

Brazil – Product, Competence and Supplier Chain Development

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Aker Solutions



- Company development and investments
- Product Development
- Brazil - Global Execution Centre
- Supply Chain – Development, Challenges and Opportunities

Subsea High Tech Center – São José dos Pinhais - Paraná

- Modern and efficient plant globally for XMT, tooling, Tie-in, Manifold modules and controls.
- Lean manufacturing and optimized workflow conception
- Environmental friendly facilities (natural and low energy consuming - led illumination)
- Global standards implemented (Aker DNA)
- ISO Class 7-9 clean rooms for Subsea Control Modules.
- SCM hyperbaric chamber (simulates 5.000m WD and allows 15KSI tests)

Global Execution Centre :

Controls, XMT, Manifold, Tools,
Tie-in



Competent, Experienced and Engaged Workforce

- Company installed in Curitiba since the 70's
- Producing Subsea O&G products since 1996
- Ranked 10th best place to work by GPTW
- Strong Culture: Quality, Continuous Improvement and Safety
- Large majority of employees are hired locally
- Region is well served of universities, technical and professional schools
- Several employees are the 2nd generation of their families working at Aker Solutions



Did You Know?



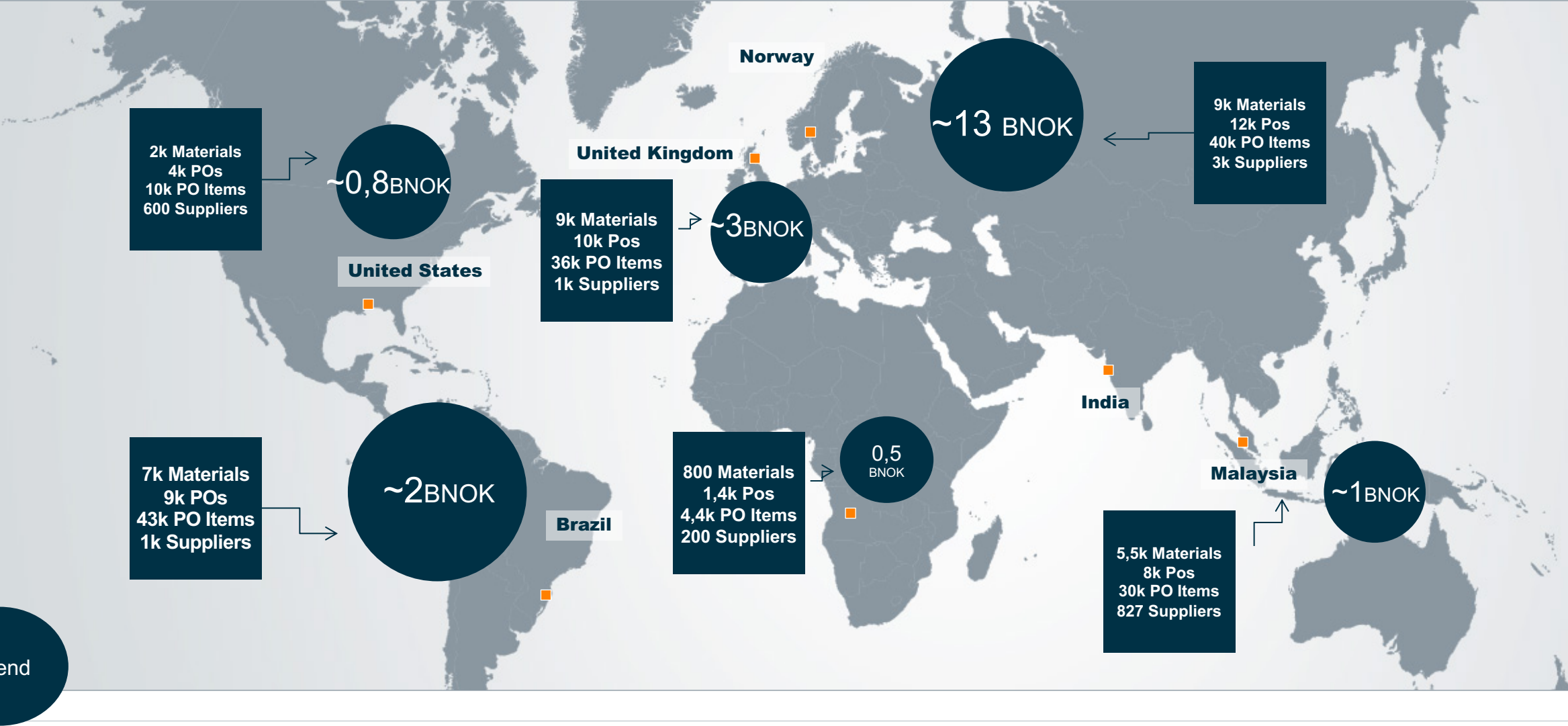
Aker Solutions' subsea tree was the first to operate on the pre-salt fields in Brazil

