How and why clusters are made

INNOVATION

CLUSTERS CAN ACCELERATE INNOVATION BUT HOW DO THEY FORM? NEW RESEARCH BY THE PURDUE AGILE STRATEGY LAB PROVIDES PROMISING ANSWERS. DIRECTOR **ED MORRISON** EXPLAINS

Illustration by John Holcroft

In early 2007, two CEOs based in Milwaukee sparked the formation of a global water cluster.
It all started with a simple conversation. Paul Jones, chairman and CEO of AO Smith Corporation, was hosting a tour of his company's innovation laboratory for Rich Meeusen, president, CEO and chairman of Badger Meter. Mr Meeusen, an effusive, high-energy executive, painted a vivid picture of the Milwaukee region as a global leader in freshwater technology. To kick things off, Mr Meeusen proposed that his company, a leader in liquid flow measurement and control technologies, could collaborate with AO Smith, a global leader in water heating equipment. Mr Jones agreed, and they pushed forward. Within a couple of months, Milwaukee convened its first Water Summit.

Fast-forward one year, to 2008. At the second Water Summit, Sammis White, a professor at the University of Wisconsin-Milwaukee, delivered a detailed look at the region's fresh water technology companies. Mr White and his research team identified 120 water technology businesses. (The task of finding these companies was not trivial, because the US government has no industrial codes for fresh water technology companies.) While promising, the Water Summit White Paper sounded a cautionary note: developing a water cluster would not be easy. Many companies were small, and their diverse business goals might be difficult to align. "The speed of development that is needed will not come from small amounts of money," the paper warned. "The region needs all the public and private support that it can possibly muster to become a true global leader."

Mr White also asked Purdue Agile Strategy Lab to design a workshop within the second Water Summit. We took the opportunity to demonstrate a new approach to strategy incubating, called 'strategic doing'. Designed specifically for open, loosely connected networks, this discipline of simple rules guides participants to form complex collaborations quickly and move them toward measurable outcomes. During the course of the workshop, Mr Jones and Mr Meeusen combined the assets of their research laboratories with a sudden announcement. Their advanced research laboratories would be available to any start-up company in freshwater technology. Milwaukee had core labs for its first water technology incubator.

In at the deep end
Fast-forward to 2018. The civic leadership in Milwaukee has followed through on the promise. The Water Council has become a global hub for freshwater technology. The University of Wisconsin-Milwaukee now operates the School of Freshwater Sciences, the only graduate school of its kind in the US. A research centre brings together area universities to work with businesses and develop new technologies. An extensive network of educational partners develops education and training programmes with a wide range of internships and student chapters to promote the water industry. A new Global Water Center anchors a water technology district. When visitors enter the Global Water Center they immediately see smaller versions of the two research labs that Mr Jones and Mr Meeusen committed to sharing in 2008.

The story of the Water Council in Milwaukee illustrates how clusters form. Ever since Michael Porter at the Harvard Business School pointed to the importance of clusters to regional development, economic development practitioners, policymakers and academics have been struggling with the question of "How?" How do we stimulate the formation of clusters?

Answering the 'hows'
For the past 12 years, a small team within the Purdue Agile Strategy Lab has focused on this 'how' question. Our experiences include the transformation of the Oklahoma City economy; the launch of the Charleston Digital Corridor in Charleston, South Carolina; a clean energy cluster in Florida after the NASA shuttle shutdown; a digital hub, Shoals Shift, in north Alabama; an aerospace cluster in Rockford, Illinois; a cluster for unmanned aerial vehicles in New Jersey; and a cluster of New Jersey companies engaged with Lockheed Corporation on a project for the US navy. Our work has taken us to Germany, where we have collaborated with a team in technology and innovation management at Fraunhofer IAO.

With our experiences in designing and guiding cluster initiatives, we have accumulated a range of practical insights.

Successful clusters move through identifiable horizons as they develop
We have seen a distinctive pattern:

The conversation shifts. Innovation ecosystems begin to form with conversations among companies that share a similar 'competitive space'. These conversations typically focus on either common problems or opportunities that could emerge by linking and leveraging assets.

A new network forms. As more companies and organisations join these conversations, the connections among individuals become stronger. Participants become aware of an emerging network within the region. One or two organisations emerge as 'network hubs' that start to concentrate shared assets within the network.

A strategic agenda emerges. Members of the emerging network begin to focus on strategic opportunities. They learn how to move the network strategically to focus on specific, measurable and pragmatic outcomes. 'Strategic doing' has become an effective discipline to structure and guide these conversations.

Participants commit to anchor investments. As the ecosystem forms, members develop a strategic investment agenda: a portfolio of shared investments to accelerate innovation. The portfolio includes larger scale shared 'anchor investments'. The portfolio ranges from investments in talent; entrepreneurship and innovation support networks; new narratives to energise and expand the network; and quality, connected places such as incubators and research centres.

The cluster emerges as participants continue to invest, adapt and expand. Connections within the network become more dense and spontaneous. New anchor investments build out the infrastructure of the ecosystem. In addition, new, innovative networks emerge and connect as 'boundary spanning' firms connect with other firms, markets and opportunities.

Cluster investments are inherently collaborative.
Effective collaborations require persistent, deep, focused conversations that translate ideas into action: 'Doing the doable.' The leadership is distributed and shared within a core team. Leaders within the core team guide complex conversations. These conversations follow a pattern. They:

Begin with a promising hypothesis, clearly stated. Initial conversations are framed around aspirational but pragmatic ideas: authentic opportunities.

Uncover assets hidden in networks. Collaboration builds on assets that the participants are willing to share. These assets are hidden in networks. As they are revealed new opportunities emerge.

Link, leverage and align these shared assets. New, shared value emerges when participants configure their existing assets into new patterns.

Set investment priorities quickly and transparently. Simplicity and transparency in decisions generate both speed and trust, two key elements of a successful collaboration.

Focus on practical, measurable outcomes. In collaborations, vague visions do not move people to invest their time and assets. Agreeing on shared, measurable outcomes sounds easy, but it is not.

Experiment relentlessly to move forward. Collaborations grow when participants replicate, scale and sustain successful experiments.

Translate ideas into clear next steps in which all participate. Trust powers collaboration, and trust builds only when participants align their words with their actions. Commitments to action, not just leadership, are widely distributed. As they build trust, they move from an interested network (where they share interests, but they do not work together); to a learning network (where they help each other learn, but each with their own agenda); to an innovating network (where participants are working on an entirely new idea which promises shared value).

Clusters form fastest on well-designed platforms. While we cannot design and guide clusters or ecosystems, we can design and guide platforms on which they form. Increasingly, universities play a critical role in developing and managing these platforms.

Clusters form faster with a agile strategy discipline. As we teach the new discipline of strategy for networks, it becomes an operating system for open innovation. We have shown that as participants follow a set of simple rules, they become more productive.

Twenty-five years ago, Mr Porter first suggested the importance of connecting clusters to competitiveness. Over time our language has shifted to open innovation and ecosystems. The good news: we now know enough to scale and sustain these complex collaborations. They follow a clear trajectory and can be guided with simple rules. It is agile, open innovation. ∎

Ed Morrison is director of the Purdue Agile Strategy Lab, anchored in the School of Engineering Technology at Purdue University.