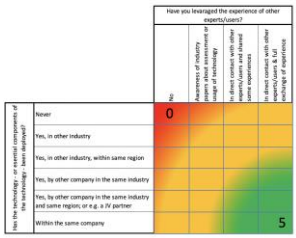
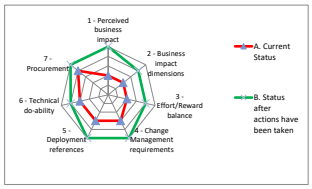
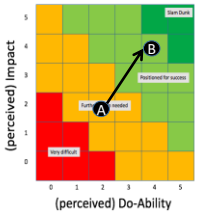
TECHNOLOGY STRESS TEST by Deployment Matters - version 5.0
For background about the Technology Stress Test, see: https://www.deploymentmatters.com/technology-stress-test/

Technology: Non intrusive inspection As a group: Operator with one asset & small number of vessels

	Give a score of 0-5 based on the criteria below. Assess the current situation, as well as the status once recommended actions have been taken.	A. Current Status	Comments/recommended actions	B. Status after actions have been taken
1 - Perceived business impact	Who is the specific person to whom you are 'selling' the technology? How significant is the impact for this specific person, on a scale of 0-5?	2	Target: Tar manager: Action: Impact analysis	5
2 - Business impact dimensions	0. The technology is not competitive with conventional solutions that can be applied to improve performance. 1. The technology improves performance on one metric [HSE, cost, production]; but has a negative impact on the other two. 2. The technology improves performance on two metrics [HSE, cost, production]; but has a negative impact on the other. 3. The technology improves performance on one metric [HSE, cost, production]; and keeps performance on the other metrics constant. 4. The technology improves performance on two metrics [HSE, cost, production]; and keeps performance on the other metric constant. 5. The technology improves HSE performance AND cost AND production performance.	2	1) Have you the real data & facts, 2) Identify impact; 3) apply impact analysis	4
3 - Effort/Reward balance	0. One part of the company using the technology gets the benefits; other teams/people involved are negatively impacted; the regular service provider sees a reduction of revenue. 1. One part of the company using the technology gets the benefits; other teams/people involved have no benefits; the regular service sees a reduction of revenue. 2. The company using the technology gets the benefits (all teams/people); the regular service sees a reduction of revenue. 3. The company using the technology gets the benefits; the regular service has no benefits. 4. The company using the technology gets most benefits; the regular service benefits as well to an extent. 5. Balanced rewards across all players.	2	Time invested to ensure risk reward beift	4
4 - Change Management requirements	Give 1 point for each item met. Take into account overall complexity/scale. - Can the technology be deployed without making any changes to the hardware of the facilities? If not, what actions are needed? Are these minor changes, or is it a project in itself? - Does the technology make use of existing data, IT hardware and integration? If not, what changes are needed? - Is the technology compatible with current processes/ways of working? If not, articulate what will have to be done differently. Would this e.g. require training of people? - Can the technology be covered from existing budgets? If not, what is needed to get the budget? Does it e.g. have to follow an annual budget cycle, with impact on timing for the deployment? - Is the technology in line with local rules & regulations? If not, does this require changes to the technology, or a dialogue with the regulator to change the rules & regulations?	3	Off-shore role out	5
5 - Deployment references	Is there experience already with the technology, or a technology of similar nature? Can you leverage experiences from other users, such that the acceptance level within your organisation goes up? Use the matrix to guide the discussion and determine the score of 0-5.ndustry AND you are in direct contact with the users to hear more about the experience. 	3	Joint collaboration, speaking with other Operators, OEM's & contractors. Revie	5
6 - Technical do-ability	Give a score 0-5 based on the below. - Are the product specifications supported by evidence? - Is the technology suitable for the specific application? Do in-depth technical review/studies confirm the applicability? - Is the technology in line with industry standards? - Does the technology have the explicit support from the relevant expert? Is his/her opinion (widely) known and do you make use of the review when promoting the technology? Is the view accepted by the end-users? - Does the user have the capability and know-how to support the technology deployment and to sustainably embed the technology?	3	TA review, enguage supplior, confirm industry standard...	4
7 - Procurement	Give 1 point for each item met. - Are there multiple suppliers for this technology? - Are tendering requirements being met? - Can the technology be obtained through a contract with an existing supplier, either directly or indirectly? - Does the supplier already have a presence in the relevant country? - Is usage of the technology in line with the Procurement key performance indicators?	4	Enguage procurement team to ensure tender requirements are met & KPI.	5

