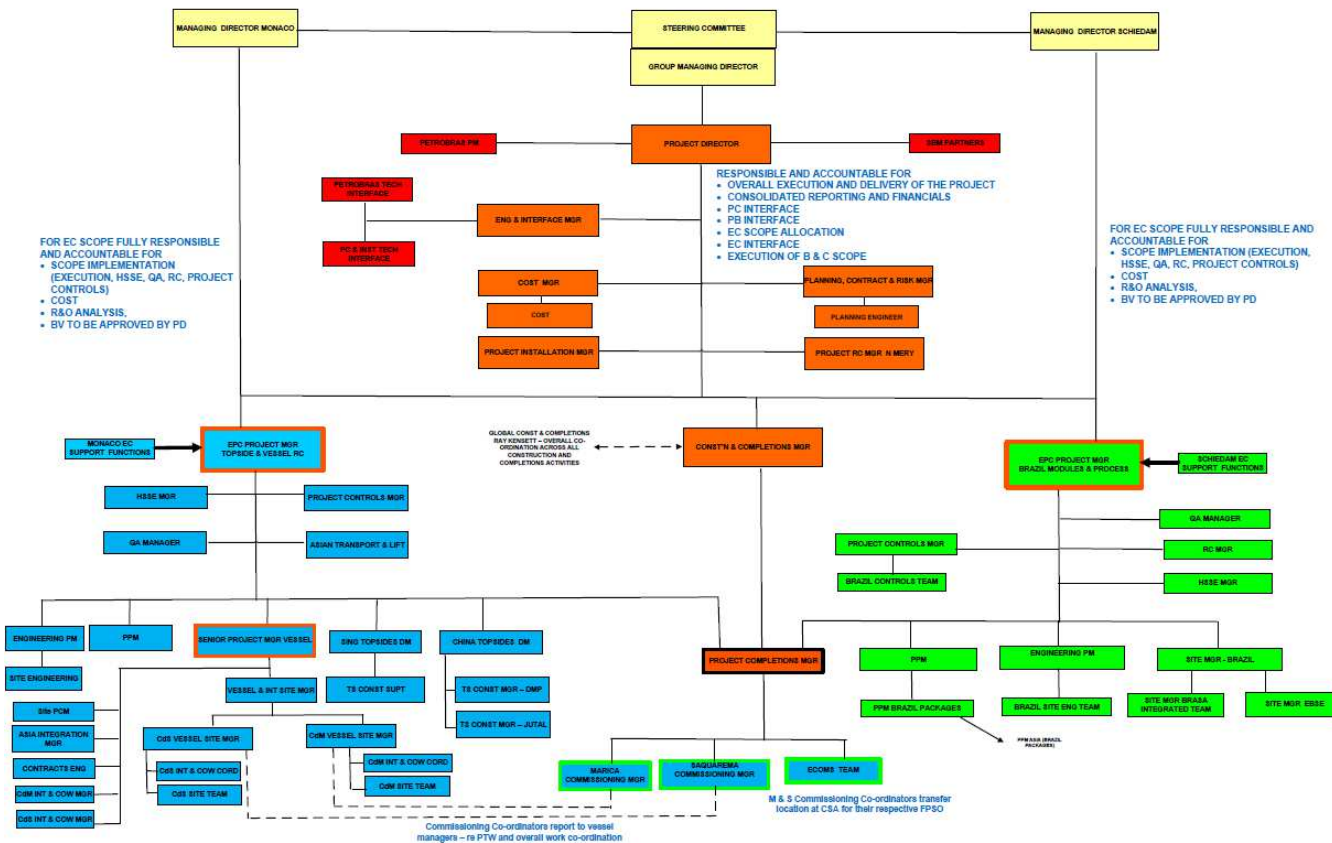




Project Management Structure



FPSOs CIDADE DE MARICÁ & CIDADE DE SAQUAREMA
LEVEL ONE ORGANISATION CHART
SEPTEMBER 2014



Defined Project Organization

Multiple SBM Execution Centers and work locations to be managed and interfaces controlled

Organization structured with a Global Project leadership team headed by the Project Director and management organization by execution center and yard work location

