Kilpailukykyä ja vientiä kiertotaloudesta

ARVI loppuseminaari, 16.1.2017 Helsinki

Hannu Lepomäki

Eera Waste Refining Oy

ARVI:n visio

Vuoteen 2030 mennessä suomalainen teollisuus on edelläkävijä systeemisten resurssitehokkuusratkaisujen tuottamisessa ja käytössä tunnistaen jätemateriaalien arvopotentiaalin.

ARVI hankevalmistelun lähtökohtia syksyllä -11 ja keväällä -12

Tarvitaan uusi lähestymistapa materiaalitehokkuusalueen T&K -ohjelmatoiminnan valmisteluun ja aikaisempia hankevalmisteluita…

- vahvempi pyrkimys radikaaliin uudistamiseen
- määrätietoisempi t&k -tuloksien liiketoiminnallistaminen
- kansainvälisempi ote
  - t&k -verkostot
  - Yrityksien kasvu kv. -markkinoilla

ARVI-ohjelman sisältö ja vaste haasteisiin

- Laaja yrityksien ja tutkimuslaitoksien yhteenliittymä
- Tutkimusohjelma ja sen toteutus …

  → Tutkimuksen, teknologiakehityksen ja liiketoimintamallinnuksen teemasisällöt
- Systeemisyyden korostaminen → uusia T&K -toimijoita
  - Mm. systeemisen kysynnän käsitteen lanseeraus
- Yrityksien ja tutkimuslaitoksien kv. –verkostojen yhteen-saattaminen → uusia avauksia ja konkreettista yhdessä tekemistä

EERA WASTE REFINING – PRODUCING RAW MATERIALS AND ENERGY FROM WASTE AND BIOMASS

Urban Development

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What a Waste: A Global Review of Solid Waste Management

As the world hurtles toward its urban future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization. Ten years ago there were 2.9 billion urban residents who generated about 0.64 kg of MSW per person per day (0.68 billion tonnes per year).

This report estimates that today these amounts have increased to about 3 billion residents generating 1.2 kg per person per day (1.3 billion tonnes per year). By 2025 this will likely increase to 4.3 billion urban residents generating about 1.42 kg/capita/day of municipal solid waste (2.2 billion tonnes per year).

This report provides consolidated data on MSW generation, collection, composition, and disposal by country and by region. Despite its importance, reliable global MSW information is not typically available. Data is often inconsistent, incomparable and incomplete; however as suggested in this report there is now enough MSW information to estimate global amounts and trends. The report also makes projections on MSW generation and composition for 2025 in order for decision makers to prepare plans and budgets for solid waste management in the coming years. Detailed annexes provide available MSW generation, collection, composition, and disposal data by city and by country.

See related report on e-waste: Wasting no opportunity: the case for managing Brazil's electronic waste

GLOBAL WASTE TREATMENT MARKET OPPORTUNITY

There is a massive market potential especially in non-OECD countries – these markets provide a lucrative opportunity for European technology export

- Over 800 bnUSD cumulative W2E investment market potential during the next 20 years. Additionally over 300 bnUSD annual service business potential at the end of the period.
- Analysis of the global municipal solid waste (MSW) volumes and growth projections show that **93% of the growth comes outside of the OECD countries**.
- Excellent business opportunity for advanced Finnish and European Cleantech -technologies.
- Customers at the target market are usually from the public sector (municipalities or states).

Urban waste [tons/day]	2014	2025	Annual growth rate
Africa	169 119	441 840	9 %
East Asia and Pacific	738 958	1 865 379	9 %
Eastern and Central Asia	254 389	354 810	3 %
Latin America and the Caribbean	437 545	728 392	5 %
Middle East and North Africa	173 545	369 320	7 %
OECD	1 566 286	1 742 417	1 %
South Asia	192 410	567 545	10 %
Total	**3 532 252**	**6 069 703**	**5 %**

ESSENTIAL GROWTH DRIVERS

Only 15 % of the global municipal solid waste (MSW) is currently treated.

European cost level of waste management is not acceptable.

Need for industrial refining of waste increases.