TECHNOLOGY:





Impact: take the lowest of Themes 1 and 2
Do-ability: take the lowest of Themes 3-7

Place dots and arrow manually based on scores

Key actions/recommendations:

1 Impact analysis

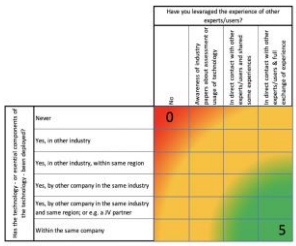
2 Sharingknowledge and information across companies & supply chain

3 Establish technology data base, operator verified...

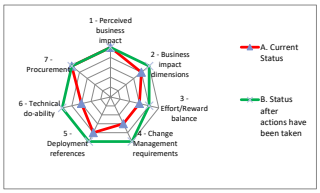
4 Establish industry standard or best practice

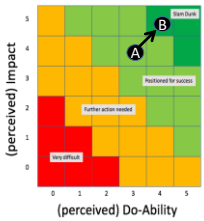
5 ...

TECHNOLOGY STRESS TEST by Deployment Matters - version 5.0
For background about the Technology Stress Test, see: https://www.deploymentmatters.com/technology-stress-test/
Technology: Analytics on rotating equipment

	Give a score of 0-5 based on the criteria below. Assess the current situation, as well as the status once recommended actions have been taken.	A. Current Status	Comments/recommended actions	B. Status after actions have been taken
1 - Perceived business impact	Who is the specific person to whom you are 'selling' the technology? How significant is the impact for this specific person, on a scale of 0-5?	5	No work required, company bought into potential impact of solution.	5
2 - Business impact dimensions	0. The technology is not competitive with conventional solutions that can be applied to improve performance. 1. The technology improves performance on one metric [HSE, cost, production]; but has a negative impact on the other two. 2. The technology improves performance on two metrics [HSE, cost, production]; but has a negative impact on the other. 3. The technology improves performance on one metric [HSE, cost, production]; and keeps performance on the other metrics constant. 4. The technology improves performance on two metrics [HSE, cost, production]; and keeps performance on the other metric constant. 5. The technology improves HSE performance AND cost AND production performance.	4	Assessment of safety critical elements.	5
3 - Effort/Reward balance	0. One part of the company using the technology gets the benefits; other teams/people involved are negatively impacted; the regular service provider sees a reduction of revenue. 1. One part of the company using the technology gets the benefits; other teams/people involved have no benefits; the regular service sees a reduction of revenue. 2. The company using the technology gets the benefits (all teams/people); the regular service sees a reduction of revenue. 3. The company using the technology gets the benefits; the regular service has no benefits. 4. The company using the technology gets most benefits; the regular service benefits as well to an extent. 5. Balanced rewards across all players.	3	Renegotiate contracts and incentivise suppliers.	4
4 - Change Management requirements	Give 1 point for each item met. Take into account overall complexity/scale. - Can the technology be deployed without making any changes to the hardware of the facilities? If not, what actions are needed? Are these minor changes, or is it a project in itself? - Does the technology make use of existing data, IT hardware and integration? If not, what changes are needed? - Is the technology compatible with current processes/ways of working? If not, articulate what will have to be done differently. Would this e.g. require training of people? - Can the technology be covered from existing budgets? If not, what is needed to get the budget? Does it e.g. have to follow an annual budget cycle, with impact on timing for the deployment? - Is the technology in line with local rules & regulations? If not, does this require changes to the technology, or a dialogue with the regulator to change the rules & regulations?	3	Master plan to utilise existing equipment / data and hold budget discussions / allocation of key resources. Transition plan required.	5
5 - Deployment references	Is there experience already with the technology, or a technology of similar nature? Can you leverage experiences from other users, such that the acceptance level within your organisation goes up? Use the matrix to guide the discussion and determine the score of 0-5.ndustry AND you are in direct contact with the users to hear more about the experience.  	4	Talk to other operators who have already deployed and utilised technology.	5
6 - Technical do-ability	Give a score 0-5 based on the below. - Are the product specifications supported by evidence? - Is the technology suitable for the specific application? Do in-depth technical review/studies confirm the applicability? - Is the technology in line with industry standards? - Does the technology have the explicit support from the relevant expert? Is his/her opinion (widely) known and do you make use of the review when promoting the technology? Is the view accepted by the end-users? - Does the user have the capability and know-how to support the technology deployment and to sustainably embed the technology?	3	Complete trials and provide training / structured deployment plan.	5
7 - Procurement	Give 1 point for each item met. - Are there multiple suppliers for this technology? - Are tendering requirements being met? - Can the technology be obtained through a contract with an existing supplier, either directly or indirectly? - Does the supplier already have a presence in the relevant country? - Is usage of the technology in line with the Procurement key performance indicators?	5	No work required other than ensuring the most capable vendor is selected.	5

