



Cleantech Forum **Asia** | Singapore

Glimpses of the Future: The APAC 25 and Innovation in the Region



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Glimpses of the Future



RICHARD YOUNGMAN
CEO, Cleantech Group



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Why are we here?



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Charting the Future, Connecting the Globe

CTG keeps you in touch with the emerging trends, the leading innovation companies, and the key players in sustainable innovation around the world.



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We are Here to Help Connect the Globe

Asia is home to **> 60% of the world's population and manufacturing base**, and some of the world's fastest growing economies



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Asia is **at the forefront of the world's digitalization trend**, home to more than 50% of the global internet user base, more than a third of the world's 2.3m app developers.



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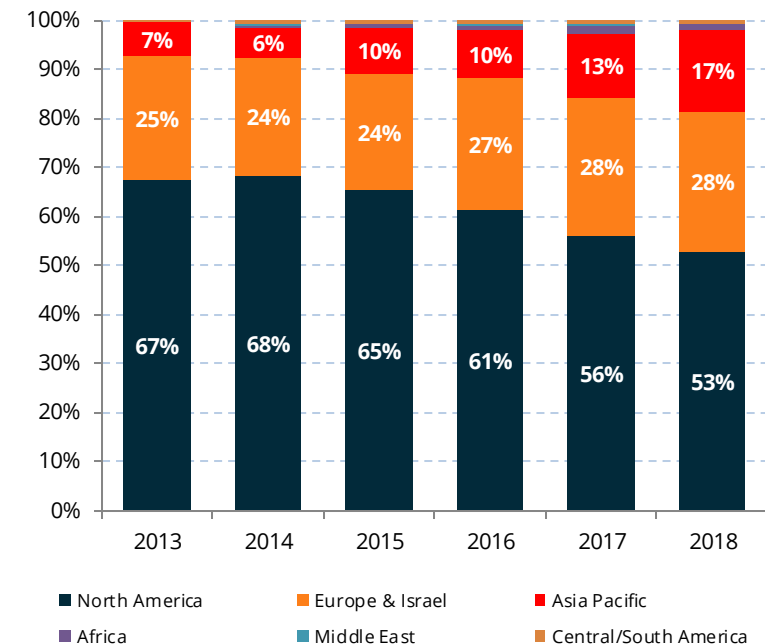
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Innovation Is Globalizing

Supply – The Asia-Pacific is the **fastest growing of our innovation regions**

Global Cleantech Deal Volumes: Venture/Growth Capital



Source: Cleantech Group's i3 Quarterly Investment Monitor, Q3 2018



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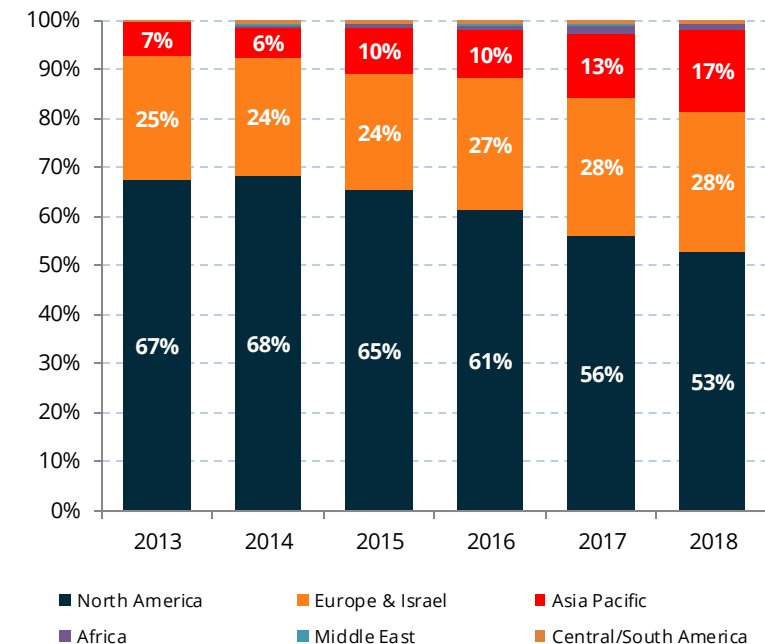
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Demand - Asia-based Investors and Corporations have been **engaging with global innovation more strongly** year on year

Global Cleantech Deal Volumes: Venture/Growth Capital



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We are Here to Chart the Global Industrial Future