Overall Project Execution plan developed and updated as needed

Clear Organization structure with detailed roles and responsibilities

Clear Project Objectives

- Complete the Project with no harm to people, property or environment (HSSE)
- Complete the Project in accordance with the technical requirements (QA)
- Leave Rio anchorage Performance Accepted within 31 & 33 months (Schedule)
- Complete within budget (Cost)



Progress – Module Yards





Progress – Vessel Conversion Yard







Lease & Operations



FPSOs



MOPU



Semi-Submersible

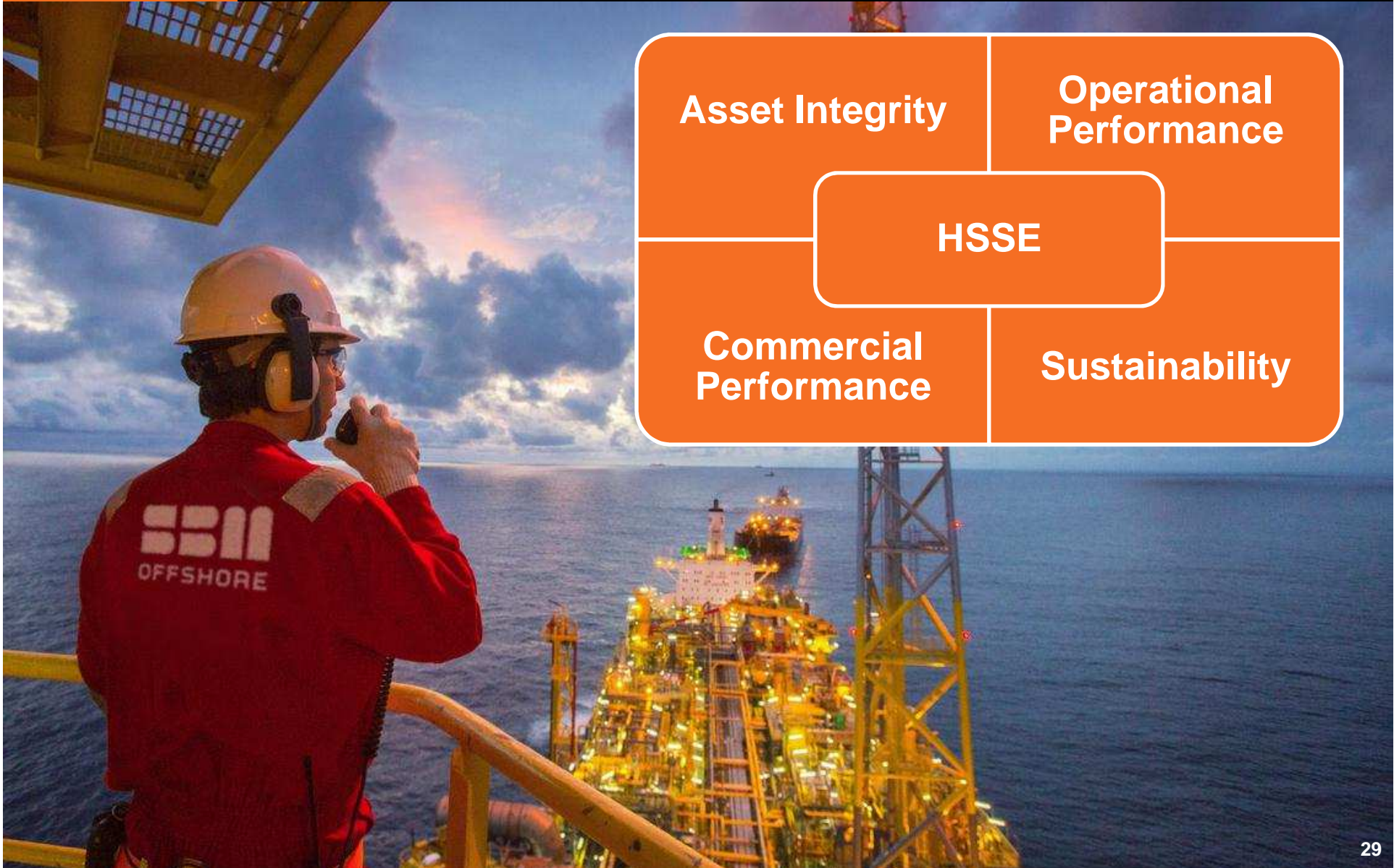
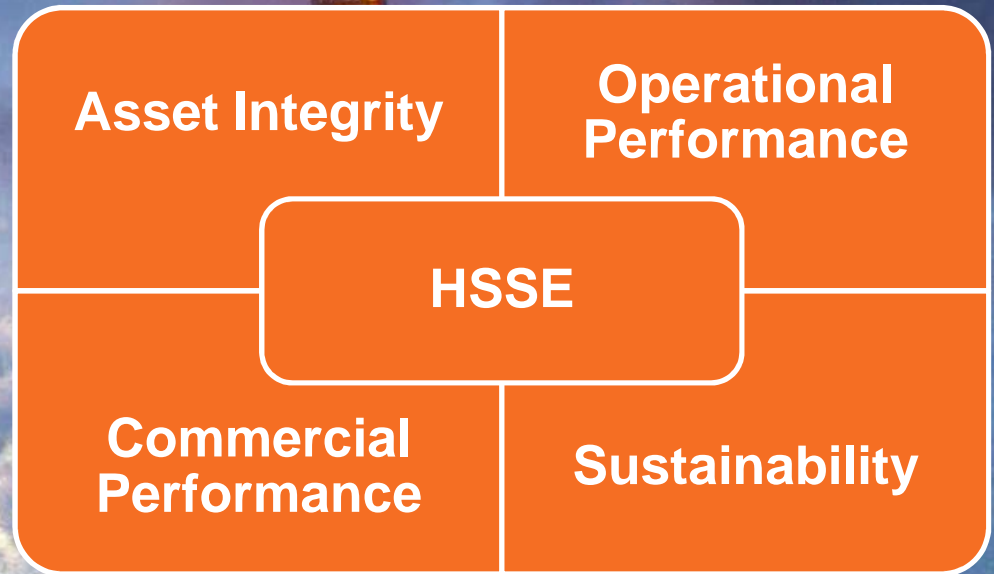