TECHNOLOGY:





Impact: take the lowest of Themes 1 and 2
Do-ability: take the lowest of Themes 3-7

Place dots and arrow manually based on scores

Key actions/recommendations:

Assessment of safety critical elements.

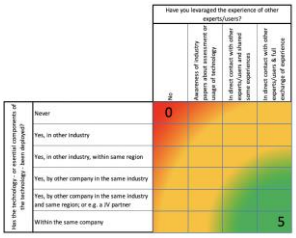
Renegotiate contracts and incentivise suppliers.

Master plan to utilise existing equipment / data and hold budget discussions / allocation of key resources.Transition plan required.
Talk to other operators who have already deployed and utilised technology.
Complete trials and provide training / structured deployment plan.

TECHNOLOGY STRESS TEST by Deployment Matters - version 5.0

For background about the Technology Stress Test, see: https://www.deploymentmatters.com/technology-stress-test/

Technology: ...

NON Intrusive Inspection Technologies	Give a score of 0-5 based on the criteria below. Assess the current situation, as well as the status once recommended actions have been taken.	A. Current Status	Comments/recommended actions	B. Status after actions have been taken
1 - Perceived business impact	Who is the specific person to whom you are 'selling' the technology? How significant is the impact for this specific person, on a scale of 0-5?	4	Engagment with Integrity Team / TAR coordinator to quantify potential TAR duration reduction	5
2 - Business impact dimensions	0. The technology is not competitive with conventional solutions that can be applied to improve performance. 1. The technology improves performance on one metric [HSE, cost, production]; but has a negative impact on the other two. 2. The technology improves performance on two metrics [HSE, cost, production]; but has a negative impact on the other. 3. The technology improves performance on one metric [HSE, cost, production]; and keeps performance on the other metrics constant. 4. The technology improves performance on two metrics [HSE, cost, production]; and keeps performance on the other metric constant. 5. The technology improves HSE performance AND cost AND production performance.	5	Evaluate if removes or reduces CSE requirement	5
3 - Effort/Reward balance	0. One part of the company using the technology gets the benefits; other teams/people involved are negatively impacted; the regular service provider sees a reduction of revenue. 1. One part of the company using the technology gets the benefits; other teams/people involved have no benefits; the regular service sees a reduction of revenue. 2. The company using the technology gets the benefits (all teams/people); the regular service sees a reduction of revenue. 3. The company using the technology gets the benefits; the regular service has no benefits. 4. The company using the technology gets most benefits; the regular service benefits as well to an extent. 5. Balanced rewards across all players.	2	Evaluate impact on associated contractors	4