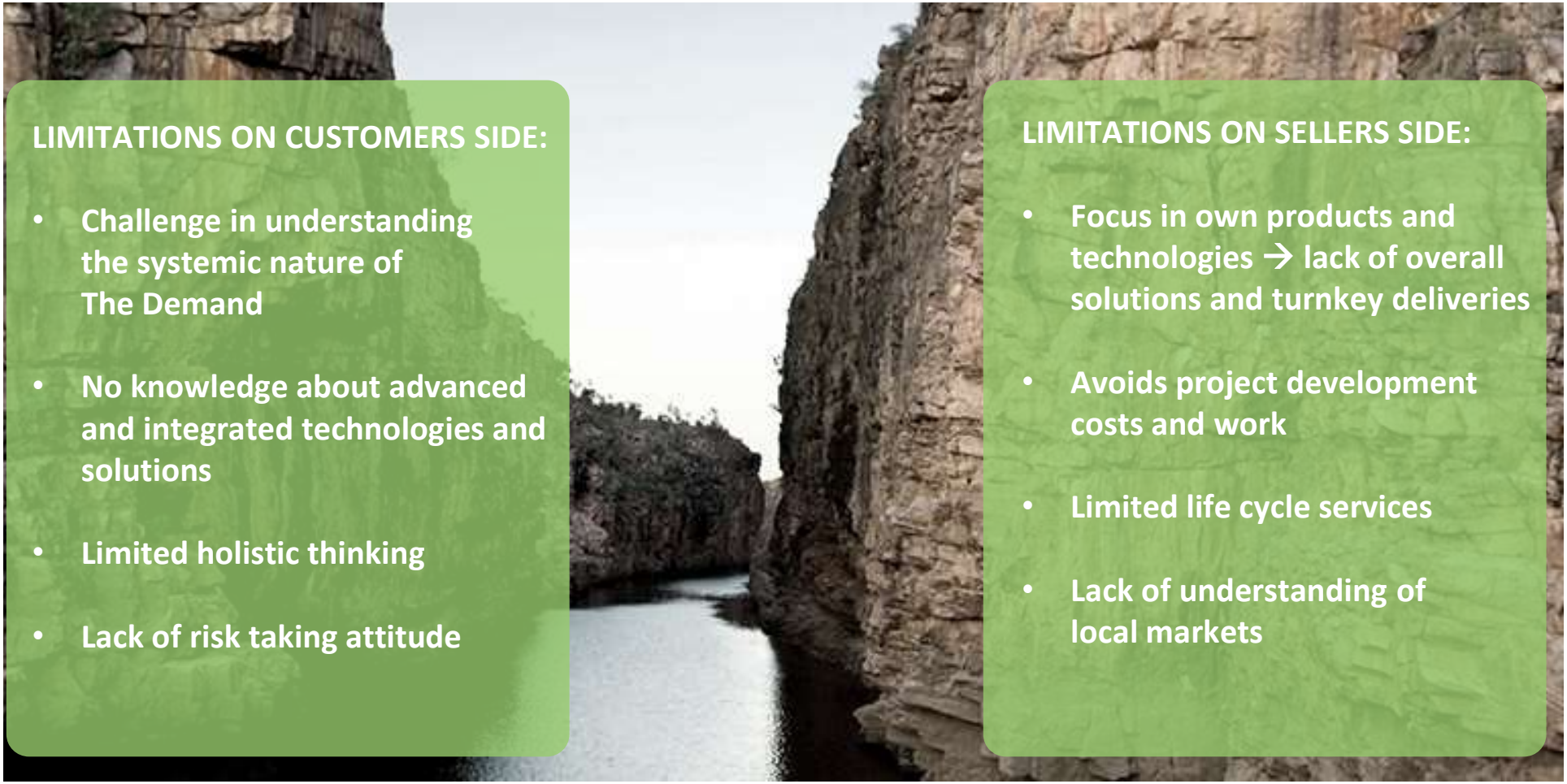
Variations in the waste composition are increasing.

Lack of energy in many areas and increasing energy prices.

Winning solutions are value added driven, not cost driven.

THE CONCEPT OF SYSTEMIC DEMAND & NEW BUSINESS OPPORTUNITIES

A gap to be bridged …



LIMITATIONS ON CUSTOMERS SIDE:

- Challenge in understanding the systemic nature of The Demand
- No knowledge about advanced and integrated technologies and solutions
- Limited holistic thinking
- Lack of risk taking attitude

LIMITATIONS ON SELLERS SIDE:

- Focus in own products and technologies → lack of overall solutions and turnkey deliveries
- Avoids project development costs and work
- Limited life cycle services
- Lack of understanding of local markets

