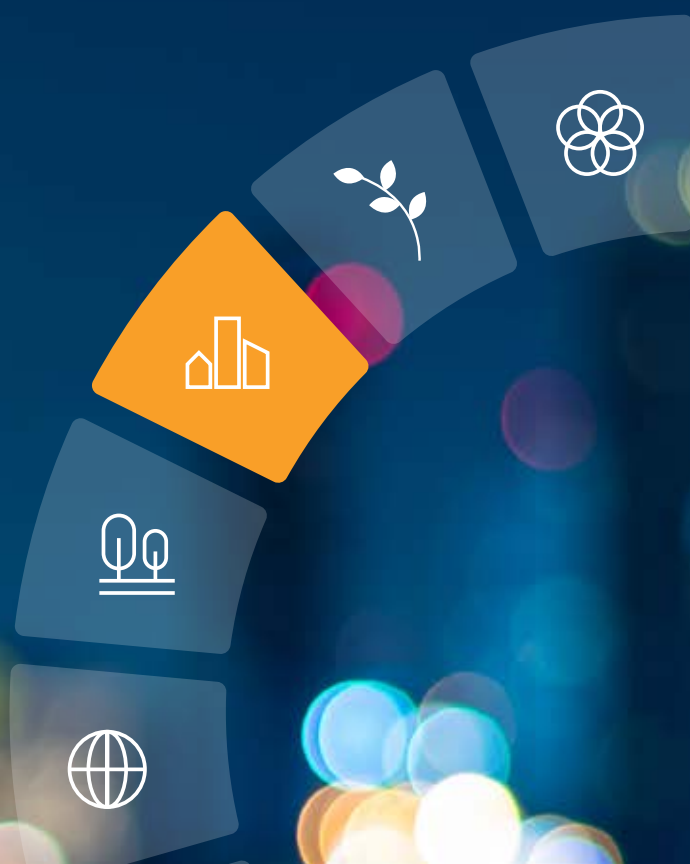
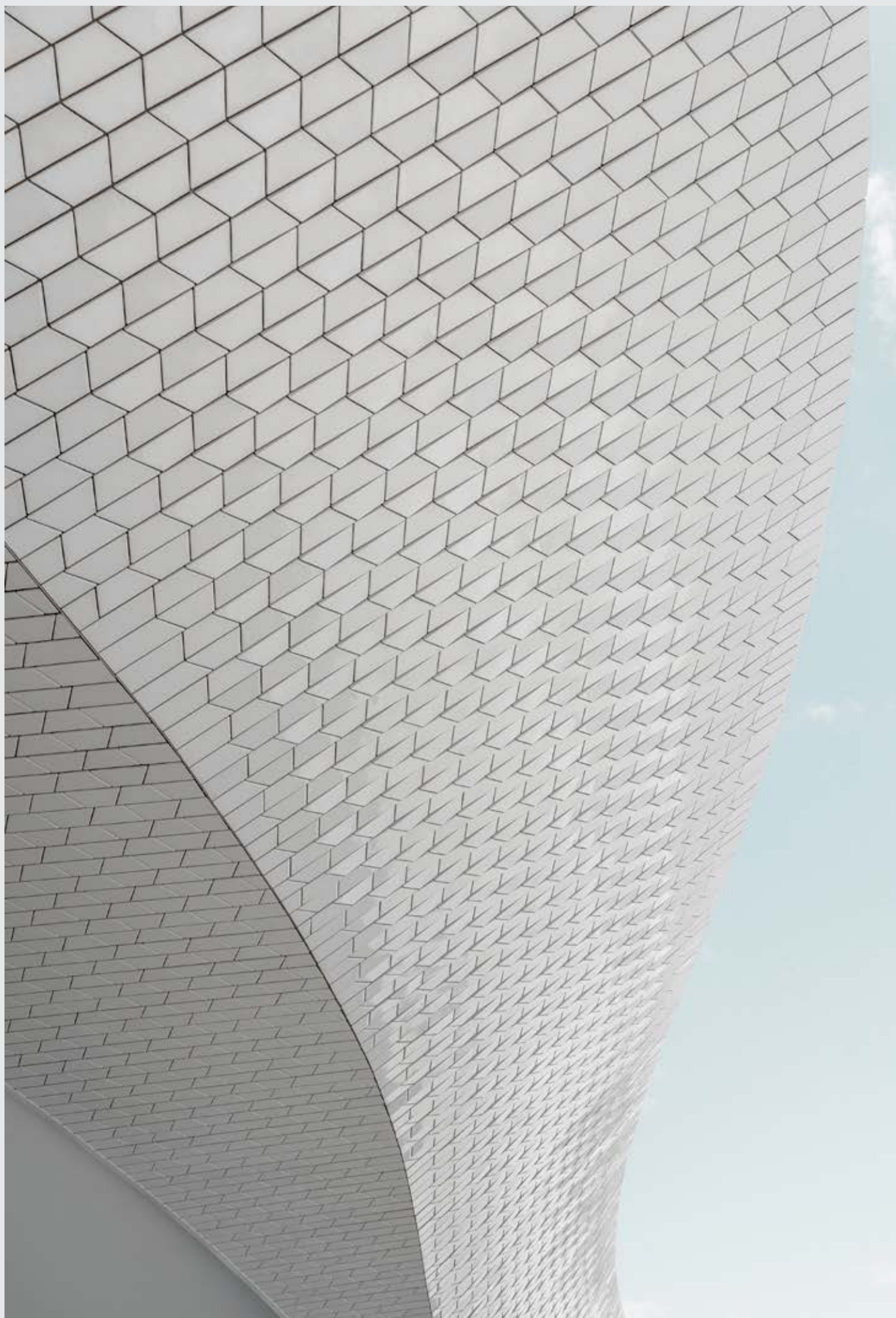


THE **SDG 11** FORECAST

IDENTIFYING NEW
TECHNOLOGIES AND
BUSINESS MODELS

SDG 11:
SUSTAINABLE
CITIES AND
COMMUNITIES







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WHAT IS THE SDG FORECAST BY VALUER?

Published monthly, each issue of this report focuses on a different Sustainable Development Goal (SDG). By taking a deep-dive into the progress of the goal in question, it covers various aspects of how the business sector can play an essential role in achieving its aspirations.

Hoping to serve as motivation, the publication starts with market analysis and the currently trending technologies and moves onto advice and the possible benefits for purpose-driven companies. Moreover, it provides multiple examples of large organizations and innovative startups that are doing excellent work in ensuring a prosperous global community.

In line with Valuer's rationale, the report stresses the benefits that surface once various market actors, specifically corporations and startups, decide to work together towards achieving environmental and social sustainability.

The following issue focuses on
SDG 11: Sustainable cities and communities.

ABOUT VALUER.AI

Valuer is an intelligent matchmaking platform that helps corporations, investors, and accelerators discover compatible startups that will boost their innovation. The company supports the idea that large organizations can modernize their work with the skills and technology of young startups while simultaneously supporting their survival with industry experience and resources.

To enable the formation of such symbiotic partnerships, Valuer uses its crowdsourcing network to discover startups relevant to the large organization, and a machine learning platform to evaluate them. Functioning as an innovation radar, the platform continually learns and "recalibrates" itself throughout the discovery process to meet the customer's unique needs.

