



# | Excess Materials Exchange

Seamless sustainability  
Amplified profits

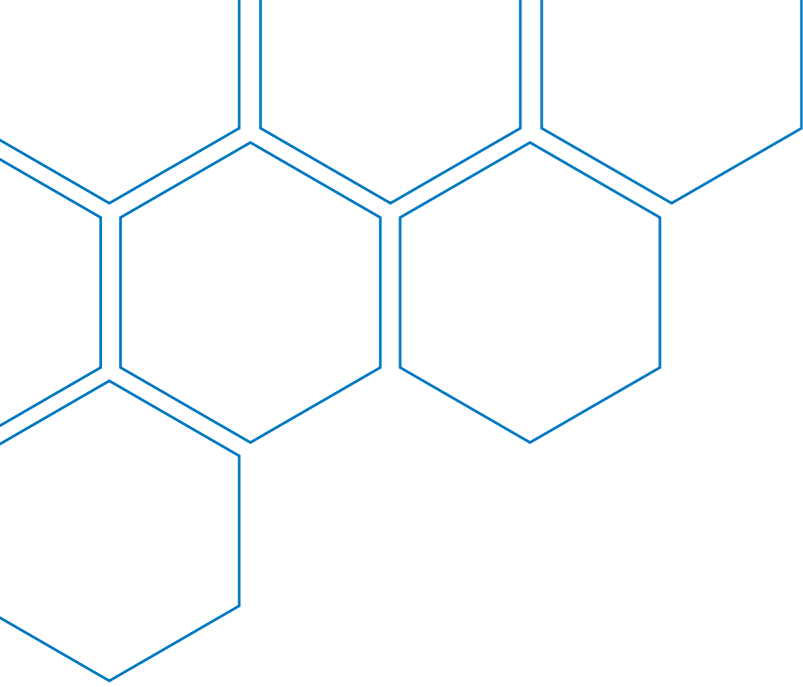
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I was intrigued to hear about the innovative approach being developed in the Netherlands by a company called the Excess Materials Exchange.”

- HRH King Charles



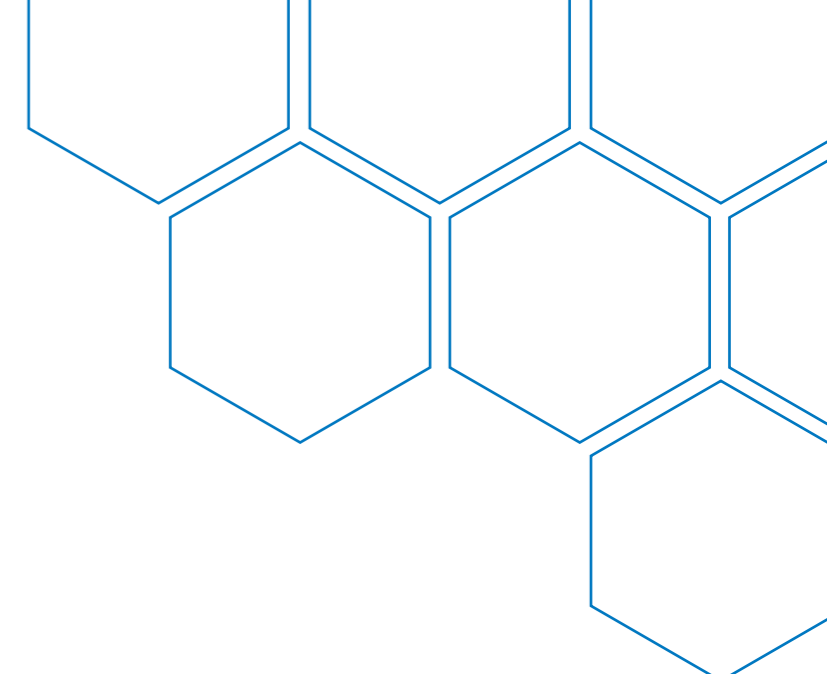
# | Foreword

In the face of pressing environmental challenges, Excess Materials Exchange (EME) has established itself as a leader in the circular economy, demonstrating that the path to sustainability can also be a springboard for innovation and economic opportunities. Recognized by leaders and innovators, including HRH King Charles, for its groundbreaking approach, EME utilizes cutting-edge technology to facilitate the reuse and repurposing of materials across industries. This document delves into the mechanics of EME's platform, showcasing its dual role as a technology innovator and marketplace facilitator.

