

MILESTONE PLANNING AND RESEARCH, INC.

Innovation With Trust Occupational Standards Manual

Applied Artificial Intelligence Occupational Pathways—Occupations A-D

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Purpose and Scope

This manual defines the full competency standards for all four occupational pathways in the AI Innovation With Trust Program. Each competency is presented with its Know, Do, and Become standards; the evidence required for signoff; and its NIST AI RMF alignment. These standards are the authoritative reference for mentor/coaches, journey workers, assessors, faculty, and program auditors.

For each competency, signoff rules are as follows: Know requires a related instruction artifact demonstrating conceptual understanding. Do requires a real work product or quality gate artifact reviewed by the mentor/coach with direct observation of performance. Become requires a specific behavioral attestation — not generic praise and not an AI-drafted statement — describing what the mentor/coach actually observed in a real work context.

These occupational standards should be considered starting points and combined/modified to meet the specific roles and competencies required of the sponsoring organization.

Common Work Process Areas (All Occupations)

Work Process Area	Applies To	Examples of Work
AI orientation and source verification	All	Classify AI system type; check outputs against source data; document assumptions; escalate contradictions.
Data and signal quality assessment	All	Assess data readiness before deployment; identify missingness and distributional risk; refuse fragile data.
Human authority and governance	All	Map decisions to named human owners; define escalation paths; build override mechanisms.
Validation and falsification	All	Construct contradiction tests; specify failure conditions; run gestalt reliability reviews.
Project delivery and communication	All	Produce defensible deliverables; brief stakeholders with appropriate uncertainty communication.

Common Trunk Standards

Required by all five occupations. All trunk competencies must be attained before occupation-specific L3 and L4 competencies may be pursued.

T-2.1 2.1 Inductive Systems Literacy

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Distinguish AI system types (generative, forecasting, agentic, classification). Understand why probabilistic systems degrade silently under regime shift. Know that semantic fluency in AI output is not evidence of factual accuracy.	Written explanation, quiz, oral questioning, or module reflection.	8	GOVERN; MAP; MEASURE; MANAGE
DO	Classify problems as suitable or unsuitable for AI assistance. Identify when a system may be operating out of its training distribution. Separate AI output from personal judgment before presenting to any stakeholder.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	GOVERN; MAP; MEASURE; MANAGE
BECOME	A probabilistic thinker comfortable with calibrated uncertainty. Resistant to false certainty. Communicates confidence levels and limitations to stakeholders as a professional habit.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	GOVERN; MAP; MEASURE; MANAGE

T-2.2 2.2 Business Value Creation

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI creates durable value in high-frequency, bounded, measurable decisions. Know the primary AI failure patterns that destroy ROI: GIGO, bad process automation, over-trust in outputs, governance absence. Understand the inverse proportionality of trust and risk: as verified practitioner trustworthiness increases, residual deployment risk decreases proportionally. Know that the qualification card is both a trust instrument and a risk management instrument — and that occupations which include assessed risk management competency produce a compounding return on both channels.	Written explanation, quiz, oral questioning, or module reflection.	8	MAP
DO	Link AI use cases to measurable baseline outcomes. Estimate ROI and governance risk before deployment. Build plans including human override protocols and exit thresholds.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MAP
BECOME	Value-disciplined and outcome-oriented. Resistant to AI hype. Consistently distinguishes structural organizational advantage from temporary model novelty.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	MAP

T-2.3 2.3 Signal Quality and Data

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI amplifies data properties including bias, noise, and missingness. Know the distinction between narrative data and structured data and how each interacts with different AI architectures.	Written explanation, quiz, oral questioning, or module reflection.	8	MEASURE
DO	Assess data readiness before AI deployment. Validate data pipelines for missingness, staleness, and distributional shift. Refuse to automate workflows built on fragile or unverified data.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MEASURE
BECOME	Data-grounded by disposition. Unwilling to permit AI deployment on fragile data regardless of model capability claims or schedule pressure.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	MEASURE

T-2.4 2.4 Human Authority and Accountability

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that machines cannot carry accountability. Know the OODA loop: Orient and Observe can be AI-assisted; Decide and Act must remain under human authority. Understand the agentic delegation constraint.	Written explanation, quiz, oral questioning, or module reflection.	8	GOVERN
DO	Name the human who decides for every AI-enabled consequential process. Define escalation thresholds. Build override mechanisms. Specify delegation bounds before any agentic system runs.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	GOVERN
BECOME	Accountable under uncertainty. Slows closure when evidence is insufficient. Protects judgment structures against organizational pressure to automate irreversible decisions.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	GOVERN

T-2.5 2.5 Falsification and Vigilance

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know Popper's asymmetry. Understand that AI systems optimized for coherent output suppress uncertainty. Know the micro/gestalt distinction. Know Janis-Mann vigilance as the professional stance.	Written explanation, quiz, oral questioning, or module reflection.	8	MEASURE
DO	Build contradiction audits into standard workflows. Require gestalt reliability review before consequential use. Maintain falsification trails as formal artifacts. Treat anomalies as signals requiring investigation.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MEASURE
BECOME	Vigilant by disposition and design. Maintains professional skepticism under social and schedule pressure. Treats contradiction as a signal to investigate rather than a problem to resolve by consensus.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	MEASURE

T-2.6 2.6 Problem-Finding Mindset

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the distinction between problem-solving (reactive, AI-augmentable) and problem-finding (proactive, irreducibly human). AI systems optimized for presented problems create a systematic blind spot for unframed problems.	Written explanation, quiz, oral questioning, or module reflection.	8	GOVERN; MAP; MEASURE; MANAGE
DO	Set aside deliberate time to ask: what problem am I not being asked about? Maintain a personal problem log. Protect time for this activity against organizational pressure to keep producing outputs.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	GOVERN; MAP; MEASURE; MANAGE

Dimension	Standard	Evidence	RTI Hrs	NIST
BECOME	A practitioner as alert to problems not yet surfaced as to problems currently being worked. Known for identifying the important issue no one else had named.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	GOVERN; MAP; MEASURE; MANAGE

