Waste Print: Let's talk trash
WASTE AUDITING AND MANAGEMENT IN SINGAPORE

seacape.org.nz

Waste auditing and management in Singapore

E-Commerce is a fast-growing market in Southeast Asia and the region has been identified as an important area for tech and e-commerce companies looking to penetrate wider markets.

New Zealand companies, however, would find it difficult to compete with global e-commerce titans such as Amazon, Alibaba (including Taobao and Tencent, and the Lazada group in Southeast Asia). Equally, confronting e-commerce directly in Southeast Asia would be challenging for New Zealand due to a lack of resources and size. As such, Kiwi entrepreneurs need to take advantage of their relative flexibility when compared to larger and slower conglomerates.

This report identifies waste management in Singapore as still largely undeveloped, with most businesses in the early stages of creating waste management strategies. It puts forward a waste auditing/advisory service called Waste Print. Waste Print is an environmental management platform app paired with an audit and advisory service. Waste Print recommends ways of improving a business's environmental and financial performance and gives the business data on its environmental impact.

Waste Print also aims to build a community on the platform to educate users around environmental performance management and promote business transparency. For example, a Waste Print audit may reveal that a company could install more energy efficient machines in its factory, which would save it money in long term energy costs while reducing its environmental impact. This recommendation and performance would be fed through to the app where the business could use the data to improve and forecast its performance (both environmentally and financially). Waste Print would also operate a certification system, where users can earn Bronze, Silver and Gold Waste Print certifications to signal their waste and environmental performance to stakeholders.

Singapore's large e-commerce market has been growing steadily and is projected to continue doing so. Therefore, the market presents a stable entry opportunity for a product or service such as Waste Print and its community app, which fit the right niche.

INTRODUCTION

Background

e-Commerce potential in Southeast Asia

E-Commerce is a fast-growing ASEAN market, worth USD $23bn in 2018 and projected to reach USD $102bn by 2025[1]. Global titans including Amazon, Alibaba (including Taobao) and Tencent dominate traditional e-commerce markets worldwide through the power of existing platforms. An 'east vs west' divide now exists, across which China (through Alibaba and Tencent) and the United States (through Amazon) are competing for global dominance. Alibaba operates Lazada group, which is the number one e-commerce platform in Southeast Asia (present in Indonesia, Malaysia, the Philippines, Singapore, Thailand and Vietnam).

New Zealand companies would find it difficult to confront these titans directly due to a lack of resources and size. As such, New Zealand entrepreneurs need to take advantage of their relative flexibility compared to larger and slower conglomerates. To succeed in SEA, New Zealand companies will need to offer innovative and/or specific products while growing the markets for these.

e-Commerce and consumers in Singapore

Singapore's e-commerce market has been growing steadily and is projected to continue at a similar rate. As such, the market presents a stable entry opportunity for a product or service fitting the right niche.

Of the ASEAN nations, Singapore has the highest Internet penetration, at 83.6%[2]. Singapore also has the highest GDP per capita of all ASEAN regions at USD $57,714 compared to USD $2,342 in Vietnam and USD $6,595 in Thailand[3]. Singapore households have high disposable income and therefore have the capacity to care about environmental issues without affecting quality of life.

This makes Singapore a viable market for an environmental sustainability service and an online community, such Waste Print, which is proposed in this report.

Waste: a global problem with local solutions

Southeast Asian nations, along with the rest of the world, are grappling with the waste crisis. Four SEA countries – Indonesia, Philippines, Vietnam and Thailand – account for up to 35% of the plastic waste leaking into the ocean. This is a huge problem requiring innovative 'out-of-the-box' and local solutions.

As the waste issue grows, business opportunities with huge potential emerge in waste management. However, most waste management businesses are yet to enter Southeast Asian markets because of a lack of support from governments and a lack of money and education around the issue. Funds for waste management are also vulnerable to corruption, and many local governments lack the political will to implement waste management, as it is not regarded as an immediate priority.

Poverty is a huge barrier to effective waste management in developing SEA countries. People in lower socio-economic groups need to spend their income on priorities such as health and housing. Also, the people most affected by vast waste dumps are low in SEA social hierarchies and are less likely to make use of waste auditing or other waste management services.

