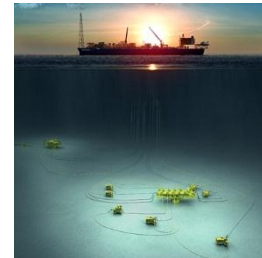


Reliable **subsea**  
production solutions



## AkerSolutions - Subsea factory

Milan 6<sup>th</sup> February 2014

Hervé Valla| SVP Products and Technology – AkerSolutions Subsea

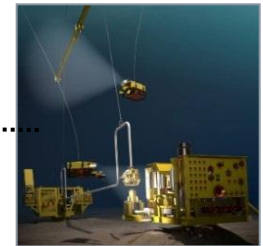
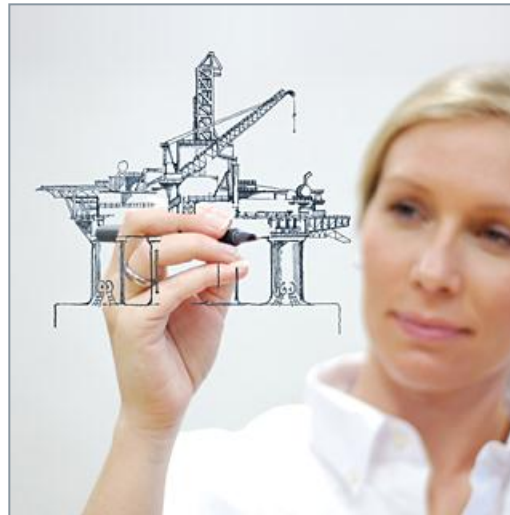
# This is Aker Solutions



Employees: **21,500**  
Contract staff: **6,500**  
Revenue: **44.9 bn**  
EBITDA: **4.7 bn**  
Market Cap: **22.6 bn**

*Revenue and profit are in NOK and for 2012.  
Market capitalisation as of 30 June 2013.*

- Products, systems and life of field services for the oil and gas industry
- 200 years of industrial tradition
- Present in more than 30 countries

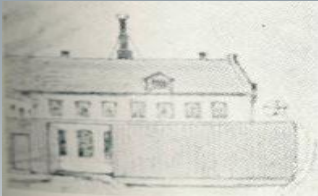




1800 1850 1900

Established in Drammen by A. P. Thune

1815 - Thune



1889 – Eureka



1853 – Kværner Brug



1800 1850 1900

1967

1967- Kværner Industrier



- Kværner Brug
- Egersund
- Moss
- Myren
- Mesna
- Thune
- Eureka
- Rosenberg
- Sørumsand

1967

1975

1975 - Tranby



680 employees

Turnover: 165 MNOK

- Pulp & Paper
- Pumps
- Process
- Defence

1975

1990

1990

Subsea equipment workshop on Olso

1991

Kværner Booster Station

1993-4

Aquisition of NOW

Frame agreement with med Norsk Hydro

1997

Assembly hall for subsea. First XMT delivered from Tranby



1990

2000

2000

DEMO 2000



2001

XMT no. 100



2002

AKER KVÆRNER™

2008

AkerSolutions™

2000

2014

Specialised subsea manufacturing plant



- XMT
- Pumps
- WOS



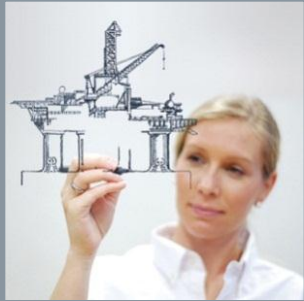
subsea valley

2014



# Business areas of Aker Solutions

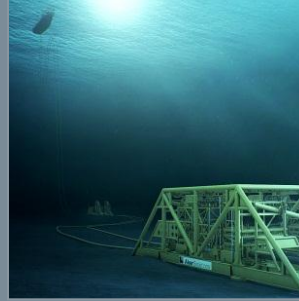
## Horizontal and vertical integration within Subsea Factory



