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Intersection innovation combines concepts between multiple fields, generating ideas that leap in new directions

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POLICYMAKERS in Singapore continue to push ahead with the mission of strengthening the country's research and development (R&D) capabilities and encouraging greater innovation. One manifestation is the establishment of innovation funds in local universities to support technology incubators aimed at achieving the successful commercialisation of ideas and innovations.

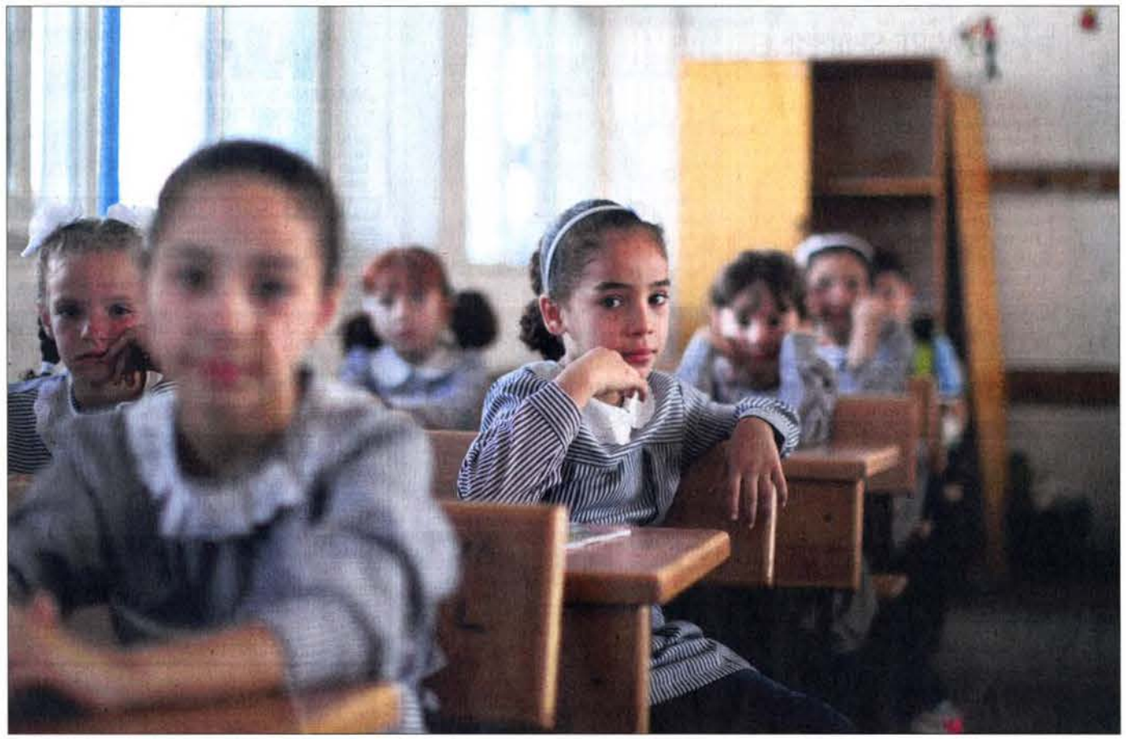
An underutilised opportunity to drive innovation is the strategic management of "intersectional innovation". Today, there are many innovation challenges which cannot be solved by one scientific discipline alone. Many questions relating to health, energy, climate change and others require thinking across different fields.

Learning to step into an intersection of fields, disciplines and cultures can generate a large number of extraordinary ideas for innovation. While this sounds good in theory, practising it can be a challenge for those responsible for making innovation work. One reason is the difficulty to motivate smart-knowledge workers to become more innovative.

One simple approach to introduce smart people to the mindset and logic of innovation potential at intersections is the Medici Board Game, based on the bestselling book *The Medici Effect* published by Harvard Business School Press a couple of years ago.

It was developed in cooperation with its author, Frans Johansson, and helps to explore confluences that occur when different ideas are combined to create insights which may lead to new strategies, products and services. Such confluences can be brought about coincidentally as well as systematically. Creating an environment for innovation is about creating the conditions for organisations in which intersectional learning and confluences can happen more easily.