Key Customers



Petrobras, Total, Equinor, Transpetro, Shell

Global Supply Chain



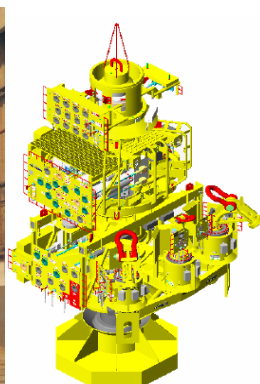
XMTs | Brazil's portfolio and competencies

GLL 1000

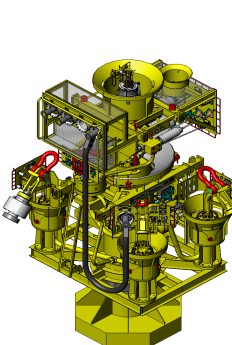


GLL 2000

With 1 or 3 VCMs

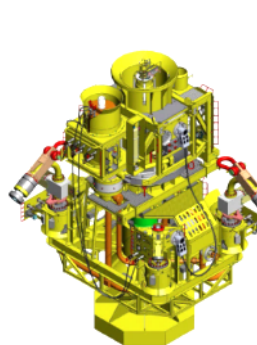


FA2007



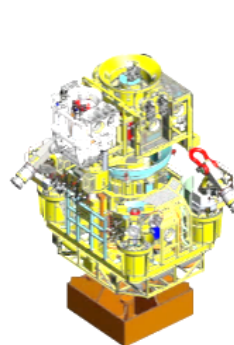
TUPI

PIONEER IN PRE-SALT

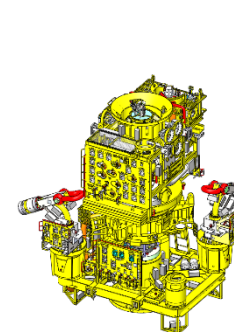


SAPINHOÁ

PHASE 1

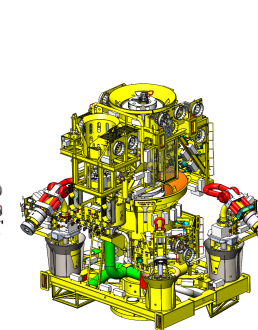


FA2011



MERO 1

ONGOING



LCSS

ONGOING



| | | | | | | | | |
|-----------------------|---------|---------|---------|------------------|------------------|------------------|-------------|-------------|
| Water depth (m) | 1000 | 2000 | 2000 | 2500 | 2500 | 2500 | 2500 | 3000 |
| Design pressure (psi) | 5000 | 5000 | 5000 | 10000 | 10000 | 10000 | 10000 | 10000 |
| Bore - P" x A" (in) | 4" x 2" | 4" x 2" | 5" x 1" | 5" x 1" | 5" x 1" | 5" x 1" | 5" x 1" | 5 x 2" |
| Control method | DH | DH | DH | Multiplexed + DH | Multiplexed + DH | Multiplexed + DH | Multiplexed | Multiplexed |
| Quantity | 26 | 43 | 45 | 8 | 40 | 60 | 13 | - |



#100 ANM for pre-salt



- We achieved the milestone of 100 XMTs for pre-salt delivered to Petrobras
- Long-term commitment with Brazil
- 85% of local content in our cutting edge projects

