

FROM LITERATURE TO EXPERT REFINEMENT

Phase 1 Foundations for a Competency Development Model for
Aviation Medicine Instructor Physicians in Thailand

Findings from documentary analysis and two expert focus-group sessions · Building on ICASM 2025, Singapore

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Why this matters

The gap, the response, and the pathway from Singapore to Bangkok

1

THE GAP

ICAO requires competency for medical examiners — but no role-specific framework exists for the physicians who teach future AMEs.

2

THE RESPONSE

A doctoral study developing a context-specific competency development model for Thailand.

3

ICASM 2025

Documentary analysis (1957–2024) produced an initial framework of 24 competency components.

4

PHASE 1

Two focus groups with 10 experts refined 24 into 28 components and identified 12 candidate promoting factors.

Scope: these findings are specific to Phase 1 — not yet a validated credentialing or regulatory model.

Research design and Phase 1 method

A three-phase qualitative doctoral study at Sukhothai Thammathirat Open University

PHASE 1 · COMPLETED

Documentary analysis + two expert focus-group sessions

→ competency components and candidate promoting factors

PHASE 2 · IN PROGRESS

Expert in-depth interviews

→ draft model: principles, objectives, development approaches, success conditions

PHASE 3 · PLANNED

Expert appraisal

→ utility · feasibility · propriety · accuracy

Phase 1 method: 10 purposively selected experts — military and civilian aviation medicine, medical education, pedagogy · two sessions ~1 week apart · discussion guide content-reviewed by 3 experts · verbatim transcription, open coding, thematic categorization · “consensus” used only under a predefined, documented rule.

Phase 1 results: an expert-refined component framework

Expert discussions refined the literature-derived framework from 24 to 28 competency components

11

Knowledge components

Aviation medicine (6) · Pedagogy (4) ·
Integration (1)

10

Skill components

Classroom · Simulation · Workplace ·
Training-system leadership

7

Attribute components

Professional identity · Safety culture ·
Continuing development

24 literature-derived components → expert group refinement → 28 Phase 1 components

Key expert emphasis: integration of teaching, medicine and aviation — not isolated knowledge or technical performance.

Terminology: “components”, not competencies, until behaviours, standards and conditions are developed; “attributes” are broader than the ICAO attitudes element.

How the 24-component framework was refined

Explicit pedagogical knowledge, broader skill scope, and consolidation of overlapping attributes

KNOWLEDGE · 6 → 11

- Six aviation-medicine components retained as the base
- Four pedagogical-knowledge components made explicit
- One tri-disciplinary integration component added

SKILLS · 9 → 10

- Teaching and clinical components clarified
- Scope expanded: classroom, simulation, workplace
- Leadership and scholarship strengthened

ATTRIBUTES · 9 → 7

- Overlapping attributes merged into seven clearer components
- Professional identity consolidated as integrative
- Safety culture commitment retained as distinct

Net +4 components · an audit trail will map every original item to retained / renamed / merged / split / added / removed — deliberately not called “validation”.

Twelve candidate promoting factors — a three-level system

Enabling conditions to be tested and refined — not yet causal critical success factors

LEVEL 1 • INDIVIDUAL

- Pedagogical foundation and readiness
- Self-efficacy, motivation, professional identity
- Psychological readiness and resilience
- Commitment to continuous learning

LEVEL 2 • ORGANIZATIONAL

- Structured curricula and faculty development
- Psychologically safe learning culture
- Leadership, resources, protected time
- Feedback, evaluation, continuous improvement

LEVEL 3 • EXTERNAL

- Regulatory and educational frameworks
- Digital learning, AI, telemedicine, simulation
- Professional and international networks
- Broader socio-regulatory system context

CAPSCA is relevant where the curriculum covers public-health preparedness in aviation — not a general instructor-certification standard.

