

**MARINTEK**

Norsk Marinteknisk Forskningsinstitutt

# IO2 Integrated Planning & Logistics

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## CENTER FOR INTEGRATED OPERATIONS IN THE PETROLEUM INDUSTRY



In collaboration with the petroleum industry

Supported by the The Research Council of Norway  
2007 - 2015

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## RESEARCH PARTNERS



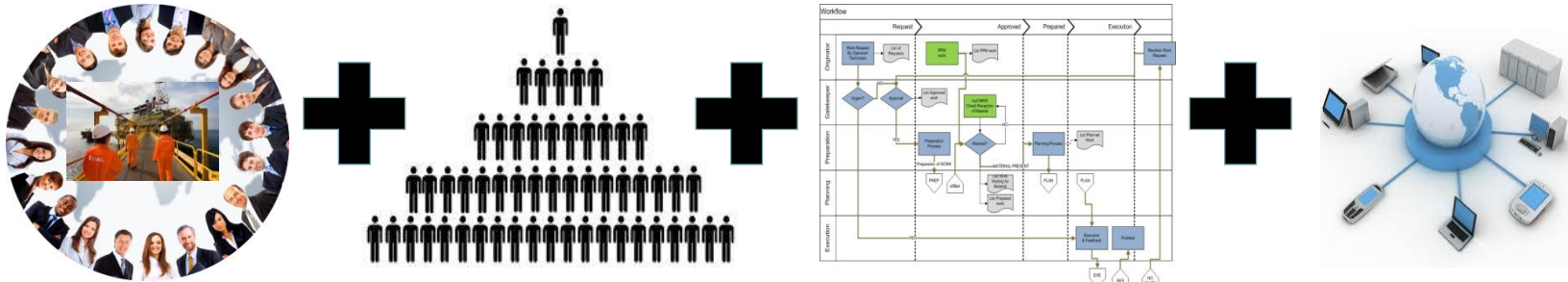
### Industrial partners in the Center for Integrated Operations in the Petroleum Industry:



### Collaborating international academic partners:



## IN SHORT, OUR DEFINITION OF INTEGRATED OPERATIONS

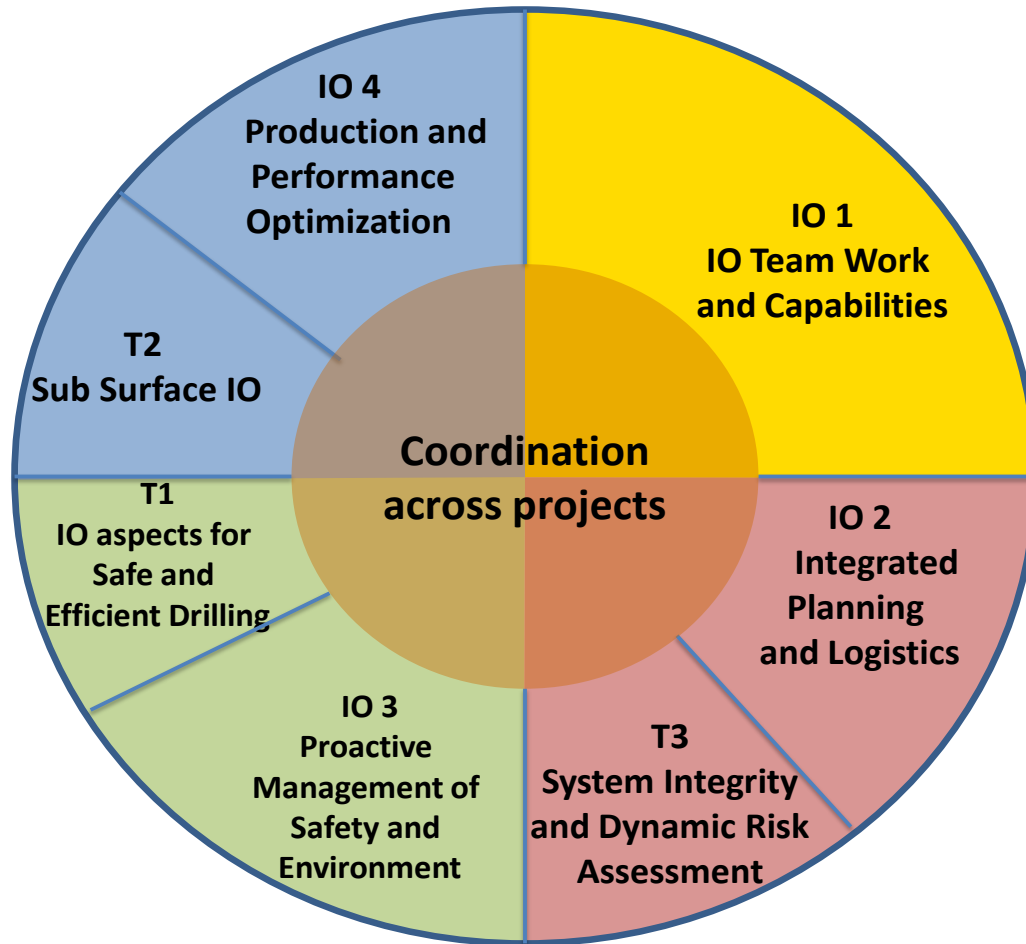


Integrated Operations (IO) is the integration of people, organizations, work processes and information technology to make smarter decisions. It is enabled by global access to real time information, collaborative technology and integration of multiple expertise across disciplines, organizations and geographical locations.

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## IO- phase 2



# PROJECT ACTIVITY DESCRIPTION 2014

<b>PROJECT:</b>
<b>Case study: Petrobras</b> – <i>How to improve IPL practices based on "The IPL Lab" concept</i> <ul style="list-style-type: none"> <li>• An IPL Learning Lab pilot will be carried out including development, execution and evaluation.</li> <li>• Evaluation and further development of the <i>IPL Learning Lab</i> will be done to prepare for possible implementation in several units.</li> <li>• Deliverables: workshops/ training seminars, evaluation reports, contributions to "The IPL Learning Lab " concept, one master thesis (two master students), one paper</li> </ul>
<b>Case study Aker Solutions-</b> <i>IPL from a subcontractor's perspective</i> <ul style="list-style-type: none"> <li>• In-depth studies of planning practices focusing on the GAP between expectations to planning, plans and the planner role and actual planning practices.</li> <li>• Improvement activities based on in-depth studies- e.g. organized as an <i>IPL Learning Lab</i> pilot</li> <li>• Evaluation of improvement activities</li> <li>• Deliverables: workshops, reports, contributions to "IPL Learning Lab" concept, three master thesis (5 master students), two papers</li> </ul>
<b>Case study: Statoil</b> – <i>Improving IPL, focusing on the planning processes</i> <ul style="list-style-type: none"> <li>• Activities related to implementation of IPL in Statoil based on collaboration with the unit Future Operations and the units involved in IPL. Focus is on improvement of the planning processes.</li> <li>• Deliverables: workshops, reports, contributions to "IPL Learning Lab" concept, one master thesis (2 master students), one paper</li> </ul>
<b>The IPL Learning Lab:</b> <ul style="list-style-type: none"> <li>• <b>The IPL Learning Lab</b> – development of a client-focused collaborative space supporting the development and implementation of Integrated Planning and Logistics practices. It is based on tailoring of learning arenas and modules to specific needs of groups and roles within organizations'.</li> <li>• <b>The IPL Storyboard</b>- development of a collection of "IPL best practices" and lessons learned. The objective is to utilize the "stories" in the industry for learning and improvement of their IPL practices, based on experiences from several companies showing how they have succeeded in handling challenges related to IPL. This will constitute a database where the structure is based on the IPL Model. This will be based on already collected information in our pilots in addition to information which needs to be gathered from other industry partners.</li> </ul>
<b>IPL eBook:</b> <ul style="list-style-type: none"> <li>• This will be a main activity in 2014 to document/disseminate the result of the IO2 work. The target group is the industry partners and the work will be based on collaboration with industry partners/reference group.</li> </ul> <p>Deliverable: eBook containing short articles focusing on the seven IPL-capabilities</p>
<b>PhD activities:</b> <ul style="list-style-type: none"> <li>• Kristin Halvorsen will complete her work in June 2014. Research topic is: Decision Making in Cross-Professional Team, Deliverables in 2014: PhD thesis including <i>four articles</i></li> <li>• Harald Rødseth will continue his work in 2014 and 2015. Research topic is: Integrated Planning – A novel concept for planning for technical condition, Deliverables in 2014: min. <i>two articles</i></li> <li>• Eric Fernandez Questa will continue his work in 2014 and 2015. Research topic is: Optimization of logistics. Deliverables in 2014: min. <i>one article</i></li> </ul>