**Engineering**



**Maintenance, modifications and operations**



**Subsea**



**Umbilicals**



**Process systems**



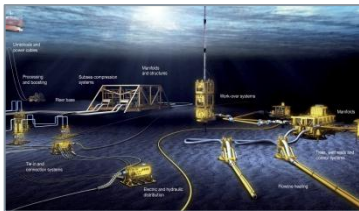
**Drilling technologies**



**Oilfield services and marine assets**

# Aker Solutions Prioritized Technology Focus

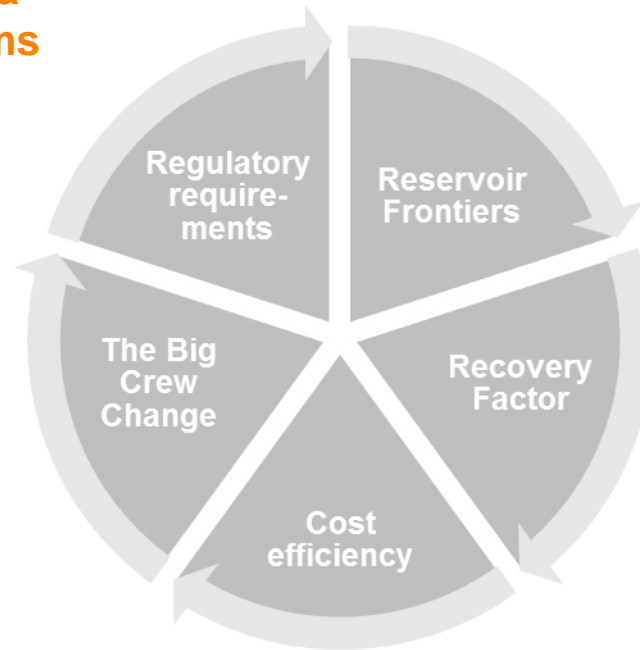
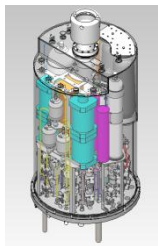
**Advanced subsea production systems**



**New drilling methods and next generation well control**



**Automation and integrated operations**



**Advanced well stream processing**



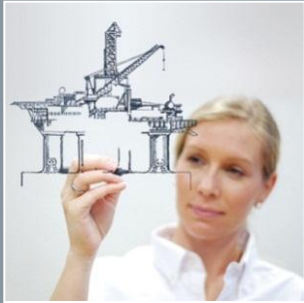
**Standardization and modularization**



**Front end studies**

# Business areas of Aker Solutions

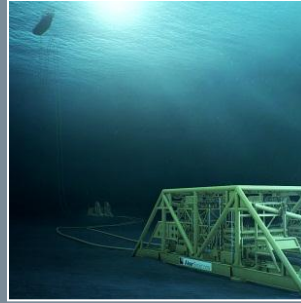
## Horizontal and vertical integration within Subsea Processing



Engineering



Maintenance, modifications and operations



Subsea



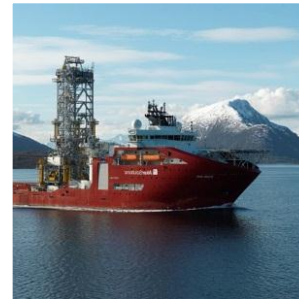
Umbilicals



Process systems



Drilling technologies



Oilfield services and marine assets

# Aker Solutions' subsea business in brief

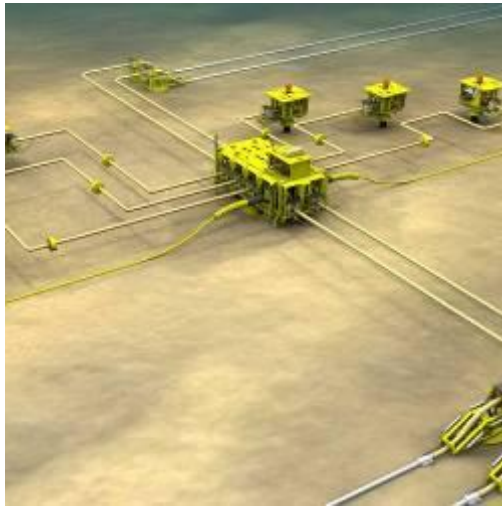


- Top-tier subsea production system provider
  - 7,000 skilled and dedicated employees + 1,500 temporary staff worldwide
  - Revenue of NOK 12 bn (2012)
- Comprehensive subsea product and operations portfolio
  - Global manufacturing and service infrastructure
  - Project references and installed base in all regions
- Leading position on new subsea technologies

