G+ Safe by Design programme

Achievements to date and future direction

G+ GLOBAL OFFSHORE WIND HEALTH & SAFETY ORGANISATION 5TH STAKEHOLDER FORUM

06 March 2019

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www.gplusoffshorewind.com

In partnership with the energy institute

Safe by Design Program - Background

G+ Global Offshore Wind Health & Safety Organisation

- Run by the Crown Estate from 2012 until 2014
- Transfer of ownership to G+ of the Safe by Design program in 2014
- 2016 - G+/EI partnered with the ORE Catapult to facilitate the workshops and produce the reports
- Seven workshops with six published
  - Marine transfer and access
  - Escape from a turbine Nacelle in the event of a fire
  - WTG service lifts
  - Davit cranes
  - WTG access and egress
  - WTG access below the airtight deck

Typical Safe by Design workshop

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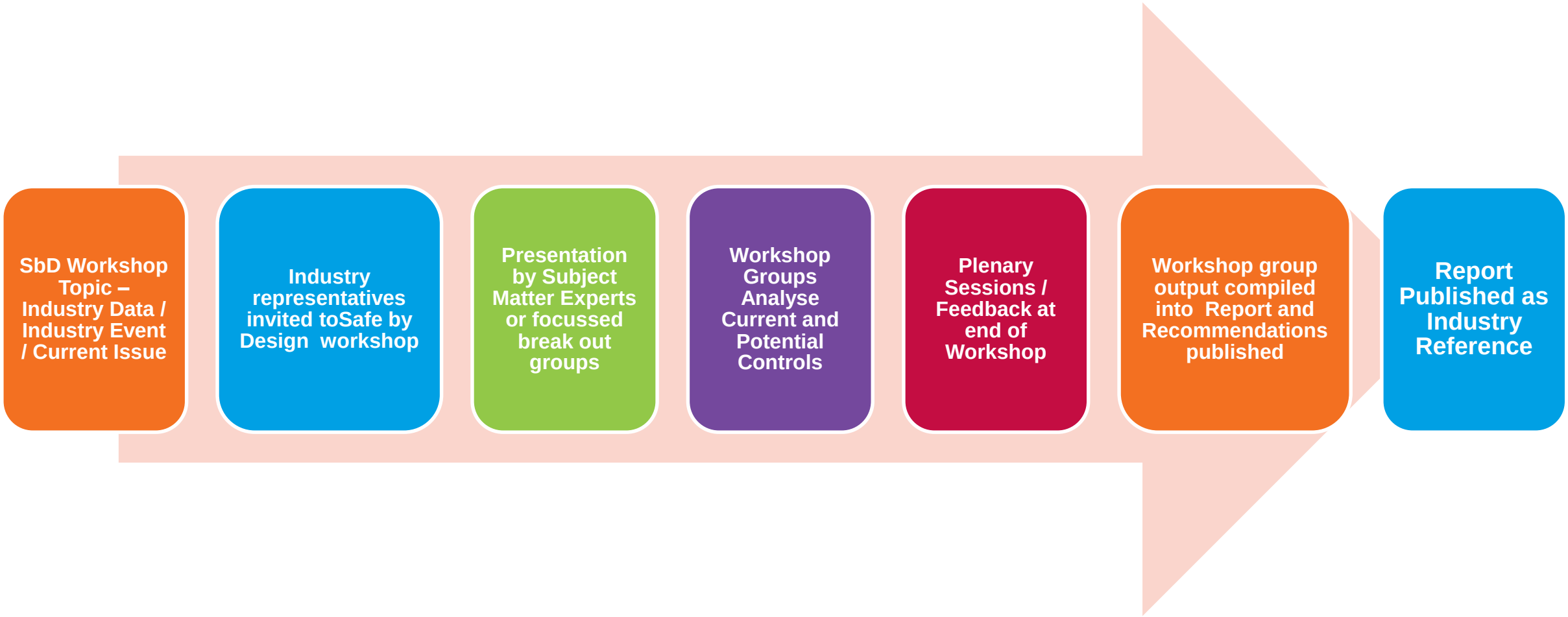