Secondary Information



Public Data

Public news, reports, data
Global web crawling

Primary Information



Start-up interviews

Business model
Traction
Partnerships



Proprietary Information

Ecosystem interviews
Boards and roundtables
CTG events insights

Proprietary database



27k+ companies
20k+ rounds
21k
partnerships
4k M&A events



Experienced Analysts



Market Intelligence

- Identification of **growth opportunities and strategies** to go after them
- Sector **Insights** & Market **Landscapes**
- **Scouting**/Finding Companies and Partners
- **Monitoring** the market – for the who, what and where to watch



Global
Cleantech **100**

APAC **25**



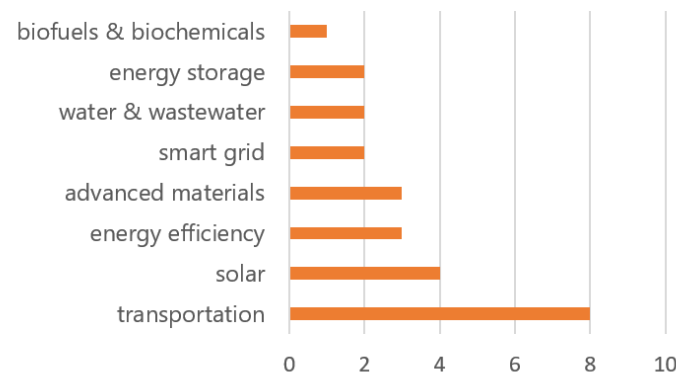
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We are Here to Salute the first APAC 25 Cohort!

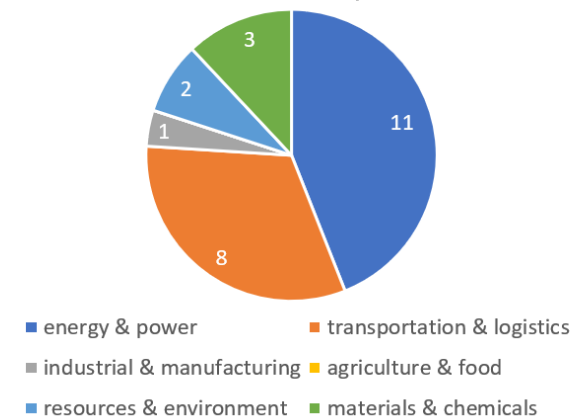


APAC 25

APAC 25 by Primary Focus



APAC 25 Sectoral Representation



Learn more at: <https://i3connect.com/apac25>



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Why is the cleantech innovation theme on the rise?

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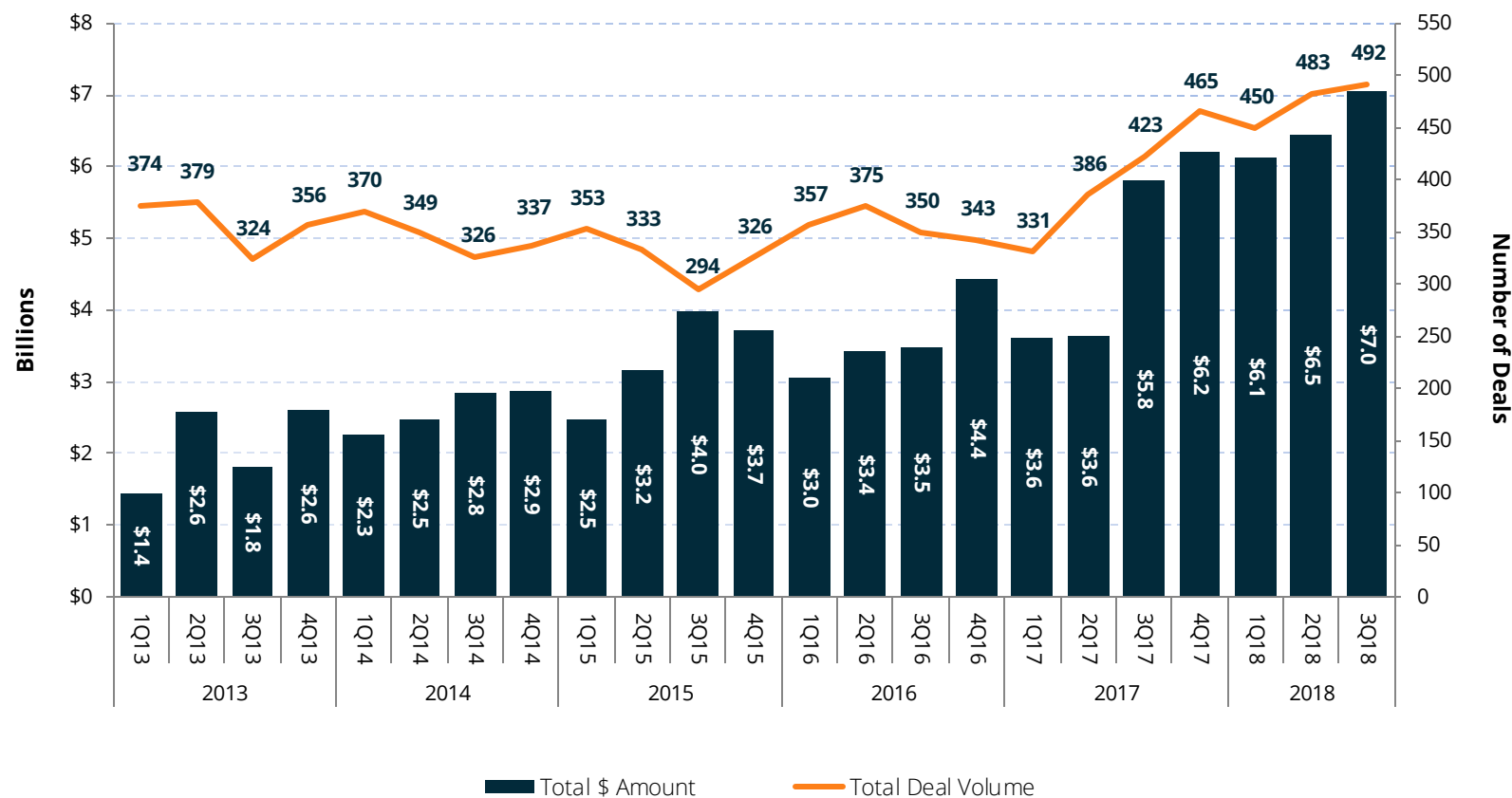