T-2.7 2.7 AI Security Awareness

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the AI-specific threat landscape: prompt injection, adversarial inputs, data poisoning, model inversion, training data extraction, and exploitation of AI system integrations. Understand that AI systems introduce attack surfaces distinct from traditional software and that security failures can be silent, delayed, and high-impact.	Written explanation, quiz, oral questioning, or module reflection demonstrating conceptual understanding of AI-specific threats.	8	GOVERN; MAP; MANAGE
DO	Identify and document AI-specific security exposures in own work products before delivery. Apply a security checklist to any AI deployment artifact: what inputs could be manipulated, what outputs could be poisoned, what integrations could be exploited. Flag security concerns to appropriate stakeholders as a standard practice.	Real work product, sprint deliverable, or quality gate artifact demonstrating security-aware practice reviewed by mentor.	10	GOVERN; MAP; MANAGE
BECOME	Security-aware by habit. Asks — before deployment and during operation — how this system could be manipulated and what the consequences of successful manipulation would be. Treats AI security as a practitioner responsibility, not solely an IT or security team function. Escalates anomalies that may indicate adversarial activity without waiting to be asked.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	GOVERN; MAP; MANAGE

T-2.8 2.8 AI-Enabled Innovation Judgment

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the distinction between AI adoption (doing existing things faster) and AI transformation (doing things not previously possible). Know what constitutes a genuine AI innovation opportunity versus a solution looking for a problem. Understand the mentor-apprentice thinking partnership as a structured mechanism for developing and validating novel AI applications.	Written reflection, structured discussion, or oral questioning demonstrating understanding of the adoption-transformation distinction and the thinking partnership model.	8	GOVERN; MAP; MEASURE; MANAGE
DO	Participate in at least one mentor-structured thinking partnership session directed at a novel AI application or pathway not yet established in the organization. Produce a work artifact — an opportunity brief, structured	Innovation artifact produced through the mentor-apprentice thinking partnership, traceable to a real organizational context. Must represent a novel application, not replication of established practice.	12	GOVERN; MAP; MEASURE; MANAGE

	proposal, feasibility assessment, or prototype framing — that represents the organization’s first documented approach to this specific AI application. The artifact must be traceable to a real organizational context.			
BECOME	Approaches AI work with an innovation orientation alongside a governance orientation — asking not just “is this safe and defensible?” but “what does this enable that was not previously possible?” Uses the mentor/coach relationship as a thinking partnership, not just a sign-off mechanism. Brings novel AI application ideas forward with appropriate rigor rather than waiting to be asked.	Mentor/coach attestation describing a specific instance of the thinking partnership in action: what novel AI application was explored, what the practitioner contributed, what governance considerations were raised without prompting, and what the organizational outcome was. Must describe joint reasoning.	8	GOVERN; MAP; MEASURE; MANAGE

T-2.9 2.9 AI-Assisted Decision Quality

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI output accuracy and AI-assisted decision quality are distinct and frequently diverge. Know the three decision-quality failure modes: confidence transfer (accepting AI confidence as evidence quality), domain gap (AI outputs lacking contextual knowledge required by the decision), and accountability diffusion (no named human takes responsibility for the AI-influenced outcome). Understand that trustworthiness is an emergent property of the complete socio-technical system.	Short written explanation, quiz, oral questioning, or module reflection demonstrating conceptual understanding.	8	GOVERN; MAP; MEASURE; MANAGE
DO	Before any AI-assisted output is used to inform a consequential decision, explicitly assess decision quality — not only output accuracy. Document whether the AI system’s domain knowledge is aligned with the decision context, whether the decision mode is appropriate for the stakes, and whether decision-makers have sufficient understanding of the system’s limitations to exercise independent judgment. Produce a decision quality assessment artifact for any high-stakes AI-assisted output.	Real work product, sprint deliverable, or quality gate artifact showing observable on-the-job performance reviewed by mentor.	10	GOVERN; MAP; MEASURE; MANAGE
BECOME	Consistently asks “does this AI output improve the decision?” before “is this AI output accurate?” — and treats these as different questions requiring different evidence. Recognized in the organization for catching the failure mode where a technically performing AI system is contributing to worse decisions.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	6	GOVERN; MAP; MEASURE; MANAGE

Organizational Context Competencies (T-2.10 through T-2.14) — Know Level Only

The following five competencies address the organizational governance context in which all AI work occurs. They are assessed at the Know level only. Do and Become dimensions are not applicable: framework selection, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner’s assessed role is awareness, navigation, and escalation. Every practitioner completes these competencies at L1 regardless of occupational pathway.

T-2.10 2.10 AI Risk Governance and Framework Integration Overview

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the major AI risk governance frameworks in current organizational use: NIST AI RMF 1.0 (GOVERN, MAP, MEASURE, MANAGE), ISO/IEC 42001, EU AI Act risk tiers, and applicable sector-specific guidance (OCC model risk, SEC AI disclosure, HIPAA AI implications). Know that no single framework is universally mandated and that organizations must select and adapt frameworks to their regulatory environment, risk tolerance, and AI deployment profile. Understand how the program’s occupational competency structure maps to NIST AI RMF core functions. Know that framework selection and integration is an organizational decision — the practitioner’s role is to work competently within the framework the organization has adopted and to recognize when a deployed AI system’s governance requirements fall outside the framework’s current coverage.	Written explanation or structured discussion identifying the organization’s primary AI governance framework(s), their core functions, and how the practitioner’s occupation maps to them. Assessment is knowledge-based; the organization is responsible for framework selection and integration.	8	GOVERN; MAP
DO	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner’s role is awareness, navigation, and escalation.	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN; MAP
BECOME	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner’s role is awareness, navigation, and escalation.	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN; MAP

T-2.11 2.11 AI Organizational Processes and Alignment

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI systems do not operate in isolation — they are embedded in organizational processes, workflows, and decision structures that	Written explanation or structured discussion identifying at least two organizational process	8	GOVERN; MAP; MANAGE

