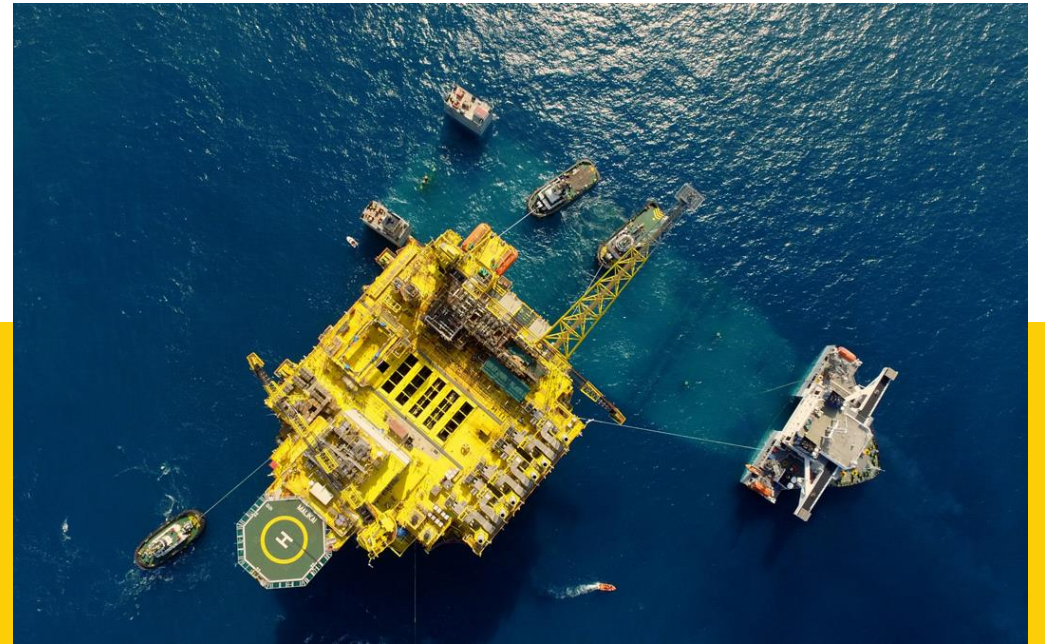




# Joint 2017 UNO-EF and 2017 SSCET Panel on Infrastructure Cyber Security

**Marc Chevis**

Process, Data & Systems Manager  
Shell Upstream Deepwater



# Definitions & cautionary note

Reserves: Our use of the term “reserves” in this presentation means SEC proved oil and gas reserves.

Resources: Our use of the term “resources” in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves. Resources are consistent with the Society of Petroleum Engineers (SPE) 2P + 2C definitions.

Discovered and prospective resources: Our use of the term “discovered and prospective resources” are consistent with SPE 2P + 2C + 2U definitions.

Organic: Our use of the term Organic includes SEC proved oil and gas reserves excluding changes resulting from acquisitions, divestments and year-average pricing impact.

Shales: Our use of the term ‘shales’ refers to tight, shale and coal bed methane oil and gas acreage.

Underlying operating expenses are defined as operating expenses less identified items. A reconciliation can be found in the quarterly results announcement.

The companies in which Royal Dutch Shell plc directly and indirectly owns investments are separate legal entities. In this presentation “Shell”, “Shell group” and “Royal Dutch Shell” are sometimes used for convenience where references are made to Royal Dutch Shell plc and its subsidiaries in general. Likewise, the words “we”, “us” and “our” are also used to refer to subsidiaries in general or to those who work for them. These expressions are also used where no useful purpose is served by identifying the particular company or companies. “Subsidiaries”, “Shell subsidiaries” and “Shell companies” as used in this presentation refer to companies over which Royal Dutch Shell plc either directly or indirectly has control. Entities and unincorporated arrangements over which Shell has joint control are generally referred to as “joint ventures” and “joint operations” respectively. Entities over which Shell has significant influence but neither control nor joint control are referred to as “associates”. The term “Shell interest” is used for convenience to indicate the direct and/or indirect ownership interest held by Shell in a venture, partnership or company, after exclusion of all third-party interest.