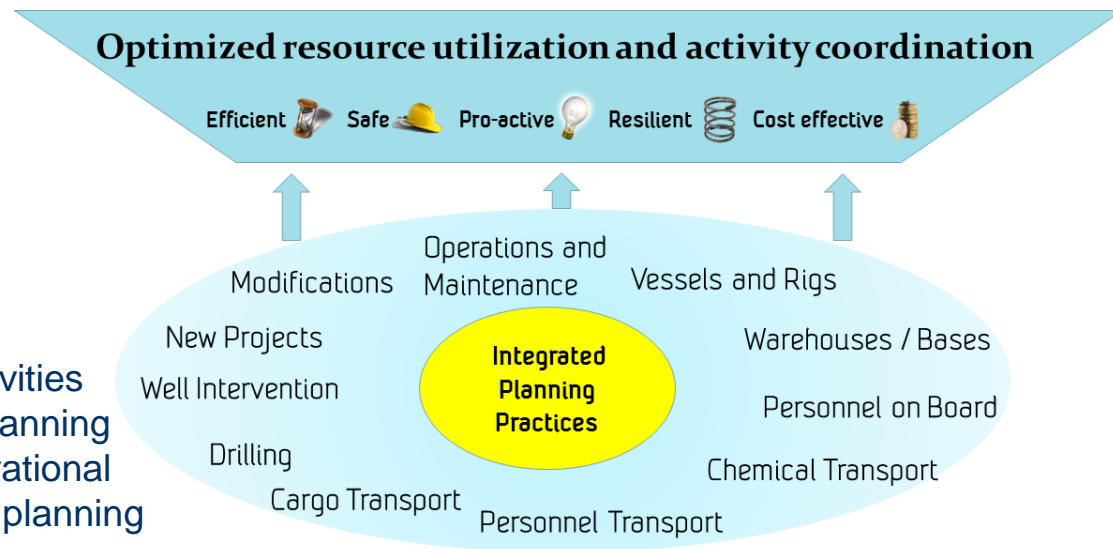
# Defining Integrated Planning (IPL)

Integrated Planning (IPL) is defined as *holistic, cross-domain planning* enabling optimal resource allocation and activity prioritization for **safe** and **efficient production**.

IPL involves integrating a range of plans:

- production plans
- logistic plans
- project plans
- maintenance plans
- drilling plans
- etc.

With the improved ability to coordinate activities across disciplines and between different planning levels, IPL provides a live and holistic operational picture. This in combination with improved planning processes and roles description. We call these practices Integrated Planning Practices.

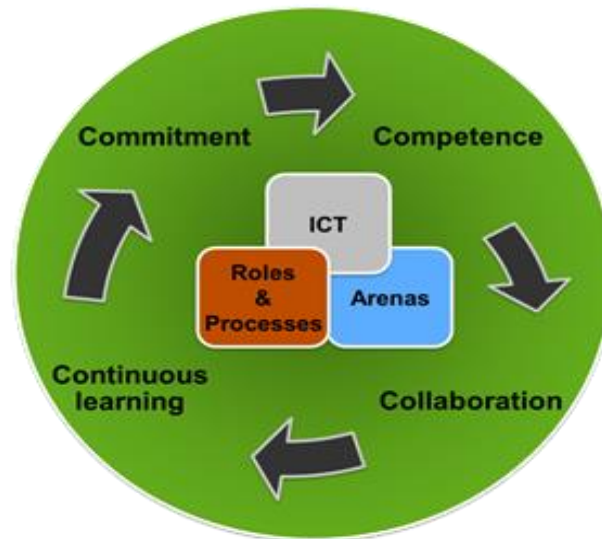


# The IPL Model - A holistic perspective

## Organizational and Technical Enablers:

Organizational tools that are designed and implemented for rendering the organization capable of achieving IPL.

- ICT
- Roles & Processes
- Arenas for Plan Coordination



## Human & Cultural Capabilities:

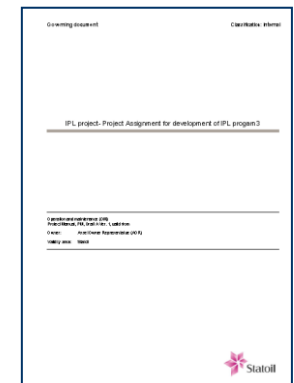
Cultural and personal abilities that need to be developed and cultivated over time in order to realize the value potential in IPL.