Waste management progress in Singapore

Singapore holds the undisputed crown as Asia's Greenest City due to its ambitious environmental targets and its efficient and innovative approach to achieving them. For example, one major target is to have 80% of Singapore achieve a Green Mark environmental performance rating by 2030, in order to reduce energy use and carbon emissions[4]. Compared to Vietnam and Thailand, Singapore has dealt better with urban challenges and in the process, has become a living laboratory for pioneers of smart and sustainable solutions.

However, Singapore's waste management still has some way to go. Most businesses are still in the early stages of creating waste management strategies. Last year, a third of the 1.67 million tons of domestic waste disposed in Singapore consisted of packaging[5] waste, primarily plastic bags and food packaging. This amount is enough to fill more than 1,000 Olympic-size swimming pools, according to a Channel News Asia report. Just like Thailand and Vietnam, foods and beverages are often packed directly into plastic bags for easy transportation. It is unlikely these habits can change overnight, so waste production will continue to increase.

Waste management legislation in Singapore

More environmental management legislation is on the way in Singapore. Targets have been set for new solutions that will support urban lifestyles: More people will be based in Smart Work Centres, featuring shared workspaces for employees from different companies, which would be near their homes, thus reducing the need to travel, improving productivity, and enhancing people's work-life balance.

THE BUSINESS PROBLEM AND OPPORTUNITY

Waste management: Southeast Asian challenges

Environmental management requires financial resources. Establishing modern infrastructure requires substantial technological know-how, large investments in industrial equipment and environmental regulation measures.

One common trend in developing Southeast Asian markets is the insufficient funding available to support a sophisticated waste management system and to develop the educational interventions to support it.

Developing Southeast Asian nations face significant environmental challenges due to rapid urbanisation, population growth and their inability to effectively tackle environmental risks. This is due to a plethora of structural issues such as inefficient governance around environmental management, the prevalence of corruption and a chronic shortage of investment.

Notwithstanding the bigger issues around waste management and without putting all the blame onto businesses and individuals for the scale of waste production, waste print puts forward a business idea that could foster a sense of responsibility among Singaporeans for their environmental impact.

At the same time, our approach could help businesses do better financially while leveraging the power of e-commerce and a technological platform to achieve scale in waste management and gather better quality data.

Auditing: a first, challenging, dirty step towards sustainability

Initially, businesses seeking sustainability by reducing their waste will often not know what to improve or how to do it. They may also lack a full understanding of the issues.

A first step would be to conduct a waste audit, which is a survey of the regular waste stream from a facility or business. An audit can reveal much about how a business and its premises operate, which can then be the basis for improvement. It can be a game changer for a business and may reveal costly, wasteful problems or unravel opportunities that could generate new revenue streams.

Auditors go through bags of waste, sort items, recording and analysing the emerging data. In doing this, auditors identify what is being thrown away, what is being recycled or diverted through other means, and the amounts of each type of waste by weight or volume.

However, DIY waste auditing involves getting one's hands dirty (literally). Most businesses find it time consuming, so they do not bother.

Business proposal

A waste management solution for Singapore

On the basis of previously outlined challenges, the Waste Print solution would combine a waste auditing service in the Singapore market with an app-based (online) support community, which would allow users to monitor their progress towards sustainability at a the touch of a finger.

In the long term, Waste Print seeks to create financially viable and economically stimulating ways for businesses in developing countries to be able to manage their waste.

The company would help Singaporean businesses determine how sustainable their operations are. The auditing service would tell business operators which waste and recycling management practices are working, and which are not. This will enable businesses to make necessary adjustments to maximise their operational efficiency.

The waste auditing service could help businesses save money. An audit could unlock neglected revenue streams and help businesses make potential savings. By reducing what goes to their rubbish bins, businesses could reduce their waste hauling fees, for example, and recyclables might even have value on the market.

This service could help businesses to reach their sustainability goals by changing how businesses approach waste. The 'out of sight, out of mind' attitude to recycling and waste management is no longer viable. In the long run, Waste Print's service and the community that could grow around using the service would help shift people's mind-sets by showcasing conscientious businesses that are taking action to reduce their environmental footprints. It could thus inspire more consumers to support brands that exhibit a concerted effort to reducing waste.

Why choose Singapore to start Waste Print?