	<p>shape their actual impact. Know the key alignment failure modes: AI systems deployed without process redesign, AI outputs that bypass governance controls through informal channels, and AI deployments that are technically successful but organizationally rejected because adoption was not designed in. Understand that organizational process alignment is a shared responsibility between AI practitioners and operational management — the practitioner's role is to flag misalignments, surface adoption risks, and escalate when a deployment is proceeding without the organizational changes required to make it effective. Know the difference between a process that has been adapted for AI and a process where AI has simply been added.</p>	<p>alignment requirements relevant to the practitioner's occupation and describing the practitioner's role in surfacing and escalating misalignment.</p>		
DO	<p>N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.</p>	<p>Not assessed at Do or Become level. See Know evidence requirement.</p>	0	GOVERN; MAP; MANAGE
BECOME	<p>N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.</p>	<p>Not assessed at Do or Become level. See Know evidence requirement.</p>	0	GOVERN; MAP; MANAGE

T-2.12 2.12 AI Ownership, Oversight, and Accountability

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	<p>Understand that every AI system in production must have a named human owner accountable for its outputs, a defined oversight mechanism that monitors for performance degradation and misuse, and a clear escalation path when the system behaves unexpectedly. Know the three accountability gaps that most commonly produce AI governance failures: diffuse ownership (everyone is responsible, so no one is), monitoring without escalation authority (someone watches but cannot act), and accountability without capability (a named owner who lacks the technical understanding to exercise meaningful oversight). Know that the practitioner is accountable for the work products they produce and attest — but that system-level ownership and organizational oversight architecture are established by</p>	<p>Written explanation identifying the ownership, oversight, and escalation structure for at least one AI system relevant to the practitioner's current work context. If no such structure exists, the practitioner documents that gap and the appropriate escalation path.</p>	8	GOVERN

	the organization, not the individual practitioner. Know who owns the AI systems the practitioner works with, what the oversight mechanism is, and what the escalation path looks like.			
DO	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN
BECOME	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN

T-2.13 2.13 AI Policies, Procedures, and Organizational Training

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI governance depends on documented policies and procedures that are current, accessible, and enforced — not merely filed. Know the categories of AI policy that organizations operating AI systems should maintain: acceptable use policies, data handling and privacy procedures, model development and validation standards, incident response protocols, and training requirements for workers who interact with AI outputs in consequential decisions. Know that policy without training is governance theater: a practitioner who cannot locate, read, and act on the organization's AI policies is not governed by them regardless of whether they are formally in effect. Know the organization's current AI policies and procedures relevant to the practitioner's occupation. Know that policy maintenance and training program design are organizational responsibilities — the practitioner's role is compliance, flagging gaps, and escalation.	Written confirmation that the practitioner has located and read the organization's AI policies relevant to their occupation, with a brief summary of the key obligations those policies create for their role. If relevant policies do not exist, the practitioner documents that gap and the appropriate escalation path.	6	GOVERN; MANAGE
DO	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN; MANAGE

BECOME	<p>practitioner's role is awareness, navigation, and escalation.</p> <p>N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.</p>	<p>Not assessed at Do or Become level. See Know evidence requirement.</p>	0	GOVERN; MANAGE
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T-2.14 2.14 AI Regulatory Compliance and Legal Considerations

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	<p>Understand the current regulatory landscape affecting AI systems in organizational deployment: EU AI Act risk classification tiers and prohibited use categories; U.S. sector-specific AI guidance including OCC model risk management (SR 11-7), SEC AI disclosure expectations, EEOC guidance on AI in employment decisions, and FTC unfair or deceptive practice standards for AI-generated claims; state-level AI accountability legislation (Colorado, Illinois, Texas); and the applicability of existing privacy law (GDPR, CCPA, HIPAA) to AI systems that process personal data. Know that regulatory compliance determination is a legal and organizational function — the practitioner is not expected to provide legal advice or make compliance determinations. The practitioner's role is to recognize when a proposed AI deployment raises regulatory questions, document those questions specifically, and escalate them to the appropriate legal or compliance function before deployment proceeds. Know the escalation path for AI regulatory questions in the practitioner's organization.</p>	<p>Written explanation identifying at least two regulatory frameworks applicable to the organization's AI deployments, the primary compliance questions they raise for the practitioner's occupation, and the organizational escalation path for regulatory concerns. Assessment is knowledge-based. Legal compliance determinations are not part of this competency.</p>	8	GOVERN; MAP
DO	<p>N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.</p>	<p>Not assessed at Do or Become level. See Know evidence requirement.</p>	0	GOVERN; MAP

BECOME	N/A — This competency is assessed at the Know level only. Do and Become dimensions are not applicable: organizational governance framework, policy architecture, oversight structure, and regulatory compliance determination are organizational responsibilities. The practitioner's role is awareness, navigation, and escalation.	Not assessed at Do or Become level. See Know evidence requirement.	0	GOVERN; MAP
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Occupation A: Artificial Intelligence Analyst

Uses AI responsibly to improve analysis, decision support, productivity, source verification, and measurable business outcomes.

Risk Management Scope: output risk management — assessing the reliability and failure modes of AI-generated KPI's, Dashboards and metrics before deployment where it influences a decision. The analyst's risk responsibility is bounded to the analysis artifact.

A-A1 A1 Safe and Productive Use

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the difference between AI assistance and AI authority. Understand primary failure modes of LLMs (hallucination, overconfidence), forecasting models (regime shift blindness), and agentic workflows (delegation without accountability).	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Use AI for drafting, analysis, and summarization. Check every output against source before use. Document assumptions. Never present unreviewed AI output as personal professional judgment.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	An accountable AI user who strengthens rather than substitutes for independent judgment. Builds verification as a first habit. Consistently owns responsibility for every output presented.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

A-A2 A2 Contradiction Detection and Validation

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that plausibility is not truth. Know contradiction patterns by system type: hallucination, overconfident cones, spurious correlation. Understand the five AI quality dimensions: factual accuracy, logical coherence, scope appropriateness, calibration, and actionability.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Compare AI outputs against source data, prior decisions, and domain expertise. Ask explicitly: what evidence would contradict this? Apply all five quality dimensions before accepting any consequential AI deliverable. Escalate unresolved contradictions.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Contradiction-sensitive by professional habit. Less vulnerable to the authority of semantic fluency. Treats reasonable doubt as a professional obligation rather than an obstacle.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