Manifolds | Brazil's portfolio and competencies

Marimbá



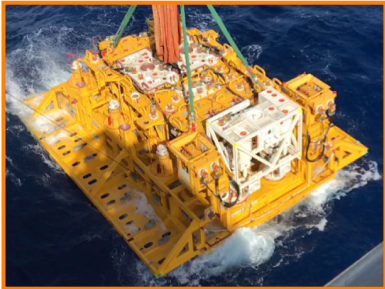
Albacora



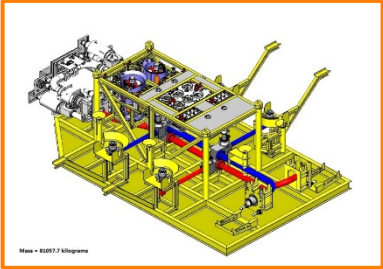
Sul-Capixaba



WAG
ONGOING



LEAN MANIFOLD
ONGOING



| | | | | | |
|-----------------------|------|------|------|-------|-------|
| Water depth (m) | 1000 | 483 | 1500 | 2500 | 2500 |
| Design pressure (psi) | 5000 | 5000 | 5000 | 10000 | 10000 |
| Slots | 8 | 8 | 6 | 4 | TBD |
| Weight (t) | 180 | 183 | 286 | 257 | 180 |
| Quantity | 1 | 2 | 2 | 8 | - |



Control Systems | Brazil's portfolio and competencies

Subsea equipment



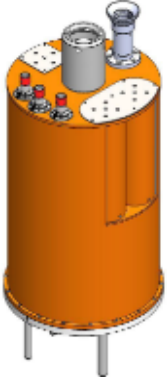
iCON
SCM



VECTUS
SCM



SRM



STU



DIU

Topside equipment



HYDRAULIC POWER UNIT
(HPU)

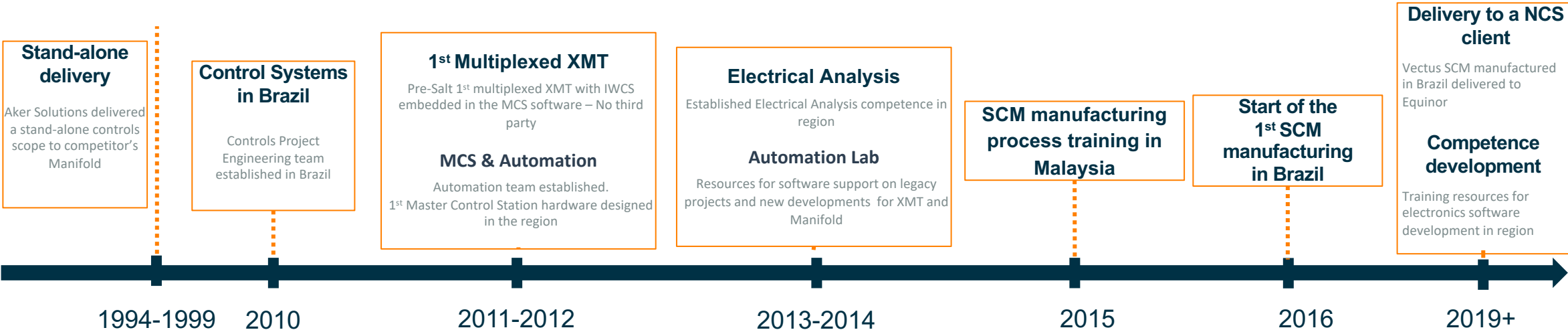


ELECTRICAL
POWER UNIT (EPU)



MASTER CONTROL STATION
(MCS)