This presentation contains forward-looking statements concerning the financial condition, results of operations and businesses of Royal Dutch Shell. All statements other than statements of historical fact are, or may be deemed to be, forward-looking statements. Forward-looking statements are statements of future expectations that are based on management’s current expectations and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in these statements. Forward-looking statements include, among other things, statements concerning the potential exposure of Royal Dutch Shell to market risks and statements expressing management’s expectations, beliefs, estimates, forecasts, projections and assumptions. These forward-looking statements are identified by their use of terms and phrases such as “anticipate”, “believe”, “could”, “estimate”, “expect”, “goals”, “intend”, “may”, “objectives”, “outlook”, “plan”, “probably”, “project”, “risks”, “schedule”, “seek”, “should”, “target”, “will” and similar terms and phrases. There are a number of factors that could affect the future operations of Royal Dutch Shell and could cause those results to differ materially from those expressed in the forward-looking statements included in this presentation, including (without limitation): (a) price fluctuations in crude oil and natural gas; (b) changes in demand for Shell’s products; (c) currency fluctuations; (d) drilling and production results; (e) reserves estimates; (f) loss of market share and industry competition; (g) environmental and physical risks; (h) risks associated with the identification of suitable potential acquisition properties and targets, and successful negotiation and completion of such transactions; (i) the risk of doing business in developing countries and countries subject to international sanctions; (j) legislative, fiscal and regulatory developments including regulatory measures addressing climate change; (k) economic and financial market conditions in various countries and regions; (l) political risks, including the risks of expropriation and renegotiation of the terms of contracts with governmental entities, delays or advancements in the approval of projects and delays in the reimbursement for shared costs; and (m) changes in trading conditions. No assurance is provided that future dividend payments will match or exceed previous dividend payments. All forward-looking statements contained in this presentation are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

Readers should not place undue reliance on forward-looking statements. Additional risk factors that may affect future results are contained in Royal Dutch Shell’s Form 20-F for the year ended December 31, 2016 (available at [www.shell.com/investor](http://www.shell.com/investor) and [www.sec.gov](http://www.sec.gov)). These risk factors also expressly qualify all forward-looking statements contained in this presentation and should be considered by the reader. Each forward-looking statement speaks only as of the date of this presentation, [DATE]. Neither Royal Dutch Shell plc nor any of its subsidiaries undertake any obligation to publicly update or revise any forward-looking statement as a result of new information, future events or other information. In light of these risks, results could differ materially from those stated, implied or inferred from the forward-looking statements contained in this presentation. This presentation may contain references to Shell’s website. These references are for the readers’ convenience only. Shell is not incorporating by reference any information posted on [www.shell.com](http://www.shell.com). We may have used certain terms, such as resources, in this presentation that United States Securities and Exchange Commission (SEC) strictly prohibits us from including in our filings with the SEC. U.S. investors are urged to consider closely the disclosure in our Form 20-F, File No 1-32575, available on the SEC website [www.sec.gov](http://www.sec.gov).

# Shell's deep water strategy

to safely and competitively increase production volumes to **900,000 boep/d** by 2020

Deep water is a growth priority  
& future cash engine for Shell

New production to come from our  
established deep water heartlands

Projects designed to be profitable  
in a low oil price environment



**Anchored on safety leadership, continuous  
improvement and investment in people**

**GOAL ZERO**

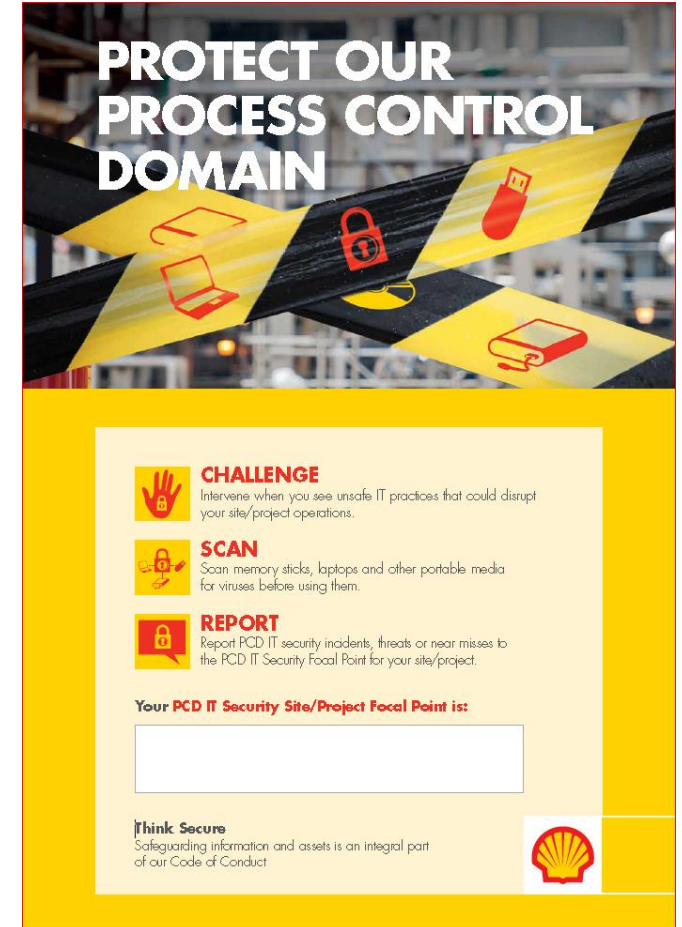
# Shell Upstream Deepwater Context

- ❑ Drive for Operating Efficiencies – increasingly intense remote monitoring, remote operations and maintenance – drives increasing scope and complexity in asset IT and automation infrastructure
- ❑ Digitalization of Upstream – Industrial Internet of Things (IIoT) – creating increasing demand for asset data (production and consumption)
- ❑ These trends put more stress on the ICS cyber security barriers and controls, so...
- ❑ We need very effective ICS cyber risk management to realize Digitalization value