A-A3 A3 Workflow Improvement and Value Measurement

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI creates durable value in high-frequency, bounded, measurable workflows. Know the difference between AI automation and AI augmentation. Know that human checkpoints improve reliability in production AI workflows.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP
DO	Identify tasks appropriate for AI assistance with documented rationale. Measure time saved, error reduced, and quality improved with pre/post baselines. Build human verification into AI-assisted workflows. Document which decisions require human authority.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP
BECOME	A disciplined adopter who measures the value AI produces. Maintains accountability. Willing to state that AI is not appropriate when evidence does not support deployment.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP

A-A4 A4 Quality Management of AI Deliverables

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI quality management is a pre-acceptance activity across five dimensions: factual accuracy, logical coherence, scope appropriateness, calibration, and actionability. Once acted upon, the quality management window closes.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Before accepting any AI deliverable for consequential use, apply all five quality dimensions explicitly. Document quality assessments for material-consequence outputs. Diagnose and address root cause of quality failures — not symptoms.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Treats AI output as the beginning of a quality management process. AI-assisted deliverables are more reliable than unassisted work because quality discipline is higher — not lower.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

E-E1 E1 Use Case Framing

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the use case qualification criteria: signal volume, measurability, economic leverage, governance risk, and decision reversibility. Understand AI-as-recommendation vs. AI-as-automation vs. AI-as-authority as three distinct deployment postures.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP

Dimension	Standard	Evidence	RTI Hrs	NIST
DO	Document workflow, decision type, data source, user population, and success metric before any use case proceeds. Apply use case qualification scorecard. Identify and document cases where AI is not the right tool.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP
BECOME	A disciplined problem framer resistant to solutionism. Outcome-oriented. Willing to say AI is not the right answer and capable of making the case with evidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP

E-E2 E2 Adoption and Trust Calibration

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that both over-trust and under-trust are adoption failures with distinct costs. Know the confidence transfer failure pattern. Know DOL related instruction standards for AI adoption support.	Written explanation, quiz, oral questioning, or module reflection.	6	MANAGE
DO	Design training and workflows that build calibrated trust — not maximum adoption. Build review routines into AI-assisted workflows. Track adoption metrics and contradiction reports as leading indicators.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MANAGE
BECOME	A trust calibrator who treats user feedback as a signal about system reliability. Builds AI capability proportionate to demonstrated evidence of reliability.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MANAGE

Occupation B: Artificial Intelligence Operations and Governance Specialist

Operates AI governance, policy, controls, monitoring, audit, risk management, and escalation functions for AI-enabled systems in organizational settings. As the primary risk occupation, Occupation B practitioners maintain the enterprise AI risk register, manage governance lifecycle risk, own project risk management for governance implementation programs, and communicate risk assessments to executive and board audiences. Because trust is proportionate to the inverse of residual risk ($\text{Trust} \propto 1/\text{Risk}$), the Occupation B practitioner produces a compounding double win: direct risk reduction through active risk management, and trust-channel risk reduction through the attested qualification card evidence.

B-B1 B1 Strategic AI Judgment

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand how AI changes the structure of organizational error: it scales human judgment including its biases, and degrades silently across regime shifts. Know the Gödel-Turing governance implication. Understand the Zero Constraint. Know the five AI project failure archetypes.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Require measurable outcomes — not capability demonstrations — before AI investment approval. Distinguish structural organizational advantage from model access. Require governance architecture before production deployment authorization.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	A vigilant decision architect. Resists AI theater. Protects organizational cognition. Comfortable governing under uncertainty rather than delegating to apparent model confidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

B-B2 B2 Competitive Advantage Through Proprietary Intelligence

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that base model access commoditizes rapidly and that durable AI advantage comes from proprietary data, domain-specific fine-tuning, and workflow integration. Understand how a proprietary narrative corpus produces a forecasting signal structurally unavailable to organizations using general-purpose models.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Audit organizational data assets for AI leverage. Build competitive strategy around proprietary data assets. Protect those assets contractually and operationally. Refuse to cede competitive intelligence to shared vendor infrastructure.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	Strategically data-conscious. Sees proprietary data as competitive moat requiring active defense. Resists vendor-mediated homogenization of organizational intelligence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed	4	MAP; MEASURE

Dimension	Standard	Evidence	RTI Hrs	NIST
		off from documentation alone.		

B-B3 B3 Human Authority Governance

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that judgment can be quietly delegated through AI framing without an explicit decision. Know the Premature Closure archetype. Understand the agentic delegation constraint: accountability cannot be distributed across a system architecture.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN
DO	Define explicitly who decides for every AI-enabled consequential process. Specify escalation thresholds. Require named human ownership for every irreversible commitment. Refuse to authorize AI deployment without a documented human override mechanism.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN
BECOME	An accountable governance practitioner who slows closure when evidence is insufficient. Protects human judgment structures against automation pressure regardless of organizational convenience.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN

C-C1 C1 Model Risk and Reliability Monitoring

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the six production AI failure modes: data drift, concept drift, distributional shift, specification error, integration failure, governance absence. Understand one-time validation vs. continuous production monitoring. Understand model drift as a lifecycle governance problem.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Establish validation standards before deployment. Build continuous monitoring protocols for distributional drift. Maintain audit trails. Classify findings as FATAL/WARN/INFO and enforce escalation protocols.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	Institutionally skeptical. Alert to silent failure modes. Treats anomalies as signals. Halts model runs on FATAL findings regardless of deadline pressure.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

C-C2 C2 Falsification Architecture

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the twelve contradiction audit dimensions for production AI systems. Understand the micro/gestalt distinction as a governance design principle.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Design contradiction audit layers for every production AI system under governance. Specify FATAL/WARN/INFO severity protocols with escalation paths. Build human gestalt review into production workflows. Track anomalies as open items with named owners.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	A Popperian practitioner who designs governance systems that reveal their own weaknesses. Challenges consensus when audit findings contradict expressed confidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