FSO





We Operate and Maintain the Fleet According to Our 5 Business Drivers

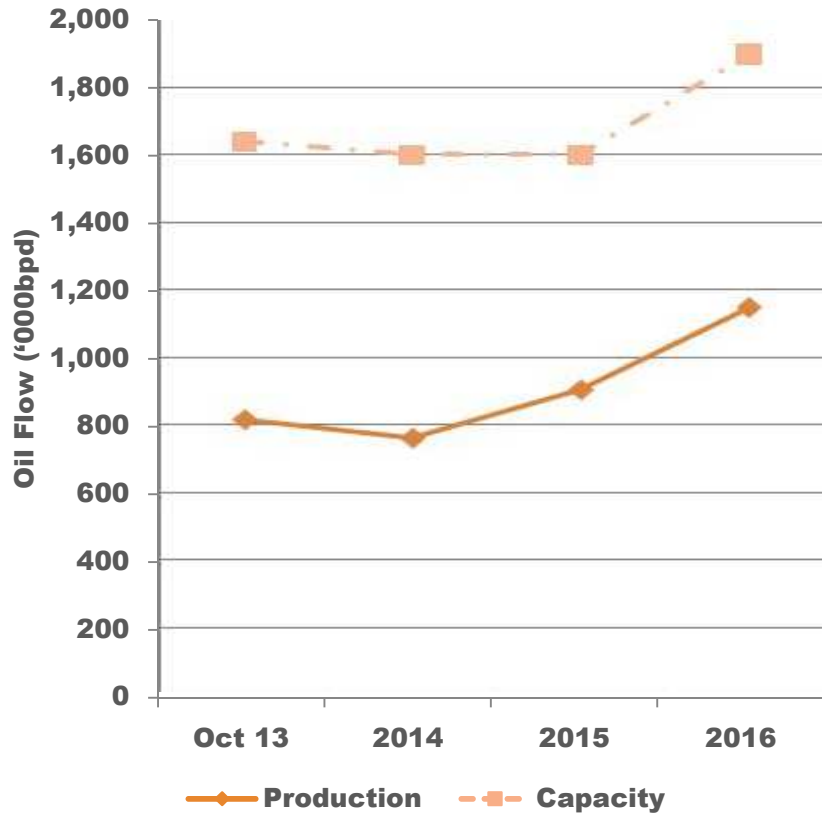




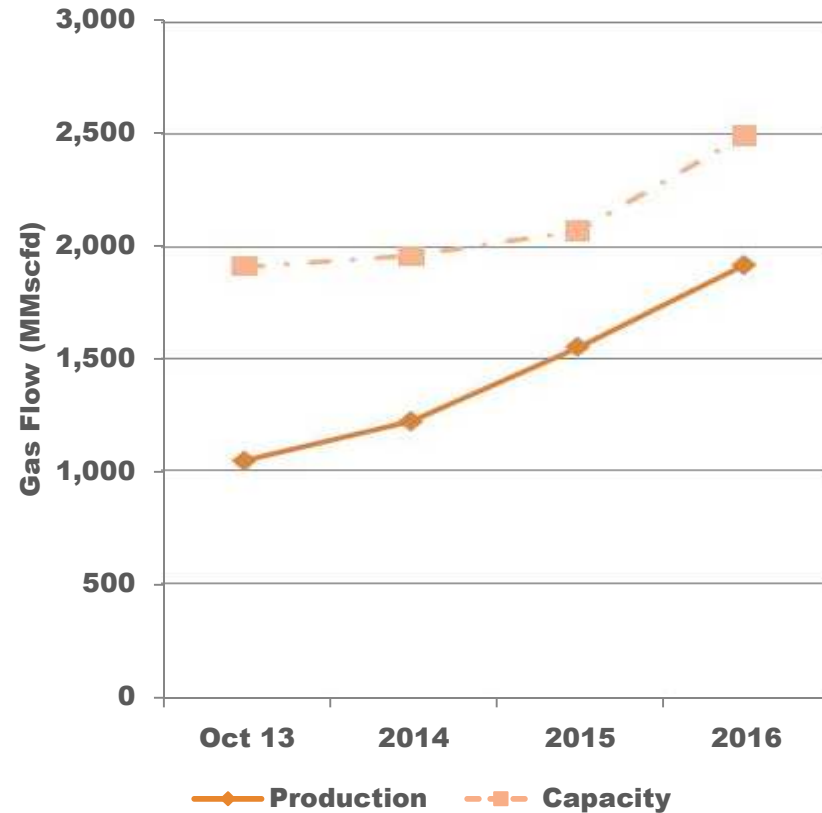
- **Health-Safety- Security & Environment:**
 - ✓ **Robust Management System,**
 - Includes risk prevention and mitigation, permit to work system, HSSE plan, but also
 - ✓ **Emergency Response preparedness,**
 - Clear Roles & Responsibilities, exercise planning, established Emergency Control Centres (local and central)
 - ✓ **Process Safety framework** to prevent Major Accident occurrence
- **Asset Integrity:**
 - ✓ Based on a **Maintenance Philosophy** developed through SBM fleet operational experience and industry best practices.
 - ✓ **Preventive & Conditioned-Based Maintenance programs:**
 - Hull Integrity surveys, Piping & Corrosion Monitoring, Vibrations Surveys, Explosion-Proof Equipment integrity checks, Remote Data Monitoring
 - ✓ **Maintenance planning** through Computer Management Maintenance System (CMMS) and periodical planning review including Planned Shutdown activities.
 - ✓ **Technical Support and Performance** embedded within regional and in-country Operations Team