Founded in 2017, Valuer has a team of more than 90 people from all over the world and has so far worked with BMW, Siemens Gamesa, Novozymes, Grundfos, and Spirent, among other prominent organizations.

HOW THE VALUER PLATFORM USES AI TO FIND SDG-RELATED STARTUPS

We ran the AI platform to identify the 1000 startups most relevant to three SDG 11 areas:



**SMART
MOBILITY**



**WASTE
MANAGEMENT**



**SUSTAINABLE
CONSTRUCTION**

HOW DOES THE PLATFORM FIND STARTUPS RELEVANT TO SDG 11?

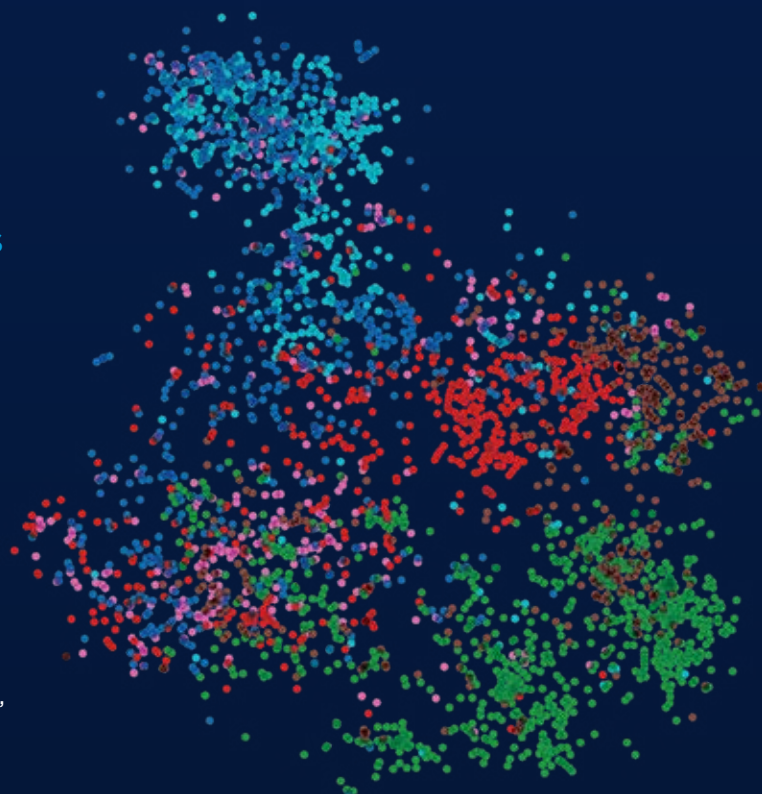
The process starts with Valuer clustering its database of startups potentially relevant to SDG 11. Most notably, the startup descriptions are processed by NLP, which finds patterns impossible to recognize with tags and regular search mechanisms.

The platform then references the clusters to the three focus areas deduced from SDG 11. By choosing the ones nearest to a projected point, it finds the 1000 startups most relevant to each area. The three focus areas are then processed by the platform to identify similarities, which results in subgroups with a high degree of relevance (see color codes on the cluster illustration, Image 1).

GROUPING STARTUPS FROM DIFFERENT SDG 11 AREAS

The illustration shows the clusters of startups (represented with dots) colored depending on their projection area. Their proximity to other startups depends on how much their solutions have in common.

The image lets us make simplified conclusions, but since the platform processes in 1024 dimensions, the insights we can draw from a 2D illustration are limited. This is also why some dots seem very distant from their projection areas.



- Transport
- Traffic optimization
- Waste management logistics
- Waste utilization
- Affordable and modular housing
- Energy-efficient buildings

Image 1:
Valuer platform's AI clustering of SDG 11-related startups

INTERESTING INSIGHTS AND STARTUP TRENDS

The platform can draw several insights from the clustering, including:

- “Affordable and modular housing” and “Energy-efficient buildings” are located in a homogenous cluster, suggesting that both subsectors are addressing the “Sustainable construction” market with similar solutions.
- The main cluster within SDG 11 includes “Transport”, “Traffic optimization” and “Waste management logistics”, suggesting that some “Smart mobility” solutions are relevant for the “Waste management” area.
- “Waste utilization” is mainly detached from the rest of the cluster, but has similarities with “Transport”, suggesting a relationship between mobility and the utilization of waste.

FINDING THE MOST RELEVANT SDG 11 FOCUS AREAS

The platform uses four parameters to assess the clusters’ relevance, importance, and innovativeness:

- **Success potential:** The AI platform uses historical data from each startup to evaluate the group’s overall chance for future success.
- **Market opportunity:** The AI platform analyzes the startups’ technology descriptions to estimate the cluster’s overall potential to generate profit and sustainable businesses.
- **Degree of fit:** The AI platform uses Natural Language Processing to grade how well a cluster of startups aligns with the customer’s challenges. (In this case, the information on SDG 11.)
- **Innovation:** The AI platform looks for original and previously unseen combinations of business models and technologies in order to grade how generally innovative is the cluster.

RANKING THE THREE SDG 11 FOCUS AREAS

The platform then moves onto ranking the results to find the most suitable area of focus for our customers. In this case, it used the four parameters (Success, Market, Fit, Innovation) to rank the SDG 11 areas.

“Smart mobility” is the highest-ranked cluster on our AI platform, while “Waste management” ranks the lowest. The clusters have a higher than the average total score on the platform, which suggests that the SDG 11 areas are in focus within the innovation ecosystem.

NEXT STEP: RUN THE PLATFORM TO FIND THE BEST-MATCHING STARTUPS FOR YOUR COMPANY

By using the Valuer platform, companies can choose a focus area and find their best-matching startups. The startups featured on page 19 show the final format in which our customers receive the companies that the platform selected for them.

Main group	Subgroup	Success	Market	Fit	Innovation	Total
Smart mobility	Transport	74	79	62	87	287
	Traffic optimization	60	63	73	76	
Waste management	Waste management logistics	48	54	73	74	259
	Waste utilization	63	67	77	62	
	Affordable and modular housing	55	39	83	56	
Sustainable construction	Energy-efficient buildings	58	71	76	92	265

Image 2: Valuer platform’s evaluation and ranking of the startups from different SDG 11 areas

INNOVATION: KEY DRIVER IN BUILDING A SUSTAINABLE FUTURE

We are moving too slowly and face great danger of coming up short of the UN Sustainable Development Goals. To keep pace with the growing societal needs, we need to embrace innovation as the answer to reducing the time and cost necessary to achieve results.

Technological breakthroughs and creativity are critical to advancing the SDGs and facing the growing list of sustainability concerns. Disruptive innovation is not a silver bullet but holds the highest potential in addressing complex global issues. Fortunately, transformative change is something humans have done many times throughout history.

The private sector, in this context, plays a crucial role in advancing the UN global development agenda. However, no single company can address such a demanding challenge alone. This is why collaboration between industry players is essential to achieving the solutions we need—and the philosophy of the SDGs recognizes this.

REACHING CORPORATE SUSTAINABILITY THROUGH COLLABORATION WITH STARTUPS

By embracing collaboration with startups and innovators, corporations can adopt novel solutions and achieve more sustainable operations and products. Such partnerships are one of the promising ways to foster the future of industries, rapidly scale-up efforts, and support the UN Global Goals.