C-C3 C3 Explainability and Contestability

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that explainability is a governance condition — not a feature. Know the difference between a generated LLM rationale and traceable evidence provenance. Understand the formal contestability requirement in regulated environments.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Require traceable evidence provenance for every consequential AI recommendation. Establish contestability procedures. Reject narrative rationale as a substitute for evidence.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	A defender of organizational due process. Protects the right of affected parties to understand and formally challenge AI-influenced decisions.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

F-F1 F1 AI Initiative Charter and Governance Design

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the five documented AI project failure patterns. Understand the Gödel-Turing governance implication. Know the essential charter components: problem statement, measurable success criteria, scope boundary, AI system roles and output bounds, escalation thresholds, human override authority, data readiness confirmation, governance sign-off sequence.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN
DO	Author and formally authorize a governance charter before any AI initiative proceeds beyond scoping. Specify all charter	Real work product, sprint deliverable, or quality gate	8	GOVERN

Dimension	Standard	Evidence	RTI Hrs	NIST
	components. Sign personally. Version-control as a governed artifact.	artifact reviewed by mentor.		
BECOME	A sponsor who treats the charter as a governance instrument. Withholds authorization until human decision authority and measurable success criteria are present, regardless of schedule pressure.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN

F-F2 F2 AI Project Plan Management and Accountability

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the project plan as an active evidence instrument. Know the governing equations: issue closure ratio (closed/total) reflects real progress; ratio below 0.70 = even odds not reached; above 0.95 required for phase exit. Know Premature Closure and Perception Distortion archetypes. Know that AI-generated status reports amplify the properties of their underlying data.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MANAGE
DO	Require a plan with measurable milestone criteria. Review plan against objective evidence at a defined cadence. Require threshold evidence before approving phase exit. Verify underlying issue data before acting on AI-generated status summaries. Retain and exercise authority to stop or redirect.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MANAGE
BECOME	Evidence-sensitive by disposition. Reads status against the plan. Resists phase transitions under schedule pressure when evidence thresholds are not met. Understands that governance that cannot stop a failing initiative is not governing.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MANAGE

Occupation C: Artificial Intelligence Quality and Validation Specialist

Tests, validates, falsifies, explains, and assures AI-enabled systems and outputs as an independent quality function.

Risk Management Scope: technical and statistical risk quantification — AI testing and validation, failure mode analysis, out-of-distribution detection, model degradation monitoring, and the translation of technical risk findings into audit-ready evidence. Includes risk communication: converting quantitative risk assessments into language that non-technical stakeholders can act on.

C-C1 C1 Model Risk and Reliability (Validation Focus)

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the six production AI failure modes. Understand the difference between one-time validation and continuous quality assurance. Understand model drift as a quality lifecycle problem.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Establish validation standards. Build monitoring protocols for distributional drift. Maintain audit trails. Classify findings as FATAL/WARN/INFO and enforce escalation procedures consistently.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	Institutionally skeptical. Alert to silent failure. Treats anomalies as signals requiring investigation. Halts evaluation on FATAL findings regardless of deadline pressure.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

C-C2 C2 Falsification Architecture (Validation Focus)

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the twelve contradiction audit dimensions. Understand the micro/gestalt distinction as a validation design principle.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Design and execute contradiction audit layers. Specify and enforce FATAL/WARN/INFO severity protocols. Build human gestalt review into validation workflows. Track all anomalies as open items with named owners and resolution evidence.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	A Popperian practitioner who designs validation systems that reveal their own weaknesses. Challenges consensus when audit findings contradict expressed confidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

C-C3 C3 Explainability and Contestability (Validation Focus)

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Know the difference between a generated LLM rationale and traceable evidence provenance. Understand formal contestability requirements and when they apply.	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN; MEASURE
DO	Evaluate whether affected parties can understand the basis, limitations, and appeal path for any AI-influenced recommendation. Document findings. Require model cards for production systems.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN; MEASURE
BECOME	Refuses to certify AI-enabled decisions as explainable when the explanation cannot be traced to evidence. Declines black-box authority in contexts where accountability requires transparency.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN; MEASURE

V-V1 V1 Test Design

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand core AI test design principles: boundary conditions, adversarial cases, representative sampling, benchmark scope limitations, and acceptance threshold definition. Know the difference between in-sample evaluation and out-of-sample generalization assessment.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Design test plans specifying hypotheses, failure conditions, acceptance thresholds, and evidence required for release authorization. Document what a passing result looks like before running any test.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Approaches every AI output as a hypothesis requiring disciplined challenge rather than a result requiring presentation.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V2 V2 Benchmark Construction

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand benchmark validity requirements: representativeness, sampling bias, temporal leakage prevention, label quality, and performance metric limitations. Know the difference between a benchmark that measures operational performance and one that measures training-set familiarity.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Construct benchmark datasets and evaluation protocols aligned to the actual decision context and risk level. Document benchmark design choices and rationale.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE

Dimension	Standard	Evidence	RTI Hrs	NIST
BECOME	Resists vanity metrics. Demands benchmarks that reflect operational use under realistic conditions.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V3 V3 Falsification Engineering

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand Popperian falsification as an engineering discipline. Know the role of negative evidence, contradiction probes, and confidence calibration assessment. Understand the FATAL/WARN/INFO classification.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Build tests designed to disconfirm model claims. Document what evidence would change the recommendation. Export falsification audit results as separate structured artifacts.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Seeks disconfirming evidence before accepting plausible AI outputs. Treats the search for failure conditions as equal priority to performance measurement.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V4 V4 Contradiction Analysis

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the five contradiction types: data, logic, source, temporal, and policy contradiction. Know how to classify and escalate each type appropriately.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Run structured contradiction audits comparing AI outputs against source data, stated assumptions, prior model versions, domain expertise, and external constraints. Classify each finding by type and severity. Document all findings as open items.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Treats contradiction as a signal to investigate, not a defect to smooth over or reconcile by narrative.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V5 V5 Independent Verification and Validation

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand IV&V principles: separation of builder and reviewer roles, independent replication, traceability requirements, and auditor independence. Know that the OCC two-session rule — Initiator and Reviewer must run in separate fresh LLM sessions — is the architectural embodiment of auditor independence.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Perform independent review of AI outputs without access to the original developer’s reasoning process. Replicate material results from source data. Produce a validation report with explicit findings, limitations, and residual risks.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Maintains reviewer independence under delivery pressure. Declines to sign off on work that has not been independently verified, regardless of schedule or relationship pressure.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V6 V6 Explainability Assessment