Singapore has the infrastructure and wealth needed for Waste Print to succeed. As Singaporean residents and local businesses become better equipped to deal with (and spend on) environmental management, Waste Print will more easily persuade Singaporean businesses to sign up to its services. Singapore has been dubbed a 'start-up haven' with a growing e-commerce sector and a robust trade and finance ecosystem encouraging sustainable growth. Additionally, waste audits could help Singapore businesses create benchmarks to set targets and gauge progress towards sustainability. With new legislation on the way, Singaporean businesses will need data from waste audits to complete their reporting for regulatory compliance. Waste Print could assist companies to comply with certification and compliance standards.

How will Waste Print work?

Auditing and reporting services

Part of Waste Print's offer will be to provide business-to-business waste auditing services, which can show companies how much waste they produce, and ways to lessen or eliminate it. Waste Print's auditing and reporting services will be undertaken in three steps.

Step 1: Providing a quote

Since businesses vary in their size and activity, and hence produce varying amounts and types of waste, Waste Print will need to undertake a preliminary step of 'understanding the business' with each client, before proceeding to a full waste audit. This step will determine the size of the waste audit, the number of site visits required and how long it will take. This would be an important step for attracting clients to come back for future audits.

Step 2: Making a site visit

A site visit to gather in-depth knowledge about a company's operations would be the core part of the audit. To establish the scale of waste being generated and how to make changes, Waste Print's qualified waste auditors will closely examine a client's production processes and daily operations. Auditors would analyse, for example, electronic equipment usage, packaging used, how much waste remains after a product is manufactured, and vehicle types used and routes taken.

The audit process will be carried out against the ISO 14000 and 14001 environmental management accounting standards, which require organisations to have environmental management systems in place in order to measure their environmental impact. Waste Print would have to be accredited and meet the relevant ISO Committee on Conformity Assessment (CASCO) standard. Additionally, Waste Print will audit against its own scorecard, which includes non-financial waste improvement metrics, including:

- nature of raw materials used (including their recyclability)

- raw materials wastage

- release of air contaminants

- use of recycled components and materials where possible

- environmental impact of supply chain as a whole

- where the waste ultimately ends up.

As technology develops, the auditing process can be improved and refined. For example, once eco-friendly blockchain technology is available, it could be integrated into the Waste Print platform to allow supply chain transparency, assisting Waste Print to gather accurate data faster on raw material origins.

Step 3: Providing a report

Waste Print will provide a report to its clients showing where their waste comes from, and offer solutions. Importantly, a business could also be shown how waste affects its bottom line. This would motivate businesses to keep moving towards more environmentally sustainable practices. Auditors would field clients' questions during a face-to-face explanation of the report. This personal approach would encourage businesses to work with Waste Print on finding waste management solutions.

Waste Print's three-tier certification

Once businesses have been audited, they would set about improving their practice with a chance to achieve one of Waste Print's three certifications: bronze, silver or gold. These would be awarded to businesses for where they sit on a sustainability spectrum, rather than for simply hiring Waste Print's services. Once earned, businesses could use their certifications in promotional material, thus attracting environmentally conscious individuals to their goods or services.

Offering a three-tier certification system would encourage businesses to keep striving towards the highest certification, ie gold. Offering only one certification could allow businesses to give up trying to improve. Gold certification could also offer businesses access to benefits within the Waste Print online community, which is covered later in this report.

Waste Print certification would be done on a subscription basis. An awarded certification would only last a maximum of two years before businesses would need to undergo further audits. This would avoid decreasing their waste simply for an audit and later resuming wasteful behaviours. In addition, periodic checking would allow businesses move up the three-tiered certification scheme every couple of years until Gold Certification is reached.

Compliance

Initially, legal sustainability compliance will draw users to Waste Print. Singapore Exchange (SGX) has introduced sustainability reporting on a 'comply or explain basis'. Listed companies must prepare annual sustainability reports, describing their sustainability practices or explaining why they haven not de-

scribed these, and what they are doing instead (or reasons for not doing so).

Waste Print could help businesses gather compliance information and could possibly work with the ISCA Corporate Reporting Committee in future to shape the development of environmental and sustainability reporting. The idea would be to move away from a mere 'comply and explain' approach to setting compulsory environmental accounting requirements. Waste Print would also aim to build relationships with the Singapore government through bodies such as Sustainable Singapore in order to reduce waste at a higher level.

The Waste Print community platform

What is the 'community platform' and why is it needed?

The Waste Print community platform would be designed to recognise the importance of both community and education to people in Southeast Asia.

