



ACEBA

ASEAN Circular Economy Business Alliance

**Getting your Business
ahead with Circularity:**
a circular economy starter for
East Asian business



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Circular Economy means business

Materials, energy and water account for a significant share of operational costs of doing business. Price fluctuations cut into profit margins and any supply disruption can force business into a stand-still. Managing with using less resources, using them longer and recovering them for repeat use is the core of the Circular Economy (CE) value proposition for business.

CE aims for net socio-economic benefit for business and society. This includes immediate business benefits arising from input cost savings and reducing vulnerability. It also covers longer term benefits through de-risking the economy and society from the climate, pollution and nature impacts of unsustainable use of materials. This drives business performance, as illustrated by a growing number of business cases from Southeast Asia¹ and elsewhere in e.g., Japan², PR of China³ and Taiwan (Province of China) (e.g., [1]).

These and other business cases show benefits across a wide diversity of industry sectors and value chains, business sizes and structures, geographies and circular solutions (Figure 1) [2].

- ➔ **Businesses perform well** as CE enables operational cost savings (on materials, energy, water and waste). It also supports diversification into new products and markets and improves resilience against changing market and regulatory requirements - caused by worsening environment and climate impacts and increasing public concerns.
- ➔ **Business do well** for environment and society. The environment benefits from the reduced generation of waste and emissions, reduced use of virgin resources and/or reduced impacts on nature. Simultaneously, society benefits from improved occupational and community health and wellbeing, creation of new jobs or livelihood opportunities and/or conservation of crafts, traditional knowledge and/or culture.

1 <https://www.aceba.co/aceba/business-case/>
 2 E.g., <https://www.cps.go.jp/> and <https://circulareconomy.tokyo/en>
 3 E.g., <https://www.ellenmacarthurfoundation.org/explore?sortBy=dateDesc&content-Type=CaseStudy&geography=China>

CIRCULAR ECONOMY		
Sustainable extraction, use and end-of-life management of materials and other natural resources		
Performing Well	Doing Good	
BUSINESS - Lower costs for materials & other resources - New revenue opportunities - Improved business resilience	PLANET - Reduce waste & pollution - Reduce climate & other emissions - Conserve natural resources - Regenerate nature	SOCIETY - Create livelihoods & jobs - Improve health & well-being - Conserve skills, heritage & culture

Figure 1: Circular Business: performing well (as a business) and doing well (for planet and society) [2]

“
 Managing with using less resources,
 using them longer and recovering them
 for repeat use is the core of the CE
 value proposition for business.
 ”

Table 1 provides business examples from Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Vietnam that illustrate this business benefits framework.

Business [Country]	Circular Solution	Performing Well	Doing Good	
		Business	Environment	Society
 Fair Farms [Cambodia] [3]	✓ Regenerative pepper farming, including intercropping (of vanilla) and cover-cropping and use of locally available residues as substitute for chemical fertilisers	✓ Premium market access for organic and fair-traded pepper ✓ Cost savings arising due to halving of irrigation requirements and reduction of soil wash out ✓ New revenue opportunity from co-cultivated vanilla	✓ Elimination of chemical fertilisers ✓ Reduction of water and energy use in pepper farming ✓ Improved drought resistance of pepper farming	✓ Fair trade, with price premium for affiliated farmers that have adopted regenerative pepper farming
 Burgreens [Indonesia] [4]	✓ Established Green Rebel that became a leading producer of vegan ready-to-eat food and meals from mushrooms, soybeans and vegetables	✓ Created a supply of and market for vegan-varieties of favourite Indonesian and international dishes	✓ Switched from animal to plant- and mushroom-based proteins, which require lower resource use to produce and have lower GHG intensity	✓ Partnering with farmer groups to create a steady supply of vegan protein sources
 Discover Laos [Lao PDR] [5]	✓ Rooftop PV and battery storage as back-up power for and operation of the hotel, combined with use of energy efficiency and EVs for guest hire and transport	✓ 20% reduction of energy costs and ability to operate without diesel generators for back-up power ✓ Improved guests' experience	✓ ~ 60,000 kWh renewable power generated annually and used on site (~25% of total use) ✓ Reduction of air pollution from diesel generators and vehicles	✓ Contribution to improving local air quality in touristic Luang Prabang
 Entomal Biotech [Malaysia] [6]	✓ Optimised systems for decentralised conversion of food waste into feed protein and organic fertiliser using Black Soldier Fly (BSF) technology	✓ Successfully developed and commercialised stand-alone Entomal Mobile Bioconversion System based on proprietary BSF technology ✓ Established off take market for BSF protein as animal and fish feed	✓ Conversion of previously discarded food waste into valuable feed protein and organic fertiliser	✓ Community-led operation of decentralised bio-conversion system, which also supports environmental education

Business [Country]	Circular Solution	Performing Well	Doing Good	
		Business	Environment	Society
 Shwe Pyoe Eaik [Myanmar] [7]	Recycling polypropylene plastic waste into nursery grower bags and other plastic products	Created a profitable niche business for producing and supplying recycled nursery grower bags and plastic products for agricultural sector in Myanmar	Recycling up to ~ 80 tonnes plastic waste annually	Partnering with informal workers and junk shops for sourcing quality recyclable polypropylene waste
 Bayo Manila [Philippines] [8]	Shifted to using natural materials (local cotton, silk, etc.), adopted material, energy and water efficiency, developed new fabrics from offcuts and installed rooftop solar	- Created a profitable niche market for sustainable, slow fashion - Developed and introduced new textile fibre from Bakong (an invasive plant species) - Achieving 30% savings on power costs	Reduced fabric off cuts by some 80% and repurposing remaining fabric waste as auxiliary wefts for new fabrics	Partnership with weaving communities for customised weaves using recovered fabric and Bakong fibre
 Hyatt Regency Sukhumvit [Thailand] [9]	Use of AI to reduce food waste and to conserve energy for cooling of common areas and meeting rooms, elimination of single use plastics and increased use of sustainable produce	- Annual energy savings of around EUR 100,000 - Reduced food purchasing expenditures - Improved positioning in MICE market	~14 % reduction of energy use per room night over 2 years ~ 44% reduction of food waste from breakfast buffets - Waste reduction through elimination of single use plastics	Established direct procurement of organic rice and other sustainable food ingredients
 Nam Cao Kien Industrial Park [Vietnam] [10]	- Established some 50 industrial symbioses that recover waste from one tenant for use by other tenants and installed rooftop solar - Common effluent treatment plant, warehousing etc.	Estimated cumulative avoided waste disposal costs amount to some EUR 1.6 million	~ 50,000 tonnes slags and other industrial wastes used for low carbon cement production - Improved energy and resource efficiency through shared facilities	Converted open area in green recreational space for community

Table 1: Example illustrations of CE benefits to businesses in Southeast Asia.

The business environment is changing!