Historical data

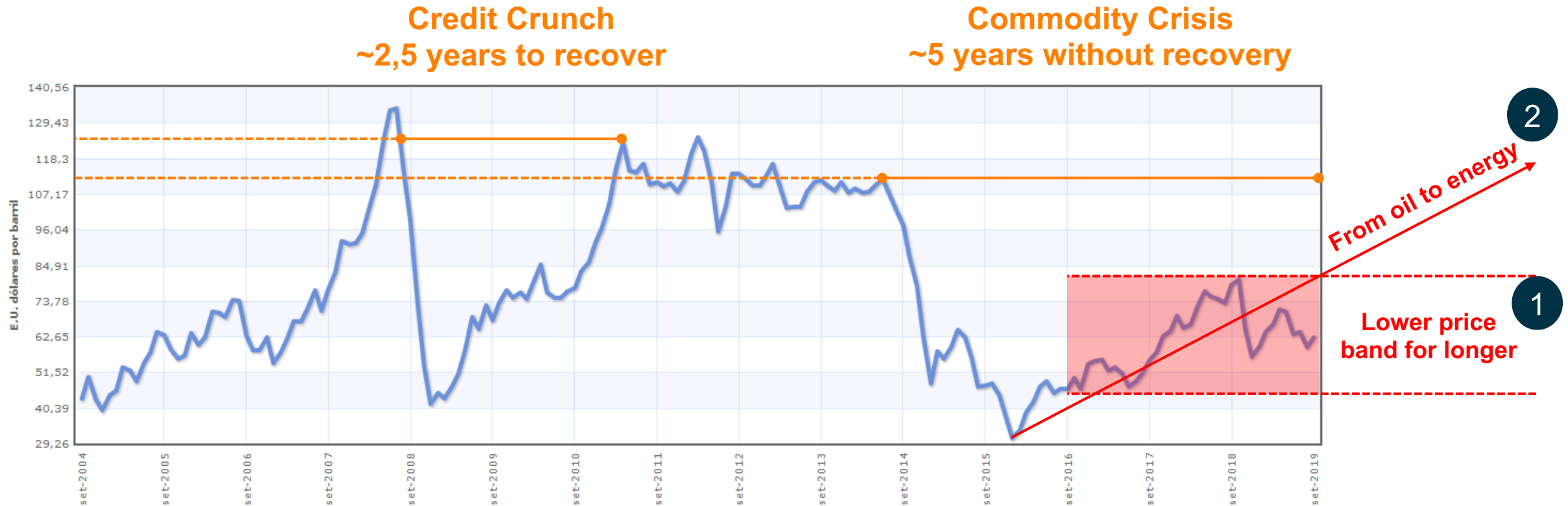


NCS 2017+ with Equinor



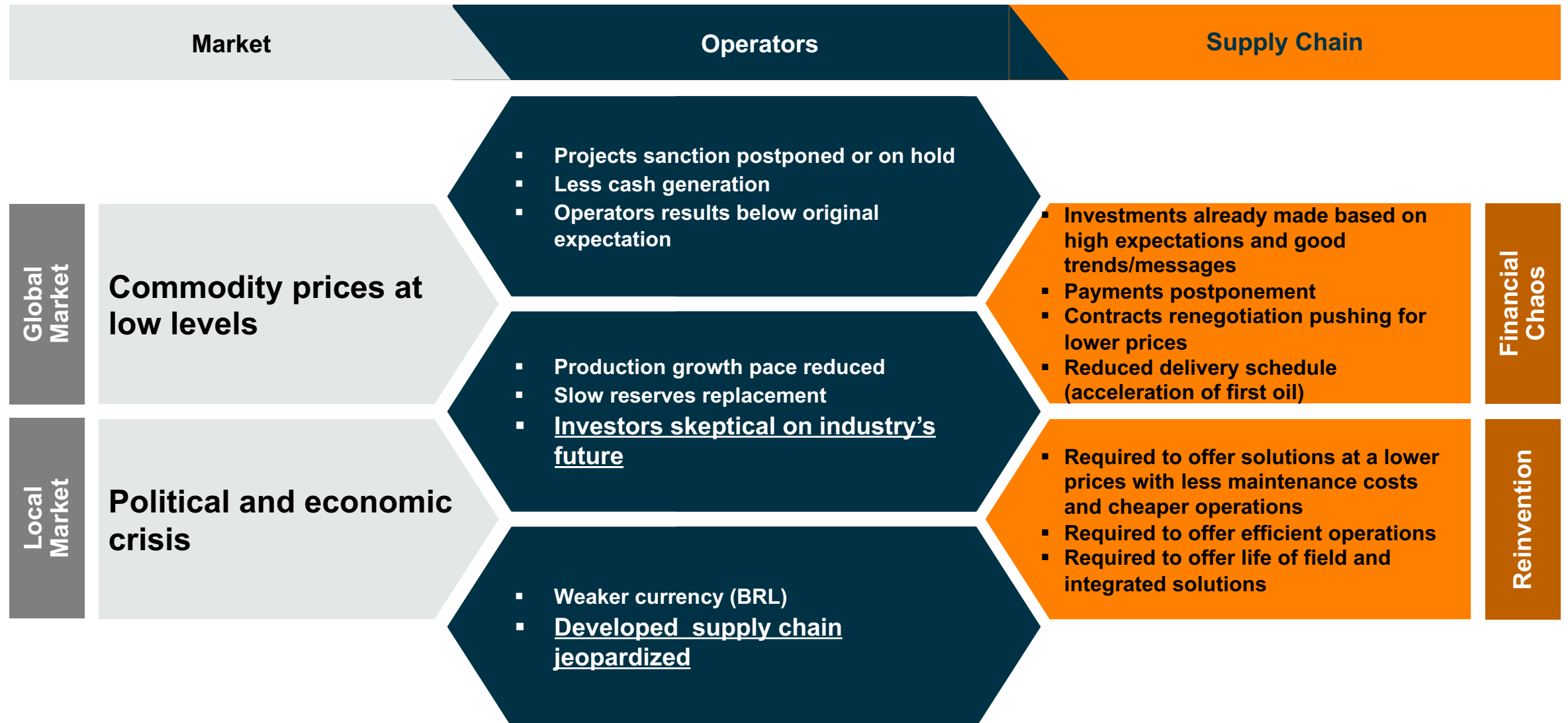
- First contract for international projects to be executed in Brazil
- 47 Subsea Control Modules (SCM); 32 Subsea Router Module (SRM); 45 Downhole Interface Unit (DIU)
- Contribution to Equinor's strategy to foster the Brazilian local content