The adoption of novel sustainability solutions goes beyond society's call for greater transparency and accountability. Blending purpose with profit promises a competitive advantage that meets the expectations of modern customers, employees, and investors. Working with innovative startups to make operations sustainable can, among other benefits, generate new revenue, reduce costs in the long-run, open the way to untapped markets, increase supply chain resilience, and improve brand image.

We're already witnessing a wave of progressive, profit-oriented companies and entrepreneurs who are using innovative models to enter SDG-related markets and ensure long-term business growth. For instance, BMW is staying "ahead of the curve" by expanding operations and positioning the brand as a provider of shared-mobility services.



41.902.039 USD

FROM THE VALUER PLATFORM:
AVERAGE FUNDING OF THE SDG 11
STARTUPS

ABOUT THE UN SUSTAINABLE DEVELOPMENT GOALS

THE GOALS ARE DESIGNED TO BE

“The blueprint
to achieve
a better
and more
sustainable
future for all.”

In 2015, the UN general assembly adopted the 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals. Intended to be achieved by 2030, the goals are designed to be “the blueprint to achieve a better and more sustainable future for all.”

Signed by 193 heads of state, each goal has a list of targets whose progress is measured with specific indicators. With data available in an easy-to-understand form, the 17 SDGs are broad-based and interdependent—meaning that the action in one goal’s area will affect the outcomes in others.

The SDGs build on the Millennium Development Goals (MDGs) that were agreed by governments in 2001 and expired in 2015. Aside from being more all-encompassing than the MDGs, which were considered to be too narrow in focus, the consultation process for the SDGs was much more inclusive. The new goals tackle a wide range of areas, from poverty and gender inequality to climate change.

THE SUSTAINABLE DEVELOPMENT GOALS ARE:



1.
NO POVERTY



10.
REDUCING
INEQUALITY



2.
ZERO
HUNGER



11.
SUSTAINABLE
CITIES AND
COMMUNITIES



3.
GOOD HEALTH
AND WELL-BEING



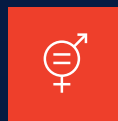
12.
RESPONSIBLE
CONSUMPTION
AND
PRODUCTION



4.
QUALITY
EDUCATION



13.
CLIMATE
ACTION



5.
GENDER
EQUALITY



14.
LIFE BELOW
WATER



6.
CLEAN WATER
AND SANITATION



15.
LIFE
ON LAND



7.
AFFORDABLE
AND CLEAN
ENERGY



16.
PEACE, JUSTICE,
AND STRONG
INSTITUTIONS



8.
DECENT WORK
AND ECONOMIC
GROWTH



17.
PARTNERSHIPS
FOR THE GOALS



9.
INDUSTRY,
INNOVATION, AND
INFRASTRUCTURE

DEVELOPMENT GOAL IN FOCUS

SDG 11: MAKE CITIES INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Cities house more than half of humanity, and the aim of SDG 11 is to make them liveable, accessible, and sustainable. Targets within the goal relate to urban planning that supports adequate housing and accessible public spaces, building infrastructure that minimizes the environmental impact of cities and improves resilience to disasters, and developing safe transportation networks that enhance urban-rural communication.

According to numbers published by UNDP, cities take up only 3% of Earth's surface area, yet they account for 60-80% of energy consumption and more than 70% of carbon emissions. Out of the 4.2 billion people inhabiting urban areas, 828 million are estimated to be living in slums. As cities become more connected, road safety also becomes a priority, with WHO numbers indicating an incidence of 1.35 million roadside deaths globally in 2016.

To improve the quality of urban life, the UN urges municipalities, governments, and businesses to take a collaborative approach in addressing urban construction, environmental impact and resource efficiency, and mobility. In building the cities of the future, all sectors are encouraged to pay special attention to vulnerable environments and populations.



From the Valuer platform:

The years when the affordable and modular housing startups were founded

MARKET OPPORTUNITIES AND TECHNOLOGY TRENDS

OPPORTUNITIES IN THE SMART MOBILITY MARKET

The UN estimated that by 2030 one in three people will live in a city with at least half a million inhabitants. To ensure expanding cities are humane living environments for all citizens, rapid urbanization calls for sustainable development.

For instance, transport is one of the segments that are in dire need of innovation to ensure smarter, faster, and safer travel between two points in a large city. According to Markets and Markets, the smart transportation market is estimated to grow from \$55 billion in 2017 to \$149.2 billion by 2023, at a CAGR of 14.7%.

Mobility-as-a-service (MaaS) is one of the models that are gaining traction. According to Research and Markets, the global MaaS market is expected to grow from \$38.76 billion in 2017 to \$358.35 billion by 2025. The advancing technological infrastructure and ease of access to data worldwide are set to boost the adoption of MaaS solutions.



30,454,908 USD
6 years (2014)

FROM THE VALUER PLATFORM:
AVERAGE FUNDING AND AGE OF
THE SMART MOBILITY STARTUPS

TECHNOLOGY TRENDS:

- **Last-mile transport:** Convenient alternatives for short-distance urban transport, such as e-scooters.
- **Autonomous vehicles:** Shared electric AVs to replace or augment less efficient traditional bus lines and shuttles.
- **Smart traffic and transport optimization:** Software solutions for real-time data-driven improvement of traffic and transport systems.



From the Valuer platform:

A timeline depicting the increasing number of smart mobility startups

OPPORTUNITIES IN THE WASTE MANAGEMENT MARKET



32,629,012 USD
6 years (2014)

FROM THE VALUER PLATFORM:
AVERAGE FUNDING AND AGE OF THE
WASTE MANAGEMENT STARTUPS

The World Bank estimates that global waste will increase by 70% on current levels by 2050. Consequently, successful waste management is imperative for reducing the growing amounts of waste and promoting the use of recycled and upcycled materials in production.

Opportunities to capitalize on the immense amounts of waste will keep expanding as the industry is becoming more lucrative. According to Statista, the global waste management market will grow from \$330.6 billion in 2017 to \$530 billion by 2025, at a CAGR of 6%. Currently, Europe dominates the market, followed by the United States.

Today high-income countries generate more waste than lower-income regions, but the tides are expected to turn. The developing countries are expected to make waste at an even more accelerated rate, which further propels the urgent call for innovative waste management solutions.

TECHNOLOGY TRENDS:

- **Anaerobic digestion:** Extracting energy and nutrients from food waste, expected to boost industrial growth for food wastage disposal.
- **Automation and robotics:** Automated systems for optical waste sorting and collecting.
- **IoT smart waste management:** Connecting smart bins and central facilities to optimize the waste disposal and collection process (for instance, via route optimization).



From the Valuer platform:

A timeline depicting the increasing number of waste management startups

OPPORTUNITIES IN THE SUSTAINABLE CONSTRUCTION MARKET



60,270,882 USD
6 years (2014)

FROM THE VALUER PLATFORM: AVERAGE FUNDING AND AGE OF THE SUSTAINABLE CONSTRUCTION STARTUPS

Deloitte estimates that the global construction industry's revenue will reach \$15 trillion by 2025, with an expansion rate of 3.6% per year between 2018 and 2022. As cities are growing, it's high time for the construction industry to adopt more reliable sustainability standards, promote resource-efficient practices, and ensure safe and affordable housing for all.