4 - Change Management requirements	Give 1 point for each item met. Take into account overall complexity/scale. - Can the technology be deployed without making any changes to the hardware of the facilities? If not, what actions are needed? Are these minor changes, or is it a project in itself? - Does the technology make use of existing data, IT hardware and integration? If not, what changes are needed? - Is the technology compatible with current processes/ways of working? If not, articulate what will have to be done differently. Would this e.g. require training of people? - Can the technology be covered from existing budgets? If not, what is needed to get the budget? Does it e.g. have to follow an annual budget cycle, with impact on timing for the deployment? - Is the technology in line with local rules & regulations? If not, does this require changes to the technology, or a dialogue with the regulator to change the rules & regulations?	4	Consult with TA and seek endorsement / revised procedures	5
5 - Deployment references	Is there experience already with the technology, or a technology of similar nature? Can you leverage experiences from other users, such that the acceptance level within your organisation goes up? Use the matrix to guide the discussion and determine the score of 0-5.ndustry AND you are in direct contact with the users to hear more about the experience. 	4		4
6 - Technical do-ability	Give a score 0-5 based on the below. - Are the product specifications supported by evidence? - Is the technology suitable for the specific application? Do in-depth technical review/studies confirm the applicability? - Is the technology in line with industry standards? - Does the technology have the explicit support from the relevant expert? Is his/her opinion (widely) known and do you make use of the review when promoting the technology? Is the view accepted by the end-users? - Does the user have the capability and know-how to support the technology deployment and to sustainably embed the technology?	3	Case-by case. Undertake relevant assessment for applicability to each vessel	5
7 - Procurement	Give 1 point for each item met. - Are there multiple suppliers for this technology? - Are tendering requirements being met? - Can the technology be obtained through a contract with an existing supplier, either directly or indirectly? - Does the supplier already have a presence in the relevant country? - Is usage of the technology in line with the Procurement key performance indicators?	4		5

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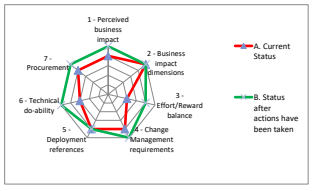
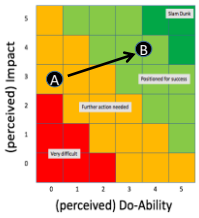




Impact: take the lowest of Themes 1 and 2
Do-ability: take the lowest of Themes 3-7

Place dots and arrow manually based on scores

Key actions/recommendations:

Engagment with Integrity Team / TAR coordinator to quantify potential TAR duration

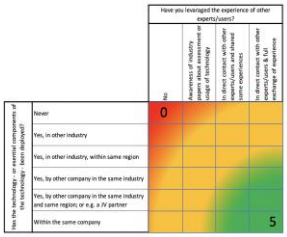
Evaluate if removes or reduces CSE requirement

Evaluate impact on associated contractors

Consult with TA and seek endorsement / revise procedures

Case-by case. Undertake relevant assessment for applicability to each vessel

TECHNOLOGY STRESS TEST by Deployment Matters - version 5.0
For background about the Technology Stress Test, see: https://www.deploymentmatters.com/technology-stress-test/
Technology: Spoolable pipelines