In East Asia, the wider region and globally there are pertinent signs that a transition to a circular, low carbon and resource efficient economy has started to happen; and it is getting rapidly more urgent. Some signs are more visible than others, leaving business at a risk to miss them in the midst of the daily business and market challenges. For business it is essential to recognise that changes are happening in markets, policy, society and environment. Reflect upon their likely impact on business profitability and continuity, now and in the years ahead.

Circular businesses are performing well

Businesses that have adopted circular solutions are achieving **cost savings and new revenue streams**.

- ✓ **Fortune Parts Industry**, a Thai manufacturer of plastic automotive parts, is achieving around EUR 2 million annual benefit. It practices material and energy efficiency, switched to use recycled plastic inputs and solar and bio-energy and started remanufacturing and leasing out of used moulds [11].
- ✓ **Pico Sands Hotel and Pico de Loro Beach and Country Club**, a resort in the Philippines, zeroed-out single use plastics [12]. It also aggressively reduced food waste through better planning and processes. This achieved 63% per serving reduction in food waste over the first four years and saved a total of EUR125,000 on food purchases.
- ✓ **Great Giant Foods**, an integrated Indonesian plantation and processing company started extraction of bromelain enzymes from pineapple stems and residues. This creates an additional revenue from the sales as a nutraceutical [13]. This complements savings achieved by using fruit processing waste as animal feed and processing animal manure into bio-energy and bio-fertiliser for use in its own operations.
- ✓ **Burgreens**, an Indonesian vegan dining chain, successfully established the production of ready-to-eat vegan meals for domestic and export markets [4].

Several circular solutions have already become **established industry best practices**, as these simply are the most profitable and practical. Such as:

- use of fly-ash and slags and municipal and industrial waste as respectively alternative cementitious materials and alternative fuels for cement making;
- remanufacturing of printer cartridges, diesel engines, etc.;
- conversion of organic waste and effluents into bio-energy and bio-fertilisers;
- consumer packaging re-design for reduced weight and volume, improved recyclability and increased recycled materials contents; and
- industrial symbiosis where a factory uses another factory's waste (materials, energy or water) as an alternative input.

In addition, many other circular solutions are on the brink of becoming industry best practice.

“
CE solutions are driving profitability and business growth, equally for established businesses as well as start-ups.
”

Circular start-ups are succeeding in different segments.

- ✓ Rebricks (Indonesia)⁴, GreenAntz (Philippines)⁵ and Recycoex (Thailand)⁶ are example start-ups that process low quality mixed plastic waste into pavers and non-load bearing bricks.
- ✓ TONTOTON (Cambodia)⁷, Robries (Indonesia)⁸ and Precious Plastics (Philippines)⁹ are all processing mixed waste plastics into boards for production of furnishings, decorative items and furniture.
- ✓ Moreloops (Thailand)¹⁰ and Surplus (Indonesia)¹¹ are illustrative of digital start-ups that facilitate the trade and use of surplus inventory (of respectively fabric and fresh produce) preventing this from becoming waste.
- ✓ Zerocycle (India)¹² and Biopac (Indonesia)¹³ are example start-ups that are revolutionizing plastic food packaging with bio-based and biodegradable seaweed-derived materials.
- ✓ Southeast Asia is well positioned to become a hub for production of Sustainable Aviation Fuel from used cooking oil and agricultural residues [14]. This opportunity is being pursued through partnerships that connect established petrochemical companies (e.g., Pertamina (Indonesia)¹⁴ and Bangchak Corporation (Thailand)¹⁵) with circular start-ups (such as Fat Hopes Energy (Malaysia)¹⁶ and One Eco Loop (Thailand)¹⁷).

4 <https://rebricks.id/>

5 <https://www.greenantz.com.ph/>

6 <https://www.recycoex.com/>

7 <https://tontoton.com/>

8 <https://robries.com/en>

9 <https://preciousplasticph.com/>

10 <https://moreloop.ws/>

11 <https://en.surplus.id/>

12 <https://zerocycle.in/>

13 <https://biopac.id/>

14 <https://www.pertamina.com/en/news/pertamina-patra-niaga-pionir-kembangkan-eko-sistem-sustainable-aviation-fuel-berbasis-ekonomi-sirkular>

15 <https://www.bangchak.co.th/en/newsroom/bangchak-news/1911/bangchak-group-launches-thailand-s-first-commercial-saf-production-a-major-step-towards-the-future-of-low-carbon-energy-for-domestic-and-international-markets>

16 <https://www.fathopesenergy.com/>

17 <https://oneecoloop.com/en>

Policies are set for the circularity transition

Governments across the world have been developing and adopting **national CE roadmaps, action plans and/or policies** to guide their national CE transition. This accelerated from the mid 2010's, after the adoption in 2015 of the Sustainable Development Goals and the Paris Climate Agreement.

The 2025 global inventory found **66 countries** having some form of national CE roadmap, action plan or policy [15]. Seven ASEAN Member States (Cambodia, Indonesia, Lao PDR, Malaysia, Singapore, Thailand and Vietnam [16]) as well as the PR of China, Republic of Korea, Japan and Taiwan (Province of China) had a national CE policy, action plan or roadmap in place in 2026. Furthermore, the Philippines started the drafting of a national CE Policy and Lao PDR started the drafting of a revised CE policy.

In addition, the Association of South East Asian Nations (ASEAN) adopted its 2021 CE Framework aimed at resilient economy, resource efficiency and sustainable growth of the ASEAN Economic Community [17]. Several CE action plans aim to manage the inflow of products and services in their economy and the outflows of waste from their economy. This means CE action plans from other geographies, such as the European Union (EU) [18], have implications for Asian exporters.

“*CE policies are well-established in East Asia and globally. They are mainly aiming at minimising waste disposal, improving efficiency and longevity of materials and product use and/or ensuring that only CE-compatible products enter the market.*”

These **national CE policy documents are diverse**, in terms of policy scope, objectives and targets, instruments and implementation arrangements (e.g., [15] and [19]). Combinations of enablers (to incentivise the development of circular solutions) and levers (to scale up these circular solutions) are common.

There are three main policy directions, which are well-displayed in the EU CE Action Plan [18], but also present elsewhere:

- ➔ The first CE policy direction is to **end the disposal of waste and pollution** into the environment and create functioning markets for environmentally sound and transparent recovery, trade and return to the economy of secondary materials. This can be incentivised through secondary materials recovery, through e.g., trade regulations, extended producer responsibility and circular infrastructure development. It may also be done by dis-incentivising the final disposal of wastes, with e.g., legislation and enforcement of waste disposal regulations and their full costing and charging to polluters (application of Polluter Pays Principle).
- ➔ The second CE policy direction concerns the **efficient and extended use of materials**, components and products in the economic system. This includes doubling down on known resource efficiency practices, as well as enabling lifetime extension services, such as reuse, repair, refurbishment and remanufacturing.
- ➔ The third CE policy direction is **controlling the inflow of products** into the economy to those that meet circularity criteria. This may take shape through bans on materials or products that are not compatible with CE, e.g., categories of single use products or products containing problematic materials that stand in the way of safe and efficient recovery. Alternatively, performance standards are being considered for products to enter the markets, e.g., in terms of recycled materials contents, presence of sustainable, eco-design attributes or performance criteria (e.g., reparability, upgradability, minimum functional lifetime, etc.).