Deloitte further stresses the importance of adequate management of the massive amounts of waste generated during construction and of ensuring more efficient methods of cooling, heating, and lighting buildings.

According to BIS Research, the global construction sustainable materials market is expected to reach \$523.72 billion by 2026, growing at a CAGR of 11.6% between 2017 and 2026. The market growth is driven by its potential for emission reduction, lower energy consumption, and materials that are more suitable for recycling and reuse.

Furthermore, modular construction is gaining traction as an offsite and resource-efficient answer to the challenges with affordable housing. Markets and Markets estimates that the global modular construction market will reach \$157.19 billion by 2023, growing from \$106.15 billion in 2017, at a CAGR of 6.9%.

TECHNOLOGY TRENDS:

- **3D printing:** Creating the exact amount of needed materials while minimizing waste and unnecessary labor costs.
- **Building-integrated photovoltaics:** Replacing traditional building materials used for roofs or skylights with electricity-generating solar panels.
- **LCA software for buildings:** Software for analyzing the environmental impact of an infrastructure life cycle and identifying the costs during each building phase.



From the Valuer platform:

A timeline depicting the increasing number of sustainable construction startups

ALIGNING BUSINESS STRATEGIES WITH SDG 11

BUSINESS IMPLICATIONS

Some say we live in the “century of cities.” Urban areas attract residents faster than ever before, and the [UN predicts](#) that by 2050 they will house two-thirds of the world’s population. Without appropriate sustainable planning, this intense growth can lead to extreme poverty and governments struggling to accommodate the growing population.

Rapidly expanding crowds mean higher energy demands, more waste production, and challenges with traditional mobility and infrastructure, which already calls for innovation in sustainable practices. From restaurant chefs and soda manufacturers to city officials and real estate developers—all sectors are now responding to this imperative.

Businesses are core to the development of cities, and as such, they’re not only well-positioned to deliver on the SDG 11 promise, but can also expect multi-faceted business opportunities. More sustainable cities, among other perks, translate into a better operating environment, lower running costs, and healthier, more productive citizens.

A concerted effort to improve communities’ sustainability will demand investment across various sectors, including transport, construction, and waste management. This section of the report inspects the three markets and their technological trends that can help companies keep pace with cities’ expansion.



From the Valuer platform:

The years when the SDG 11-related startups were founded



ADVICE FOR CORPORATIONS

START WITH YOUR IMMEDIATE SURROUNDING

The first place most companies choose to look into when considering an SDG 11 strategy is the environmental impact of their office buildings, which is often very large. As a comparison, [according to the EU Commission](#), non-residential buildings are on average 40% more energy-intensive than residential buildings.

TAKE INTO ACCOUNT YOUR ENTIRE FOOTPRINT

A robust SDG 11 strategy takes into account a company's entire footprint, including operations, employees, the supply chain, and the community where it conducts business.

Aside from their property, companies can also deploy products and services that contribute to the development of resilient communities.

DEFINE PRIORITIES AND FOCUS YOUR EFFORTS

The number of tools designed to help companies engage with the SDGs is continuously growing. For instance, the [SDG Compass](#) offers business indicators mapped against the 17 SDGs and their targets, which can help your company understand where to concentrate its efforts.

OUTLINE SPECIFIC GOALS AND KPIS

Once you've assessed your current situation, you can set specific, measurable, and time-bound goals for your organization. Selecting several KPIs for each area of prioritization is highly advised as an essential step to monitoring your progress and avoiding goals that are too broad and impossible to measure.

Deciding to incorporate the SDGs into a company's operations can seem intimidating. But a growing number of helpful tools and guidelines are becoming available, like the [SDG Compass](#), which helps organizations choose which goals are most applicable to them and how.

The following recommendations focus on SDG 11: Sustainable cities and communities, but can be easily modified to fit the other Sustainable Development Goals.

AVOID SHORT-TERMISM

The SDGs are intended to be achieved by 2030 and to serve as "the blueprint to achieve a better and more sustainable future for all." The fact that they can't be achieved overnight might seem discouraging but can serve as a simplification for organizations to make long-term sustainability programs that are aligned with best practices globally.

COMMUNICATE YOUR AMBITION

Stakeholders in the sustainability field advise that companies should publicly announce their targets to stimulate accountability and motivation. But even though ambitious goals usually result in greater impact and drive internal innovation and creativity, it's important not to overlook the risk of criticism your company might face if it doesn't meet the targets in time.

INNOVATE AND COLLABORATE

The SDGs can help scale up efforts and create new business models and products when used as a framework for innovation. By combining their complementary skills with other companies and startups in the value chain, corporations can identify innovative and cost-effective solutions to complex urban sustainability challenges.



BENEFITS FOR CORPORATIONS

Cities and metropolitan areas are powerhouses of economic growth. Companies that invest in the sustainability of their communities can expect numerous business opportunities, such as an overall better operating environment, lower running costs, and healthier, more productive citizens.

IMPROVED BRAND IMAGE

A [PwC study](#) found that 78% of consumers are more likely to buy from businesses aligned to the SDGs. Consequently, focusing on innovation related to SDG 11 will not only help cities expand more robustly but will also give brands a competitive advantage over their competition.

INCREASED EMPLOYEE HEALTH AND PRODUCTIVITY

Improved traffic safety, public transport, and air quality can enhance employee health and productivity and minimize costs. Additionally, employees, especially younger generations, prefer working with organizations with corporate sustainability programs. [Research by The Manifest](#) in 2019 showed that “nearly 75% of employees will not accept a raise from a company that creates environmental problems.”

REDUCED LEGAL AND OTHER BUSINESS RISKS

Regulations are becoming stricter as a response to cities’ rapid growth, climate change, pollution, and decreasing natural resources. Aligning operations with SDG 11 will help companies meet changing regulations in a timely manner and avoid penalties under their state’s legislature.

INCREASED FINANCIAL PERFORMANCE

Companies that invest in sustainability initiatives can expect increased financial performance. For instance, 86% of business owners in a [2019 Deloitte survey](#) said that taking a more sustainable approach to energy use gives them a financial competitive advantage.

ACCESS TO NEW MARKETS

A concerted effort to improve communities’ sustainability will demand investment across various sectors, including transport, construction, energy efficiency, air pollution, and waste management. Furthermore, engaging with SDG 11 promises to open the doors to nascent sectors related to “smart city” technologies.

CORPORATIONS THAT DO A GREAT JOB AT TACKLING GOAL 11



RAMBØLL

Infrastructure and development are the foundation for sustainable cities, and Danish engineering company Rambøll has identified SDG 11 as a focal point for its business strategy. In 2017, Rambøll carried out the engineering and design of the Dalston Works project in the UK, a residential tower built from Cross Laminated Timber (CLT). Compared to frameworks made from concrete, the CLT building carries 50% less embodied carbon. Due to its carbon storage capacity, the material also locks in CO₂ and is effectively carbon-negative for the first year.