Since e-commerce is growing in Southeast Asia, developing the community through an app will ensure that education and information will be accessible to individuals who are passionate about sharing and finding ideas about reducing waste. Examples of how it would work are:

- The app would offer a forum for sharing ideas

- Users will be able to mark favourite posts and give feedback to contributors.

- Users will start encouraging each other to change their consumer habits.

- Businesses can use the app to explain their waste management stories. Once they have achieved gold certification, their businesses would be promoted via the app, which would attract more customers from the Waste Print app community.

It takes time to establish a critical mass of members that will make the app attractive to the market. Membership has to be big enough to generate authentic interaction between people using the app. Worthwhile content must be generated to encourage members to continue engaging with it. Linking into estab-lished online communities (Facebook, Instagram, LinkedIn) could help.

Future opportunities for a Waste Print online community

Opportunities for the Waste Print app could include collaborating with social media platforms such as Facebook to add a social sharing button that would enable individuals to share their ideas about how Waste Print benefits their daily lives. This could attract more members to the community.

Market potential

Waste Print will operate in a market that is currently small by providing its service through an e-commerce platform. It has the potential to become a service that is valued and supported by the Singaporean government. A pilot would be run in Singapore, with potential to expand to other ASEAN countries over a longer period of time:

- Begin operations and platform development

- 1st to 2nd years: launch audit/advisory service and Waste Print community app

- 3rd to 4th years: Develop rewards for premium app users, gain critical mass

- 5th year onwards: use data collections to analyse future waste trends.

Business plan

Waste Print: unique selling points (USPs)

Waste Print will audit and make recommendations to businesses to save money by reducing environmental costs while minimising their environmental impact. Customers of its clients benefit from increased transparency when buying services or goods, using the app. Waste Print will have a unique and accessible mobile app and website that will display business' data and progress, making waste management as easy as ever.

Start-up funding

The platform would require SGD $402,000 capital investment alongside the cost of human capital, making start-up investment in Waste Print sizeable. This could possibly come from a partnership with an existing New Zealand business, such as XERO, where the Waste Print platform and auditing service could be an add-on to the company's core business.

Market research

The current market in Singapore does not offer any waste auditing services. However, Zero Waste SG has been established as a non-profit, non-governmental organisation striving to eliminate waste. Zero Waste SG has similar goals and ideas about how to reduce waste in Singapore but does not offer the businesses an auditing service and online community in the way that Waste Print would.

A partnership with Zero Waste SG would be beneficial as they could leverage their space and create content on our community, which will help grow the Waste Print auditing service and the community platform.

Research and development

A development team would be contracted to establish the website. A beta-testing period will ensure the website runs smoothly and easy user access is maintained. Part of the development team will create the app, which would be made available to both Android and Apple users. Once released, the app development group would undertake constant maintenance and updating of the app to minimise bugs and improve user experience. s.

Initial investment

The bare platform is expected to take SGD $240,000 to develop initially. A full working prototype could be completed in nine months, based on these assumptions:

- Three full-time developers for twelve months; salary SGD $80,000, pro-rata.

- SGD $320,000 investment over the next twelve months for upgrading the platform and launching to market.

- Ordinary on-going 'software as a service' (SaaS) development costs are to be expected.

In addition, the platform will require audit staff, based on the following assumptions (note that, unlike the platform, staff will be hired on an 'as needed' basis):

- SGD $70,000 salary per auditor to run twelve audits per year

- Contractors will address initial additional demand for audits; preferably, in-house expertise will grow.

Overall, the business would become profitable in its third year. The business is predicted to post a loss of SGD $96,000 in its second year, bringing total initial investment to SGD $402,000 before achieving a return of SGD $1,170,804 between 2021 and 2024.

Operating costs

The budget factors in travel costs for both sales and marketing and for travelling to client sites, office rents and the cost of sales and marketing.

Many auditors will spend most of their time off site, which has been factored into rent costs. Sales and marketing costs would be approximately 5% of total costs in most years and this will cover client relationship management and B2B advertising at corporate events. It will also cover some B2C advertising on social media to drive consumers to the community section of the platform.

Market entry

Prior to launching Waste Print in the Singapore market, relationships with a minimum number of local businesses would need to be developed – and maintained – in order to present the benefits of the Waste Print auditing service and the community. Relationships could be further fostered by advertising to Singapore's general public through social media platforms such as Facebook.