New normal – USD/ Barrel



The market downturn drove the oil and gas industry to face commodity price at the lowest levels and created a “**new normal**”

Industry Actions and Reactions



Impacts on global supply chain

Suppliers looking for alternative customer and markets

Plant production consolidation or manpower reduction

Reduction of installed capacity

Loss of core competences

Bankruptcy and plants shutting down (sub-suppliers)



Business Environment in Brazil has changed

Business not as usual anymore

Traditional Business Model

Few Projects

Big Projects

Few Clients

Long Lead Times

Low Margins

New Business Reality

More Projects

Smaller Projects

Several Clients
(NOCs, IOCs, etc.)

Shorter Lead Times

No Margins

Challenges and Opportunities for the Oil & Gas Supply Chain

Brazil as a Global Hub

Challenges

- Supplier base affected by recent oil crisis:
 - Some sourcing categories like structures and machining with capacity issues
 - Divestment on some critical areas and qualified personnel impacting on quality and delivery
- New quality requirements from IOCs not practiced by the sub-supplier base
- As margins are lower, value negotiation is under strong pressure
- Delivery lead time incompatible with current expectations
- Part of supplier base is not professionalized enough for the new scenario (lean, process planning and control)
- Lack of suppliers in Brazil for some complex components and equipment: Subsea valves, Chokes, Flow Meters, etc.