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An Innovation Theme on the Rise

Global Cleantech Innovation: Venture and Growth Capital Investment, 2013-18

- From \$8bn to \$20+bn in 5 years
- The Rise of The Mega-Round (\$100m+) - 58 (YTD in 2018 vs 48 in 2017, 31 in 2016)

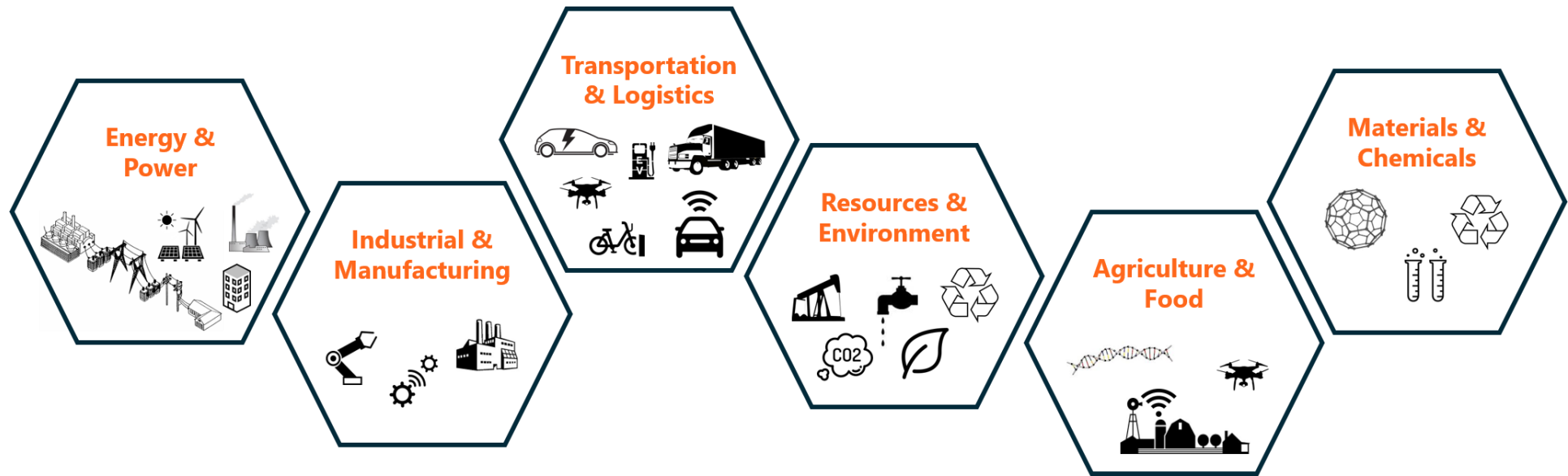


Source: Cleantech Group's i3 Quarterly Investment Monitor



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All Industries are Transitioning towards their 21st C shape