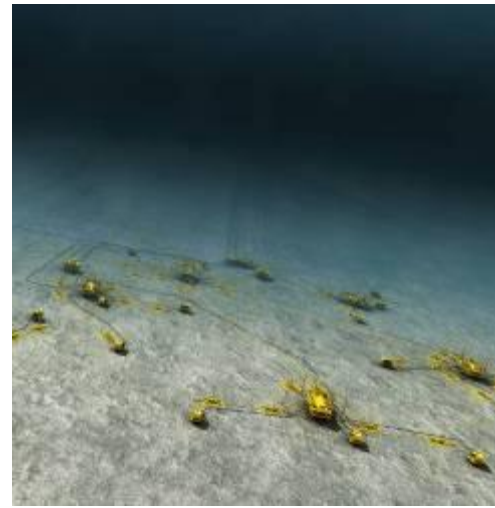


# Subsea factory aligned with our technical Vision & Direction

Deeper waters,  
complex  
reservoirs,  
harsh fluids



Longer subsea  
step-outs  
(distance from  
well to process  
facility)



Drive for  
increased oil  
recovery from  
existing fields

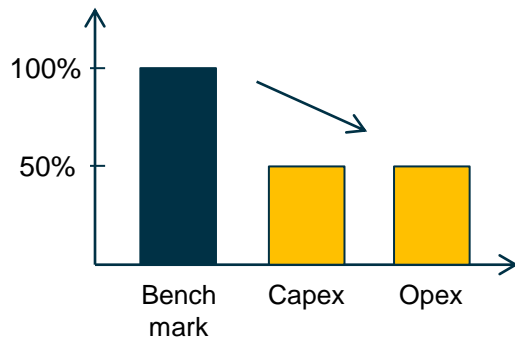


Reduce costs of  
developments



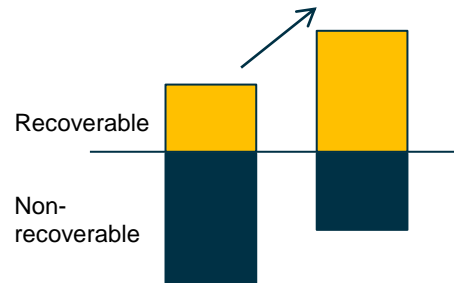
# Why is subsea factory a game changer

## It reduces costs



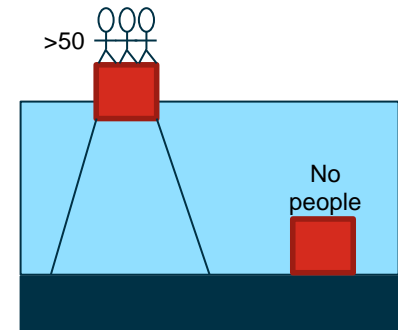
- No “foundation”, e.g semi, jacket, TLP
- Less utilities, e.g. no living quarters, no fire protection, etc
- No catering, supply vessels, helicopters, 2x4 crews, etc

## It unlocks value



- Makes “impossible fields” possible, e.g. through improved flow assurance
- Changes uneconomical reserves to economical reserves, e.g. through increasing tail-end production rate

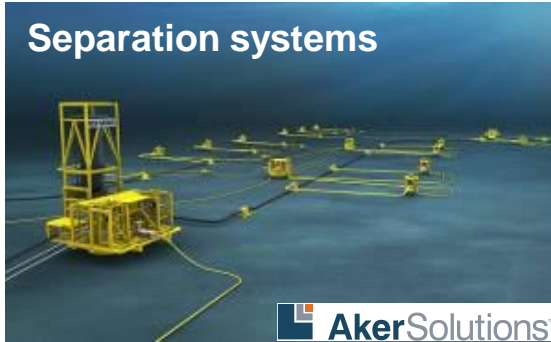
## It improves HSE



- No people -> improved safety
- Less power consumption
- Enables utilisation of existing infrastructure

# Subsea Factory divided into three main market segments - solutions for most of it exists

## Separation systems






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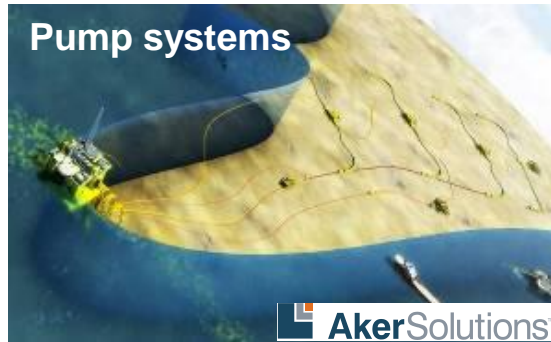
## Rationale for solution