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand explainability, interpretability, contestability, user comprehension requirements, model card documentation, and decision documentation standards for AI-enabled systems.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Evaluate whether decision-makers can understand the basis, limitations, and appeal path for any AI-enabled recommendation at the level required by the governance context. Document findings. Require model cards for production systems.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Refuses to certify AI-enabled decisions as explainable when the explanation cannot be traced to evidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

V-V7 V7 AI Assurance Reporting

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the structure of an AI assurance report: executive summary, system description, validation scope, methodology, findings by severity, residual risk, governance escalation path, and stakeholder communication requirements.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Prepare AI assurance reports that explicitly separate facts, assumptions, estimates,	Real work product, sprint deliverable, or quality gate	8	MEASURE

Dimension	Standard	Evidence	RTI Hrs	NIST
	computations, and recommendations. Address the right audience — technical, governance, and stakeholder — with appropriate language and detail for each.	artifact reviewed by mentor.		
BECOME	Communicates uncertainty clearly and proportionally. Does not let the need to present a positive finding drive report framing. Treats honest uncertainty communication as a professional obligation.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

Occupation D: Artificial Intelligence Developer

Builds AI-enabled systems using auditable, reproducible, governance-aware software engineering practices with human-in-the-loop architecture.

Risk Management Scope: works with AI to code, troubleshoot, validate and deploy new systems, deployment and system failure risk management — risk-aware system architecture, failure mode documentation, human override design, and project risk management for AI development cycles including scope, dependency, and integration risk when AI systems are used to code/develop other statistical learning systems.

D-D1 D1 Probabilistic System Engineering

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the distinct architectures and failure modes of forecasting models, Bayesian systems, LLMs, and agentic workflows. Know the co-integration vs. causation distinction. Understand regime shift as an engineering concern.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Build AI pipelines with version control and full reproducibility. Test across multiple regimes — not just in-sample. Implement the 12-dimension contradiction audit layer as a standard architectural component.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	Less impressed by benchmark performance than by behavior under regime shift. Treats reliability architecture as the system core — not as an afterthought added before launch.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

D-D2 D2 AI System Architecture and Computation Design

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the sequencing principle: statistical grounding precedes language model interpretation. Every quantitative signal must be fully computed and locked before any LLM is invoked. Understand the two-component architecture: deterministic computation layer + LLM interpretation layer within bounds it cannot modify. Know the design principle that statistical outputs establish boundaries that language model interpretation cannot override.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Separate computation layer from interpretation layer. Implement the two-layer pattern: compute first, interpret second, decide third. Build human override at every consequential decision point with a named override path.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	A reliability-first architect who preserves interpretability as a system design requirement. Considers human decision quality downstream as the primary system performance metric.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

D-D3 D3 Falsification Engineering (Developer)

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand falsification as an engineering discipline. Know the five Popperian checks for production AI: regime stationarity, forecast direction oscillation, ensemble weight concentration, signal-to-noise ratio decay, temporal performance drift. Understand FATAL/WARN/INFO severity classification.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Add contradiction audit layers to every production AI system. Export audit findings as separate structured output files. Test the falsification layer itself under adversarial conditions.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Asks 'Where can this be wrong?' with the same rigor as 'How accurate is this?' Builds systems that preserve doubt as a structural feature.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

D-D4 D4 AI Validation and Testing Engineering

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand AI test design principles: boundary testing, adversarial probing, temporal leakage prevention, walk-forward evaluation design, and validation economics. Know benchmark limitations.	Written explanation, quiz, oral questioning, or module reflection.	6	MEASURE
DO	Create formal validation plans, contradiction audit protocols, and reproducible test suites. Produce clean walk-forward evaluation records with documented methodology. Maintain a validation log as a governed project artifact.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MEASURE
BECOME	Treats validation as the critical path for production deployment. Refuses to present model performance without auditable, reproducible evidence.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MEASURE

D-D5 D5 Governance-Aware Software Engineering

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand NIST AI RMF requirements for software engineering: audit trail design, explainability requirements, human override patterns, logging standards, intermediate output materialization, and control evidence documentation. Know the intermediate output compliance mandate: agentic	Written explanation, quiz, oral questioning, or module reflection.	6	GOVERN

Dimension	Standard	Evidence	RTI Hrs	NIST
	systems must materialize auditable files before downstream consumption.			
DO	Build AI-enabled systems with traceable outputs, materialized intermediate files at every governed stage, monitoring logs, escalation paths, and human authority checkpoints. Implement the intermediate output compliance mandate in all agentic architectures.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	GOVERN
BECOME	Designs for accountability and auditability from the first architecture decision. Treats governance as a structural system property.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	GOVERN

D-D6 D6 Governed AI Development Practices

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the OCC development principles: reproducibility, dependency management, version control, deterministic computation boundaries, and statistical integrity. Know that reproducibility requires that any result can be re-derived from source data using documented code and parameters without undocumented intermediate steps.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Produce auditable intermediate CSV or JSON files at every governed pipeline stage. Maintain complete computational lineage from raw data to final output. Document all assumptions explicitly. Defend every generated number from first principles.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	8	MAP; MEASURE
BECOME	Acts as a developer who can explain, reproduce, and defend each result produced by any AI-enabled system they built or maintain. Treats undocumented outputs as ungoverned outputs.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

D-D7 D7 Human-in-the-Loop Architecture

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand two-layer AI system architecture, escalation design patterns, human authority specification, contestability mechanisms, and the principle that autonomous system scope must be bounded by design. Know that AI-assisted interpretation cannot override or modify the deterministic computation layer.	Written explanation, quiz, oral questioning, or module reflection.	6	MAP; MEASURE
DO	Implement review checkpoints at every consequential AI-enabled decision point where a human must examine evidence	Real work product, sprint deliverable, or quality gate	8	MAP; MEASURE

Dimension	Standard	Evidence	RTI Hrs	NIST
	before action is taken. Build override and appeal procedures with named human owners. Document the boundary between autonomous execution and required human judgment.	artifact reviewed by mentor.		
BECOME	Recognizes where autonomous execution must stop and accountable human judgment must resume. Treats the human-machine boundary as an architectural requirement.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation in a real work context. Cannot be signed off from documentation alone.	4	MAP; MEASURE

Occupation E: Artificial Intelligence Business Process Architect

Maps current-state processes to AI transformation opportunities; designs AI-enabled future-state processes with measurable revenue or cost impact; uses AI to build AI-enabled solutions; owns the business case from discovery through value realization. Business-value realization is a signoff competency in this occupation — not a course topic.