- Commitment
- Competence
- Collaboration
- Continuous Learning



# The Statoil Case, 2013-14

- **Collaboration with the internal Statoil project LERC**
  - **Report:** Analyses of the logistical planning in Statoil, January 2013
  - **White Paper:** Integrated Planning and Logistics under stable and unstable conditions, February 2013
  - **Master Thesis :** Planning and disruption challenges in the logistical offshore supply chain based on a simulation model by Gry M. Oleivsgard, June 2013
- **Collaboration with Future Operations**
  - collaboration arenas:** operational planning meetings & POG-meetings- developing and implementing a "best practice" ( including Master Thesis)
- **Innovation Forum 2013** – collaboration between UC Berkeley, Statoil & IO2- Lean & Last Planner



# The Petrobras Case, 2013

- **Extended As-Is and To-be studies:**

- Report D2, April 2013
- Report D3, September 2013

**The report's main objective is:**

- Supplement previous As-Is investigations of IPL practice within
- Provide recommendations for To-Be
- Provide some examples of IPL best practice
- Basis for design of the **IPL Learning Lab pilot in 2014**

- **Master thesis:** Routing and Scheduling of Platform Supply Vessels, Friedberg & Uglane, May 2013

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## Report – D2

An AS-IS description Integrated Planning at Petrobras – findings from Unit of Operation Espirito Santos (UO-ES)

Integrated Planning and Logistics

**Authors**

Even Ambros Holte and Kay Endre Fjærtøft, MARINTEK



Norwegian Marine Technology Research Institute  
Maritime Transport Systems  
2013-04-22

# The Aker Solutions Case, 2013

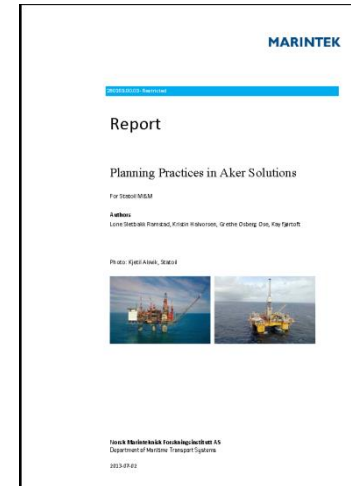
- **Collaboration with Statoil M&M Contract**

- Report: Planning Practices in Aker Solutions , July 2013
  - Including planning practices internally and in the interface between Aker Solutions and Statoil
- Report: The IPL Screening of Aker Solutions , Statoil M&M Contract