Challenges and Opportunities for the Oil & Gas Supply Chain

Brazil as a Global Hub

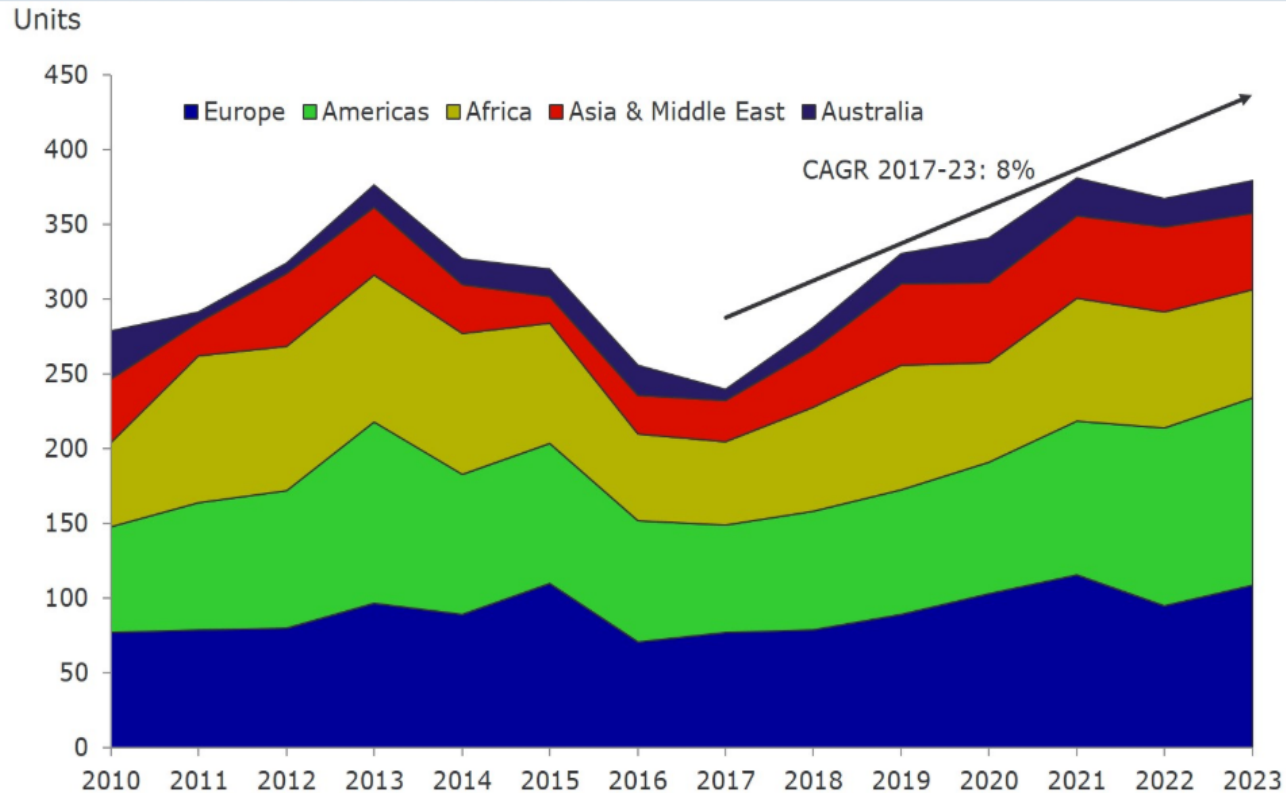
Opportunities

- Better chance for long term partnership with suppliers:
 - Predictability, cost, schedule and quality improvement
- Projects forecast and synergies allowing scaled negotiations
- Products standardization impacting positively the value chain (less engineer to order and more make to order or even assembly to order)
- Effort on requirements and products standardization by IOGP (JIP33)
- Supply chain processes digitalized and more efficient
- From local volume to global volume
- From local vendor to a global supplier

Brazil is becoming the global execution centre of the subsea industry

Market is picking up

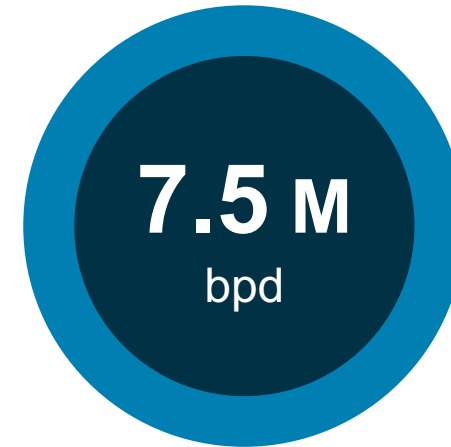
XMT Installation



Source: Rystad Energy SubseaCube



Potential of Brazil 2030



Source: ANP

Summary



Solid development of the subsea industry in Brazil: competence and capacity

Sub-suppliers: Some categories and services well established in country

Great opportunities for local and global markets – global hub

Investment required to develop further the sub-suppliers competences in country

Sub-suppliers have to invest in order to operate as a global supplier

Thank you!



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