Risk Management Scope: views AI from a business process perspective much like a six-sigma practitioner including investment analysis, business process transformation, and strategic risk management — business case risk analysis, transformation project risk management, realized value risk monitoring, and the governance of AI initiatives from approval through measured outcome. The BPA's risk accountability is the broadest in the program: they are responsible for whether the AI investment produced the projected return net of all risks that materialized.

P-P1 P1 Business Process Discovery and Value Mapping

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand process mapping methods (swim-lane, SIPOC, value stream mapping) and how to score a process for AI transformation readiness across five dimensions: decision frequency, data availability, measurability, reversibility, and economic leverage. Know how to calculate a baseline value at stake. Understand the difference between automating a bad process (destroying value) and redesigning a process around AI capability (creating it).	Short written explanation, quiz, oral questioning, or module reflection.	8	MAP
DO	Map a current-state business process from first-principles observation. Score it against the five AI readiness dimensions. Calculate the value at stake with a documented baseline. Produce a process discovery report that a senior executive can read in 10 minutes and use to make a resource decision.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MAP
BECOME	A process discoverer who goes to where the work happens rather than relying on stated descriptions. Consistently finds the decision that no one had framed as a decision. Produces baselines that survive scrutiny because they are built from observation, not assumption.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation. Cannot be signed off from documentation alone.	6	MAP

P-P2 P2 Business Case Design and ROI Architecture

Dimension	Standard	Evidence	RTI Hrs	NIST
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KNOW	Know how to build a two-sided AI business case: a cost-reduction model and a revenue-creation model. Understand that AI business cases fail most often from unmeasured baselines, missing counterfactuals, and confounded attribution. Know how to design a business case that isolates AI's contribution from other concurrent changes.	Short written explanation, quiz, oral questioning, or module reflection.	8	MAP; MEASURE
DO	Build a structured AI business case with a documented baseline, intervention hypothesis, measurement design, projected outcomes with explicit assumptions, sensitivity table, and risk register. Express the case in terms a CFO will recognize: NPV, payback period, and probability-weighted expected value.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MAP; MEASURE
BECOME	A business case architect who kills weak cases before they reach sponsors. Asks "What would make this wrong?" before "What would make this work?"	Specific behavioral attestation by mentor/coach or journey worker based on direct observation. Cannot be signed off from documentation alone.	6	MAP; MEASURE

P-P3 P3 Future-State AI Process Design

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the design principles for AI-enabled processes: where AI generates a recommendation (human decides), where AI executes within bounds (human monitors), and where AI acts autonomously (human audits). Know the OODA loop redesign pattern: AI compresses Orient and Observe; human authority is preserved at Decide and Act.	Short written explanation, quiz, oral questioning, or module reflection.	8	GOVERN; MAP
DO	Design a future-state AI-enabled process with explicit role assignments at every decision point, defined AI output bounds, human override mechanisms, escalation thresholds, and audit trails. Walk the design through a structured failure mode review before presenting to sponsors.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	GOVERN; MAP
BECOME	Designs AI-enabled processes that make the humans in them more capable — not just faster. Refuses to design a process where AI authority exceeds what governance structures can audit.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation. Cannot be signed off from documentation alone.	6	GOVERN; MAP

R-R1 R1 Value Measurement and Business Outcome Tracking

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the difference between activity metrics (prompts run, processes automated) and outcome metrics (revenue generated, cost reduced, cycle time improved). Know how to design a measurement system that isolates AI's contribution. Know the four-stage value	Short written explanation, quiz, oral questioning, or module reflection.	8	MEASURE; MANAGE

	realization model: baseline → prototype test → pilot → production.			
DO	Design and implement a measurement system for an AI-enabled process transformation that tracks outcome metrics with documented baselines, measurement intervals, attribution methodology, and reporting format accessible to a non-technical executive sponsor. Produce a value realization report that a CFO can use to make a portfolio investment decision.	Real work product, sprint deliverable, or quality gate artifact reviewed by mentor.	10	MEASURE; MANAGE
BECOME	Refuses to declare success on activity metrics alone. Holds the AI initiative accountable to the business case that justified it. Has delivered a value realization report that showed less value than projected and communicated that clearly to the sponsor with a root cause analysis.	Specific behavioral attestation by mentor/coach or journey worker based on direct observation. Cannot be signed off from documentation alone.	6	MEASURE; MANAGE

Q-Q1 Q1 AI-Assisted Solution Development

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand how to use AI tools (coding assistants, process automation platforms, no-code/low-code AI builders, prompt-chaining frameworks) to accelerate the development of AI-enabled solutions. Know the difference between AI-assisted prototyping (fast, exploratory, useful for validating a business hypothesis) and AI-assisted production development (governed, reproducible, auditable). Understand that AI-assisted development compresses the time from business hypothesis to working prototype from weeks to hours — and that this speed advantage is only valuable if the prototype is tested against real business conditions, not just technical benchmarks.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	MAP; MEASURE
DO	Use AI coding and automation tools to build a working prototype of an AI-enabled process component in a sprint of five days or less. Test the prototype against the baseline conditions identified in the process discovery. Document what the prototype demonstrated, what it failed to demonstrate, and what the next development iteration requires. Distinguish clearly between prototype results and production claims.	Real work product reviewed by mentor with direct observation of performance.	10	MAP; MEASURE
BECOME	Uses AI-assisted development as a thinking tool rather than a production shortcut. Builds fast to learn, not fast to ship. Has a reliable instinct for when a prototype is revealing something genuine about the business problem versus when it is performing competence without testing the real constraint.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	MAP; MEASURE