Rambøll has also pinpointed climate-resilient architecture as an important opportunity for innovation. The company currently runs the Kokkedal: Blue Green Garden City project in Copenhagen, which provides flood damage control and green spaces for urban recreational activities. Rambøll also collaborates with the New York City Department of Environmental Protection (DEP) for developing an infrastructural plan to combat unpredictable rainfall in the city.

Community partnerships have been key to Rambøll's sustainability strategy. In 2016, the company partnered with Finnish startup MaaS Global to create the Whim app, which integrates information about public transport and ride-sharing services. In Helsinki, more than 70% of Whim users use public transport, and other European cities like Antwerp and Birmingham have launched their own version. In 2019, Rambøll launched a digital SDG 11 dashboard in partnership with the Danish Architecture Centre and Statistics Denmark. On the platform, Danish municipalities can track their progress across the SDG 11 targets.



41,541,791 USD
6 years (2014)

FROM THE VALUER PLATFORM: AVERAGE
FUNDING AND AGE OF THE AFFORDABLE
AND MODULAR HOUSING STARTUPS

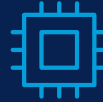


SIEMENS

Siemens has recognized the role of ICT in creating sustainable cities and works within the areas of climate change, mobility, and community engagement. Maintaining urban air quality is one of the key targets of SDG 11, and in line with this target, the company has built the City Performance Tool (CyPT). Municipalities can use the CyPT software to test different scenarios for reducing greenhouse emissions from transportation, buildings, and infrastructure. So far, 45 cities around the world have used the tool to enhance their climate strategy. San Francisco, a metropolis particularly vulnerable to the effects of climate change, has used CyPT to create a model for reducing emissions by 80% by 2050.

Together with the Economist's Intelligence Unit, Siemens has created the Green City Index. The database spotlights the performance of more than 120 cities across 31 quantitative metrics, including CO2 emissions, land use, and water management.

Within the mobility sector, Siemens has formed the Intelligent Traffic Systems (ITS) group, which develops advanced cloud-based algorithms for traffic and road network management. Products within this line include the CONCERT transportation management solution for regional and state-wide applications, as well as the SCOOT city traffic control software. After the deployment of SCOOT, the city of Seattle witnessed a 21% reduction in travel times during peak hours. With the Railigent® solution, Siemens uses IoT and big data to aid rail operators in making transportation more energy-efficient and in digitizing operations, such as ticketing and maintenance.



IBM

American technology giant IBM has taken the approach that sustainable cities are connected cities, and that collaboration is crucial to achieving them. The company has leveraged its comprehensive Watson IoT platform to build solutions in support of the 11th SDG.

In 2014, IBM launched Green Horizons, a decade-long global initiative to curb air pollution through data. Based on IoT, the solution uses advanced sensors and software to monitor, model, and forecast air pollution in cities. The main research laboratory of IBM in China has collaborated with the Beijing Environmental Protection Bureau to analyze the sources of emissions and predict the effect of weather on pollutant dispersion. Using the tool, the city of Beijing was able to reduce particulate (PM2.5) emissions by 35% between 2013 and 2017.

As centers of human activity, cities are facing challenges when it comes to waste disposal. IBM has identified the underlying business opportunity and in 2016, the corporation partnered with Israeli startup GreenQ to develop an IoT solution for waste management. Based on the IBM cloud, the GreenQ solution uses data from hardware monitoring of garbage truck weight, capacity, time, and location. Given that single-use packaging significantly contributes to urban waste, IBM has implemented a program to reduce it in its own production operations. By sourcing recyclables and redesigning packaging to minimize the materials used, in 2017 the company saved approximately 141 metric tons of materials, at a cost-saving of \$983,000.



37,427,290 USD
6 years (2014)

FROM THE VALUER PLATFORM: AVERAGE
FUNDING AND AGE OF THE TRAFFIC
OPTIMIZATION STARTUPS



22,760,463 USD
6 years (2014)

FROM THE VALUER PLATFORM: AVERAGE
FUNDING AND AGE OF THE WASTE
MANAGEMENT LOGISTICS STARTUPS

THREE STARTUPS THAT COULD HELP CORPORATIONS ALIGN WITH GOAL 11

This publication demonstrates the way that Valuer helps corporations find solutions for their sustainability goals. For this purpose, we've included a selection of three startups that can help corporations become sustainable in regards to SDG 11.

The format of the startup features resembles the one our customers receive once their startup search is finalized. But, with one very significant difference—the selection here is a general example that doesn't take into account a corporation's unique needs.



TIER IV

PAGE 20

Tier IV is a Japanese company offering open-source software for the development of autonomous vehicles.



AUTOFLEET

PAGE 24

Autofleet has created a sustainable Vehicle as a Service layer, providing an elastic supply of vehicles to serve any source of demand.



CIRECO FINLAND

PAGE 28

Cireco is a construction project management company that operates on the principles of circular economy.



TIER IV

Tier IV is a Japanese company offering open-source software for the development of autonomous vehicles.

BUSINESS LOGIC:

PRODUCT CONCEPT

The core product of Tier IV is Autoware* software. Available through the Apache 2.0 license, the software has a modular, open-source infrastructure. Autoware is based on deterministic AI technology and incorporates all aspects of autonomous driving. These include vehicle and surroundings sensing and localization, motion planning algorithms, and trajectory actuation.

BUSINESS MODEL

Tier IV operates with a combined B2B and B2G model, targeting clients such as automakers, OEMs, government bodies, and mobility-as-a-service providers. The startup has two main revenue streams: NRE services and a cloud-service subscription. Main geographical markets include the USA and the APAC region.

SUMMARY:

- Tier IV was founded with the purpose of building a collaborative platform for accelerating the research, development, and commercialization of autonomous vehicles.
- The company develops Autoware, dubbed the world's first open-source software for autonomous vehicles.
- Autoware has already been used by more than 100 companies in over 10 countries.
- Markets and Markets predicts that the global automotive software market will grow from \$16.9 billion in 2020 to \$37 billion by 2025, at a CAGR of 16.9%.

*Autoware is a registered trademark of the Autoware Foundation

LOCATION: Tokyo, Japan
FOUNDED: 01/12/2015
FUNDING: 141,000,000 USD
EMPLOYEES: 150+
WEBSITE: tier4.jp

TRANSPORTATION

SOFTWARE

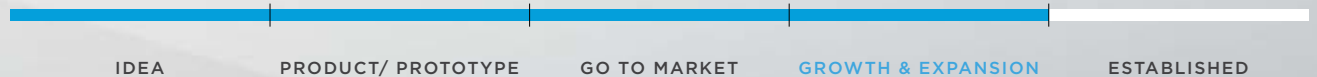
AUTOMOTIVE

AUTONOMOUS VEHICLES

OPEN SOURCE

1

MATCH



MEET THE TEAM:



SHINPEI KATO

FOUNDER & CTO

Shinpei Kato is an academic with extensive experience in computer architectures and operating systems. He obtained his PhD in Engineering from Keio University, followed by several postdoctoral research programs at various academic institutions, including Carnegie Mellon University, University of California, and Nagoya University, among others. Currently, he is an associate professor at the Graduate School of Information Science and Technology at the University of Tokyo and also serves on the Board of Directors of the Autoware Foundation.