Markets have started changing

As a combined result of both the emerging business opportunities and the policy developments, CE has progressively, yet irrevocably, entered the **global business agenda**.

Leading brands and manufacturers in different sectors have come together with their stakeholders to curate and **scale-up best CE practices** appropriate to their sectors and markets. This happens in sectors like fashion (Global Circular Fashion Forum¹⁸), consumer electronics (Circular Electronics Partnership¹⁹), automobiles (Circular Cars Initiative²⁰), building and construction (Circular Buildings Coalition²¹) and others.

Brands and buyers commit to become more circular in response to consumer sentiment and regulation. Yet they rely on their supply chains to achieve these circularity commitments. This creates a strong **incentive for Asian exporters** to follow suit with adapting circular solutions, or risk being left behind.

The World Business Council for Sustainable Development (WBCSD) identified eight reasons for business to engage with the CE [20]. These address three main business objectives, respectively:

- ➔ **accelerate growth**: by generating additional revenue from existing products and services; innovating with new products and services; and moderating materials and resource use for cost savings;
- ➔ **enhance competitiveness**: captivating and motivating employees and customers; differentiating from competitors; and integrating with corporate strategy and mission); and
- ➔ **risk mitigation**: adapting business models and supply chain relations; and insulating from risk exposure.

The WBCSD has further spearheaded the development and adoption of circular transition indicators. This has led to the launch, with a wide range of stakeholders, of the pilot version of the Global Circularity Protocol for Business in 2025 [21].

18 <https://globalfashionagenda.org/global-circular-fashion-forum/>

19 <https://cep2030.org/>

20 <https://www.weforum.org/projects/the-circular-cars-initiative/>

21 <https://www.circularbuildingscoalition.org/>

The World Economic Forum (WEF) positioned CE as one of the core strategies to address two of the present five grand challenges to manufacturing, particularly: decarbonizing manufacturing operations, products and supply chains; and linking business value with social and environmental responsibility [22]. Most recently, WEF has been advocating that low carbon, **circular economy is key to drive industrial competitiveness in the Asia Pacific Region**.²² It argues that “for businesses, circularity is becoming less about managing waste and more about securing future competitiveness”.²³

The United Nations Global Compact is positioning CE as a practical pathway²⁴ for actioning business commitment to its Ten Guiding Principles for **Responsible Business**. These cover human rights, labour, environment and anti-corruption.²⁵ Adopting CE is directly relevant to the environment and labour subject areas. Indirectly CE demonstrates commitment to the human rights and anti-corruption principles; which is particularly significant given the recent recognition of the Human Right to a Clean, Healthy and Sustainable Environment (e.g., [23]).

Planetary health is at risk

Today’s environmental changes illustrate that a **clean environment is an essential condition for living a decent life**, not just a ‘nice-to-have’.

- ➔ 2025 witnessed unprecedented extreme weather events that disrupted communities, livelihoods, crops and businesses in Indonesia, Philippines, Thailand, Vietnam and elsewhere within Asia and globally.
- ➔ Marine pollution and widespread littering in nature are discouraging tourists.
- ➔ Air pollution and extreme heat, aggravated by urban heat islands, affect the well-being and health of city dwellers across Asia, in particular those working outdoors or residing in low quality housing.

22 <https://www.weforum.org/stories/2026/06/asia-pacific-industrial-competitiveness-circular-economy/>

23 <https://www.weforum.org/stories/2026/06/asia-pacific-industrial-competitiveness-circular-economy/>

24 <https://circo.globalcompact-th.com/>

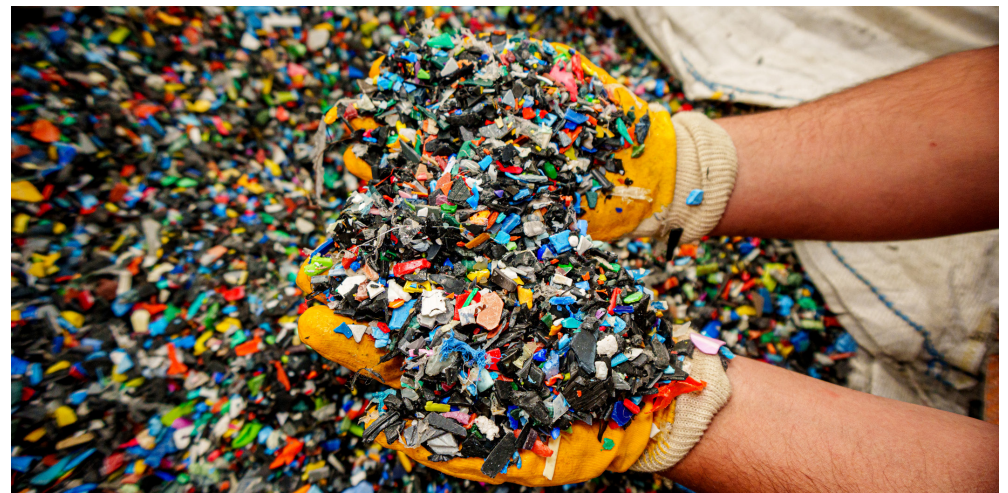
25 <https://unglobalcompact.org/what-is-gc/mission/principles>

“...for businesses, circularity is becoming less about managing waste and more about securing future competitiveness.”

World Economic Forum 2026

Of particular concern is that human activity is pushing beyond the ‘safe operating space’; this refers to the relatively stable environmental conditions that already exist for over 10,000 years. Planet Earth has maintained these relatively stable environmental conditions that support human life, by providing a liveable climate, fresh air and water, food, etc.

This concern has been operationalised into a system of nine planetary boundaries, against which an annual planetary health check is performed. The result of the 2025 planetary health check is included as Figure 2. **Seven out of the nine planetary boundaries have been breached**, with all of those seven showing trends of increasing pressure – suggesting further worsening in the near future [24].