- Avoid transportation and topside cost for produced water
- Remove solids to avoid erosion
- Gas removal to prevent slugging

## Example projects (on stream)






- Tordis (2009) 
- Pazflor (2011) 
- Marlim (2012) 

## Pump systems

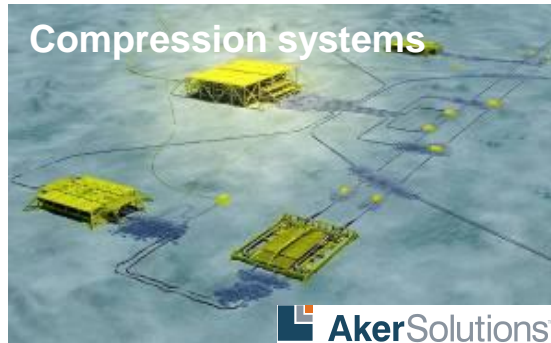


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- Increased production and improved recovery
- Accessing new development and marginal fields
- Improved flow assurance for long tie-backs




- Åsgard (2014) 
- Jubarte (2011) 
- Cascade & Chinook (2012) 
- Jack & St Malo (2014) 
- Clov (2014) 

## Compression systems



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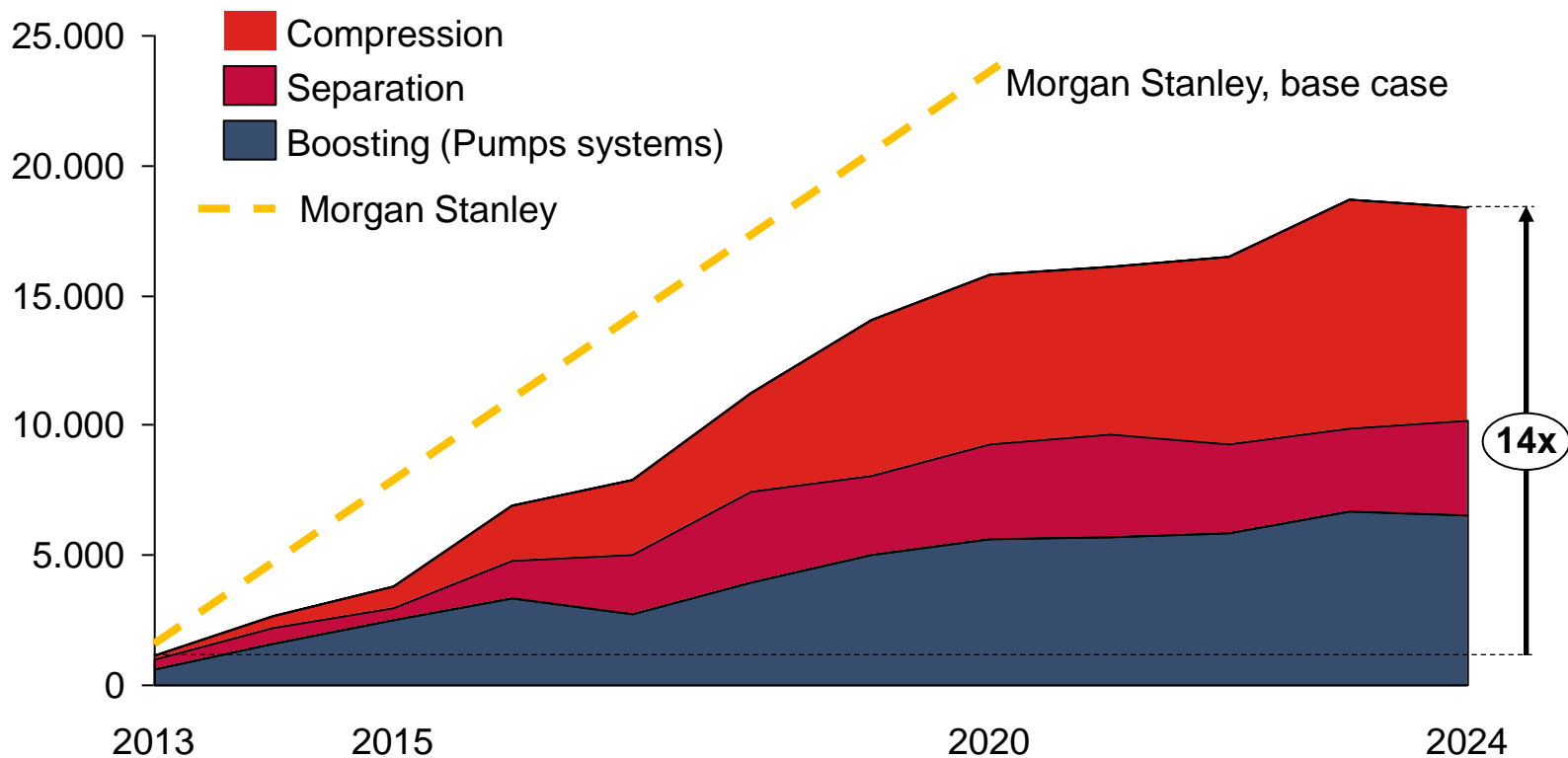
- Increased production and improved recovery for mature fields
- Accessing new development and marginal fields
- Improved flow assurance for long tie-backs