Waste Print's auditing and advisory service

would initially target Singapore's small-to-medium-sized businesses and smaller firms listed on the Singapore Stock Exchange.

Its community platform would also target young professionals and young adults between 18 and 30 years old as this group is becoming more aware of how the packaging around products they use affects the environment.

Revenue generation

In this business model, the waste auditing service provides the main stream of revenue for Waste Print. Initially, we expect that the waste audits will bring Waste Print to the attention of the Singaporean public, which will attract customers to Waste Print's other services such as the online community platform.

Waste Print will generate revenue through two streams. First, there will be a SaaS subscription fee of SGD $15 per month per account for businesses to use the reporting and management functions of the app. However, there will be no cost to consumers (or businesses) to use the Waste Print community for discussion. Secondly there will be the costs of the regular audit. Audits will cost between $1,500 and $50,000+ depending on the size and nature of the business (on average, SGD $8000). On a pure numerical analysis, the technical platform may seem unprofitable. However, the intellectual property in the platform allows Waste Print to charge a premium for its audits while fending off competitors. As such, though it may strictly run at a loss, it plays a key role in the businesses' overall profitability.

Companies would be expected to request a waste audit every one to two years, depending upon such factors as:

- their size

- how long the previous audit took

- the cost

- how long recommended improvements would take to implement.

A suggested time for a follow-up audit would be included in the initial report arising from the 'understanding the business' stage in the auditing process. It would take all of these factors into account, which would ensure that waste audits are economically viable for businesses to undertake. This would give businesses enough time between audits to implement what they have learned.

We anticipate that Waste Print will grow its consumer base by 32% compound annual growth rate (CAGR) per year after acquiring 150 users in the second year. This growth rate is high but we believe the demand for Waste Print's services will be strong because of the governance aspect of the product.

CONCLUSION

Waste Print wants to make a significant impact on waste management in the Singapore market.

The auditing services will empower businesses to be more in control of the waste they generate and to understand its effects and learn how to lessen these. The certification process will motivate businesses to reach beyond a threshold of sustainability, and continue to minimise their wastage as they move through to achieve bronze, then silver and finally gold certification. The certification process will allow consumers to easily identify sustainability goods and services promoted on the Waste Print platform. The auditing and reporting process will educate businesses on the negative impacts their waste has on the environment, but also about how to decrease waste in their production processes.

The ultimate aim of waste auditing is to decrease wastage produced by Singaporean businesses, which will help protect and preserve both Singapore's natural environment and the wider global natural environment.

[1] Statista. "E-commerce market value in Southeast Asia 2015-2025" Retrieved from: https://www.statista.com/statistics/958414/southeast-asia-e-commerce-market-value/

[2] Statista. "Internet penetration in Asia as of June 2017, by country" .Retrieved from https://www.statista.com/statistics/281668/internet-penetration-in-southeast-asian-countries/

[3] The World Bank."GDP per capita (current US$)". Retrieved from: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

[4] BCA. "Green Building Masterplan" 2009. Retrieved from: https://www.bca.gov.sg/greenmark/others/3rd_green_building_masterplan.pdf

[5] Channel News Asia. "NEA to study disposable packaging's environmental impact" Retrieved from: https://www.channelnewsasia.com/news/singapore/nea-to-study-disposable-packaging-s-environmental-impact-7891974

Southeast Asia Centre of Asia-Pacific Excellence

The Southeast Asia Centre of Asia-Pacific Excellence (SEA CAPE) was established by the New Zealand government to enhance our engagement with the ten ASEAN member countries and Timor-Leste.

SEA CAPE is hosted by Victoria University of Wellington as part of a consortium of New Zealand universities that also includes the University of Auckland, the University of Waikato, and the University of Otago.

We work together with exporters, young New Zealanders, government agencies and others to improve understanding of these countries and build knowledge of their economies, languages, cultures and business protocols.

