

## How SMEs upgrade in emerging market clusters: Taiwan's world-champion bicycle industry

How do small to medium-sized firms (SMEs) in industry clusters in emerging markets upgrade to higher-value activities? What linkages among firms and institutions inside and outside the cluster provide the necessary knowledge? A recent case study\*\* offers some answers. It tells how a high-value cluster arose around the Taiwanese bicycle industry. Here, SMEs gained the knowledge to upgrade from both vertical (supplier–customer) and horizontal (competitor–competitor, or SME–institution) linkages. How they achieved this may hold lessons for industry clusters in other markets, as global value chains (GVCs) concentrate within regions and specific geographical locations.

Clusters – think Silicon Valley – are high-value geographic concentrations of firms in a sector supported by institutions such as links to business associations and universities. To innovate and tackle common challenges, even rivals may strategically share knowledge and resources. Taiwan, the Silicon Valley of bicycles, produces 15% of world exports of bikes and parts. While bike numbers are 80% down from 1990, their average value is up fivefold – a classic sign of upgrading. The cluster centres on adjacent cities, Taichung and Changhua, and comprises local original equipment manufacturers; parts manufacturers and suppliers; and Taiwanese-owned multinationals.

The researchers interviewed 25 people from SMEs (defined as companies with under 250 employees), three larger firms, and industry and research bodies at a bike trade show in Taipei. Interviews showed that dense horizontal and vertical links had slowly formed at GVC, cluster and firm levels. In GVCs, Taiwanese multinationals and original equipment manufacturers have added horizontal linkages forged at international trade shows to go with the commoner vertical links. The whole cluster has upgraded from production to design and manufacture competencies, with universities and a specialist R&D centre collaborating and the multinationals building industry associations, like the 20-member “A-Team”, that pool knowledge. Last, within the cluster, buyer and seller firms, and informally designers, manufacturers and assemblers, have formed vertical ties; and horizontal ties based on “coopetition” (partial cooperation by competitors), a sense of cluster “citizenship”, and trust to confide business secrets. Networks underwrite trust, especially in Chinese-derived cultures.

The results challenge the standard view of specialist knowledge as handed down along single GVCs when a lead (foreign) multinational atop the chain ordains SMEs should upgrade. Taiwanese SMEs somewhat more actively adapted by taking and applying knowledge, and from multiple GVCs: for instance, carbon-fibre technology overlaps between bike and yacht GVCs. Most knowledge sprang locally. And the real leaders were the Taiwanese multinationals that crafted institutional supports.

The researchers classified vertical and horizontal links into four subtypes each, potentially offering eight kinds of knowledge for upgrading. Other SMEs could potentially apply this classification to their own clusters. Meanwhile, having already upgraded processes, products and functions, Taiwan's bicycle SMEs could adapt their skills to diversify into e-bikes and more advanced personal transport devices.

\*\* The full study results are available in an article authored by Anna Gerke, Maureen Benson-Rea and Denis Odlin: “SME upgrading in emerging market clusters: The case of Taiwan's bicycle industry”. *Journal of Business Research* 164 (2023) <https://doi.org/10.1016/j.jbusres.2023.113967>