- OrmenPilot(2012) 
- Åsgard (2015) 
- Gullfaks (2015) 

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# We expect the market to increase by a factor of 14 over the next 10 years – but still uncertain when it accelerates

Estimated global subsea factory equipment market, MNOK



Source: Morgan Stanley Research, Big Subsea Opportunity, Jan 2013, EST market estimate

10 February, 2014

Slide 12

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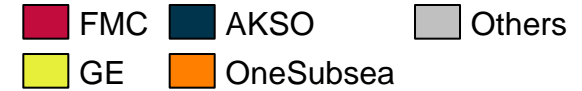
 **Aker Solutions**<sup>™</sup>

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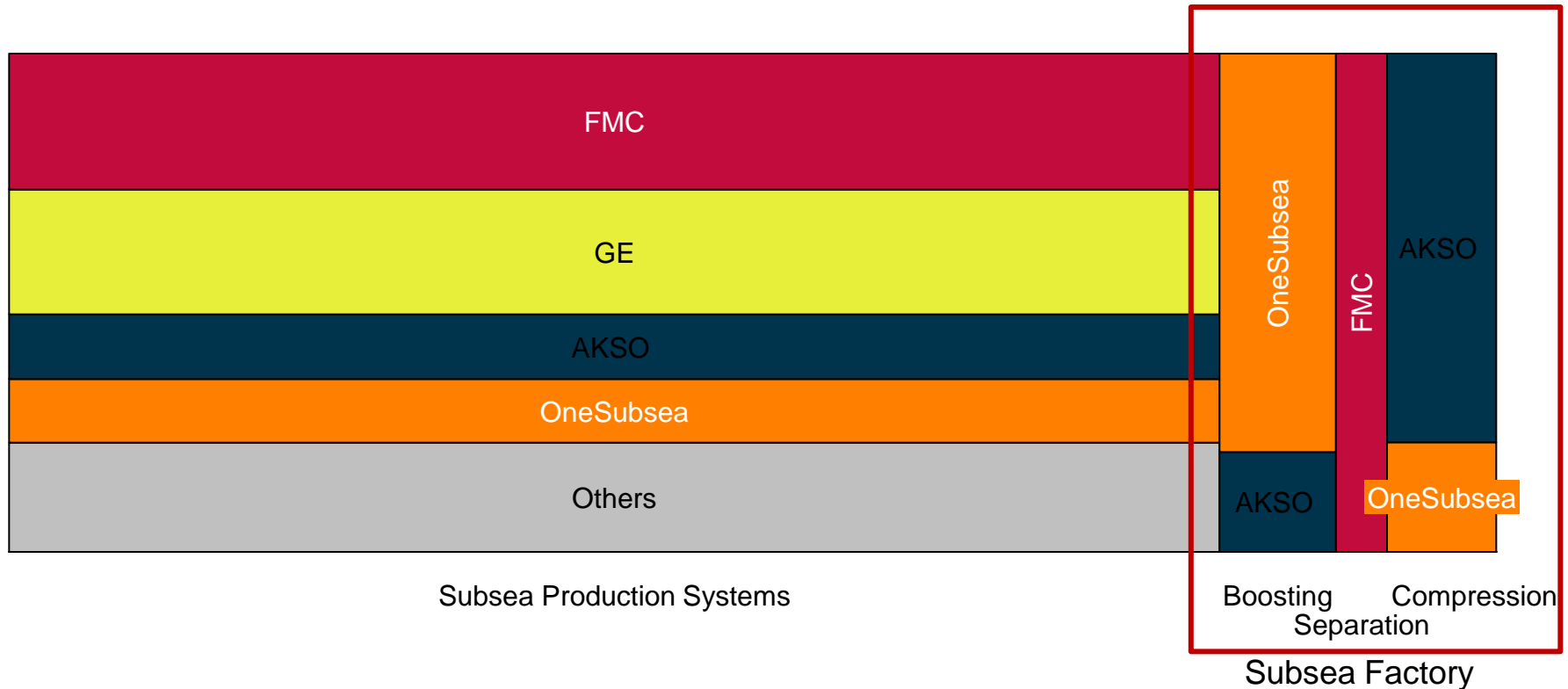