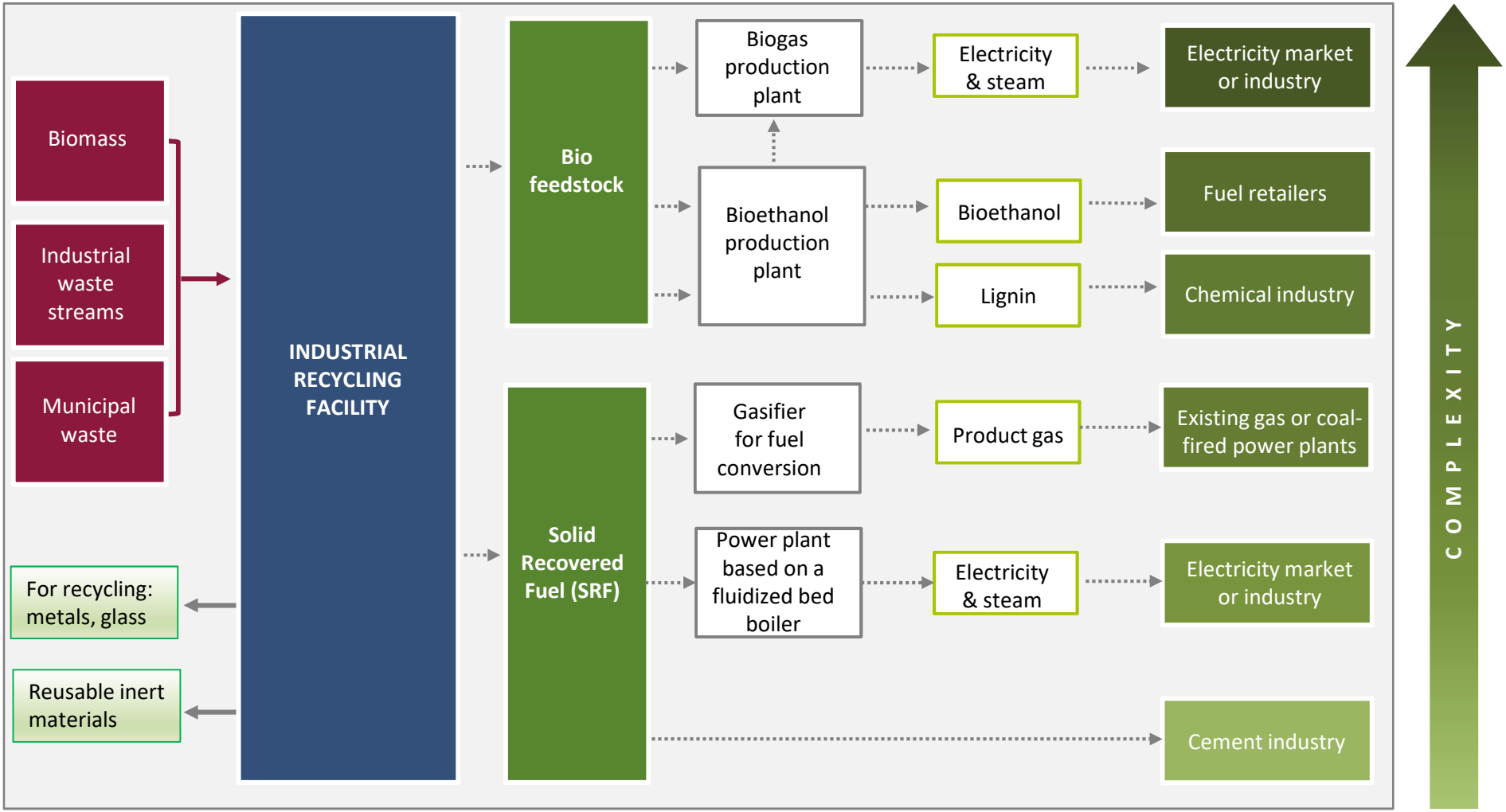
EWR BRIDGEHEAD MODEL

Closing the gap by developing advanced Waste Management investment projects and co-investing them with selected local partners.

- Eera Waste Refining (EWR) creates new circular economy business opportunities by developing waste management investment projects, co-investing in them together with local business partners, and by operating the waste refineries.
- The focus of our businesses are in Biomasses, Waste-to-Energy and in applications where SRF can be used in thermic processes, like in cement production.