Safe by Design workshop – Consideration Cycle

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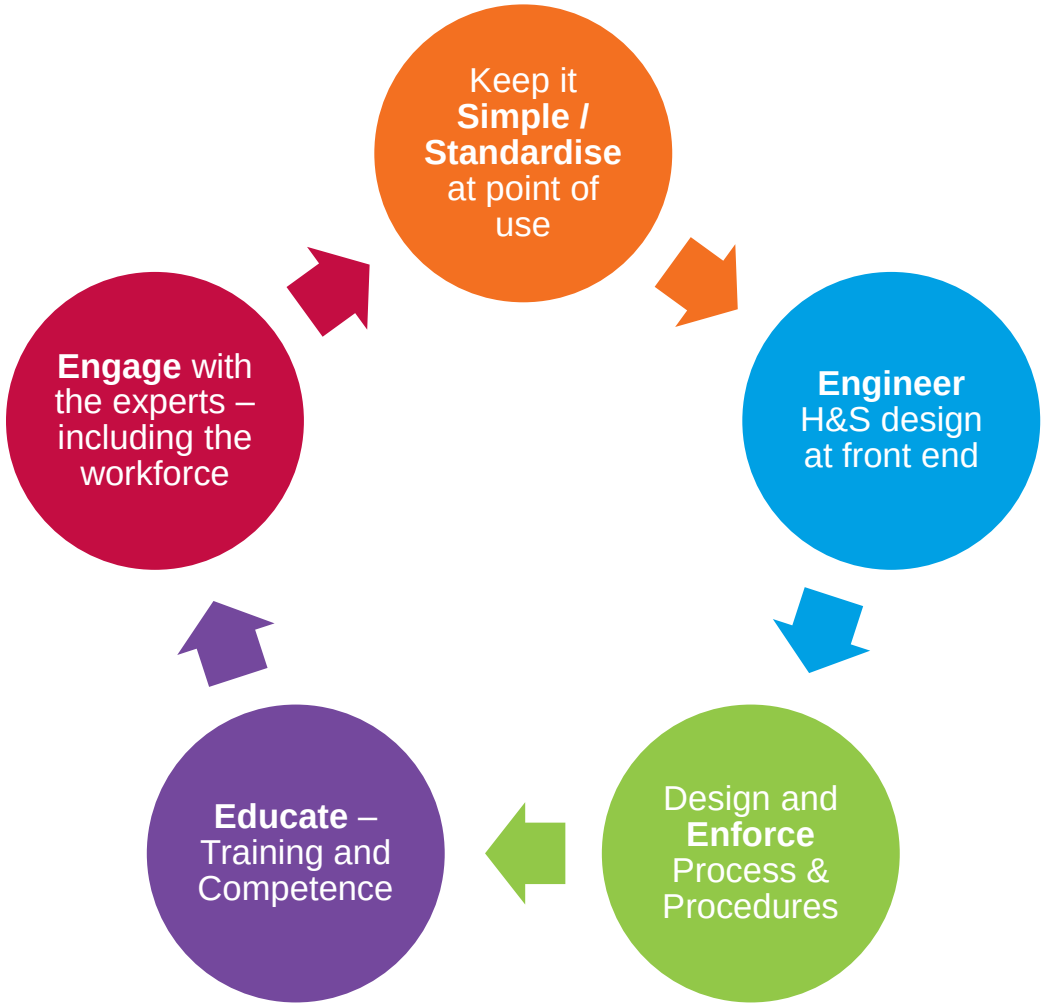