Through our Market Readiness and Market Insights Programmes, and mobility initiatives such as the Tertiary Market Immersion Programme and BizVenture, we show New Zealanders why and how to deepen our understanding of these valuable economies.
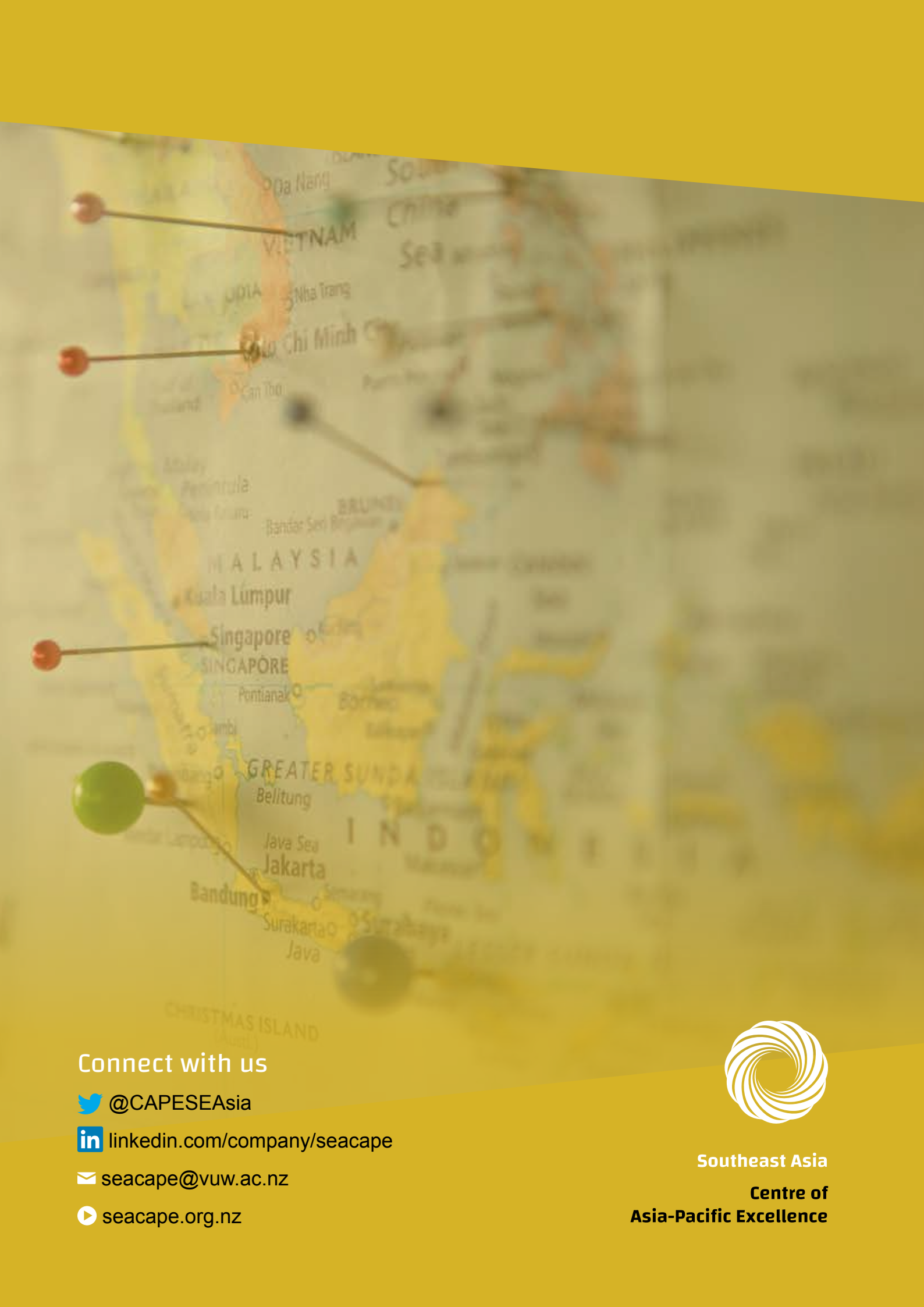
What we do

The Southeast Asia CAPE has four key objectives:

- To equip New Zealanders to engage and do business with the ASEAN countries and Timor Leste.

- To broaden and deepen New Zealanders' understanding of Southeast Asian cultures, societies, languages, politics and economies.

- To excel nationally and internationally in the dissemination of knowledge and skills relating to Southeast Asia.

- To enhance New Zealand's economic, trade, political and cultural relationships within the region.

Connect with us

🐦 @CAPESEAsia

in linkedin.com/company/seacape

✉ seacape@vuw.ac.nz

▶ seacape.org.nz

Southeast Asia

**Centre of
Asia-Pacific Excellence**