# Overview of Shell Industrial Cybersecurity

- ❑ Formal program to mitigate industrial control system cyber threats began in 2006
- ❑ Established a protected domain called the Process Control Domain (PCD)
- ❑ We are now deploying our 4<sup>th</sup> generation of PCD perimeter protection and access controls
- ❑ We are actively engaged in industry forums, including the Offshore Operators Committee, regarding public/private sector collaboration on cyber threats and mitigation approaches
- ❑ We are members in HSIN and utilize the ICS-CERT advisories for emerging vulnerability awareness



**PROTECT OUR  
PROCESS CONTROL  
DOMAIN**


**CHALLENGE**  
Intervene when you see unsafe IT practices that could disrupt your site/project operations.

**SCAN**  
Scan memory sticks, laptops and other portable media for viruses before using them.

**REPORT**  
Report PCD IT security incidents, threats or near misses to the PCD IT Security Focal Point for your site/project.

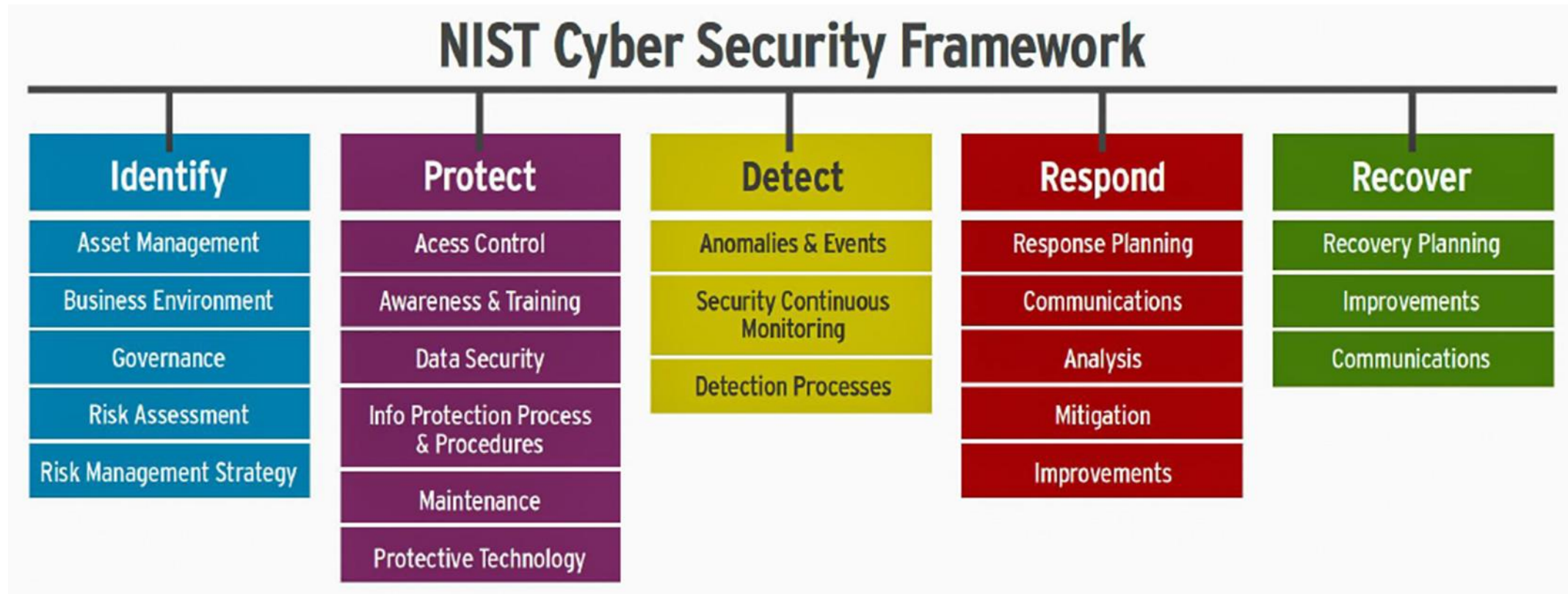
Your PCD IT Security Site/Project Focal Point is:

**Think Secure**  
Safeguarding information and assets is an integral part of our Code of Conduct





# The NIST Framework for Improving Critical Infrastructure Cybersecurity



# Key Messages in Application of the NIST Framework

- ❑ Most important element of the risk management framework: **Governance**
- ❑ Risk is primarily to asset integrity (i.e., availability of the production system)
- ❑ Risk is held by the Asset Manager, just like all other asset integrity risks
  
- ❑ What typically causes confusion:
  - Vacillation between elements of IT and Asset Management as to who owns the risk
  - Fragmentation of responsibilities with remit to operate / manage / assure the controls
  - Lack of understanding in traditional Enterprise IT of the constraints in operating environments and process automation landscapes