Toward CBTA alignment: components into performance

PANS-TRG provides the process; Phase 1 provides candidate inputs — not a completed model

Candidate component	Safety culture commitment — identified by experts as particularly distinctive
Description	Promotes and models Just Culture in clinical and educational settings
Candidate behaviours	Timely reporting and learning from error · individual and system analysis · proportionate, accountable response
Development pathway	Competency statements → observable behaviours → criteria, conditions, standards → linked training and assessment
Potential regional value	A shared language for comparable AME-instructor development — subject to cross-State validation and adoption
Just Culture is not a no-blame culture: honest error supports learning; reckless or intentional conduct remains accountable.	

Phase 1 provides inputs — not a finished credentialing system

The evidence pathway separates current findings from later development, appraisal and implementation



Credentialing requires additional evidence: defensible standards, reliable assessments, standard-setting, governance and approval by responsible authorities.

The 28 components are candidate domains for developing behaviours and indicators — not assessment indicators in themselves.

What Phase 1 establishes — and what it does not

An explicit evidentiary boundary strengthens the study's academic contribution

PHASE 1 ESTABLISHES

- ✓ Expert-refined framework of 28 competency components
- ✓ Twelve candidate factors that may enable development
- ✓ A Thailand-specific evidence base for drafting the model
- ✓ Priority questions for later research phases

PHASE 1 DOES NOT YET ESTABLISH

- ✗ Validated performance standards or proficiency levels
- ✗ A reliable assessment, credentialing or certification instrument
- ✗ Causal effects or priority weights for the 12 factors
- ✗ ICAO, CAAT or APAC endorsement, transferability or adoption

Key limitations: purposive expert panel · Thailand-specific context · possible group and interpretive influences · traceability still to be fully reported · no psychometric or workplace-performance validation in Phase 1.

Next steps: develop, appraise, then test

A disciplined sequence toward a defensible development model and later competency-based application

PHASE 2

Nine expert interviews (5 Thai, 4 international) to draft the model's principles, objectives, approaches and success conditions.

PHASE 3

Expert appraisal of utility, feasibility, propriety and accuracy — transparent criteria, documented revisions.

POST-STUDY

Define behaviours and standards · design and pilot assessments · examine reliability, validity, fairness and governance.

Thai comparator: CAAT's CBTA guidance for ATC OJT instructors shows CBTA for an instructor role is workable in Thailand — a comparator, not adoption of this model; the aeromedical domain requires separate stakeholder and regulatory review.

A shared, evidence-informed language can strengthen those who train the region's aviation medical examiners.