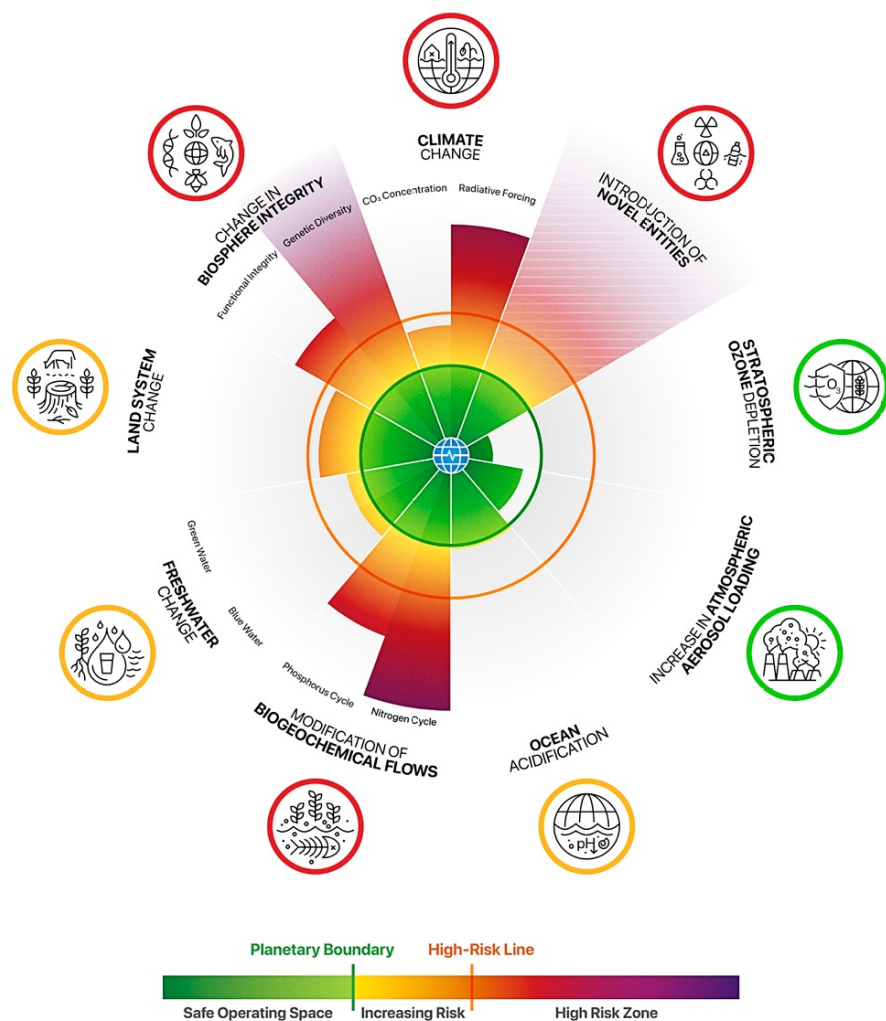


Figure 2: Planetary health check 2025 (source: [24])

Drivers and impacts across the planetary boundaries are interrelated. This is commonly captured as the **triple planetary crises** – referring to the simultaneous global crises of climate change, loss of nature and biodiversity and accumulation of waste and pollution [25]. This is chiefly caused by the unsustainable and increasing extraction, processing and use of material

resources, particularly: biomass; metals; non-metallic minerals; and fossil fuels. The 2024 Global Resources Outlook established that extraction and processing of material resources accounts for:

- over 90% of land-use related biodiversity loss and water stress;
- over 55% of Greenhouse Gas (GHG) emissions; and
- up to 40% of particulate matter related pollution [26].

Stated differently: **materials use is the common root cause of the triple planetary crises of climate, nature and pollution**. This also reveals potential for synergy to address climate, nature and pollution crises, including through CE [27].

As a matter of precaution, returning within planetary boundaries is the safest known option. This may safeguard a habitable planet for people for the decades ahead in our own lives and for our future generations. This will only be possible with a paradigm-shift in the way materials and natural resources are being used to achieve well-being and a decent standard of living for all people with a significantly-reduced material footprint. The CE is increasingly being seen as the pathway for achieving this directional target.

As a further source of concern, global material use continues to increase by 2.3% annually. However, the productive use of materials has only increased by a meagre 0.7% average per year over the past five decades [26].

“
The use of material resources is the root cause of the global crises of climate, pollution and nature. CE provides a pathway for addressing this.
 ”

Circular Economy for business

Policy makers, consumers and producers, and communities are uniting behind the CE to advance a resource efficient, low carbon and circular economy. This widespread support for the CE idea, however, masks significant diversity in CE-understanding and this poses a challenge for business. The following suggests a practical way for business. It discusses CE as a counter-idea and positions CE as environment-driven innovation. It also outlines an overall approach to develop circularity ideas into valuable circularity solutions for implementation and investment.

The counter-idea

CE is commonly positioned as the ambitious opposite – **or counter-idea** - of the predominant **linear economy**. This is based on a linear flow of materials from materials extraction, to processing, manufacturing, use and disposal of products.

There is currently **no single, commonly accepted CE operationalisation** beyond this counter-idea [28]. Instead, complementary perspectives have resulted in diverse interpretations (in Table 2).

- ➔ The **ecosystem metaphor** aims to replicate the material flow principles found in nature into industrial systems, as in nature ‘*nothing goes to waste*’.
- ➔ The **precautionary principle** aims to prevent environmental risks and has been operationalised into a hierarchy of waste prevention and value retention practices.
- ➔ The **value hill** is concerned with retaining the economic value of products and their components through business models that slow (use longer), narrow (use less), close (use again) or regenerate (make clean) the use of products and components, or provide the information to do so.
- ➔ The **decoupling principle** is concerned with improving well-being and growing the economy whilst reducing the use of natural resources and the generation of waste and pollution.

“

The overarching intent of CE is to bring the use of new materials and the disposal of waste materials as close as possible to zero.

”

	Perspective			
	Ecosystem metaphor	Precautionary principle	Value hill	Decoupling
Guiding idea	In nature nothing goes to waste, so economy may adopt the material flow principles observed in nature	Activities that may cause harm (such as generation of waste) are to be avoided	Materials increase progressively in value when converted into products, and this value is to be retained at the products' end-of-life stage	Well-being and economic activity are to be decoupled from further increasing the use of resources and creation of pollution
Operationalisation	Circularity principles 1. Eliminate waste 2. Circulate products and materials (at their highest value) 3. Regenerate nature	Circularity (R) practices - R0: Refuse - R1: Rethink - R2: Reduce - R3: Reuse - R4: Repair - R5: Refurbish - R6: Remanufacture - R7: Repurpose - R8: Recycle - R9: Recover	Circular business models • Slow – use longer • Narrow – use less • Close – use again • Regenerate – make clean • Inform – provide supportive information	Resource strategies • Resource circularity • Resource efficiency • Resource substitution

Table 2: Summary of leading CE perspectives [28]

The international ISO59004 CE guidance standard states that in a CE “the inflow of virgin resources is kept as low as possible, and the circular flow of resources is kept as closed as possible to minimise waste, losses and releases from the economic system” [29].

Put differently, the intent of the CE is to bring both the net inflows – of virgin resources from the environment into the economy - and the net outflows – of wasted resources from the economy into the environment - as close as possible to zero.