OPEN-SOURCE SOFTWARE DRIVES THE DEVELOPMENT OF AUTONOMOUS VEHICLES

Driverless cars are no longer a matter of science fiction. In the last decade, the boom in artificial intelligence has made autonomous vehicles a possibility for the near future. A KPMG report on the future of cars underscores that, because of their automatic and connected technology, AVs are predicted to bring substantial social and economic value. For one, fast and smart coordination between vehicles in traffic can reduce the risk of traffic accidents and resulting roadside deaths. In addition, citizens who are unable to drive, such as children or the elderly, can enjoy improved mobility and access to more remote areas. In turn, improved connectedness and reduced risk can drive economic growth, especially in urban areas.

Undoubtedly, coordinating complex vehicles in traffic is a hefty task, and technological advances in the field need collaborative action. Tier IV, a Tokyo-based startup founded in 2015 by Professor Shinpei Kato, has designed Autoware, a complete open-source software stack for autonomous driving technology. Kato was first introduced to the technologies for autonomous vehicles while he was a visiting research scientist at Carnegie Mellon University in the US. Impressed by the possibilities of the field, he started the Autoware project for the development of AV software at Nagoya University in Japan. The first Autoware platform was launched in August 2015 as part of the university project, and the spinout company, Tier IV, was founded in December of that year.

“I started the Autoware project in order to enable as many individuals and organizations as possible to contribute to open innovations in autonomous driving technology. With a baseline reference design, we wanted to provide (i) an open-source software platform for production, education, and R&D and (ii) business opportunities and schemes using the open-source software platform,”

SHARES DR. KATO.

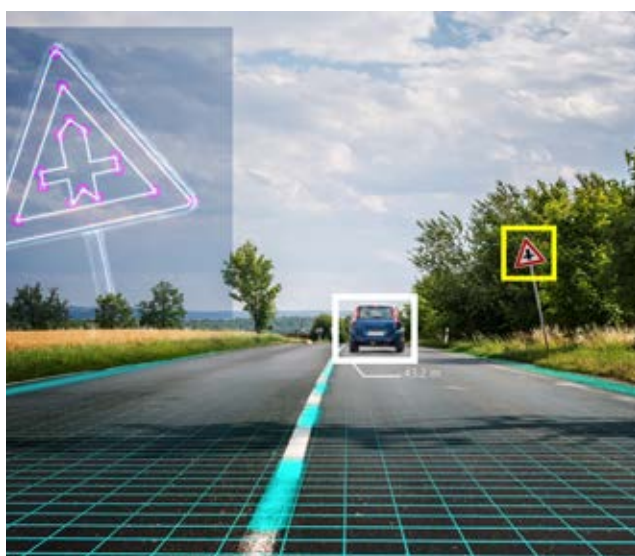
Motivated by the potential of an open-source ecosystem that everyone can access, in 2018 Tier IV transferred all rights for Autoware to the newly formed Autoware Foundation (AWF). Along with Tier IV, founding members of the AWF include partner companies Apex.AI and Linaro. The non-profit organization now counts almost 50 members from around the world.

AUTOWARE MEETS THE CHALLENGES OF COMPLEX MOBILITY NETWORKS

Currently, Autoware is available through the Apache License, Version 2.0. Because of its modular infrastructure, different features can be easily added or removed, a characteristic that supports its open-source design. At the core of Autoware is mature, deterministic AI technology, which means that simulations run on the platform can be exactly reproduced in the behavior of live vehicles. For perception and localization of vehicles and their surroundings, the software collects data from a variety of sensors, including cameras and LiDAR devices. Then, Autoware incorporates planning algorithms that coordinate the vehicle's response to its surroundings. Based on vehicle dynamics, the software generates control signals for the vehicle to follow a specific trajectory.

Autoware is applicable in a range of mobility contexts, and it has already been implemented in several products. In 2019, the startup began field tests with Milee, an electric vehicle connected to Web.Auto, an Autoware-based web platform. Another last-mile mobility product announced by Tier IV is the Postee EV, which can be used for unmanned delivery and distribution. On top of Milee and Postee, the company has developed small, turnkey units to connect low-speed vehicles to the platform, as well as the Logiee logistics robot. In terms of geographical scope, the technology is suitable for urban areas, as well as private or depopulated areas.

Part of the reason why Autoware is so widely applicable lies in its advanced deep learning technology. In complex, dynamic mobility networks, such as urban traffic, even small details about vehicle motion can have an impact. The open-source structure of the software allows for a multi-party approach to solving these challenges on a granular level. As a result, Autoware is currently used by over a hundred companies globally, with field operational tests run at about 50 locations across Japan.



TIER IV ENJOYS AN ABUNDANT NETWORK OF PARTNERS AND INVESTORS

Although the software has already gained considerable traction, Tier IV continuously works to hone the Autoware algorithms through international partnerships. Just in 2020, the startup announced several key collaborations to improve upon different aspects of Autoware. Together with AutonouStuff, Tier IV is working on expanding a thriving ecosystem through Autoware. Tier IV has also concluded partnerships with DeepMap to co-develop high-definition 3D mapping technology for Autoware, and with LG Electronics for cloud-based simulations and testing.

Throughout its journey, the startup has received substantial financial support from investors. In July 2019, Tier IV completed a Series A round worth approximately \$74 million. The list of investors comprises Sompo Japan Nipponkoa Insurance, Yamaha Motor, KDDI, JAFECO, and AISAN TECHNOLOGY. This brings the total funding of Tier IV to circa \$141 million.

Given its current track record, Tier IV is set to compete in the global market for automotive software solutions. Markets and Markets predicts that the size of the market will grow at a CAGR of 16.9% between 2020 and 2025. At this pace, the market will grow from \$16.9 billion in 2020 to \$37 billion by 2025. Government regulations related to automotive safety and fuel efficiency, as well as the increased use of electronics-based driving comfort & safety systems, will boost the market's growth. The APAC region is expected to hold the largest share of the market in the coming period.

Within these conditions, the outlook for Tier IV is certainly promising.

“Tier IV is dedicated to sharing technology for safe intelligent vehicles that will benefit all of society by enabling as many individuals and organizations as possible to overcome the barriers of time and space to collectively bring autonomous vehicles into reality. In the coming period, Tier IV and its global partners will continue to evolve Autoware and provide turn-key solutions for commercialization of Autoware-based autonomous vehicles all over the world,”

CONCLUDES THE TEAM FOR VALUER.



AUTOFLEET

Autofleet has created a sustainable Vehicle as a Service layer, providing an elastic supply of vehicles to serve any source of demand.

BUSINESS LOGIC:

PRODUCT CONCEPT

The Autofleet platform enables fleets to maximize efficiency through automation and optimization of existing fleet operations and logistics, while also opening new and complementary on-demand business models. The platform centrally optimizes the fleet operations, eliminating the dependence on manual decision making. It uses machine-learning algorithms to optimize fleet allocation to balance supply-demand rations, match orders to vehicles and create efficient routes, and automate servicing and operational tasks. With Autofleet's Ride & Vehicle simulator, fleets can quickly test different variations to plan and design upcoming deployments.

BUSINESS MODEL

The startup works with a B2B model, charging a SaaS platform fee per vehicle or per order managed by the platform. Autofleet's clients include businesses that require managing large fleets of vehicles, such as car rental companies, car-sharing operators, automakers, public transport operators, taxi fleets, and delivery services, among others. Its main geographical targets are the European and US markets, with increasing traction in the Latin American and APAC regions.