It highlights the strategic application of resources passports, AI/ML-driven matchmaking, and the critical processes of demand generation and quality assurance, ensuring materials find their highest-value reuse. Through case studies and pilot results, we illustrate the tangible benefits of EME's system, including significant increases in material value and reductions in ecological footprint, underscoring EME's commitment to transforming how businesses view and manage waste.

As we explore EME's vision and strategy, this foreword sets the stage for a detailed examination of a model that not only promises but also delivers on the principles of a circular economy, inviting industries to join in creating a more sustainable and economically viable future.





## Who we are

Excess Materials Exchange (EME) is a pioneering digital platform designed to accelerate the transition to a circular economy by facilitating the efficient reuse of materials and products. At its heart, EME tackles the crucial issue of resource inefficiency in the global economy, providing a solution that benefits the environment and generates economic value for businesses. Through its innovative technology, EME connects companies, enabling them to identify, exchange, and repurpose excess materials transforming potential waste into valuable resources.

# The core problem

The core problem that Excess Materials Exchange (EME) addresses stems from inefficiencies and missed opportunities within the lifecycle of materials across industries. This issue is multifaceted, encompassing challenges related to supply, demand, and data.

These challenges contribute to a systemic issue where valuable materials are discarded, leading to unnecessary and significant environmental impacts, and economic opportunities are missed. EME's mission is to directly address these concerns, using technology to connect supply with demand and providing crucial data to support the shift towards a more sustainable, circular economy.



In practice, many post-use materials are overlooked, often ending up in landfills or incinerated, rather than being repurposed into valuable new uses. This outcome, driven by the convenience of disposal over the complexity of recycling and reuse, undermines environmental goals and misses economic opportunities. The push towards a circular economy is hindered by the lack of incentives, regulatory mandates, and the inherent challenges of revalorizing surplus materials.



Market dynamics often prioritize new over used materials, influenced by traditional views on quality, availability, and cost. This preference hampers innovation and slows the shift towards a circular economy, despite the potential advantages—cost savings, speed, and environmental benefits—of integrating used materials into new products or projects. Overcoming this inertia requires reevaluating the perceived risks and complexities associated with recycled content, highlighting the untapped value in repurposing resources.



A critical barrier to the effective reuse of materials is the lack of accessible, reliable data. Information about the availability, condition, and potential applications of used materials is fragmented or non-existent. Without this data, it's challenging for companies to make informed decisions about material reuse, limiting the opportunities for circular practices.



# The solution

EME's solution is a comprehensive digital platform designed to maximize the potential of materials, products and services. This includes streams by matching them to their highest-value uses. This platform addresses the supply-demand mismatch and data scarcity through innovative tools and services, including a resources passport for material identification, tracking and tracing for lifecycle management, valuation to understand material worth, and matchmaking that combines AI with expert insight to find optimal reuse opportunities. By facilitating these connections, EME not only enhances material value financially and ecologically but also paves the way for a scalable, sustainable circular economy model.

Excess Materials Exchange (EME) has developed a sophisticated solution encapsulating several key components designed to revolutionize the circular economy. In our experience, material flows *increase by 110%* on average in financial value, and the ecological footprint *reduces by 60%* on average.



# EME's services and tools: a deep dive

1

## **Resources passport: comprehensive material identity**

The resources passport goes beyond simple identification; it encapsulates a material's entire story. This digital passport includes detailed information on composition, origin, recyclability, and environmental impact, making it an essential tool for stakeholders to assess the value and sustainability of materials. It's a cornerstone of transparency in the circular economy, ensuring materials are fully utilized and efficiently recycled.