	Give a score of 0-5 based on the criteria below. Assess the current situation, as well as the status once recommended actions have been taken.	A. Current Status	Comments/recommended actions	B. Status after actions have been taken
1 - Perceived business impact	Who is the specific person to whom you are 'selling' the technology? How significant is the impact for this specific person, on a scale of 0-5?	3	Discuss with development team, major impact on CAPEX and installation time Discuss with subsea lead, M&I teams on impact on life cycle and OPEX	5
2 - Business impact dimensions	0. The technology is not competitive with conventional solutions that can be applied to improve performance. 1. The technology improves performance on one metric [HSE, cost, production]; but has a negative impact on the other two. 2. The technology improves performance on two metrics [HSE, cost, production]; but has a negative impact on the other. 3. The technology improves performance on one metric [HSE, cost, production]; and keeps performance on the other metrics constant. 4. The technology improves performance on two metrics [HSE, cost, production]; and keeps performance on the other metric constant. 5. The technology improves HSE performance AND cost AND production performance.	3	Reduction in installation time improving performance impacting HSE, prove benefits on production uptime.	5
3 - Effort/Reward balance	0. One part of the company using the technology gets the benefits; other teams/people involved are negatively impacted; the regular service provider sees a reduction of revenue. 1. One part of the company using the technology gets the benefits; other teams/people involved have no benefits; the regular service sees a reduction of revenue. 2. The company using the technology gets the benefits (all teams/people); the regular service sees a reduction of revenue. 3. The company using the technology gets the benefits; the regular service has no benefits. 4. The company using the technology gets most benefits; the regular service benefits as well to an extent. 5. Balanced rewards across all players.	3	Raise awareness of contractors, share return of experience across the industry emphasing the potential for unlocking stranded assets and more developments. Industry-wide qualification of technology. Help with the creation of an industry	4
4 - Change Management requirements	Give 1 point for each item met. Take into account overall complexity/scale. - Can the technology be deployed without making any changes to the hardware of the facilities? If not, what actions are needed? Are these minor changes, or is it a project in itself? - Does the technology make use of existing data, IT hardware and integration? If not, what changes are needed? - Is the technology compatible with current processes/ways of working? If not, articulate what will have to be done differently. Would this e.g. require training of people? - Can the technology be covered from existing budgets? If not, what is needed to get the budget? Does it e.g. have to follow an annual budget cycle, with impact on timing for the deployment? - Is the technology in line with local rules & regulations? If not, does this require changes to the technology, or a dialogue with the regulator to change the rules & regulations?	1	- Major changes for installation, qualification, inspection procedures Industry-wide qualification of technology to bring answers, leveraging experience of other basins	5
5 - Deployment references	Is there experience already with the technology, or a technology of similar nature? Can you leverage experiences from other users, such that the acceptance level within your organisation goes up? Use the matrix to guide the discussion and determine the score of 0-5.ndustry AND you are in direct contact with the users to hear more about the experience. 	2	Engagement with operators/vendors/contractors who have the experience	4
6 - Technical do-ability	Give a score 0-5 based on the below. - Are the product specifications supported by evidence? - Is the technology suitable for the specific application? Do in-depth technical review/studies confirm the applicability? - Is the technology in line with industry standards? - Does the technology have the explicit support from the relevant expert? Is his/her opinion (widely) known and do you make use of the review when promoting the technology? Is the view accepted by the end-users? - Does the user have the capability and know-how to support the technology deployment and to sustainably embed the technology?	2	Industry guidelines, get support of industry stakeholders (OGTC). Continuous return of experience on previous deployments.	4
7 - Procurement	Give 1 point for each item met. - Are there multiple suppliers for this technology? - Are tendering requirements being met? - Can the technology be obtained through a contract with an existing supplier, either directly or indirectly? - Does the supplier already have a presence in the relevant country? - Is usage of the technology in line with the Procurement key performance indicators?	5		5

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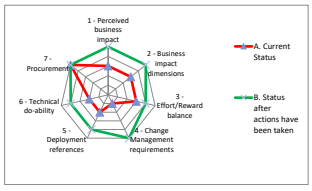

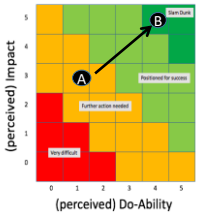

Impact: take the lowest of Themes 1 and 2
Do-ability: take the lowest of Themes 3-7

Place dots and arrow manually based on scores

Key actions/recommendations:

1 ... Industry-wide qualification of the technology

2 ... Understand the behaviour of the technology over the life cycle and decommissi

3 ...

4 ...

5 ...