SBM Fleet – Oil Production



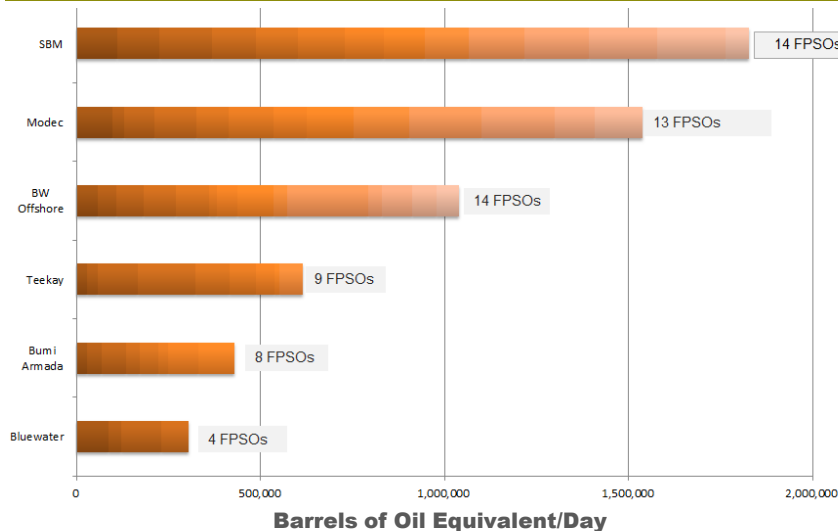
SBM Fleet – Gas Production



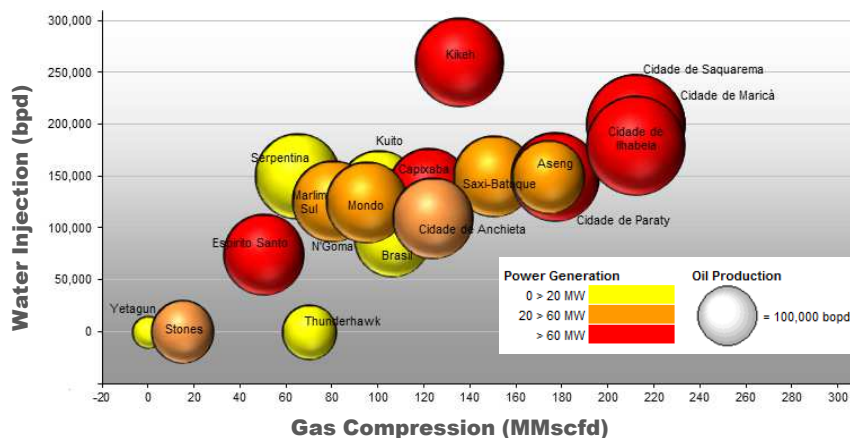
Note: Actual Production as provided by the Operator compared with the as installed Topsides capacity, not its uptime



FPSO Fleet Production Capacity



Increasing Compression and Injection Capacities



Performance

- 248 years, 4 billion barrels exported, 6500 offloads
- 99.1% oil uptime, 95.1% gas uptime, 92.1% water uptime
- Working closely with clients to optimize daily production

Organisation

- Head office in Monaco, with supporting functions
- Decentralized, regional Operations management centers

Execution

- Same Management System for all units worldwide
- Ops Readiness team working closely with the Project team, participation in all review gates
- Key management positions for new units sourced from within the SBM fleet to ensure continuity and consistency



SBM Project Execution Model – Lease FPSOs

- Same Management System in all execution centers
- All key engineering in-house
- Global procurement with reputable suppliers
- Fabrication with key partners in Singapore, China, UAE
- Commissioning by SBM staff
- Offshore Installation by SBM vessel

The Client team

- Based SBM engineering office, moves to site later
- Participate in critical design reviews
- Access to SBM managers and experts at all levels