# Subsea Factory market still small compared to SPS

Expected to outperform other Subsea segments on growth



Total Subsea equipment 2012 market – B USD ~approx 10



Expected CAGR 2013-2017

18%

40%



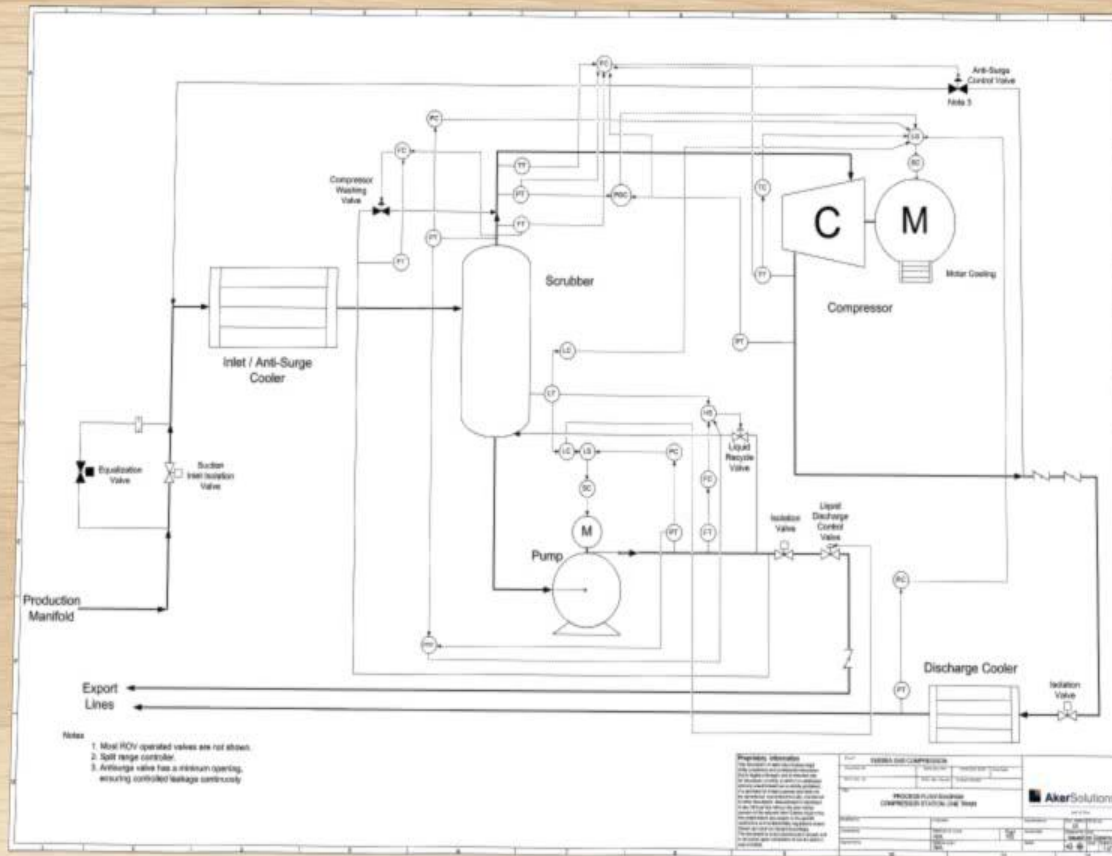
# SF already happening with AKSO combined strength



- Technology and competence
  - Industry leading front-end organisation
  - Most complete product portfolio
- Execution
  - Systems and scale to design and deliver next generation subsea projects
  - In-house delivery and integration capacity
- Locations
  - Capabilities to deliver projects in all regions
- Service
  - Capabilities to service installed base in all regions

➔ **“Subsea factory ready”**

# Åsgard compression train – from schematics to delivery



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