The 28-Competency Framework of Thai Aviation Medicine Physician-Teachers

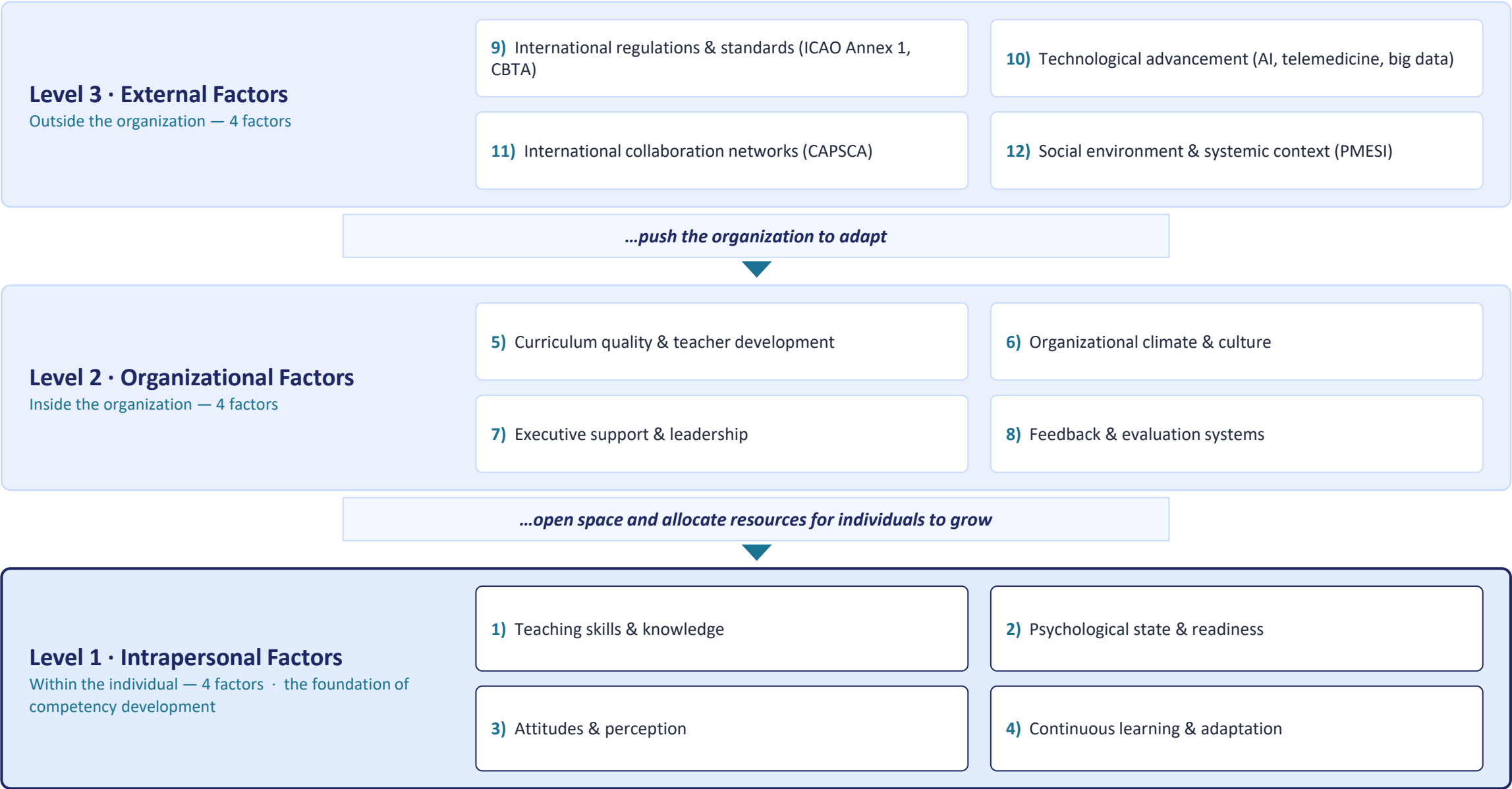
Figure 1 · Phase 1 findings — expert consensus · 3 domains, 28 components

Knowledge (K) — 11 What they must know	Skills (S) — 10 Fusing medical, aviation & teaching skills	Attributes (A) — 7 Identity: educator + aviation medicine physician
Group A · Aviation Medicine (6) 1) Aviation physiology 2) Aviation psychology & human factors 3) Aeromedical safety 4) Aviation medicine regulations 5) Operational aviation medicine 6) Aeromedical evacuation Group B · Educator Knowledge (4) 7) Learning theories 8) Curriculum design & instructional technology 9) Learner & curriculum evaluation 10) Research methodology & evidence synthesis Integrative Core (1) 11) Integration of the three disciplines (medicine · aviation · teaching)	1) Classroom teaching 2) Simulation-based teaching 3) Fitness-to-fly (aeromedical) assessment 4) Risk analysis & crisis management 5) Quality improvement & safety leadership 6) Academic writing & dissemination 7) Communication skills 8) Teamwork & mentoring 9) Project leadership & management 10) Problem diagnosis & data-driven decision-making	1) Professionalism 2) Ethics 3) Commitment to safety culture 4) Passion for teaching & lifelong learning 5) Empathy 6) Understanding & accepting cultural differences 7) Accountability & perseverance

K + S + A — one integrated whole: all three domains are fused inseparably within the aviation medicine physician-teacher.

Factors Promoting Competency Development — a Three-Level Interconnected System

Figure 2 · Phase 1 findings — expert consensus · 3 levels, 12 factors



THANK YOU

Questions and perspectives from other States are most welcome.

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