Innovation and co-creation

The circularity idea happens through new or improved products, services and processes. Or more broadly innovations, that reduce the use of natural resources and keeps these in economic use. That is principally possibly through [30]:

- (1) keeping materials in continued use through the recovery and repeat utilisation of otherwise-discarded wastes (resource **circularity**);
- (2) using materials more efficiently, including using these more intensively and/or for an extended use period (resource **efficiency**); and
- (3) substitution of non-renewable materials (including fuels) by renewable alternatives (resource **substitution**).

All three are equally applicable to materials, water, energy and possibly other natural resources. They also apply at any stage of a circular value chain, as shown by some illustrative examples in Table 3. This implies that business can interpret the CE as a two-dimensional innovation space of resource strategies and circular value chain stages, as shown in Figure 3.

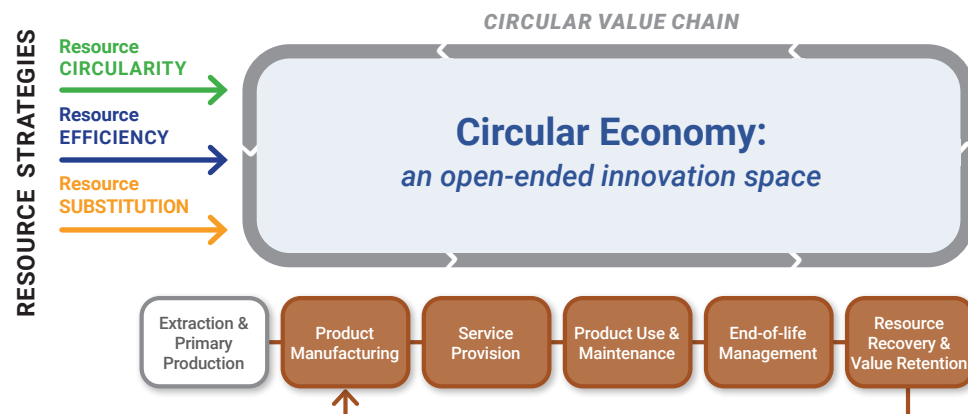


Figure 3: The open innovation space for circular economy (based on [2])

	Resource strategy		
	Resource CIRCULARITY	Resource EFFICIENCY	Resource SUBSTITUTION
Materials	- Design for reuse, repair, refurbishment and/or recycling - Use of recycled materials	- Extend the useful product life time and/or increase its use intensity - Product design with lower weight and/or smaller volume	- Use of renewable materials and facilitate their bio-degradation - Source-segregate organic waste for energy and/or nutrient recovery
Energy	(Waste) heat recovery (for heating, cooling or power generation) - Power recovery from braking/slowing down (vehicles, machinery) - Power generation from drop in height of water or materials	- Use of energy efficient equipment, devices, vehicles, lighting, etc. - Energy efficient building design and use	- Use of renewable power and fuels (bio, solar, wind, etc.) - Daylighting and enhanced natural ventilation of buildings - Solar heating, cooling or drying (produce, water, buildings, etc.)
Water	- Rainwater harvesting and utilisation - Cascaded water use from higher to lower quality applications - Water recovery, reuse and recycling	- Use of water-efficient equipment, devices, processes, etc. - Switch to waterless processes	

Table 3: Illustrative example applications of resource strategies

CE involves new, circular product and service solutions, that achieve either or a combination of the resource strategies of circularity, efficiency and substitution, and are co-created by business and possibly its existing or new value chains partners. This invokes a circularity lens in product and business development at five levels as illustrated in Figure 4 [28].

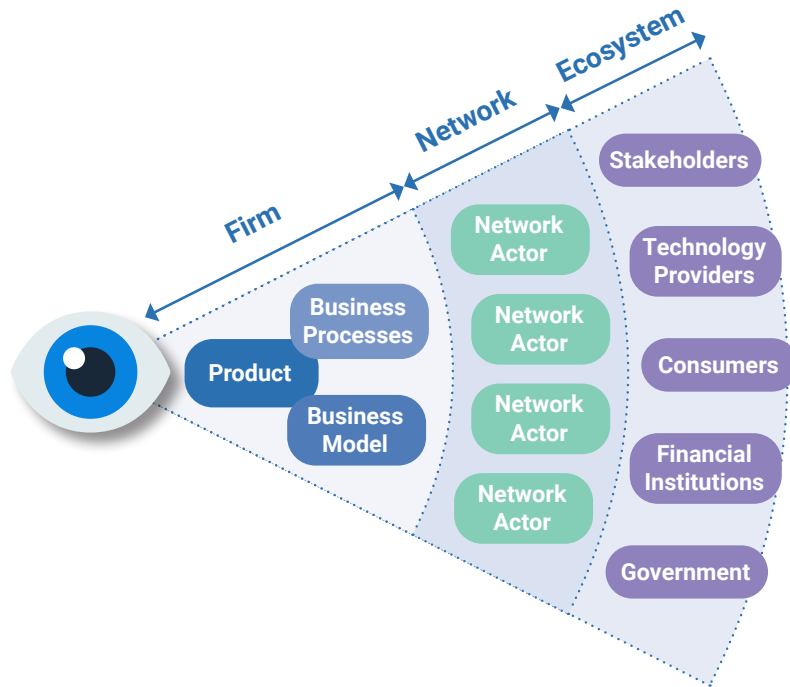


Figure 4: Circularity lens for an extended innovation perspective [28]

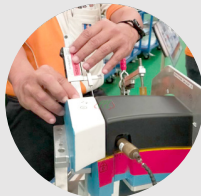
The **product** (or service) offers value to the consumer. It is produced and delivered through **business processes** (production and product and process design, logistics, etc.). These create value for the firm through the **business model**. These also cause the exchange of materials and other natural resources in **value network(s)**. And these are supported by an **ecosystem** that provides business support services. The business examples in Table 4 illustrate that these innovation levels often operate in synergy.

“

CE materialises through new, circular products and business activities that contribute to circularity, efficiency and substitution (with renewables) in the use of materials, energy and water.