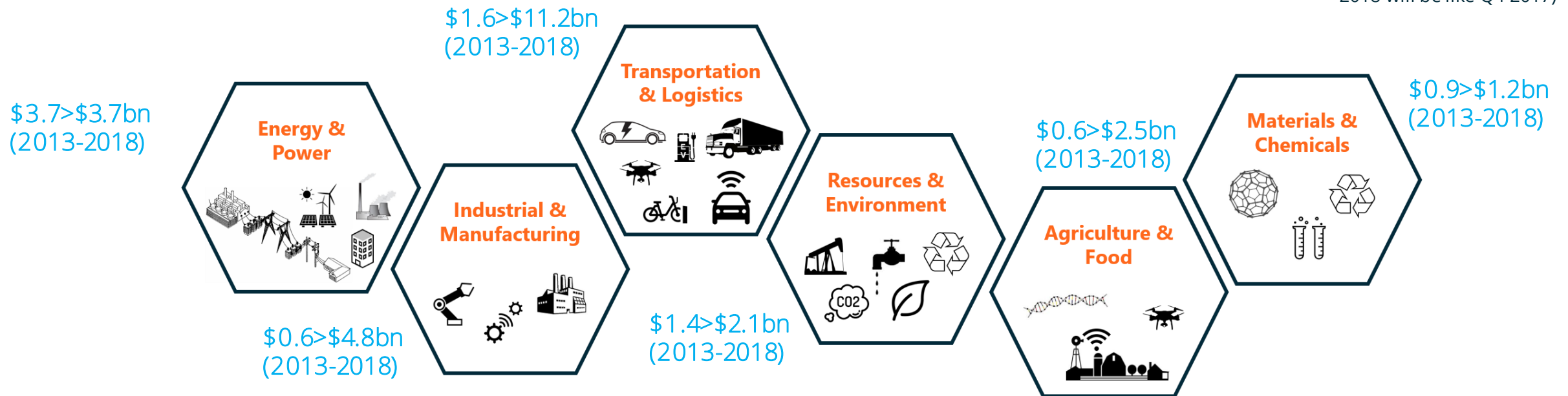




Transitions are Happening at Different Intensity Levels

Global Cleantech Innovation: Venture and Growth Capital Investment, 2013-2018*

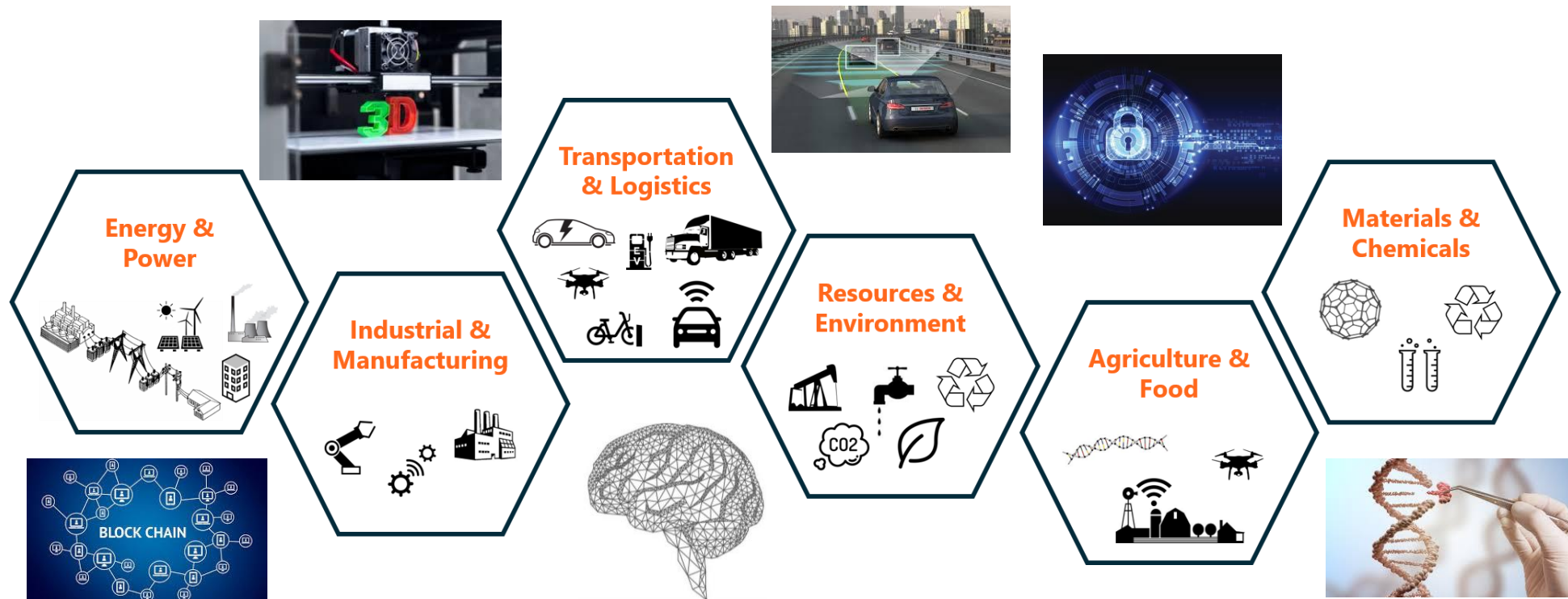
2018 numbers are forecasted based on 3 quarters of actuals and an assumption that Q4 2018 will be like Q4 2017)