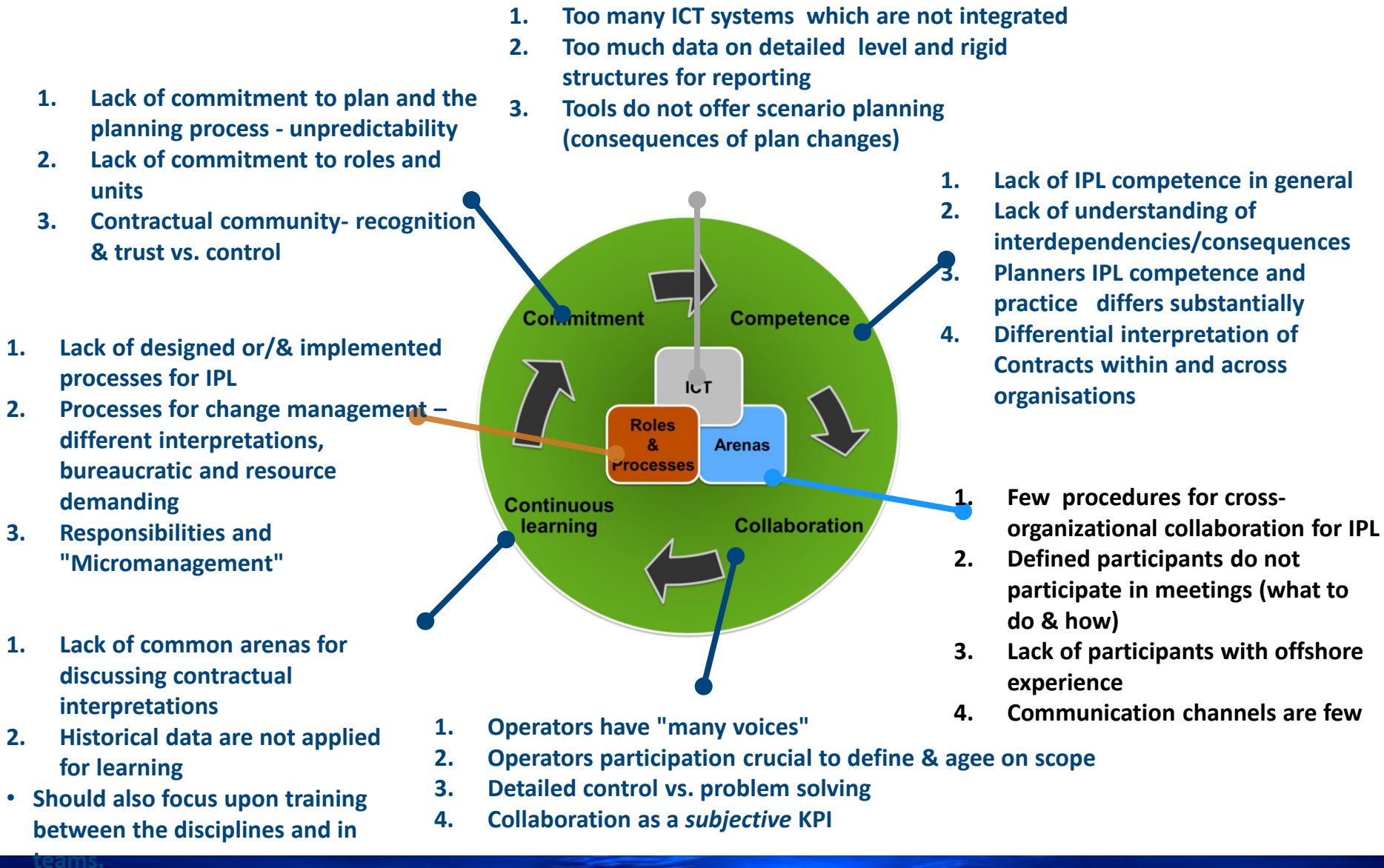
- **In -depth studies 2013-2014**

- Ongoing work - expectations to plans, planning and the planner role vs. compared with how planning and the roles are actually executed

- **Master Thesis:** Lean Design Management in Aker Solutions Concept Studies, Nawras Skhmot, August 2013



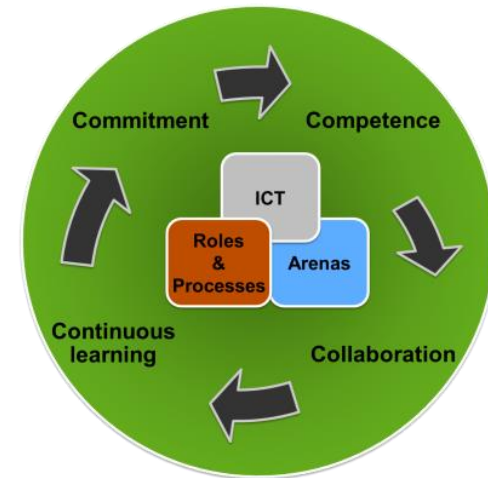
# Main challenges in the interface



# "The IPL Learning Lab"- Methods/ tools for improving IPL practices

**The IPL Learning Lab is a client-focused collaborative space supporting the development and implementation of Integrated Planning and Logistics practices.**

- A structured approach for jointly creating, refining and applying robust and adaptive IPL practices
- Content and structure tailored to company-specific needs and IPL maturity
- A creative environment to support mutual exchange of knowledge and experience
- Events crossing industry and company boundaries (workshops, seminars, conferences, courses, etc.)