SUMMARY:

- Autofleet aims to bridge the gap between inefficient on-demand ride services and existing underutilized fleets.
- Using advanced machine learning algorithms, the Autofleet platform predicts ride demand, determines prices based on demand dynamics, and optimizes demand-supply matching.
- Autofleet has already secured key partnerships with Suzuki, Zipcar, Avis Budget Group, and Keolis.
- According to Allied Market Research, the market for smart fleet management will grow at a CAGR of 8.9% between 2018 and 2025.

CUSTOMERS



AVIS



KEOLIS

LOCATION: Tel Aviv, Israel

FOUNDED: 12/02/2017

FUNDING: 7,500,000 USD

EMPLOYEES: 20

WEBSITE: autofleet.io

TRANSPORTATION

SOFTWARE

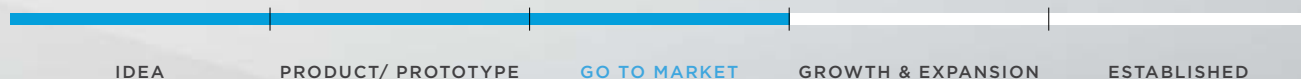
CAR SHARING

FLEET MANAGEMENT

RIDE SHARING

2

MATCH



MEET THE TEAM:



DOR SHAY

CO-FOUNDER & CTO

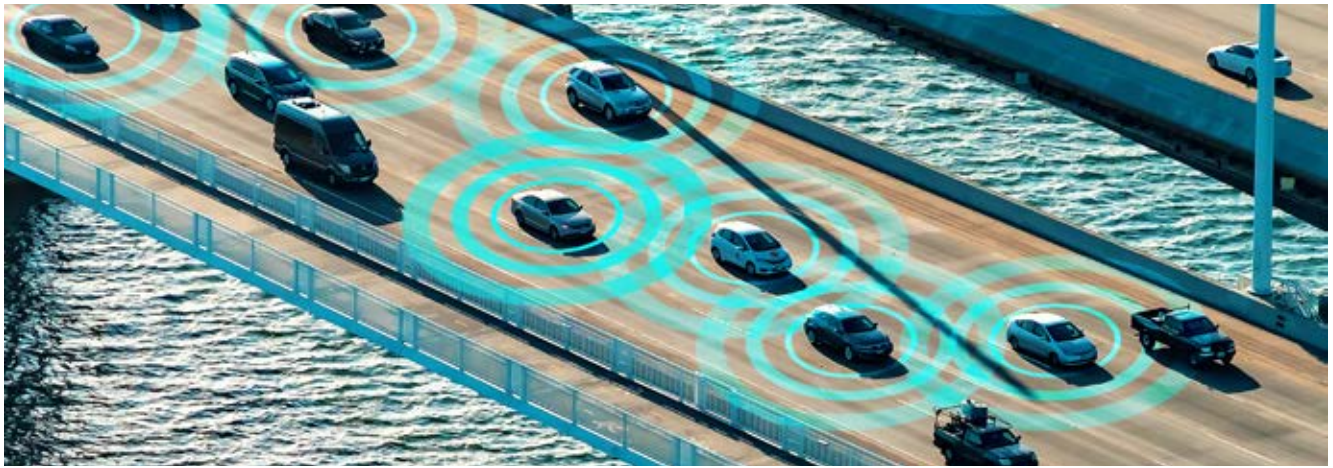
Dor Shay brings substantial expertise in machine learning, artificial intelligence, web/mobile development, and mobility. He has worked as a Software Engineer at Gett and as the co-founder and CTO of Poob, a profitable B2B startup in the restaurant industry. Shay has experience bootstrapping R&D teams in over four companies.



KOBI EISENBERG

CO-FOUNDER & CEO

Kobi Eisenberg is an entrepreneur passionate about software applications in the mobility sector. Before co-founding Autofleet, he had worked as Head of Product Management at Gett, VP of Product Management at Bidgely, and R&D and Product Manager at HP. Eisenberg holds a BSc in Computer Science and an MBA in Business Management from Ben Gurion University.



AUTFLEET AUTOMATES THE FUTURE OF MOBILITY

Growing urbanization and a decrease in car ownership have contributed to a boom in the on-demand mobility industry. Ride-sharing companies like Uber and Lyft have popped up everywhere, promising to solve the supply and demand gap by offering online matching platforms and employing drivers on a gig-based model. However, despite their scale, platforms of this type have not managed to reduce the cost-per-ride, since independent drivers continue to pay the same amount for fuel, maintenance, and insurance. Because drivers have full autonomy in selecting the rides they will take, the movement and distribution of vehicles connected to the platform are somewhat haphazard and suboptimal, leading to increased pollution and costs, as well as unfulfilled ride requests during peak hours. At the same time, large fleet owners, such as car rental companies, have a high percentage of unutilized vehicles at central urban locations.

In recent years, regulatory pressure has stirred a movement away from gig-based ride-sharing. This environment has created an opportunity for fleet operators to become Vehicle as a Service providers, dynamically operating vehicles in any mobility service while employing a more centralized and unified approach to fleet management. Israeli entrepreneurs Dor Shay, Kobi Eisenberg, and Avi Hauben identified this opportunity. In 2017, the trio co-founded Autofleet, a Tel Aviv-based startup that develops a centralized platform for optimizing fleet operations.

“Autofleet comes to solve the existing market gap, bridging between the unutilized vehicles of global fleets and the suboptimal operational model of on-demand services, to enable fleets to activate their vehicle supply as on-demand service for any platform. The platform provides an end-to-end solution to enable this innovation, first working with fleets to optimize existing business operations, and seamlessly launching new on-demand services from the same vehicle supply,”

SHARES THE TEAM FOR VALUER.

“Our mission is to create the first truly sustainable Vehicle as a Service layer providing an elastic supply of vehicles to serve any source of demand.”

A DYNAMIC MACHINE LEARNING PLATFORM TO OPTIMIZE FLEET MANAGEMENT

To solve the challenges posed by fleets under dynamic conditions, Autofleet takes a data-driven approach. The Autofleet platform uses advanced machine learning algorithms to predict demand, provide dynamic prices that reflect the demand-supply balance, and optimize demand-supply matching in real-time. For input, the platform uses a variety of data sources, including historical data from the client, traffic information, driver shifts, telematics devices, and others. Fleet managers can get a real-time, consolidated overview of this data through the Autofleet dashboard.

The core logic underlying the startup's product is that automatically assigning rides to drivers based on the state of the entire fleet is considerably more efficient than letting drivers make those decisions independently. As opposed to the traditional ride-sharing driver app where drivers can see potential rides and choose to accept or forego them, Autofleet offers an app where drivers can receive notifications about the requests that the algorithm has automatically assigned to them. In addition to ride assignments, the algorithm can determine the appropriate schedules for vehicle servicing, fueling/charging, cleaning, etc. The Autofleet team says that businesses can reduce the cost-per-ride and the downtime of each vehicle based on this automated model, thus extracting the most potential from a given fleet.