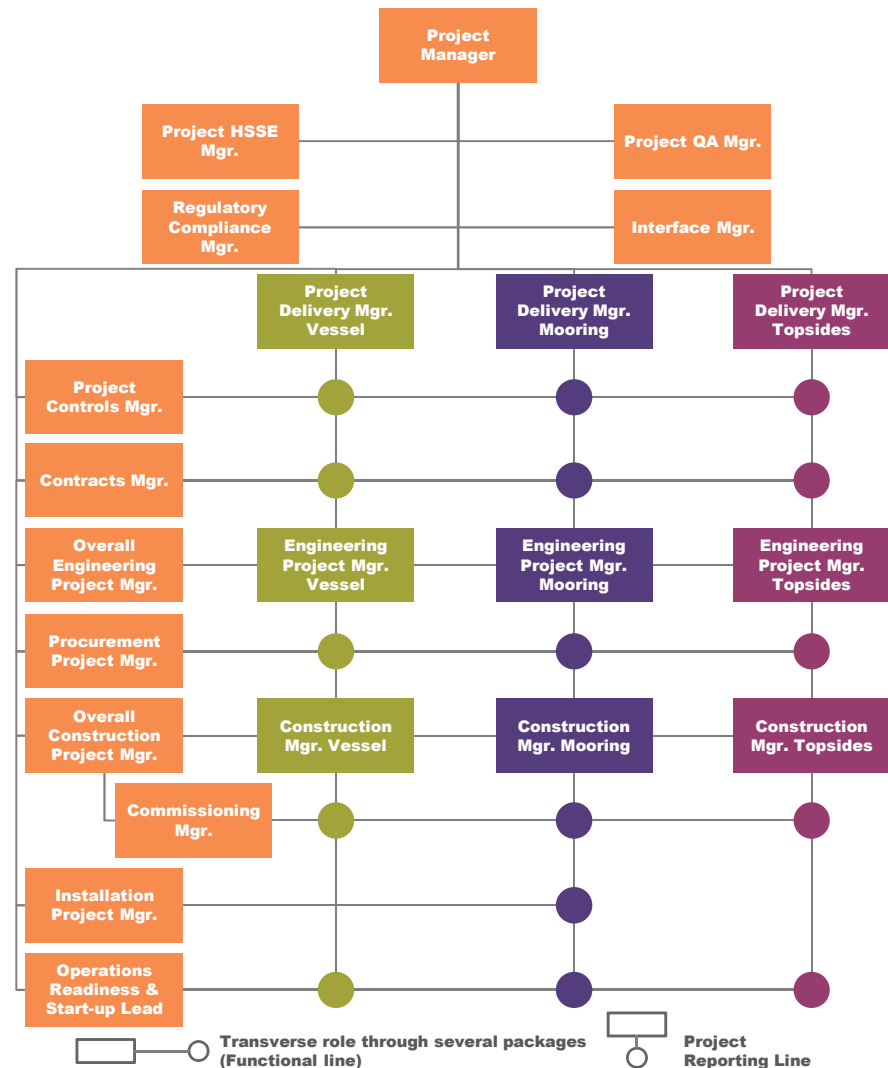
SBM Operations

- Internal client for the SBM Project team
- Involvement through all tender & EPCI phases
- Formal Hand Over prior First Oil

Project Organisation

- Project Manager reporting to the EC management
- Area Delivery Managers reporting to the PM
- EPM, Construction Manager (CM) per area, reporting to the Delivery Manager
- Dedicated Interface managers

Typical SBM Project Organization





SBM
OFFSHORE

Embracing Local Development Brazil

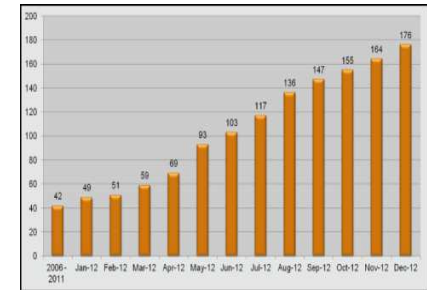
BRASA Yard – Niteroi



Module lifting FPSO *Ilhabela* – 2014

Rio Office

- Created in 2008
- Engineering support to projects
- Logistics services
- Local supply chain management
- Regulatory compliance
- Construction management



Rio Office Evolution

BRASA Yard in Niteroi Near Rio

- JV with Synergy, created in 2011
- 65,000 m² for module fabrication and FPSO integration
- Yard fully refurbished in 2012
- 2,700 workforce.
- Quayside able to moor VLCC size FPSOs.
- Pelicano 1 – 2000 tons floating crane barge