The Medici Game (developed by a Swedish learning tool developer) engages participants in discussions that lead them to challenge their beliefs and assumptions around good – or not so good – management practices for fostering innovation-friendly conditions and a creative environment. On the basis of small group discussions and with the help of engaging innovation cards, participants explore the intersections between different disciplines and fields of science.



Catch 'em young: *Learning to step into an intersection of fields, disciplines and cultures can generate a large number of extraordinary ideas for innovation. But practising it can be a challenge because smart people sometimes refuse to learn and to explore innovation potential.* PHOTO: AFP

Warm-up questions include: What are potential fields for intersectional innovation between ICT (infocomm technology) and medicine? How can biology inspire the automotive industry? How can people with different backgrounds and specialisations be innovative?

Intersections are places where ideas from different fields and cultures meet, leading (potentially) to an explosion of ideas and possibilities. What are the forces that are creating it and why is this type of innovation growing in importance? Innovation management experts distinguish between incremental and disruptive, intersectional ones.

According to Mr Johansson, combining concepts within a particular field can generate interesting ideas but that represents a somehow narrow approach because they evolve along a particular direction. Contrary to such "directional ideas", stepping into the intersection enables the combination of concepts between multiple fields, generating "intersectional ideas" that leap in new directions.

Examples with commercial potential include electronic healthcare services (based on the interdisciplinary collaboration between biomedical and infocomm technologies), such as Singapore's electronic health records initiative, Volvo's vision to develop a collision safety system for cars based on the African grasshopper's ability to not collide when it flies in swarms, or the ongoing efforts by urban planners, ICT experts and futurists to come up with smart city models where all city-wide subsystems are interconnected via a communicative network of sensors, data and smart devices, enabling stakeholders to access real-time information on traffic conditions or faulty streetlights.

We can think of intersections as physical and mental spaces of innovation. Innovation is increasingly seen as a recursive process instead of the old view of innovation as commercialised invention based on technological or scientific knowledge. The recursive innovation model stresses the versatile feedback mechanisms and interactive relationships involving producers (companies), product users, scientific and technical research, development activities and supporting infrastructure. It is a model of continuous learning in which the actors in different fields learn from one another in interactive innovation processes.

Unfortunately, smart people sometimes refuse to learn and to explore innovation potential as evidenced by numerous research studies conducted by learning organisation experts. In many knowledge-intensive organisations, learning is often "single-looped" (a term coined by Harvard Business School professor emeritus Chris Argyris) qua improvements that rest on unchallenged, implicit assumptions. Attempts to identify and question underlying assumptions (Prof Argyris refers to this as "double-loop learning") and to debate alternatives, for example to the traditional approach of doing business, are often thwarted by organisational antibodies that can ultimately defeat innovation efforts.

One way of fostering a robust culture of learning and innovation is to initiate a novel approach towards effective communication on the basis of a structured dialogue, for example with the help of the Medici Board Game. Participants discover by themselves (rather than being told) intersectional innovation opportunities, which can lead to increased motivation and the willingness to change and to execute on innovation-related insights gained during the game phase (chances to do so increase when both leaders and followers regard this as a real strategic necessity; another requirement is the alignment of performance indicators and rewards).

Singapore continues to invest heavily into innovative forms of smart urban environments driven by a strong cross-disciplinary spirit. Examples include Fusionopolis (a mega-science facility aimed at stimulating multi-disciplinary knowledge creation between bioinformatics, molecular design, chemical engineering and ICT research) or the new Campus for Research Excellence and Technological Enterprise established by the National Research Foundation in collaboration with world-class research universities and corporate labs to nurture an "inventive, innovative and entrepreneurial economy".

Within these concrete structures and their diverse talent pools, value-added innovation does not just happen. It has to be effectively managed. The Medici experience can help to prepare professionals to see opportunities in intersections more clearly, thus creating more buy-in and increasing the capacity for effective innovation.

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