Digital Transformation and Cyber Risk for Energy Leaders

GExperts Learning Academy | EX-072 | EX | 2 days

Course overview

2 days EX programme focused on Digital Transformation and Cyber Risk for Energy Leaders, using energy-sector cases and applied decisions.

Designed for: Learners appropriate to the stated programme level

Learning outcomes

- Explain core principles and terminology for Digital Transformation and Cyber Risk for Energy Leaders.
- Interpret an applied case using evidence and stated assumptions.
- Identify risks, safeguards, role boundaries and escalation points.
- Prepare a clear recommendation for a multidisciplinary audience.

Course guide

Work through each module objective, lesson and teaching note, complete the applied activity and assessment, then use the separate Academy practice page for practice questions and answer feedback.

Separate practice questions:
https://www.globalexpertsconsultoria.com/training/academy/courses/questions/?course=EX-072

Academic and certification status

Draft learning resource for study and review. It does not confer accreditation, external certification, a regulated qualification, professional licence, safety-critical competence or site authorisation. Confirm approvals, current laws, standards, approved procedures and awarding-body requirements before delivery.

Module 1: Digital twins and model purpose

Learning objectives

- Explain digital twins and model purpose, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital twins and model purpose
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. A digital twin is a purpose-driven digital representation connected to an asset or process through defined data and update arrangements. Distinguish a static drawing, an analytical model and a maintained operational representation.

Decision logic. Specify the decision, fidelity, data, validation and ownership before investing. A visually convincing twin can be wrong. Evaluate model drift and consequences of incorrect recommendations. Integration with control or maintenance requires governed change and human accountability.

Worked example. A fictional pump twin predicts wear but has not been updated after a major overhaul.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Define a twin use case and a validation and update plan.

Model answer guide. Include decision value, measurements, acceptance evidence, versioning and human review.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Define a twin use case and a validation and update plan.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 2: Artificial intelligence in operations

Learning objectives

- Explain artificial intelligence in operations, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Artificial intelligence in operations
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. AI can support classification, anomaly detection and forecasting when data and evaluation match the intended task. Explain training data, validation, error and drift. A confident output is not evidence of correctness.

Decision logic. Use a decision-impact assessment and compare against a simpler baseline. Keep humans accountable for consequential choices. Avoid sensitive data in prompts and do not connect models to live controls through this course. Define fallback when data shift.

Worked example. A model trained on one pump type gives frequent false alarms on a different design.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Create an evaluation plan with error costs and a human review route.

Model answer guide. Include representative test data, false positives and negatives, drift monitoring and clear limits.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Create an evaluation plan with error costs and a human review route.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 3: OT and ICS cybersecurity awareness

Learning objectives

- Explain ot and ics cybersecurity awareness, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of OT and ICS cybersecurity awareness
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Operational technology controls physical processes, so availability, safety and predictable operation are central. Explain assets, zones, connections, remote access and dependencies conceptually. Security controls must be coordinated with operational and safety requirements.

Decision logic. Use a tabletop risk assessment on fictional architecture. Inventory, controlled access, segmentation, backup and recovery are discussion topics, not permission for live changes or scanning. Approved change and incident procedures govern actual systems.

Worked example. An unrecorded remote-support connection bypasses the fictional architecture's reviewed access path.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Identify risk and propose review questions without touching any real network.

Model answer guide. Request asset ownership, approved access route, monitoring, recovery and safety coordination.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Identify risk and propose review questions without touching any real network.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 4: Information security management systems

Learning objectives

- Explain information security management systems, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Information security management systems
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. An ISMS establishes governance for protecting information through risk management, responsibilities, controls and continual improvement. Define scope, interested parties and information assets before selecting controls. This is original awareness content informed by the supplied implementation proposal.

Decision logic. Connect risk treatment, documented decisions, monitoring, audit and corrective action. Obtain licensed standards for formal implementation and verify external certification requirements with the relevant body. This course does not award PECB or ISO certification and reproduces no official examination.

Worked example. A fictional academy protects student records through defined access, retention and incident responsibilities.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Draft an ISMS scope, three risks and a treatment review plan.

Model answer guide. Require risk owners, justified treatments, evidence, review and escalation; distinguish organisational certification from personal credentials.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Draft an ISMS scope, three risks and a treatment review plan.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 5: Petroleum policy and institutional governance

Learning objectives

- Explain petroleum policy and institutional governance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Petroleum policy and institutional governance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Policy sets objectives, institutions assign authority, and governance creates accountability for decisions and resources. Explain government, regulator and state enterprise roles conceptually without asserting an unverified current Namibian structure.

Decision logic. Separate commercial participation from regulatory judgement and manage conflicts transparently. Define decision rights, disclosure, assurance and challenge. A strong governance design includes implementation capacity and an audit trail, not just an organisation chart.

Worked example. A fictional institution both promotes investment and evaluates its own project compliance, creating a conflict to manage.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Draft a responsibility matrix and conflict-management controls.