”



	 Khmer Green Charcoal [Cambodia] [31]	 Electrum [Indonesia] [32]	 Fortune Parts Industries [Thailand] [11]
Description	Production of premium charcoal briquettes from coconut shells using proprietary efficient pyrolysis process technology with energy recovery	Development, manufacturing of, and battery charging and management services for, light weight e-scooters using proprietary battery charging and swapping technology	Redesign and production of automotive parts from recycled plastics, with remanufacturing of moulds and use of renewable energy
Elements of innovation			
1. Product	Premium charcoal briquettes (high carbon content, low humidity and high strength) to increase efficiency during use as cooking fuel	Light weight, easily operable two-wheeled EV for use in urban traffic using battery swapping technology	Lower weight automotive parts made from recycled plastics
2. Business processes	Customisation and deployment of efficient Top Lit Up Draft (TLUD) pyrolysis with recovery and use of pyrolysis by-products as energy source for drying	Design, manufacturing, sales and service of two-wheeled EV's. Establishment and operation of dense network of battery swapping stations (including management of the inventory of batteries in this battery network)	Eco-re-design of automotive parts for weight reduction and with increased recycled contents. Procurement of recycled plastic pallets. Optimization of machinery. Remanufacturing of used moulds. Use of bio- and solar energy
3. Business model	No significant innovation	Battery as a Service business model offered; battery swapping costs based on actual energy drawn from returned battery	Additional revenue for leasing out of remanufactured moulds to other plastic parts manufacturers
4. Network	Network development for collection of coconut shells as input for charcoal production	Co-location of battery swapping stations with petrol stations and convenience stores to create dense network and avoid range anxiety	No significant innovation
5. Ecosystem	No significant innovation	Partnership with leading GoJek ride hailing platform enabled rapid deployment and scale up of two-wheeled EVs	No significant innovation

Note: The blue shading indicates the principal innovation.

Table 4: Illustration of application of CE innovation levels in select business cases.

Turning circularity into business value

Business faces a challenge to turn circularity ideas into viable business opportunities. It may be possible to adopt some circular solutions as a stand-alone initiative. This can apply for circular solutions that are readily-available or already trialled elsewhere, e.g., a change to the use of recycled plastic pellets instead of virgin ones, or adopting more energy or water efficient equipment. Most often though the circularity ideas need further development to become truly valuable and effective for the business. This includes integration across the innovation levels shown in Figure 4, particularly: product/service; business processes; and value chain and network. This **circular business development** may involve three iterative steps (as shown in Figure 5).

CIRCULAR SOLUTION

Elaborate the circularity idea into a practical integrated solution covering product, business processes, value chain and business model.

CIRCULAR IDEA

Articulate the circularity idea and its specific expected contributions to resource circularity, resource efficiency and/or resource substitution.

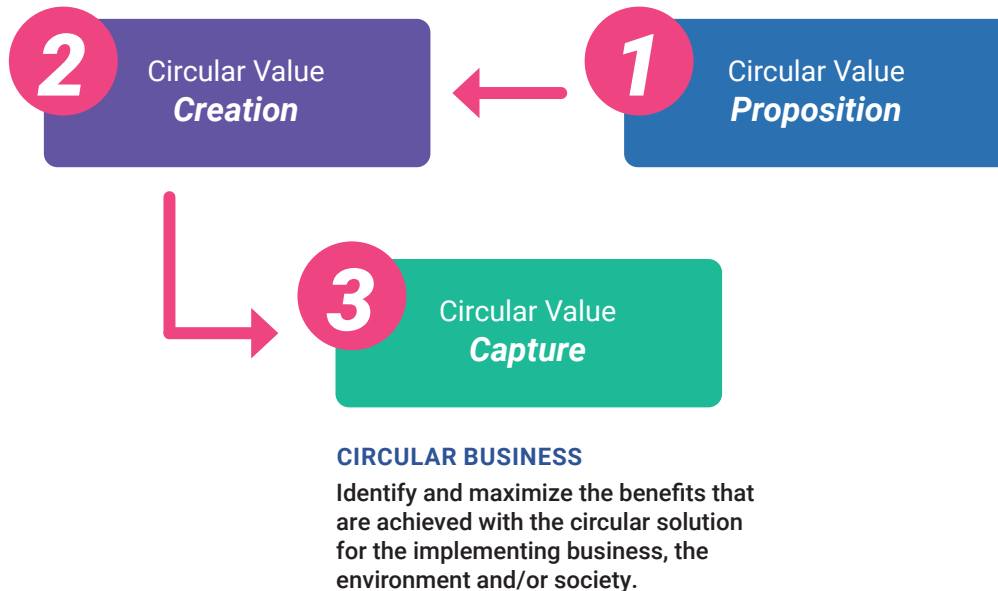


Figure 5: Structured circular business development (based on [28])

The detailed business development process is as follows:

- First is the detailed and comprehensive articulation of the circularity idea; how will it specifically contribute to improving circularity, efficiency and/or substitution in the use of materials, energy and/or water? This is the **circular value proposition**.
- Second comes an analysis and integration of the necessary changes in product/service, business processes and value chains for delivering the stated circular value proposition. This is the **circular value creation** and could involve several iterations to find the best possible way to operationalise the circularity idea.
- Third is the analysis and optimisation of the benefits that can be achieved. This covers the perspective of the business, its competitiveness, growth and diversification. Yet also benefits for environment and society. This becomes the **circular value capture**, and would result in a comprehensive view on all benefits as well as the possible risks of the circularity solution. The outcome of this circular value capture provides the basis for a cost benefit/feasibility assessment to justify investment in the circularity solution.

By way of illustration, Table 5 narrates the circular business development for three documented CE business examples.



CIRCULAR BUSINESS DEVELOPMENT

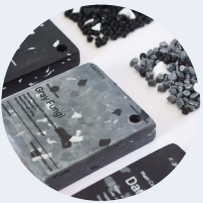
Company [Country]	1 Circular Value Proposition	2 Circular Value Creation	3 Circular Value Capture
 Robries [Indonesia] [33]	→ Circularity of materials – recover plastic waste and recycle back into designer products (home décor, etc.)	→ New stylish designs for products made from recycled plastics → Establishment of supply chain for source-segregated, quality waste plastic → Optimisation of plastic recycling process and of production of high quality and aesthetically-attractive recycled plastics' products	→ New recycled plastics products targeting niche markets → Focus on recovery of plastic waste categories with high risk of leakage into the environment (e.g. bottle caps) → Integration of informal waste workers in the plastic waste supply chain
 Renewcell [Malaysia] [34]	→ Efficiency of energy and materials – improve the energy efficiency of successive battery charging and discharging cycles and extend the battery's useful life	→ Establishment and operation of process for quality-assured rejuvenation of industrial scale batteries → Develop and roll out on-line battery management services to monitor and improve operational performance of customers' batteries (battery management services) → Support for set up of end-of-life disposal of non-recoverable used batteries	→ Provision of battery management services by main energy storage applications (e.g. buggies, etc.) → Reduction of life-cycle energy storage costs for customers → Extended useful life for batteries resulting in reduction of battery waste going to end-of-life disposal
 Phuc Singh Corporation [Vietnam] [35]	→ Circularity of materials – turn previously discarded coffee berry skins into valuable cascara tea → Efficiency of materials – minimise use of farm chemicals and improve quality of coffee berries	→ Set up and standardisation of cascara tea production facility → Development and roll out of improved coffee cultivation and harvesting practices to meet cascara tea production requirements	→ Generate additional cash flow from cascara tea sales → Premium coffee price for participating coffee farmers

Table 5: Illustration of business development for circularity ideas

Getting the circular journey started

Going Circular involves change that is unique for every business. This does not lend itself for a one-size-fits-all roadmap. Instead, any business stands to benefit from considering a menu of activities. These all contribute to advancing circular business and cover four clusters: stocktake; ambition; delivery; and integration.