2

## **Tracking and tracing: ensuring accountability and transparency**

EME's tracking and tracing system integrates cutting-edge technology to monitor the journey of materials throughout their lifecycle. Utilizing barcodes, QR codes, and RFID technology, it connects the physical material to its digital passport, allowing for real-time tracking and ensuring that materials are used responsibly and optimally throughout their lifecycle. This system is pivotal for closing the loop in the circular economy, providing the data needed to make informed decisions about material reuse and recycling.

3

## **Valuation: quantifying material value**

Valuation at EME isn't just about financial metrics; it encompasses environmental and societal impacts, offering a holistic view of a material's true value. This approach enables companies to make data-driven decisions, choosing pathways that not only maximize economic returns but also benefit the planet. It's a revolutionary way of thinking about value, transforming the way industries perceive and utilize materials.

4

## **Matchmaking: AI-driven solutions for material reuse**

EME's matchmaking service leverages artificial intelligence and machine learning to identify the best reuse and recycling opportunities for materials. This isn't just about finding a match; it's about finding the right match that maximizes value, minimizes environmental impact, and fosters innovation across sectors. By combining technology with expert insight, EME ensures that materials find their highest-value uses, promoting efficiency and sustainability.

# Demand and supply

## Demand

EME creates a dynamic marketplace for reused and recycled materials, ensuring rigorous qualification of buyers through KYC checks to align with the principles of the circular economy. Our approach offers clear benefits for procurement professionals:

**Access to a vetted network:** connect with an ever-expanding circle of verified solution providers, simplifying the sourcing of sustainable materials.

**Intelligent matchmaking:** our AI and machine learning algorithms efficiently match your needs with available materials, streamlining procurement processes.

**Rapid discovery and transaction:** on listing materials, we immediately identify and guide you to suitable market or auction opportunities, ensuring a swift procurement cycle.

**End-to-end transaction support:** frictionless purchasing experience with integrated logistics, secure payment processes, and comprehensive risk management, including insured transactions.

**Guaranteed buyer engagement:** we don't just list your materials; we actively market them to a wide network of interested buyers, ensuring high visibility and quicker sales cycles.

**Economic and environmental impact:** prioritize solutions that are not only cost-effective but also minimize environmental impact, aligning with corporate sustainability goals.

## Supply

EME's supply side management combines innovation with rigorous oversight, beginning with the distinctive use of resource passports. These digital profiles provide a comprehensive view of each material stream's lifecycle and reuse potential, facilitated by manual entry or seamless integration through APIs and data bridges.

**Resource passports:** materials entering the platform receive a resource passport, detailing essential information about their quality, origin, and potential reuse applications.

**Verification:** the integrity and accuracy of this data are primarily verified by EME, with the option for additional confirmation through third-party verifiers when necessary, ensuring all materials meet our high standards for circular economy practices.

**Listing and tracking:** following verification, materials are listed on marketplaces or auctions, linked to unique identifiers like QR codes or RFID chips for straightforward tracking and authentication.

**Comprehensive matchmaking:** the platform anticipates possible matches, offering insights into the financial, environmental, and social impacts, as well as legal considerations for material transportation.

This approach addresses the critical aspects of supply, demand, and transactional integrity in the circular economy, offering innovative, efficient, and sustainable solutions. EME's platform is at the forefront of fostering material efficiency and sustainability in industry, leveraging cutting-edge technology to ensure environmental and economic benefits for our multinational clientele.



# EME's matchmaking process

EME's matchmaking process is a testament to its commitment to fostering sustainable material exchanges within the circular economy. By combining technological innovation with rigorous validation, EME ensures that every match between supply and demand not only meets the highest standards of quality but also aligns perfectly with circular economy principles.

1

## Scanning and longlisting

The process begins with an extensive scanning phase, leveraging EME's advanced technology to identify a comprehensive list of potential matches based on specific material needs and availability.

