"Secret of Secrets": Why innovation system is a crucial component of transdisciplinary education

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During one of my workshops on the fundamentals of innovation, I asked students whether they thought it was possible not to innovate. One replied, quite sincerely: "I think it's better not to innovate, because innovation is too complex and brings too many uncertainties." This answer, though seemingly naive, holds some truth. Innovation is not simply about generating ideas or turning them into products—it is an intervention within a network of social relations and processes that determine whether an invention succeeds and what impact it will have. Ralph Waldo Emerson once wrote: *"the journey is as important as the destination."* This applies perfectly to innovation: its secret lies not in the brilliance of an idea, but in how it is brought to life. True innovation begins with understanding the context—the system of relationships and conditions that shape an idea's evolution. Behind every successful innovation is a journey of learning, interaction, and adaptation within this system.

Why does the concept of an innovation system provide a strong foundation for transdisciplinary education? For the past five years, through various teaching activities I have introduced students—among them four TISE cohorts—to the complexity of innovation systems. Each time, I seek new ways to help learners internalize this concept as part of their empowerment. Transdisciplinary education aims to empower individuals to develop solution-oriented innovation strategies for complex problems. Yet here lies a paradox: people are fascinated by complexity but also find it abstract and intimidating. The very phrase "complex innovation system" often evokes something incomprehensible—beyond human grasp. This is where teaching innovation systems becomes transformative: it turns theoretical complexity into a living environment that supports those who create and act within it.

Innovation systems provide a strong conceptual and theoretical basis for transdisciplinarity, while transdisciplinarity enhances the applied relevance of innovation systems—keeping them from becoming purely theoretical constructs of complexity. An innovation system provides a prism for reflecting on and designing innovation strategies and interventions. It reshapes how innovation agents think, perceive, and decide, while building bridges for continuous exchange, integration, and co-creation of knowledge. The structure of an innovation system enables agents to recognize themselves as part of a broader whole, where collaboration is essential for anticipating viable, solution-oriented innovations. This is what can be nameed as empowerment—arising from a deep understanding of the surrounding system and one's place within it—a fundamental element of contemporary innovation practice and its "secret of secrets."

Analyzing a complex settings is never simple. How do we define the boundaries of such a system—and, consequently, the scope of its analysis? Identifying relevant stakeholders, collecting the factors that describing the situation's state—all these are correct steps that can be carried out using various research methods. Yet a crucial precondition precedes them all: developing an in-depth understanding, or rather an intuitive sense, of the situation being analyzed. Through teaching innovation systems, I have realized that the main outcome is not the mastery of terminology, recognition of key scholars, or proficiency in analytical frameworks and modeling. All these elements are essential, but they must go hand in hand with one crucial idea: innovation system is also a mentality—a way of thinking and cultivating this mindset should be a central outcome of empowerment-based teaching.

I CANNOT REVEAL TO STUDENTS THE "SECRET OF SECRETS" OF INNOVATION—BUT I CAN INSPIRE THEM TO REFLECT AND FORGE THEIR OWN PATH, BECAUSE EVERY JOURNEY TOWARD INNOVATION AND CHANGE BEGINS WITH DISCOVERING THE SECRET OF ONE'S OWN EMPOWERMENT.

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