Source: Cleantech Group's i3 Quarterly Investment Monitor
























































All Industries are Facing Systemic Disruption





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New Investors, from Different Angles, are Participating

Investor	Size	Investment Orientation/Language	Example Portfolio Companies
 SoftBank	\$93 Billion	"Enabling the new age of innovation"	        
	\$2 Billion	"achieving social and environmental impact alongside competitive financial returns"	  
 OIL AND GAS CLIMATE INITIATIVE	\$1 Billion	"technologies that have the potential to significantly reduce greenhouse gas emissions"	      
 RENAULT NISSAN MITSUBISHI	\$1 Billion	"Building clean, affordable and safe cars for everyone"	   
 Breakthrough Energy	\$1 Billion	"Ensure...standard of living, including basic electricity, healthy food, comfortable buildings, and convenient transportation, without contributing to climate change."	        
next 47	€1 Billion	"innovation that can disrupt industries and create new markets"	     
TEMASEK HOLDINGS	Many \$bn's of AUM	"Committed to transforming economies, growing middle class income populations, deepening comparative advantages, and invest in emerging champions"	         



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Some trends (and companies) to watch out for

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Ag & Food: a surprise absentee from the APAC 25?

Agriculture & Food



Logistics and alternative proteins

1. Agriculture & Food-specific **logistics providers**, including those using **blockchain** solutions, have received some of the largest funding rounds in 2018 to date

inform

FoodLogIQ

ripe.io
Blockchain of Food

2. **Alternative protein developers** reducing the pressure on using animals and fish as a resource for meat, dairy, and feed are enjoying continued attention from investors

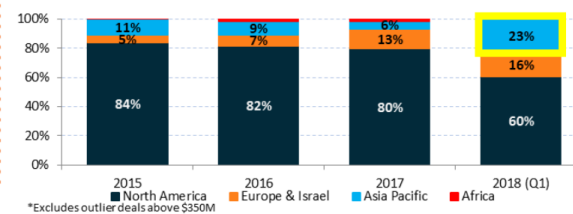
ripple

innova FEED

M
MEMPHIS MEATS

Asia-Pacific companies growing share of dollars invested

- Companies from Asia Pacific region account for **23%** of all dollars invested in Agriculture & Food in 1Q 2018
- North America has lost 20% share, as EU & Israel steadily increases year-on-year



Source: Cleantech Group's i3 Quarterly Investment Monitor Q1 2018

Indoor farming systems gathering funding

Of the \$1.01 billion of venture investment raised by companies in Agriculture & Food in 2018 so far, vertical farming and indoor cultivation systems accounted for \$221 million, or 21.9% of total funding.



Source: Cleantech Group's i3 Quarterly Investment Monitor Q2 2018

Of the \$1.08 billion of venture investment raised by companies in agriculture & food in 3Q18, innovators working on *microbial solutions* (Indigo, Pivot Bio, AgBiome, Manus Bio) and genetic editing tools (Benson Hill Biosystems) raised \$450 million in Q3, or 44.7% of the quarter's total.

Source: Cleantech Group's i3 Quarterly Investment Monitor Q3 2018

indigo

PIVOT BIO

AGBIOME

MANUSBIO

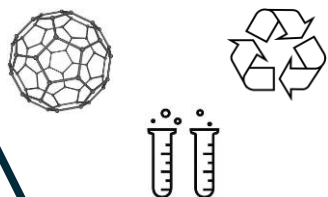
BENSON HILL BIOSYSTEMS



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Signals of an early-stage revival in materials investments?

Materials & Chemicals



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Industrial Biotech & Nanomaterials

- Industrial biotech, a segment that has lost its momentum over the past years, saw a new wave of investments in 2Q18. Six out of the 15 early-stage deals were industrial biotech companies in areas such as gene engineering, bio-plastics and chemicals, and gas fermentation.
- Nanomaterial companies secured multiple late-stage investments, demonstrating the increasing technology readiness level (TRL) of this technology.