2

## Initial engagement

Potential parties identified during the scanning phase are then carefully approached. This step is crucial for assessing interest and ensuring that potential matches are aligned with the objectives of the circular economy.

3

## Validation

After initial engagement, a rigorous validation process ensues. This involves verifying the credentials of the parties, including necessary certifications and the ability to handle specific materials safely and responsibly.

4

## Marketplace listing or direct match fulfillment

Depending on the outcome of the validation process, materials are either listed on EME's transparent marketplace for broader visibility or directly matched with a validated party, culminating in a successful material exchange.





# The dual role of EME: bridging technology and marketplace

## Dual role of EME

EME uniquely positions itself at the intersection of technology development and marketplace operations, serving a dual role essential for driving the circular economy forward. By crafting cutting-edge software solutions and managing vibrant marketplaces across various countries and industries, EME gains unparalleled insights into customer needs. This synergy enables us to tailor our offerings closely to market demands, enhancing the efficiency and impact of sustainable practices globally.

## Tech solutions provider

As a technology solutions provider, EME leads in the innovation of digital tools critical to the circular economy. Our flagship Resources Passport and AI/ML Matchmaking Engine exemplify our commitment to technological excellence. These tools facilitate the seamless identification, tracking, and valuation of materials, simplifying the process for companies to adopt sustainable practices. By offering these advanced digital solutions, EME empowers businesses with the data and connectivity essential for making informed decisions, showcasing our dedication to tackling environmental challenges through technology.

## Marketplace operator

In parallel, EME thrives as an operator of interconnected marketplaces, creating a dynamic space where sellers and buyers of excess materials converge. This aspect of our operation is vital for translating the theoretical advantages of our platform into tangible, real-world benefits. By fostering a community of practice across diverse industries, EME encourages the adoption of circular economy principles, making it not only feasible but also profitable for parties to exchange materials. Our marketplaces serve as the practical ground for these exchanges, proving that economic and environmental objectives can align harmoniously.

# Awards and Nominations

## Strategic direction and long-term focus

EME's strategic vision evolves beyond our initial dual role, aiming for a future where our focus shifts towards the technological advancement of our platform. While our current operations as a marketplace operator are integral, they serve as a stepping stone towards a broader objective. Our long-term aim is to deepen and expand our platform's technological capabilities, fostering an environment ripe for innovation in the circular economy. As our expertise and the circular economy mature, we envision entrusting marketplace operations to trusted partners. This transition will allow us to concentrate on hyper-scaling our platform and pioneering advanced technological solutions, driving widespread adoption of circular economy practices across various sectors and geographies.

## Partnership and collaboration

EME recognizes the importance of strategic partnerships in advancing the circular economy and enhancing our platform's capabilities. Our focus is on collaborating with key players across different sectors to drive innovation and sustainability. These partnerships, whether with logistics experts or other specialized firms, are crucial for expanding the reach and effectiveness of our services. By joining forces with organizations that share our commitment to sustainability, we aim to create a more robust ecosystem of solutions that benefit our clients and the environment. Through these collaborative efforts, EME is dedicated to leading the charge in sustainable business practices, demonstrating the value of partnership in achieving our collective goals.

EME's integrated approach, combining our roles as both a technology solutions provider and a facilitator of marketplace operations, underscores our holistic commitment to advancing the circular economy. This dual capacity enables us to seamlessly connect technological advancements with tangible marketplace dynamics, effectively closing the loop between innovation and its practical implementation. With a clear emphasis on forging strategic partnerships and prioritizing long-term platform evolution, EME is strategically positioned to spearhead the shift towards more sustainable materials management and production methodologies, embodying the future of environmental sustainability in industry practices.




## Transforming tomorrow: the Excess Materials Exchange & ABB Initiative

Innovation meets sustainability: in partnership with ABB, we're revolutionizing the recycling of end-of-life electrical components. Our mission: to transform waste into opportunity, starting with circuit breakers and switch gears from ABB clients.

The process simplified: we ensure these essential materials are efficiently redirected from ABB's clients to pioneering recycling solutions, ready for a new life.