Safe by Design Workshop Output

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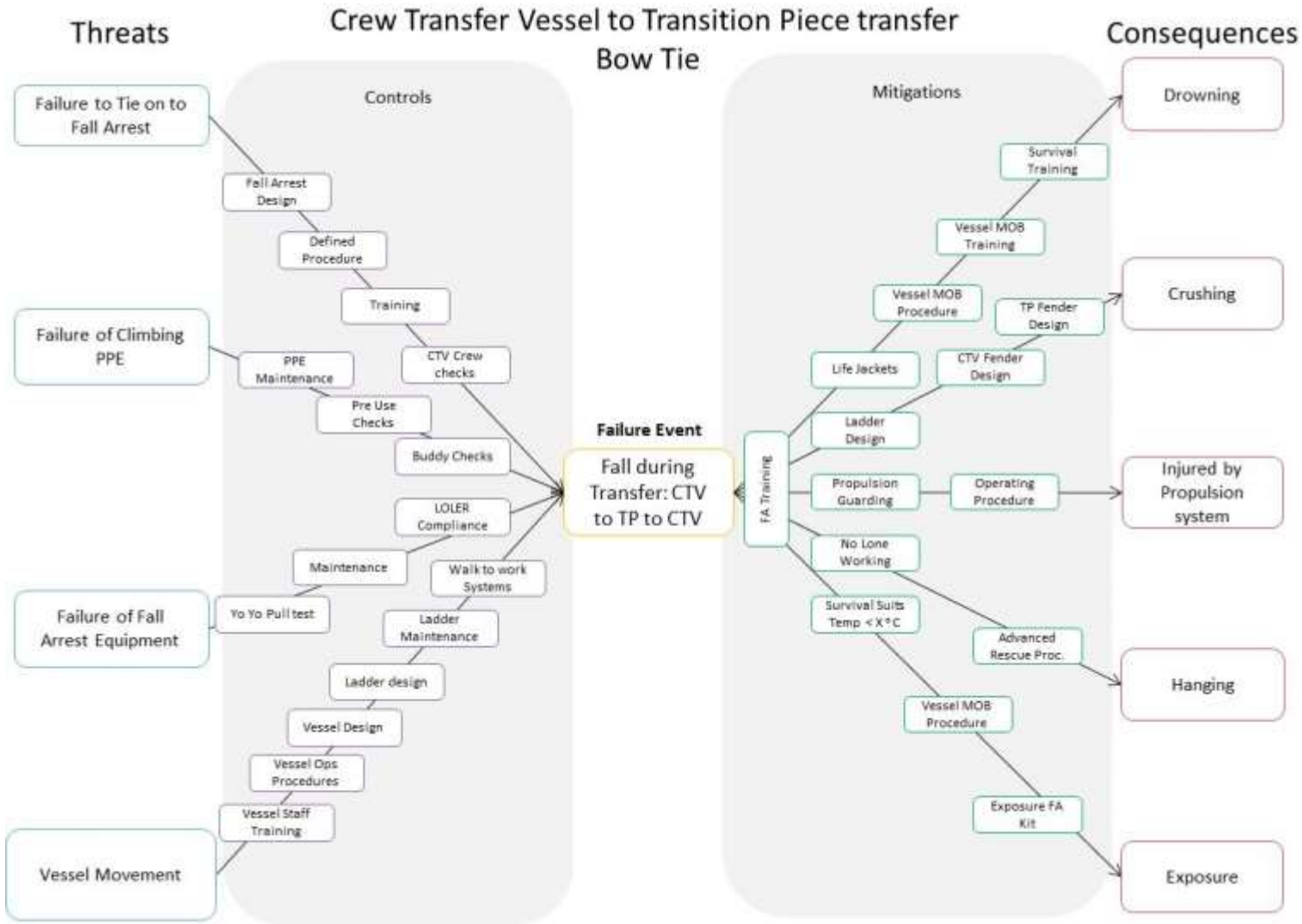

Example of the output from a Safe by Design Workshop:

CTV to TP Bowtie analysis

Most recent workshop on Hydraulic Torqueing & Tensioning Systems

March 2019

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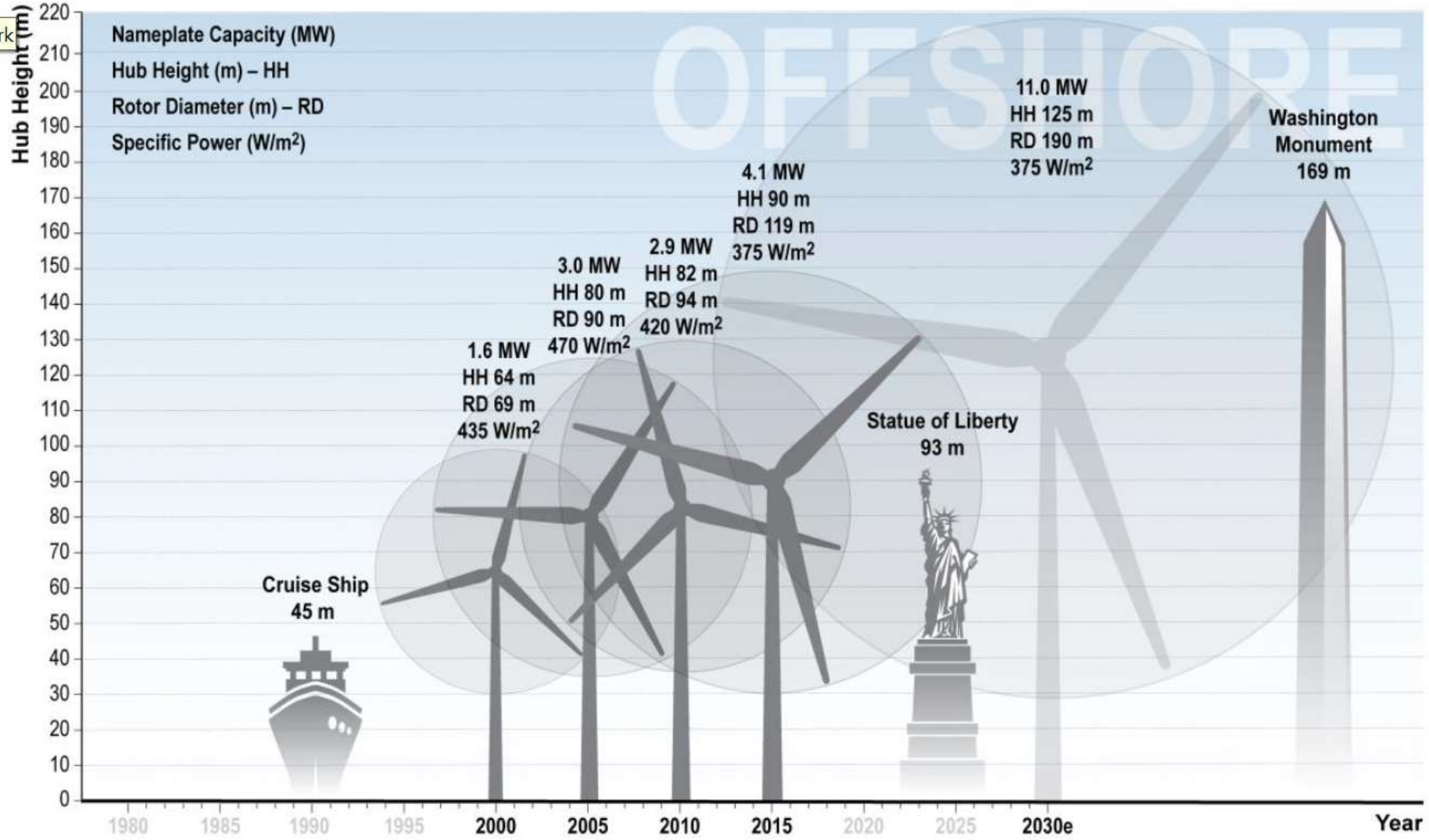

Foundation types and interfaces have changed as WTG sizes have increased and sites move further offshore

Bolting Arrangements & Associated Tools

Impacts of WTG increasing in size and foundations becoming more complex are:

Increase in Bolt Sizes

Volume of installations

Handling of bolts and associated tools

Ongoing maintenance requirements

SbD Hydraulic Torqueing & Tensioning Systems - Incidents

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G+ Data has shown that although there have been no serious incidents with bolt installation or associated tools, there is an increasing trend of incidents related to these.