SBM
OFFSHORE

Embracing Local Development Angola

PAENAL Yard – Porto Amboim



FPSO CLOV (Total) module lifting – 2013

OPS Joint Venture



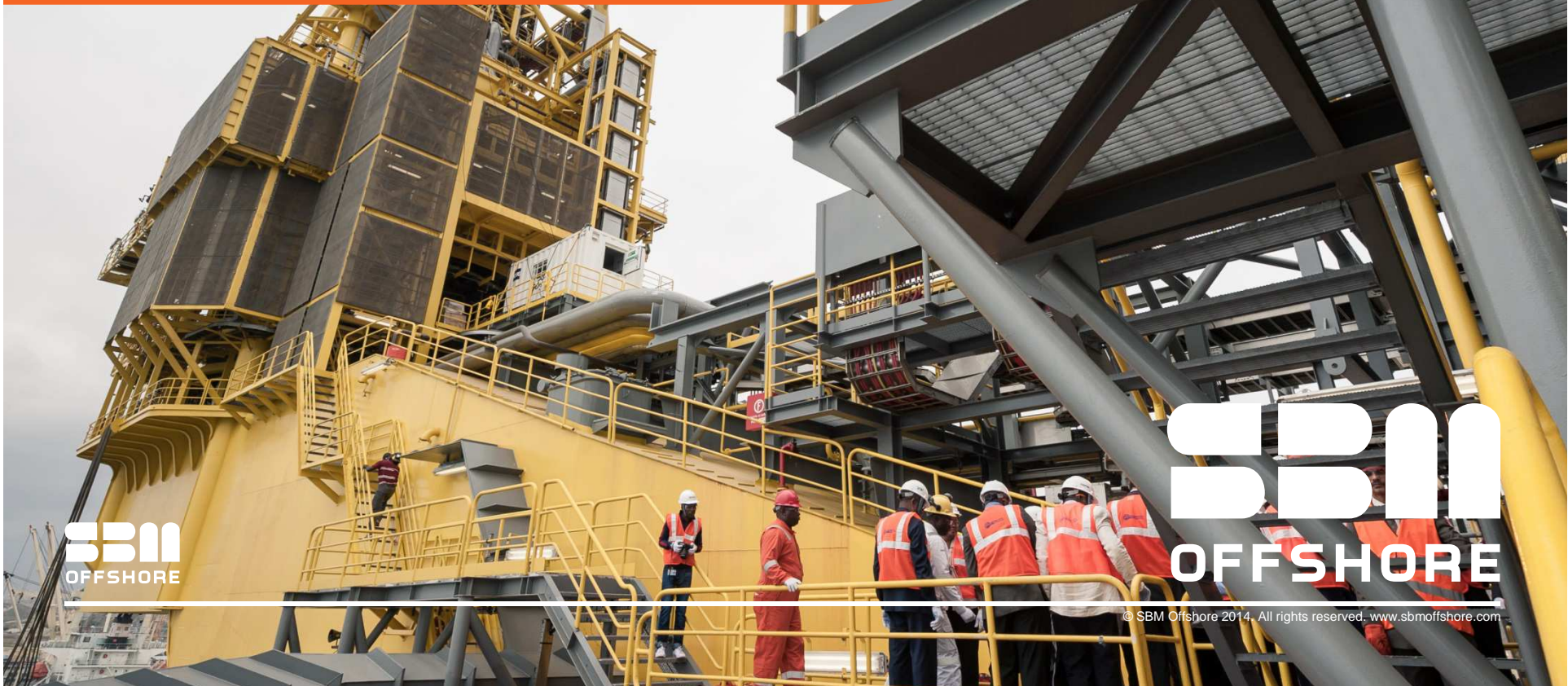
- Created in 2003 by Sonangol and SBM
- FPSO operations
 - Nearly 500 millions barrels of oil/LPG
- Ever increasing involvement of highly skilled Angolan operatives

JV – SBM/Sonangol
Based in Luanda
Joint FPSO
Operations
4 units in the fleet

Paenal Joint Venture

- Created in 2007 by Sonangol and SBM. DSME joined 2010
- Module fabrication & FPSO integration yard.
- Annual capacity (2013) over 10,000 tons , 2 million man-hrs
- 1200 people workforce, 85% Angolan, locally trained
- 490 meters quay, 10 meters water depth (only yard in W-Africa suitable for VLCCs)
- 2,500 tons heavy lift crane (Jamba) – largest in West Africa.

Q&A



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