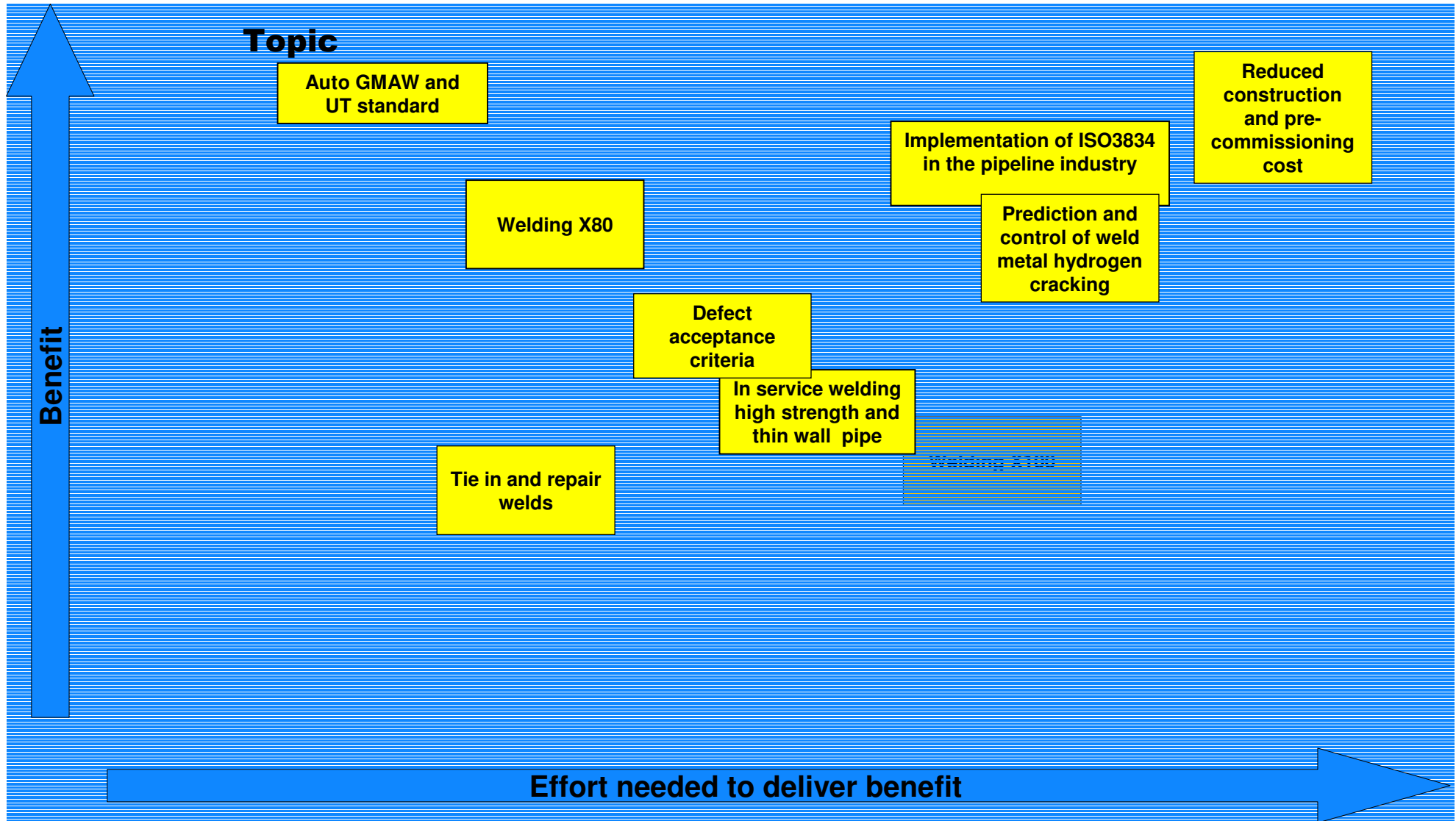


WORKSHOP GROUP REPORT- BACK



- **Group Topic:** Welding and construction
- **Overall aims and objectives:**
 - To identify and prioritise technology gaps in field welding and construction of pipelines
 - To provide solutions addressing the gaps
- **Co-Chairs:** Roger Howard / Leigh Fletcher
- **No of Attendees:** 17
- **Top 3-4 R&D Gaps:**
 - **1.** A dedicated auto GMAW and AUT standard.
 - **2.** Welding contractor and personnel competence
 - **3.** Welding of X80 pipelines
 - **4.** Defect acceptance criteria – rationalisation and decreased conservatism

WORKSHOP GROUP REPORT - BACK
RANKING OF NEEDS/GAPS, BENEFITS AND EFFORT



- **R&D Need/Gap No 1:** - The absence of a specialised Standard for procedure qualification and production welding for automated/ mechanised GMAW and AUT
- **Current status of technology:** A large part of the necessary technology is established. Some standards and company specs are established, e.g. Z662. But existing standards attempt to cover all welding methods.
 - **Deliverables and tasks required to address the need/gap:**
 - Production of an industry guideline taking into consideration:
 - existing company national and international standards
 - input from relevant welding and NDT contractors, pipeline contractors and pipeline owners
 - defect acceptance criteria
 - Areas for inclusion in the guideline include:
 - all weld metal qualification
 - workmanship standards for AUT, ECA,
 - personnel competency and operator qualification etc
 - Development of an ISO standard based on the guideline
- **Who benefits?** Everybody

- R&D Need/Gap No 2: - Implementation of ISO3834 in the pipeline industry
- **Current status of technology:** The standard covers the control of welding and fabricator competence and individual personnel competence and experience. The standard already exists it only needs implementation in the pipeline industry. There will be difficulties in implementation because of perceived cost increases and availability of skilled personnel.
- **Deliverables and tasks required to address the need/gap:**
 - Encourage pipeline owners to include in construction and supply contracts.
 - Include the requirement in the appropriate standards and guidelines .
- **Who benefits?** Pipeline owners

- R&D Need/Gap No 3: - Welding of X80 pipelines

- **Current status of technology:** In conventional design pipelines the technology is already mainly developed, however there can be issues in achieving matching strength. The barrier to overcome is the perceived higher technical risk of welding X80 pipe (at decision maker level including construction contractors). The Workshop Team agreed that this perception is misplaced. The application to strain based design requires development.

- **Deliverables and tasks required to address the need/gap:**
 - A formal technical and economic risk assessment report aimed at decision makers.
 - Guidelines for the welding of X80 pipe
 - different design conditions, e.g. strain based design
 - different welding processes

- **Who benefits?** Everybody

- R&D Need/Gap No 4: - Defect acceptance criteria
- Current status of technology:
 - various assessment methods available
 - Excessive conservatism with different test methods
 - Treatment of residual stresses – probably conservative (especially for plastic collapse)
 - No agreed method for assessing overmatching
- Deliverables and tasks required to address the need/gap:
 - Rationalisation of the assessment methods
 - Development of agreed method for defining and measurement of matching / overmatching
 - Treatment of residual stresses.
 - For brittle fracture
 - For plastic collapse
- Who benefits? Everybody