Transparency is key: detailed impact reports highlight the CO2 savings and environmental benefits achieved.

Vision for expansion: 2024 marks the launch in two European countries, paving the way for a global rollout across 50 countries. It's not just recycling; it's a movement towards a sustainable future.

A photograph of an industrial facility, possibly a refinery or steel mill, at sunset. The sky is a mix of deep blue and orange. In the foreground, a large, dark, curved structure, likely a ship's hull or a large piece of machinery, is visible. The background shows a complex network of pipes, walkways, and structural beams, illuminated by the warm light of the setting sun. A blue container or piece of equipment is partially visible on the right side.

“  
The current process for  
managing the end-of-life of  
any type of material (including:  
equipment, assets, waste) particularly  
in relation to finding suitable logistics,  
transportation and waste management  
partners is complex, timely and costly.  
”

- Quote from ABB

# Timeline



**2017**

EME Founded



**2018 - 2019**

1st pilot with a.o.  
Rijkswaterstaat,  
ProRail, Heembouw,  
Sodexo and Schiphol



**2020**

EME Platform 1.0  
launched to  
first users



**2022**

EME active in  
North West Europe



**2023**

EME expanding  
to Saudi Arabia/  
Middle East

# | EME team



## | **Christian van Maaren**

CEO / Founder  
Circular Economy expert with global experience. Antarctica Leadership Expedition Alumnus. Background in Aerospace Engineering and the Oil & Gas industry.



## | **Anne Rademaker**

Circular Airports PM  
Background in ESG/EY



## | **Ioannis Skaltsas**

Full stack developer



## | **John Ropas**

Engineering manager  
15 year software development experience.



## | **Simon Liebold**

Technical account lead  
Bexio



## | **Antonios Plessas**

Full stack developer



## | **Francisco Veiga Simão**

Resources Passports  
& Project management



## | **Paul Dale**

Chief Product  
& Technology officer  
Background as engineering manager at Klarna / elemica



## | **Cameron Guild**

Cost controller / Finance



## | **Steve Gilchrist**

New business development  
Background in Grosvenor



## | **Nitesh Magdani**

Head of UK  
Registered architect and background as Chief Sustainability Manager at BAM International



## | **Esma Bolat**

Executive Assistant to CEO

# Selection of our clients



# Recognitions



| 2020

Selected as an “Efficient Solution” as part of the Solar Impulse Foundation



| 2021

Selected to be part of Accenture’s “The Circularity. An initiative of UpLink, World Economic Forum and others