Q-Q2 Q2 Prompt Architecture and AI Workflow Design

Dimension	Standard	Evidence	RTI Hrs	NIST
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KNOW	Understand prompt engineering as a design discipline: system role design, context injection, output format specification, chain-of-thought elicitation, and multi-step workflow orchestration. Know the difference between a prompt that produces a plausible output and one that reliably produces a governed output — where parameters are documented, output format is testable, and failure modes are known. Understand the intermediate output compliance mandate: every agentic AI workflow must materialize auditable artifacts at each governed stage before downstream consumption.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	GOVERN; MAP
DO	Design and document a multi-step AI workflow for a real business process, specifying system role, context injection method, output format and validation criteria, intermediate materialization points, failure mode handling, and human review checkpoints. Test the workflow against adversarial inputs. Produce a prompt architecture document that a second practitioner could reproduce and modify without access to the original designer.	Real work product reviewed by mentor with direct observation of performance.	10	GOVERN; MAP
BECOME	Treats prompt architecture as engineering, not craft. Designs workflows that can be read, reproduced, tested, and governed by someone other than the designer. Consistently materializes intermediate outputs as auditable artifacts rather than passing unverified AI output directly to downstream steps.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	GOVERN; MAP

Q-Q3 Q3 Automation Platform and Integration Architecture

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the landscape of AI automation and integration platforms: RPA + AI layers, no-code AI builders, API orchestration frameworks, and custom Python pipelines. Know how to select the right platform based on: required governance level, IT integration complexity, maintenance burden, total cost of ownership, and reversibility. Understand that platform selection is a governance decision — different platforms have different audit trail capabilities, override mechanisms, and failure mode profiles.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	GOVERN; MAP
DO	Select and document a platform architecture for an AI-enabled process transformation with explicit rationale across governance, integration, cost, and reversibility dimensions. Build a working integration between the AI component and at least one upstream or downstream business system. Produce an integration architecture document that satisfies the IT governance review process of a mid-size enterprise.	Real work product reviewed by mentor with direct observation of performance.	10	GOVERN; MAP

BECOME	Makes platform decisions that the organization will not regret in two years. Resists the fastest platform and asks instead which platform the organization can govern, maintain, and exit from if the technology changes. Has recommended against a technically capable platform because its governance properties were insufficient for the risk level of the process.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	GOVERN; MAP
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R-R2 R2 Change Management and Adoption Architecture

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand that AI-enabled process transformation fails most often not in technology but in adoption. Know the Janis-Mann decision stress model applied to process change: workers under high-uncertainty conditions revert to familiar patterns even when the new pattern is demonstrably better. Know how to design adoption mechanisms that work with cognitive constraints: visible quick wins, progressive trust building, and feedback loops that demonstrate AI reliability in the worker's own experience.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	MANAGE
DO	Design and implement an adoption plan that includes: stakeholder impact analysis, role-specific training design, trust calibration mechanisms, feedback loop design, and escalation paths for workers who identify AI output quality problems. Track adoption not as training completion but as behavioral change — are workers actually using the new process correctly?	Real work product reviewed by mentor with direct observation of performance.	10	MANAGE
BECOME	Treats adoption as a design problem rather than a communication problem. Does not assume that rational people who understand a better process will automatically adopt it. Has redesigned a change management plan mid-rollout because behavioral observation showed adoption was not occurring as expected — and was willing to say so to the sponsor.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	MANAGE

R-R3 R3 Portfolio Management of AI Transformation Initiatives

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand how to manage a portfolio of AI transformation initiatives across multiple business processes: prioritization frameworks (value at stake vs. readiness score), resource allocation under constraints, sequencing logic, and portfolio-level risk management. Know how to report portfolio progress to a C-suite audience: what is on track, what is at risk, aggregate value realization against original forecast, and what decisions the executive needs to make.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	GOVERN; MANAGE
DO	Build and maintain an AI transformation portfolio with at least three concurrent initiatives, including a prioritization matrix,	Real work product reviewed by mentor with	10	GOVERN; MANAGE

	portfolio-level risk register, resource allocation model, and C-suite reporting dashboard. Present portfolio status to an executive audience with recommendations for resource reallocation based on current evidence. Defend prioritization decisions under questioning.	direct observation of performance.		
BECOME	Manages the AI transformation portfolio as a business investment portfolio — with the same discipline applied to stopping underperforming initiatives as to accelerating high-performing ones. Has recommended killing a significant AI initiative based on evidence and executed the wind-down cleanly. Known by executives as the person who will tell them what is actually happening, not what they want to hear.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	GOVERN; MANAGE

S-S1 S1 Competitive Differentiation Through AI Process Innovation

Dimension	Standard	Evidence	RTI Hrs	NIST
KNOW	Understand the sources of durable competitive advantage from AI process transformation: proprietary data assets, process designs that competitors cannot quickly replicate, network effects built on AI-generated intelligence, and organizational capability that cannot be purchased from a vendor. Know the difference between AI adoption (doing what competitors are doing) and AI innovation (redesigning processes in ways competitors have not considered). Understand that the most valuable AI process innovations are often invisible to competitors because they are embedded in the organization's data, workflows, and decision culture.	Written explanation, quiz, oral questioning, or reflection demonstrating conceptual understanding.	8	MAP; MANAGE
DO	Identify at least one AI process transformation opportunity that produces a competitive advantage the organization can defend for at least 18 months. Document why competitors cannot quickly replicate it. Build the case for why the organization should prioritize this opportunity over higher-volume but more easily replicated alternatives. Present the strategic case to senior leadership.	Real work product reviewed by mentor with direct observation of performance.	10	MAP; MANAGE
BECOME	Thinks about AI transformation not as a technology deployment but as a competitive strategy. Asks 'What does this enable us to do that our best competitor cannot easily do?' before asking 'What can AI do here?' Has shaped the organization's AI transformation roadmap based on competitive positioning logic rather than technology availability logic.	Specific behavioral attestation by mentor or journeyworker based on direct observation. Must describe a specific incident. Cannot be signed off from documentation alone.	6	MAP; MANAGE