Source: Cleantech Group's i3 Quarterly Investment Monitor
Q2 2018

- ABB Technology Ventures** invested an undisclosed seed round in Graphmatech due to its unique graphene flake that results in more precise dispersion properties.
- Scania Growth Capital** invested \$7.9 million in a Series A round in Corebon for its superior carbon fiber components and production technology.
- BASF Venture Capital** invested \$5.6 million in a Series A round in Lactips for its bioplastics that are produced from milk proteins instead of petroleum.
- next47 (Siemen's corporate VC unit)** invested \$70 million in a growth equity round in Sila Technologies for its potential increase in battery performance.
- H&M** and **Directex** invested \$6.5 million in a seed round in Worn Again for its chemical recycling technology. Textile companies are looking to reduce chemical usage in coloring and bleaching.

Source: Cleantech Group's i3 Quarterly Investment Monitor Q3 2018



APAC **25**



FLOSFIA





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32% of global deals in Transport & Logistics are in Asia

Transportation & Logistics



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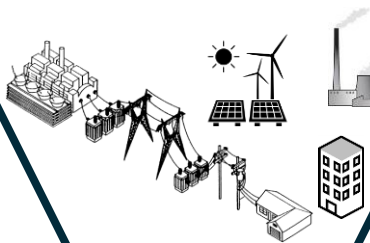




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A world of opportunity in the energy transition

Energy & Power



Energy Efficiency

Home automation and smart buildings technology accounted for **12 deals** worth **\$308M** in 1Q18:



Source: Cleantech Group's i3 Quarterly Investment Monitor Q1 2018

Energy Storage & Solar

The combined sectors accounted for for **46%** of the total investment into Energy & Power worth **\$535M** (\$282M for storage & \$254M for solar).



Source: Cleantech Group's i3 Quarterly Investment Monitor Q2 2018

Global Cleantech **100**



APAC **25**

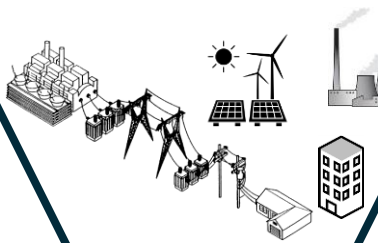




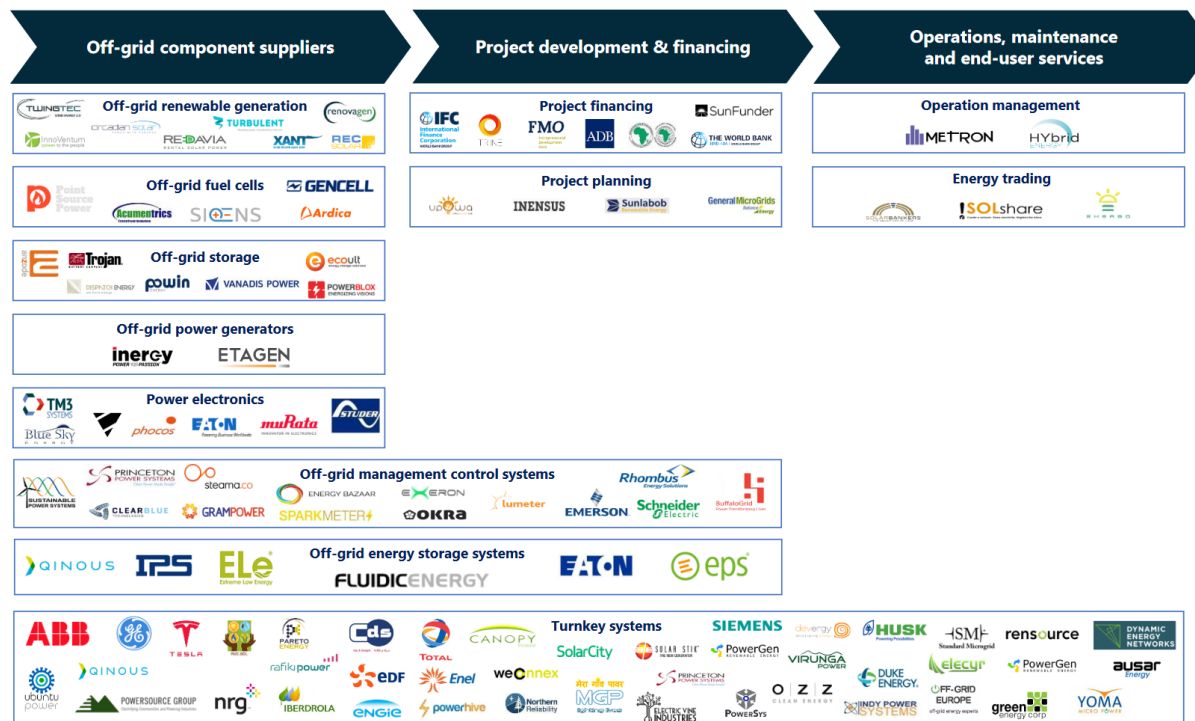
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Power for All: Growing Corporate Engagement