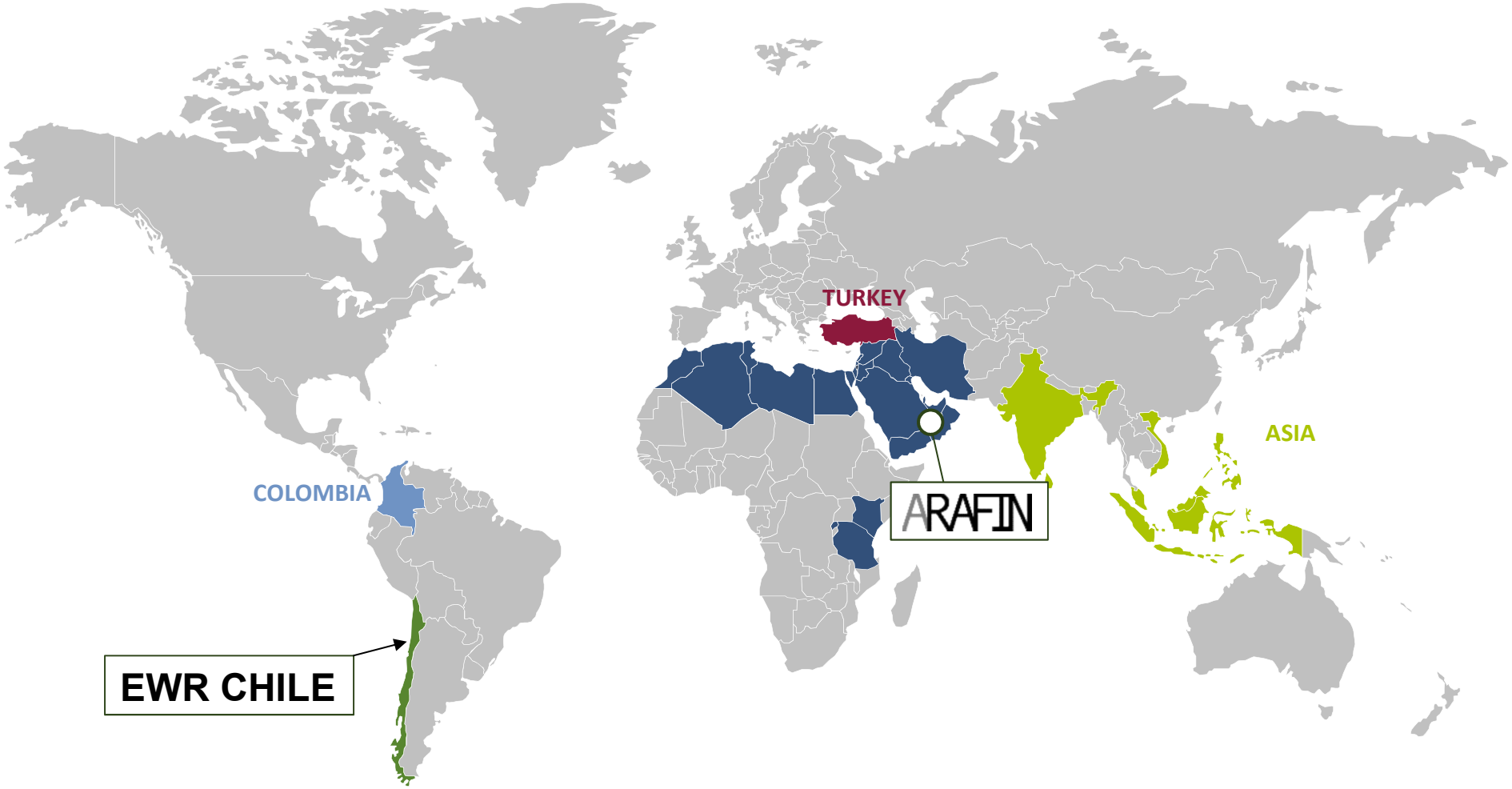
MASTERING INDUSTRIAL RECYCLING ECOSYSTEMS

EWR creates and invests in industrial recycling-based ecosystems



GLOBAL REACH

NEWCO's: MENA through ARAFIN, LatAm through EWR Chile



EWR BUSINESS ACTIVITIES

”In five years, Finland is to be the leading country in providing solutions for producing raw materials and energy from waste and biomass”
- Mr. Olli Rehn, Minister of Economics and Employment, Finland

- EWR has about 10 active investment project under development:
  - Oman
  - United Arab Emirates
  - Columbia
  - Chile
- >> 2 Million t/a MSW
- ~ 1 Billion € investment need

E E R A WASTE REFINING

EERA WASTE REFINING IS PART OF THE EERA GROUP

Eera Waste Refining (EWR) is a Finnish company with a novel concept for establishing, running and trading Waste-to-Energy facilities mainly outside the OECD.

EWR acts a as an integration platform for the best available technologies in the waste refining sector and operates on a global basis as a developer, investor and operator of waste refining projects. Several reputable and leading Finnish companies such as Valmet Oyj, BMH Technology Oy, Outotec Oyj, Lassila & Tikanoja Oyj, Kuusakoski Oy, Ekokem Oy, and ÅF Consult are a part of the ecosystem which Eera Waste Refining drives.

The Finnish government has set as one of its strategic goals to enhance the development and export of the technologies and know-how related to the utilization of waste and biomass into products and energy. As an ecosystem integrator EWR is the spearhead company of the implementation of the government's strategy, and enjoys the full support of the Finnish Government.

Eera Waste Refining was founded by Eera Industrial Development Ltd (EID), which is a Finnish investment company that focuses on creating new businesses on disruptive technologies and opportunities. EID is part of the Eera Group.

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