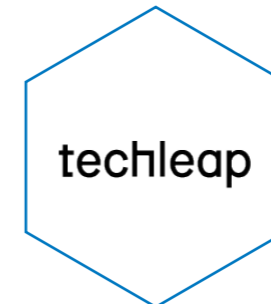
| 2022

Selected to be part of PwC Belgium Next Level



| 2022

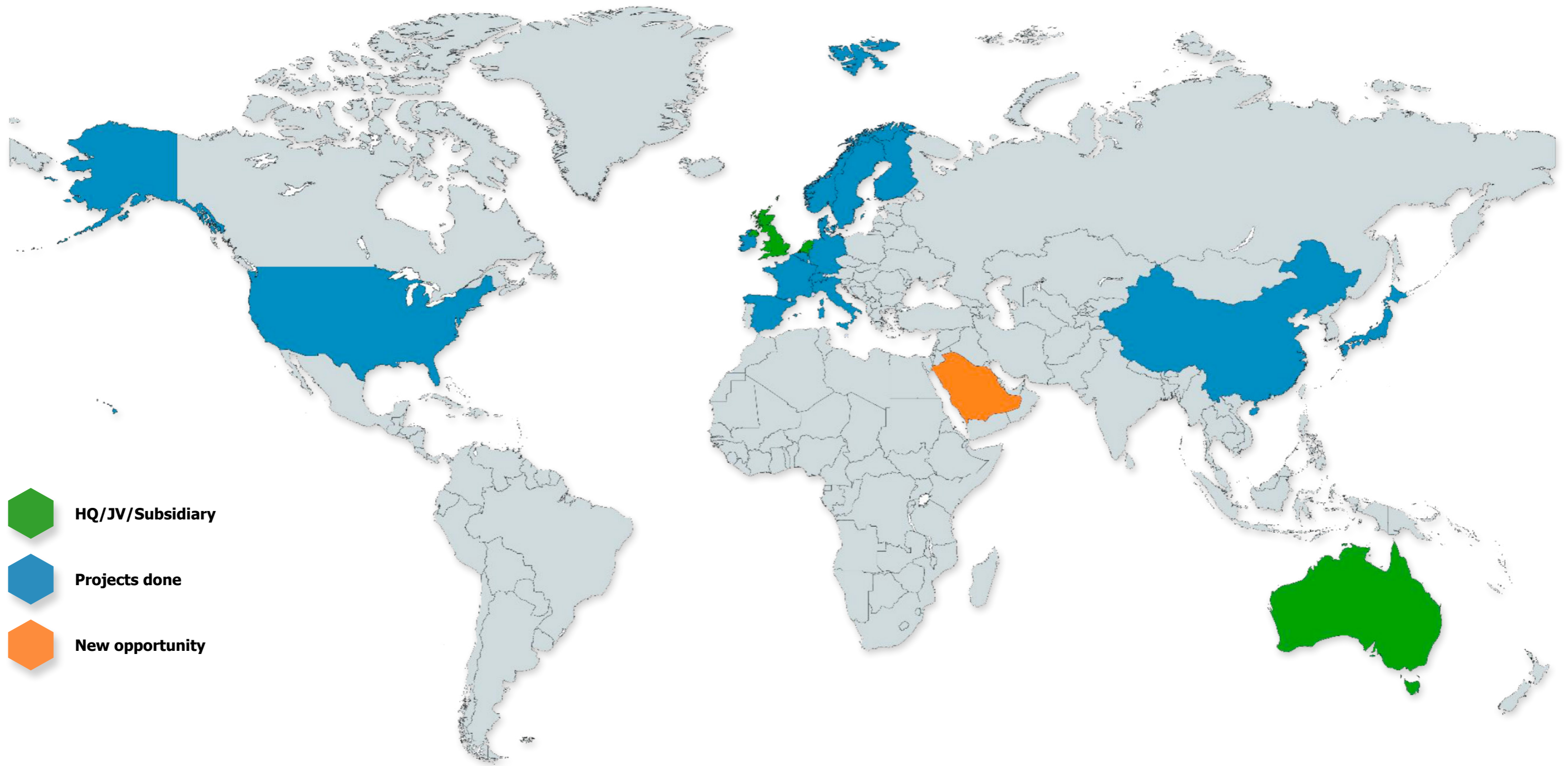
Selected to be part of RMI/D3 Scale-up programme



| 2024

Selected to be part of Techleap Rise programme

# Global presence





**Seamless sustainability  
Amplified profits  
Excess Materials Exchange**

## Conclusion

Excess Materials Exchange (EME) catalyzes a revolution in the circular economy, solving the intricate puzzle of material supply, demand, and transparency. Our cutting-edge tools—Resources passport, precise tracking, valuation metrics, and AI-driven matchmaking—aren't just innovations; they're the blueprints for a sustainable economic model.

In merging technological innovation with marketplace efficiency, EME is not merely suggesting a new way of doing business; we're leading it. Our drive for technological excellence and our strategic alliances, including potential collaborations, are setting the stage for a global transformation. EME embodies the principles of the circular economy, urging industries far and wide to embrace a future where sustainability is not optional.

The time for action is now. Join EME in this ambitious journey to redefine the global economy. Together, we can turn the vision of a fully sustainable and efficient material lifecycle into our shared reality. Let's innovate, transform, and lead the way to a greener world.



“The circular economy seems to be stuck in the future.”

**EME puts  
it to work.  
Today.**