The Circular Business Check is a self-assessment diagnostic tool for Small and Medium Enterprises (SMEs). It can help navigating where any business stands and how it can move ahead with CE. This provides a comprehensive company picture covering readiness, maturity and impacts of CE. Knowing the specific strengths and understanding associated opportunities provides a solid starting point to get any business ahead through CE.

Circular business transition framework

The CE adoption will be different for every business and organisation. However, there are key activities that any business may consider and undertake in a manner appropriate to its context and CE exposure. These constitute four functional clusters, jointly the SADI framework: Stocktake; Ambition; Delivery; and Integration [2], as in Figure 6.

“*The Stocktake – Ambition – Delivery – Integration framework offers a flexible action menu for ‘circularising’ any business.*”

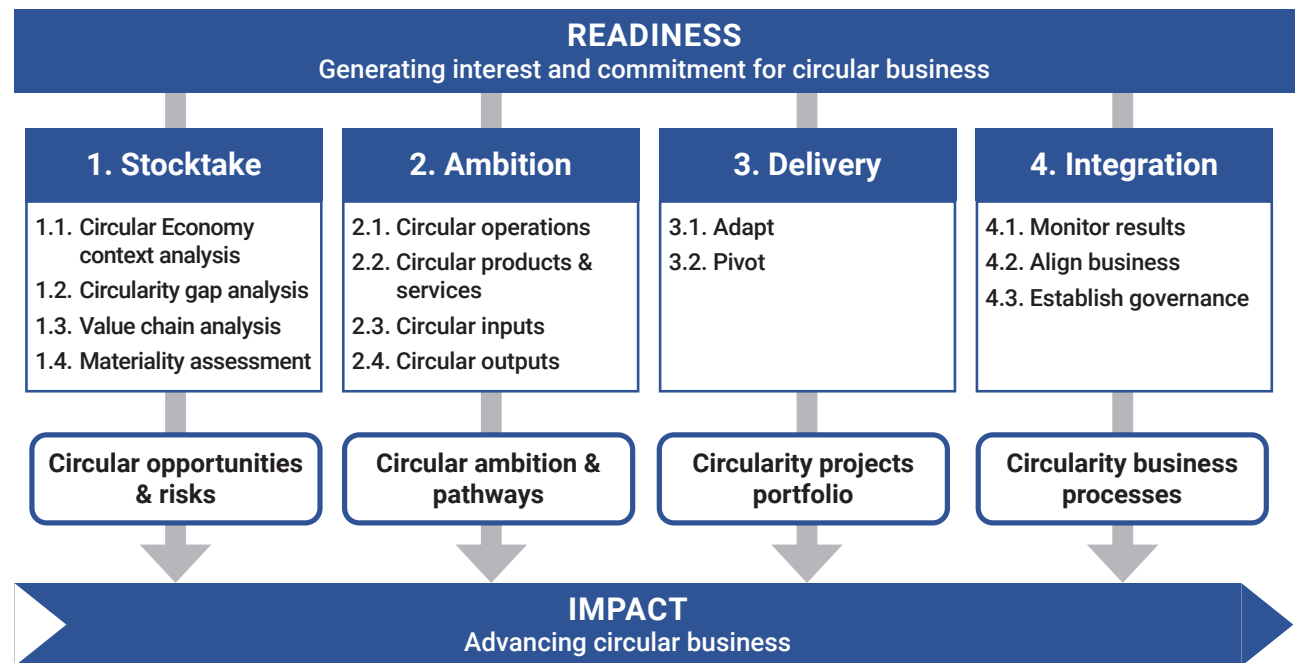


Figure 6: The SADI circular business transition framework [2]

Specifically, the SADI framework entails:

- ➔ **Stocktake:** this aims to create a specific CE justification for the company. It involves identifying and prioritising the opportunities and risks CE presents to the business and its value chain. It can guide the CE adoption and scope where the greatest impact can be made. The stocktake involves looking at what the business has already done towards CE and what comparable businesses and stakeholders have already done – a **business context analysis**. It also includes a first appraisal of the current levels of circularity, efficiency and substitution in the materials, energy and water use of the company – a proxy **circularity gap** analysis. It also explores the circularity issues and stakeholders' perspectives across the value chain. Taking together, this enables a **materiality assessment** that provides a basis to zoom in on the circularity opportunities and risks with the highest potential impact on the business.
- ➔ **Ambition:** this is forward looking and concerns developing an appropriate CE ambition for the business and identify impact-full delivery pathways. In other words, taking the directional CE perspective, **how can the company make a transformative impact towards the CE on the medium term, say within a 5 to 10 years' horizon?** Having a medium-term ambition, serves as the compass or '*magnetic north*' to zoom in on specific delivery pathways for implementation. Exploring ambition can be undertaken from four perspectives, respectively: products and services; operations; inputs; and outputs. For each the circularity idea offers an ambition benchmark which the company may consider as a starting point for determining its own ambition. And then consider principal pathways for approaching such ambition.
- ➔ **Delivery:** this is concerned with the **practical execution of circular projects**. In other words, making technical and/or operational changes in products, operations, inputs and/or outputs. This delivery can be in the form of **adaptation of known good CE practices** to the company's specific opportunities and requirements; this means building upon circular solutions that others have already developed or tried elsewhere. The delivery can also be through **pivoting transformative solutions for greater business and circularity impact**; that means with circular solutions that are designed and developed uniquely for the company and could differentiate the company from competitors and value chain partners (following the process illustrated in Figure 5).

- ➔ **Integration:** this aims to adapt and **match the business' management processes and decision making to the stated CE ambition**. This means ensuring that CE is mainstreamed into those business processes that are driving business growth and development, including key decisions on products, services, operations and investments. It is intended to make CE part of the day-to-day operations and management of the company, and a target in its longer-term strategies and initiatives. Integration happens by: monitoring results that matter for the CE transition and for business performance; aligning business by reviewing vision, mission, business model and value network; and establishing governance for effective oversight and assignment of roles and responsibilities for CE in the company.

Circular Business Check²⁶

The Circular Business Check is a simple, practical and business-friendly **self-diagnostic CE assessment tool** focusing in first instance on the needs of Small and Medium Enterprises (SMEs). It is aimed to gauge the firm's understanding and adoption of CE, identify gaps and opportunities for CE adoption, and get prepared to demonstrate environmentally- and socially-responsible commitment and achievements. It operates as a balanced scorecard that leads to suggestions for activities to begin or deepen the CE journey.