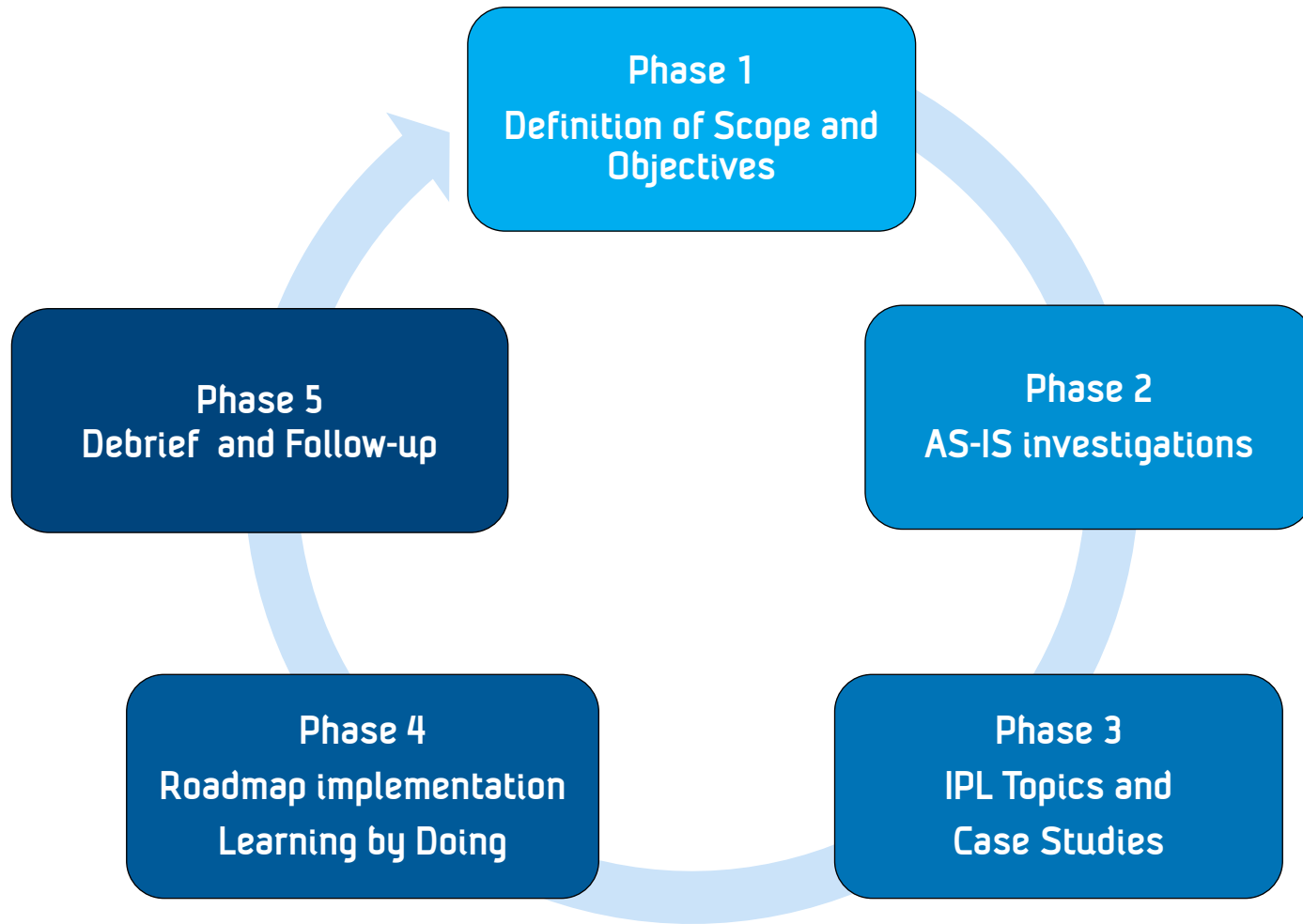
# The IPL Learning Lab main focus



- Establish a shared understanding and definition of Integrated Planning and Logistics (IPL)
- Identify main challenges related to IPL - within and across disciplines and organizations
- Identify recommendations for improved IPL practice according to the IPL model (i.e. technical & organizational enablers, human & cultural capabilities)
- Provide an arena for IPL advancement, facilitating experience exchange and R&D activities.
  - Including methods and tools
- Facilitate identification of key learning points and success-factors



# The IPL Learning Lab Phases



# IPL Learning Lab Toolbox



Definition of scope and

## The IPL Toolbox

- The IPL Model
- The IPL Screening Tool
- The IPL Handbook
- The IPL eBook
- Interactive Resources (App ...)
- IPL Workshops
- IPL Storyboard

De-brief and Follow

Introduction to IPL  
descriptions

Learning by doing

IPL Topics/ case studies  
To-Be descriptions