Energy & Power



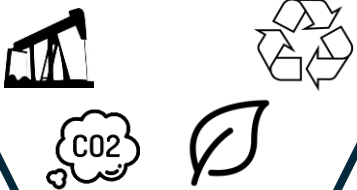
Remote Microgrids: Value chain with business activities





Waste to Value: Optimization & Circularity

Resources & Environment



Sixteen corporate acquisitions across the Resources & Environment, driven by activity in *Water & Wastewater*:



Source: Cleantech Group's i3 Quarterly Investment Monitor Q3 2018



Waste to Value: Optimization & Circularity

Resources & Environment



E-LEATHER

Circulate Capital, spun out of Closed Loop Partners to address ocean plastic in South & Southeast Asia, launched an incubator program.



CARBON CURE

Solidia Technologies



Sixteen corporate acquisitions across the Resources & Environment, driven by activity in *Water & Wastewater*:

ETwater

Optimatics
PLAN SMARTER

JAIN
Jain Irrigation Systems Ltd.

suez
environnement

Source: Cleantech Group's i3 Quarterly Investment Monitor Q3 2018



Enabling & Accelerating Industrial Transitions

Industrial & Manufacturing



APAC-based companies on the rise...

Asia accounted for **18.7%** of 2018 YTD investment into Industrial & Manufacturing, up from 11% in 2017. Chinese early-stage robotics companies account for a significant amount of activity.



Source: Cleantech Group's i3 Quarterly Investment Monitor Q2 2018

Of the \$3.3 billion of venture investment raised by companies in Industrial & Manufacturing to-date in 2018:

- *Industrial robotics* innovators raised \$726 million, reflecting increasing usage of robots in activities such as warehousing and logistics.
- *Industrial cybersecurity* developers raised \$291 million to better protect infrastructure assets, which are more connected, and therefore more susceptible, to cyber attacks.
- *Asset monitoring* markets continue to grow with over \$380 million raised YTD, reflecting the proliferation of *IIoT devices* and *software-based service offerings*.




Source: Cleantech Group's i3 Quarterly Investment Monitor Q3 2018



Asia – leading the digital revolution

- Digital at the forefront of Corporate Strategy



> 60 percent of Asia's top 1,000 enterprises have placed digital transformation at the center of their corporate strategies, with the majority creating an independent position (think Chief Digital Officer)

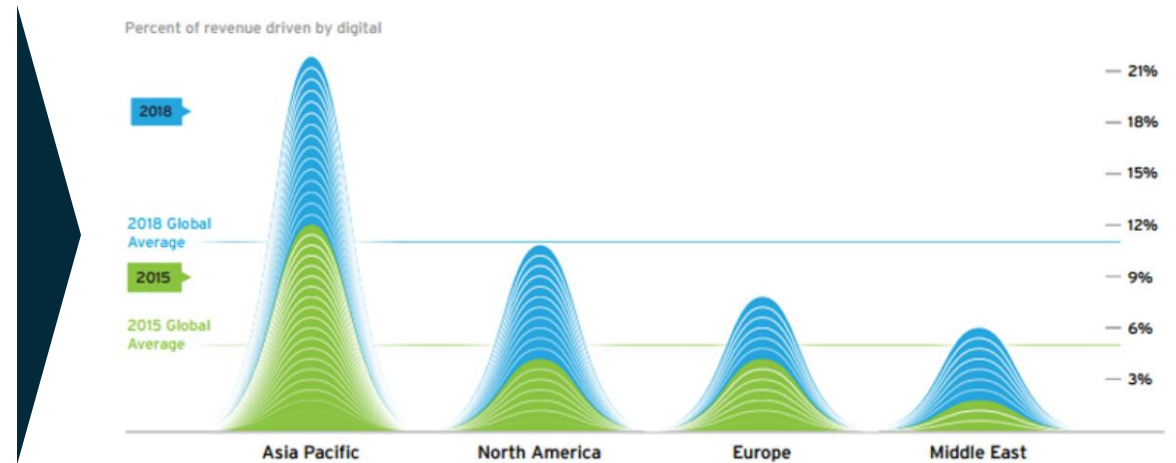
Source: IDC



Asia – leading the digital revolution

- Digital at the forefront of Corporate Strategy
- Already a leader in digital revenue creation

Percent of Corporate Revenue Driven by Digital



Source: Cognizant Centre for the Future of Work



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Asia – leading the digital revolution

- Digital at the forefront of Corporate Strategy
- Already a leader in digital revenue creation
- Leading digital platforms and technology companies





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Next?