The Circular Business Check considers three pillars, respectively: **readiness; maturity; and impact**, as indicated in Figure 7. The pillars are interrelated - readiness appraises awareness, understanding and resources to get started on CE. Maturity follows this by considering the status of CE-enabling activities of the firm. This leads to impacts that are of benefit towards circular and sustainable use of resources and for profitable and resilient business operation.

“

The Circular Business Check is a self-assessment diagnostic tool for any SME to understand where it stands and how it can move forward with CE.

”

26 Based on the zero-draft issued for pilot testing in July 2026

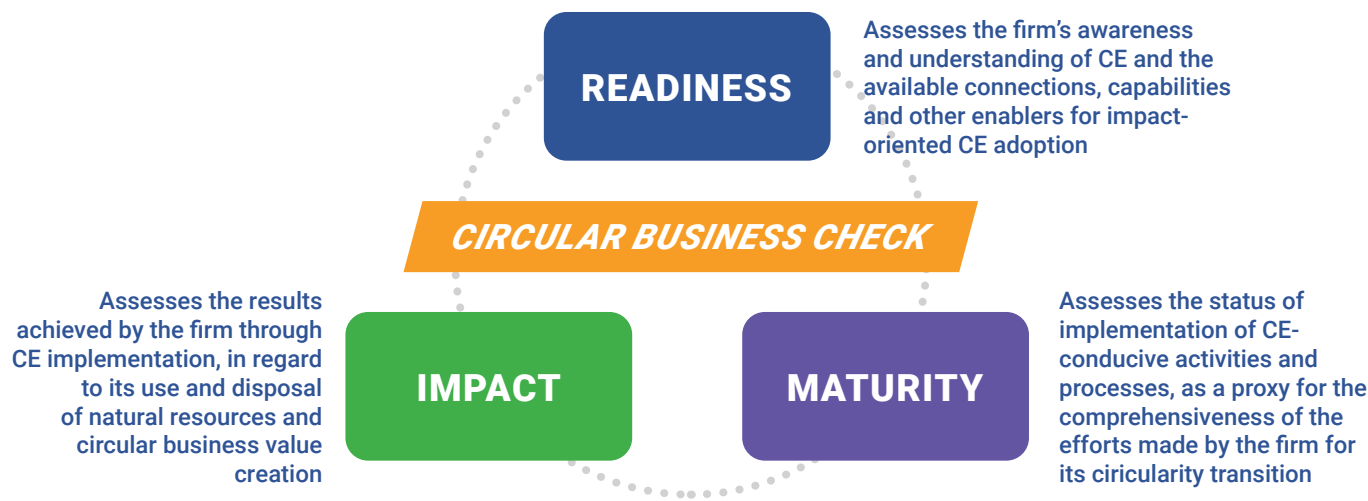


Figure 7: Overview of the Circular Business Check



The **Readiness** pillar assesses capacities the firm can bring forward to start the CE journey; it zooms in on five different capacities.

- ➔ **Awareness** of policy, market, societal, environmental and possibly other CE drivers and their potential present or future, positive or negative impact on the profitability and continuity of the firm.
- ➔ **Understanding** concerns foundational familiarity with CE concepts, practices and tools and their relation to the firm's products, services and activities.
- ➔ **Mapping** in terms of the firm having some understanding of opportunities or risks for CE activities with suppliers, customers and final consumers.
- ➔ **Connections** gauge the engagement of the firm with associations, knowledge institutions or other organisations working on CE.
- ➔ **Capabilities** gauge the technical and managerial capabilities of the firm to advance CE.

The **Maturity** pillar is based on the above-described SADI circular business transformation activity framework. Specifically, it gauges the status and comprehensiveness of each of the key activities under Stocktake, Ambition, Delivery and Integration clusters.

Finally, the **Impact** pillar tracks progress towards circular and sustainable resource use and towards circular business results. This is based on simplified, firm level indicators, that are reasonable proxies to guide business management. However, by default these are not suited for external communications and comparative environmental claims. In terms of resource metrics, the Circular Business Check considers progressive improvements in circularity (of material and water use), efficiency (of material, energy and water use) and substitution (towards renewable materials and energy use). For circular business results, it considers what share of the business has incorporated circularity, relative to all new product/activity launches, to the total product or service portfolio and to the generation of turn-over/sales.

Additional information resources

As CE concepts, practices and policies develop regularly, make sure to stay informed, updated and connected.

Follow the ASEAN Circular Economy Business Alliance (ACEBA) (www.aceba.co): launched in July 2024 as an ASEAN-centric, regionally- and globally-informed, business-led CE initiative. ACEBA brings together companies and business and other organisations that commit to lead by example in advocating for and adopting CE in their business communications, products, services and activities. ACEBA has uncovered over 90 CE-relevant business cases from around ASEAN and continues to expand this set of business cases²⁷. Moreover, ACEBA has already developed and published a series of business tools, that combine insights from practical CE experiences in the region with European and other international best CE practices and methodologies; this already includes a framework for business action on CE [36]; a CE implementation guide for business [2]; a circular solution canvas for circular product and business development [28]; and the circular business check.

More information on CE policies, practices and examples is also available from a variety of public CE knowledge platforms, including, e.g.:

- ➔ ASEAN Circular Economy Stakeholders Platform²⁸ – which maintains a online repository of CE relevant documents and convenes an annual ASEAN Circular Economy Forum;
- ➔ European Circular Economy Stakeholders Platform²⁹ – which brings together CE professionals from around Europe, and works to curate, advance and disseminate best practices through working groups, webinars, annual conference and online knowledge repository;
- ➔ World Circular Economy Forum³⁰ – a global gathering of CE practitioners that advances CE knowledge, policy and practice through its annual forum conference and series of associated accelerator events.

27 <https://www.aceba.co/aceba/business-case/>

28 <https://ce.acsdsd.org/>

29 <https://circulareconomy.europa.eu/platform/en>

30 <https://wcef.global/>



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About



ASEAN Circular Economy Business Alliance

The ASEAN Circular Economy Business Alliance (ACEBA) is an ASEAN-centric, business-led initiative that fosters business leadership and action for the Circular Economy in Southeast Asia. ACEBA is an initiative of ARAIBA Sdn Bhd, in collaboration with national and regional business organizations, supported by a technical advisory through the EU SWITCH-Asia Policy Support Component.

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ARAIBA Sdn Bhd is a not-for profit business organization that promotes responsible and inclusive business in Southeast Asia. This includes consideration of business and industry contributions to mitigate the triple planetary crisis and opportunities this presents through resource efficiency and Circular Economy - actions that cannot be seen independently from other core social responsibility subjects, particularly organizational governance, adoption of fair operating practices, labour, and community engagement and development.

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The East Asia Business Council (EABC) brings together business leaders representing large, medium and small enterprises from ASEAN and its three dialogue partners (P.R. of China, Japan and South Korea). EABC supports inclusive, sustainable, and innovative growth for all businesses in the region and promotes trade, investment and collaboration.

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