Incidents have occurred in 2 key activities:

Handling of bolts and associated tools

Use of the tools

There have been a number of tool failures which have had high potential to injure personnel involved in the works.

SbD Hydraulic Torqueing & Tensioning Systems – Facilitated Workgroups

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Exercise 1 - HAZID

- Storage, transportation & handling
- Bolt installation (use of tools)
- Maintenance of tools

Exercise 2 – Bow Tie (Hazard Risk Analysis)

- Analysis of the most significant hazards

Exercise 3 – Hierarchy of Control

- Further analysis of the most significant hazards

Safe by Design Workshop - Output

G+ Global Offshore Wind Health & Safety Organisation

- Produce a series of guidance documents published on the G+ website to stimulate new thinking amongst the industry developers in designing for H&S

- To share ideas across industry in designing for H&S and to potentially reduce the risk of serious injury and ill health in the industry

Outputs – Recommendation status

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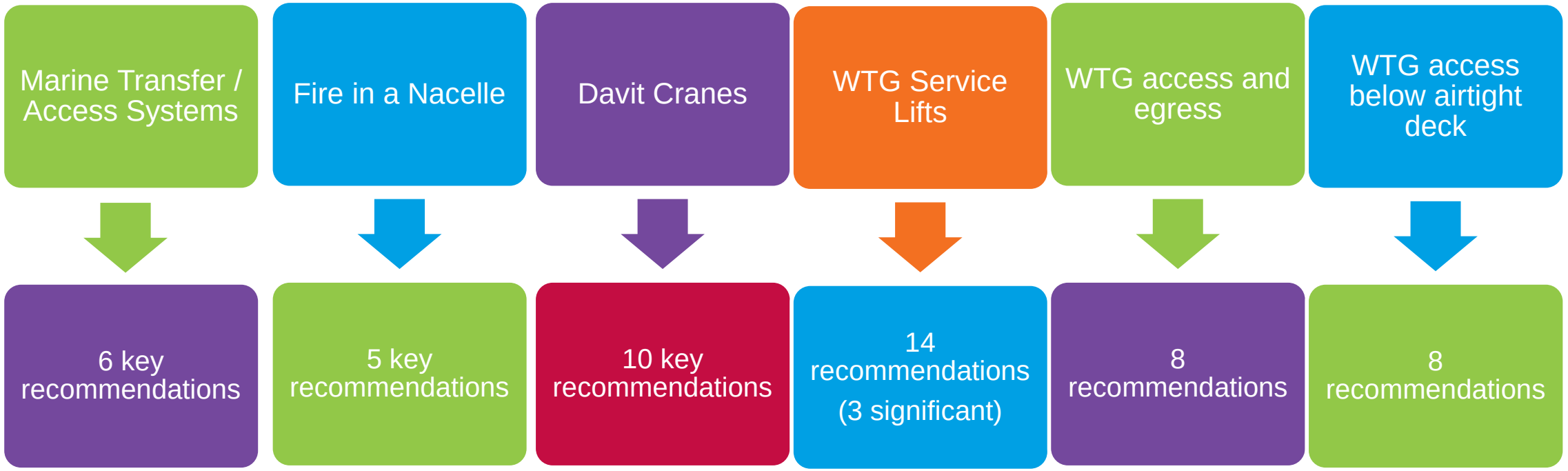

SBD – The Future

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Safe By Design Workshops are planned for 2019 and 2020

Subjects are yet to be decided

Looking at latent incident data is only part of the analysis

We should also look to those subjects that “keep us awake at night”

What are the subjects that we need to tackle as an industry?