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SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

Executive Intelligence: What AI Reveals About the Nature of Expertise

Lessons from the Field

Insights from Future of Innovation Lab x
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NEED:
AI power has multiplied multifold over the past few decades. Our understanding and practice of expertise must keep pace.

OPPORTUNITY:
Executive Intelligence offers insights grounded in what we and others are doing and researching. Each piece is short and laser-tight focused on a big topic. In this piece, we outline how expertise is being reshaped by AI.

01 **Expertise Is No Longer In the Head**

02 **Forget the Ladder - Think Library**

03 **AI Reconfigures Judgement and Trust**

BIG TOPIC:

What does AI reveal about how expertise really works—and what must we do differently to thrive?

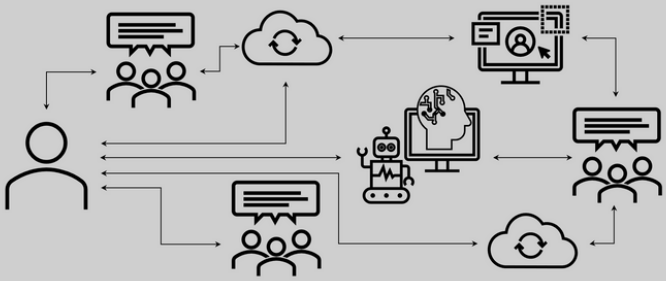
NEED:
AI is evolving at breakneck speed. But while most attention is on what AI can do, the deeper disruption is in what we now mean by expertise, a foundational concept for how organisations hire, train, evaluate, and lead. As decisions become more distributed and systems more complex, the question of who is considered an expert and on what basis becomes central to talent strategy, operational agility, and long-term adaptability.

For too long, organisations have treated expertise as fixed and individual—something to acquire, test, and certify. But our workplaces, powered by human-machine systems, demand something else entirely. Mastery, in the modern workplace, is distributed across a wide network of different human and technological agents.

> **How must we redesign learning, collaboration, and leadership to keep pace not just with AI, but with how expertise itself is changing?**

OPPORTUNITY:
This insight draws from ethnographic research conducted by SUTD across factories, trading floors, and classrooms. These were not surveys or simulations, but deep field engagements observing how people actually work with algorithms, sensors, and smart tools.

What we found is simple and powerful: **expertise today is not individual, it is distributed.** It moves across people, machines, systems, and environments. We call this **Distributed Mastery.** This shift requires to open doors for new talent, new approaches to upskilling, and more inclusive, adaptive forms of leadership.



Hence below we discuss three key insights on what AI reveals about how expertise really works and what we must do differently to thrive:

01 **Expertise Is No Longer In the Head**

02 **Forget the Ladder - Think Library**

03 **AI Reconfigures Judgement and Trust**

01 Expertise Is No Longer in the Head

Across contexts, we found that mastery does not reside in individuals alone, nor is it confined to someone's brains or body. Instead, it emerges from distributed intelligence that spans people, tools, environments, and interactions. In one smart factory, a junior technician monitored machine output through digital dashboards. A veteran technician leaned in and said that experienced workers could often detect anomalies earlier than these sensors, sometimes through subtle auditory cues others missed.

In a high-frequency sports trading firm, traders interpreted algorithmic odds through a mix of model insights and what they called the "X-factor": intuition informed by years of embedded practice. This wasn't nostalgia. It was **co-calibration** between human gut feel and machine prediction.

We call this **Distributed Mastery**. It is a way of working where human and machine intelligences combine and inform each other through data, intuition, interpretation, and decision.

02 Forget the Ladder - Think Library

Old metaphors of learning frame expertise as a ladder: stepwise, individual, and sequential. But in AI-infused work environments, that model breaks down. Tasks shift dynamically, knowledge flows laterally, and mastery often comes from knowing how to navigate systems, not just ascend them.

Instead, think of expertise as a library, a system that requires navigation. The best workers are those who know how to search, who to ask, what to trust, and when to adapt. They do not aim to know everything. They aim to know how to move within complexity. Upskilling is not the entire answer to this, since it is a primarily individual exercise. Understanding and knowing how to interact with this network of expertise becomes foundational.

Organisations that invest in navigation—not just acquisition—will be better prepared for fast-changing environments.

03 AI Reconfigures Judgement and Trust

AI does not just introduce a new actor. It reshapes participation and requires **new forms of interactions.** In one SUTD classroom, students used GPTs not to get answers, but to test hypotheses, refine research questions, and simulate opposing viewpoints. Some students who had been less vocal in traditional settings became more engaged when interacting with AI to explore ideas and refine questions, suggesting new ways of participating in learning. Educators became facilitators of AI-augmented learning journeys.

In factories and trading rooms, AI did not replace workers but it reallocated judgement. Roles changed. Interactions changed. And so did the flow of trust.

> **Thoughtfully designed AI systems don't displace—they invite new actors in. But only if we design for that.**

Closing Thought

Expertise is no longer something an individual must acquire and protect. It is something to cultivate, share, and evolve in interaction with others and with machines. In every organisation, there are moments when someone pauses to ask not just what AI can do, but what it means for how we learn, trust, and make sense of complexity.

These are design moments. And they are leadership moments.

Expertise goes beyond what you hold. It is how you navigate, co-create, and lead in a landscape shaped by intelligence in many forms. **Those capable of navigating and interacting with this network of Distributed Mastery hold an important key to the future of innovation.**