

Executive summary

This report examines how to strengthen regional innovation clusters and sectors driving future growth in Thailand by stimulating innovative start-ups and scale-ups. It explores the case of the advanced agriculture and biotechnology and food-for-the-future cluster in the Chiang Mai and Chiang Rai regions in northern Thailand. However, it also has important lessons for the development of a new generation of SME and entrepreneurship policies for all the future driving sectors in the Thai economy, as Thailand seeks a shift to a more innovation-based small business economy in the post-COVID-19 recovery.

Key messages

The report's main messages are that the Thai government should introduce:

1. **A new “Fast Track” strand of SME support for firms with growth potential.** This could provide specialised and high-quality advice, finance and innovation assistance to start-ups and scale-ups in Thailand's driving sectors of future growth, where these firms have high potential to integrate new technology in their products and to export.
2. **A regional innovation clusters policy.** This could create overarching regional cluster management organisations and cluster management agents in driving sectors for future growth, which would connect start-ups and scale-ups to sources of technology and business development knowledge in universities, public research institutions, science parks and incubators at regional, national and international levels.

The benefits would be to:

- Overcome a bottleneck in the innovation systems of Thailand's driving sectors of future growth concerning limited exploitation of the results of public investments in research and development (R&D) by domestic firms.
- Spread innovation through the exploitation of national R&D results more widely across the regions of Thailand.

The report starts by assessing the economic activities, anchor institutions and policy support mechanisms that support the advanced agriculture and biotechnology and food-for-the-future cluster in Chiang Mai and Chiang Rai. The following chapters examine strengths and weaknesses in the regional entrepreneurial ecosystem for start-ups and scale-ups; business development services; the attraction and embedding of foreign direct investment (FDI); and future industrial path development opportunities in the cluster.

Key findings

There is strong potential for high value-added growth in the advanced agriculture and biotechnology sector and food-for-the-future sectors in Thailand. These are both potential future driving sectors of the

Thai economy, prioritised by the Thailand 4.0 Strategy. Successful development can be driven by Thailand's strong and successful investments in public R&D in biotechnology directed towards discovering products and processes that can add value to existing agricultural production capacities in market niches with growing international demand. Key areas of potential include healthy, medicinal and functional foods and cosmetics. However, the exploitation of R&D results in the market is held back by limited numbers of start-up and scale-up enterprises involved in innovation and exporting in these fields.

A key thrust of Thailand's approach to address the R&D exploitation bottleneck in advanced agriculture and biotechnology and food-for-the-future, and in the other priority sectors in the Thailand 4.0 Strategy, should be making connections between universities, science parks and research organisations and existing and potential start-ups and scale-ups and building up the absorptive capacity of these firms.

Together, Chiang Mai and Chiang Rai are a potential regional stronghold in Thailand in advanced agriculture and biotechnology and food-for-the-future products. They have substantial agricultural production in rice, fruits, vegetables and organic products where value can be added by incorporating biotechnology innovations. They also have regional universities and science parks working actively in biotechnology and related research, which can provide industry with access to public research results. However, more support is needed to provide the right growth-oriented finance and advice to potential and existing start-ups and scale-ups, and to create the right links to relevant innovation sources.

These policies need to address the following issues:

- *Finance.* Private equity, angel investing and venture capital funding are still in the nascent stage. Government support programmes largely emphasise traditional debt finance and are insufficiently targeted on innovative start-ups and scale-ups.
- *Skills.* There are skills shortages in business and innovation management and untapped opportunities for ambitious entrepreneurship among women and university graduates.
- *Regulations.* A lack of standardisation and delays in health product licensing are a barrier for start-ups and scale-ups to exploit new biotechnology-based products.
- *Business advice.* Existing government-supported business advice is modelled on basic services for the typical micro firm and not sufficiently deep for innovative start-ups and scale-ups. Technology development advice is not well integrated with business development advice in complementary areas for company development including marketing and management strategy.
- *Foreign direct investment.* Chiang Mai and Chiang Rai have yet to attract significant FDI and few relationships have been created between the existing FDI operations and regional SME suppliers or research institutions.
- *Cluster support.* Despite having several small-scale networks of local firms (including Food Valley) and tax incentives for R&D investments in advanced agriculture and biotechnology and food-for-the-future (through Food Innopolis), Chiang Mai and Chiang Rai lack a unified regional cluster management organisation with associated funding for cluster management agents, cluster development projects and cluster network building.

Key recommendations

This report contains many concrete policy recommendations illustrated by international examples of inspiring policy practices. The following are among the report recommendations:

Build the regional entrepreneurial ecosystem

- Strengthen growth finance for start-ups and scale-ups in the cluster by increasing the targeting of finance programmes to firms with innovation and growth potential, promoting a crowdfunding initiative, and developing a business angel network.
- Introduce sustained funding of university-level entrepreneurship education and start-up support.

Upgrade business development services

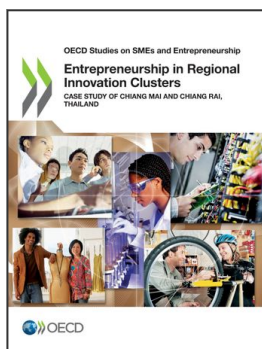
- Introduce business development vouchers for high-potential start-ups and scale-ups in the cluster to access intensive, specialised and high-quality private sector consultancy and mentoring for technology integration and internationalisation.
- Scout for SMEs with potential to innovate, grow and export in the cluster and assign them a business development services account manager.

Strengthen institutional arrangements for FDI

- Build and market the regional conditions that will attract FDI in advanced agricultural products to the cluster.
- Introduce systematic FDI aftercare to build links between attracted FDI and regional SMEs, universities, science parks and incubators.

Create a cluster management organisation and cluster management agents

- Create an overarching regional cluster management organisation for the advanced agriculture and biotechnology and food-for-the-future cluster in Chiang Mai and Chiang Rai to support networking, cluster visibility and cluster strategy development.
- Engage cluster management agents to identify high potential start-ups and scale-ups and support them to integrate scientific, engineering and marketing knowledge as well as to co-ordinate a number of strategic cluster projects, including applied R&D projects with regional universities and science parks and training programmes for employees.



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