Model answer guide. Identify segregated decisions, independent review, declarations and public accountability where applicable.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Draft a responsibility matrix and conflict-management controls.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 6: Digital Transformation and Cyber Risk for Energy Leaders: Data ar

Learning objectives

- Explain digital transformation and cyber risk for energy leaders: data and performance, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital Transformation and Cyber Risk for Energy Leaders: Data and Performance
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Digital Transformation and Cyber Risk for Energy Leaders: Data and Performance describes a practical part of Digital Transformation and Cyber Risk for Energy Leaders. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for digital transformation and cyber risk for energy leaders: data and performance. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans digital transformation and cyber risk for energy leaders: data and performance while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for digital transformation and cyber risk for energy leaders: data and performance: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for digital transformation and cyber risk for energy leaders: data and performance: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 7: Digital Transformation and Cyber Risk for Energy Leaders: Applied

Learning objectives

- Explain digital transformation and cyber risk for energy leaders: applied case, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital Transformation and Cyber Risk for Energy Leaders: Applied Case
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Digital Transformation and Cyber Risk for Energy Leaders: Applied Case describes a practical part of Digital Transformation and Cyber Risk for Energy Leaders. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for digital transformation and cyber risk for energy leaders: applied case. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans digital transformation and cyber risk for energy leaders: applied case while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for digital transformation and cyber risk for energy leaders: applied case: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for digital transformation and cyber risk for energy leaders: applied case: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 8: Digital Transformation and Cyber Risk for Energy Leaders: Commu

Learning objectives

- Explain digital transformation and cyber risk for energy leaders: communication and escalation, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital Transformation and Cyber Risk for Energy Leaders: Communication and Escalation
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Digital Transformation and Cyber Risk for Energy Leaders: Communication and Escalation describes a practical part of Digital Transformation and Cyber Risk for Energy Leaders. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for digital transformation and cyber risk for energy leaders: communication and escalation. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans digital transformation and cyber risk for energy leaders: communication and escalation while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for digital transformation and cyber risk for energy leaders: communication and escalation: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for digital transformation and cyber risk for energy leaders: communication and escalation: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 9: Digital Transformation and Cyber Risk for Energy Leaders: Knowle

Learning objectives

- Explain digital transformation and cyber risk for energy leaders: knowledge check, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital Transformation and Cyber Risk for Energy Leaders: Knowledge Check
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Digital Transformation and Cyber Risk for Energy Leaders: Knowledge Check describes a practical part of Digital Transformation and Cyber Risk for Energy Leaders. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for digital transformation and cyber risk for energy leaders: knowledge check. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans digital transformation and cyber risk for energy leaders: knowledge check while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for digital transformation and cyber risk for energy leaders: knowledge check: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for digital transformation and cyber risk for energy leaders: knowledge check: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Module 10: Digital Transformation and Cyber Risk for Energy Leaders: Comp

Learning objectives

- Explain digital transformation and cyber risk for energy leaders: competence review, interpret a case, select appropriate controls and justify a documented decision.

Lessons

1. Purpose and key terms of Digital Transformation and Cyber Risk for Energy Leaders: Competence Review
2. Systems and operating context
3. Evidence, assumptions and decision gates
4. Hazards, safeguards and escalation
5. Applied case: Digital Transformation and Cyber Risk for Energy Leaders

Detailed teaching notes

Teaching notes

Core explanation. Digital Transformation and Cyber Risk for Energy Leaders: Competence Review describes a practical part of Digital Transformation and Cyber Risk for Energy Leaders. Learners connect the principles to asset performance, people, operational risk, project value and local context.

Decision logic. Review the objective, evidence, limits, interfaces and applicable controls for digital transformation and cyber risk for energy leaders: competence review. Decisions require current information, role-appropriate authority, competent review and documented assumptions.

Worked example. Use an applied Namibia-relevant case in which a team plans digital transformation and cyber risk for energy leaders: competence review while balancing safety, integrity, schedule, cost, environmental protection and local capability.

Facilitator prompts. Ask learners to distinguish verified facts from assumptions, identify who has decision authority, name stop-work triggers and state what evidence could change their recommendation. Compare technical, HSE, commercial and community perspectives.

Activity. Prepare a decision brief for digital transformation and cyber risk for energy leaders: competence review: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Model answer guide. A sound response defines scope; uses current, traceable evidence; applies approved requirements and controls; records assumptions; assigns competent owners; checks interfaces; and communicates a measurable decision with an escalation path.

Assessment evidence. Score accuracy (30%), use of evidence (20%), safeguards (20%), analysis (20%) and communication (10%).

Applied activity

Prepare a decision brief for digital transformation and cyber risk for energy leaders: competence review: scope, evidence, assumptions, hazards, safeguards, owner, decision gate and escalation trigger.

Assessment

Formative: 10-question practice quiz with answer feedback

Summative: Applied decision brief or practical case assessed against the rubric; proposed pass mark 70%, subject to academic approval.

Practice

Use the separate Academy practice questions and answer key page for this module.

Facilitator close-out and resources

Facilitator close-out

Record attendance, assessment evidence, learner support needs, incidents and improvement actions according to approved provider processes. Do not sign learners off for regulated or safety-critical work without the authorised assessment and certification route.

Resources and references

- Supplied GExperts/IUM reference materials; verify reuse rights and currentness.
- Current applicable Namibian legislation, standards and approved site procedures supplied by the provider.
- Case worksheet and instructor slides must be produced and reviewed before course release.