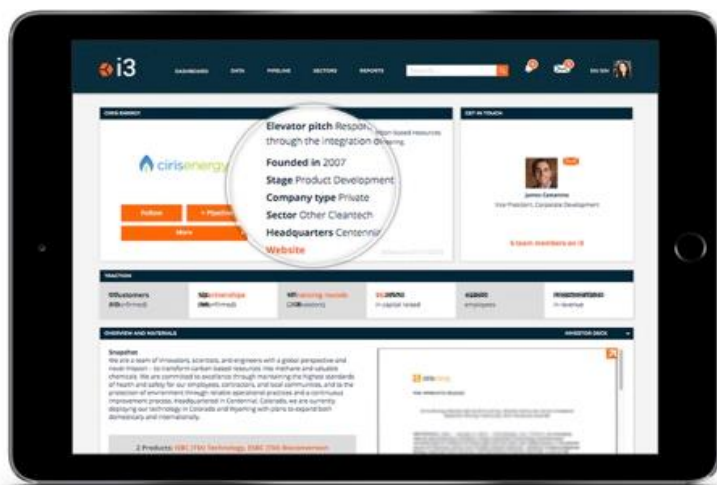
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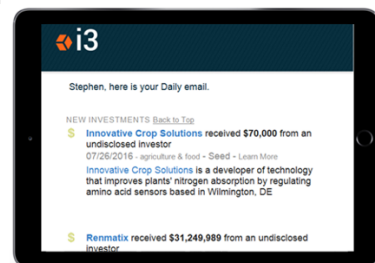
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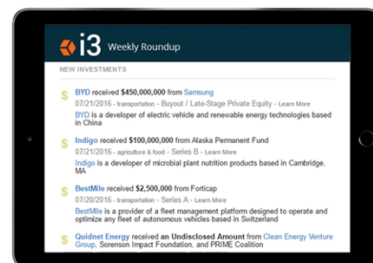
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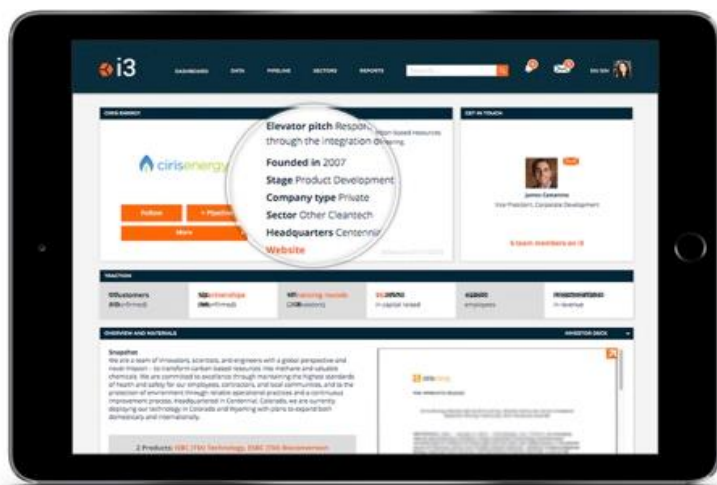
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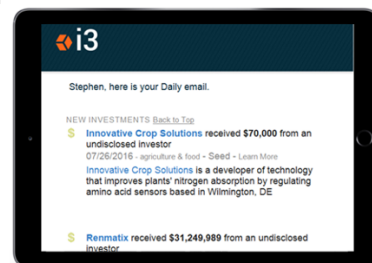
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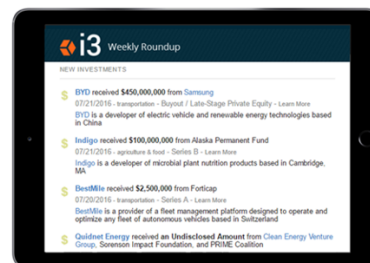
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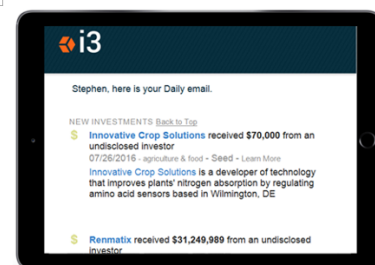
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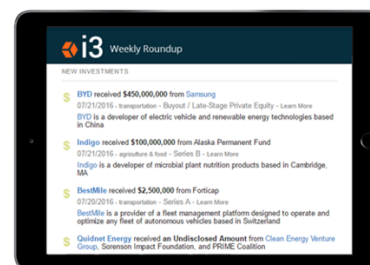
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Thank you!

Richard Youngman
CEO, Cleantech Group