Notably, the platform can find use both in making existing business models more efficient and in launching new, innovative layers. Based on its proprietary algorithms, Autofleet offers three different tools that address the unique challenges of their clients. Through the Ride & Vehicle Simulator, businesses can plan and optimize operations before any live vehicle deployments. The tool can use historical and real-time data to simulate different mobility operations and analyze their performance against more than 20 KPIs. The Autofleet team shares that Japanese car manufacturer Suzuki has already used the simulator to streamline its corporate transportation operations.

On top of the simulator, Autofleet offers two other tools to support Vehicle as a Service (VaaS) and Ride as a Service (RaaS) models. The startup's VaaS solution aids businesses to consolidate and enhance their existing logistics operations, including rental, leasing, car sharing, vehicle allocation, and servicing. The startup has used the VaaS solution to help the car-sharing company Zipcar improve its operations and increase the utilization of its fleet.

Finally, the RaaS turnkey solution can help Autofleet's clients launch new, on-demand layers.

"In COVID-19, we are working with fleets to leverage their existing driver and vehicle supply to offer on-demand delivery services to meet the surging demand for delivery from retailers, grocery stores, etc.,"

COMMENTS THE TEAM.

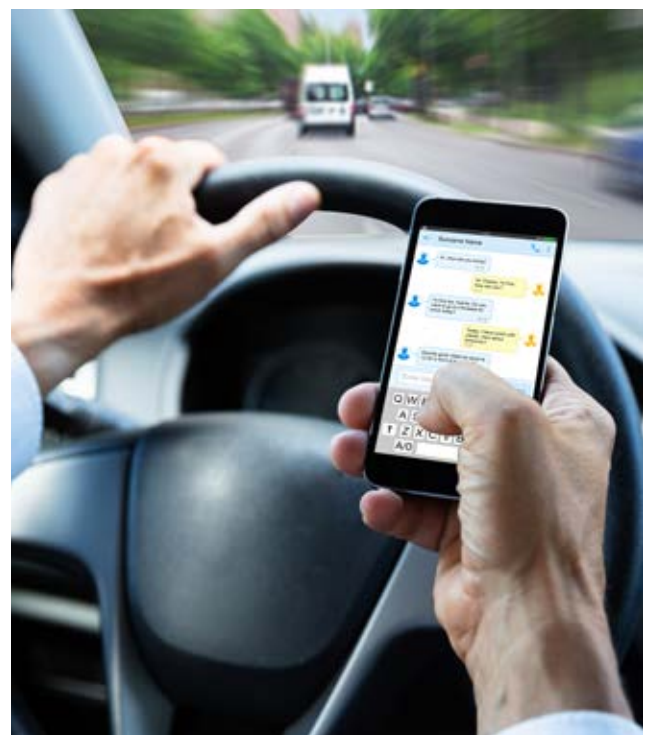
A SCALABLE VAAS SOLUTION FOR A BURGEONING GLOBAL MARKET

Because its solution boasts global coverage, Autofleet has successfully secured customers from multiple international markets, including Europe, USA, APAC, and Latin America. Currently, Autofleet has activity in over ten countries, including the UK, USA, Germany, France, Thailand, Japan, and Chile.

Autofleet's increasing traction has been eyed by multiple investors. In April 2020, the startup completed a Series A financing round, led by MizMaa Ventures and joined by Maniv Mobility, Liil Ventures, and NextGear Ventures. The round brought Autofleet \$5.5 million to advance its R&D efforts and expand to international markets. A year prior, the startup raised \$2 million in seed funding from Maniv Mobility and NextGear Ventures.

With its comprehensive fleet management toolset, the company is carving out a place in the global market for smart fleet management. According to a report published by Allied Market Research, the market was worth \$276.56 billion in 2017. Based on the agency's projections, it is expected to grow at a CAGR of 8.9% until 2025, touching a value of \$537.53 billion by the end of the forecast period. The report pinpoints the development of real-time technologies for fleet monitoring and the rise in operational costs for fleet owners as some of the primary market drivers.

In the coming period, Autofleet plans to achieve new deployments with both existing and new fleet partners. Other plans include the expansion of Autofleet's applications to other verticals, such as the micro-mobility sector. The team has secured collaborations with leading micro-mobility operators, with several deployments in Paris underway. Finally, the platform is already in use for planning and optimizing autonomous vehicle deployments, and the team predicts those deployments to continue expanding with the adoption of AVs ■



CIRECO FINLAND

Cireco is a construction project management company that operates on the principles of circular economy.

BUSINESS LOGIC:

PRODUCT CONCEPT

The startup's core offering consists of project design, planning, and construction services, all of which are based on the European Built Positive framework for circular and sustainable construction. Cireco provides tools for tracking the lifecycle and compliance of construction projects, as well as for the procurement and reuse of sustainable building materials.

BUSINESS MODEL

By promoting the principles of the circular economy, Cireco's main value proposition for its clients is cost-effectiveness and compliance with the new regulatory environment. The startup earns revenue charging service fees for its consulting, project management, and construction services. Cireco operates on a combined B2B and B2G model, with cities, municipalities, and private construction companies/developers as target customers.

SUMMARY:

- Cireco implements regional development and infrastructure projects in accordance with the principles of the circular economy.
- The startup's core objective is to track, reuse, and reclaim materials used in construction projects.
- In 2020, Cireco's Northbank project received a Green Good Design Award from the Chicago Athenaeum Museum of Architecture and Design.
- According to Accenture Research, the circular economy could generate \$4.5 trillion of additional economic output by 2030.

LOCATION: Tampere, Finland

FOUNDED: (FIBERVALVE): 05/14/1999
(CIRECO FINLAND): 03/20/2019

FUNDING: 650,000 USD

EMPLOYEES: 5

WEBSITE: cireco.fi

SUSTAINABILITY

BUSINESS CONSULTANCY

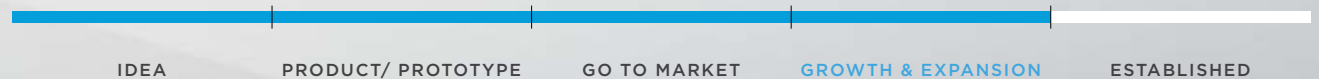
ENVIRONMENTAL CONSULTING

ENVIRONMENTAL ENGINEERING

GREEN BUILDING

3

MATCH



MEET THE TEAM:



PERTTU KETOLA

**CHAIRMAN OF THE BOARD &
CONSTRUCTION MANAGER**

Perttu Ketola is a trained engineer with a BSc in Construction Engineering. He is passionate about implementing sustainability models in construction, which he has demonstrated throughout his extensive experience in the industry.

RETHINKING THE CONSTRUCTION INDUSTRY ON A TRASH-TO-TREASURE MODEL

The construction industry is responsible for generating vast amounts of waste. Transparency Market Research shares that the amount of construction waste generated worldwide is set to double to 2.2 billion tons by 2025. In recent years, the industry has also been heavily scrutinized for its contribution to the global carbon footprint, a result of both unsound development practices and the use of harmful materials. Regulatory pressure, especially prominent in the EU, has led players in the construction sector to innovate with new models based on minimizing material waste and implementing eco-friendly building operations.

The movement toward a circular and sustainable economy in construction is imminent, and a Finnish startup is working to accelerate the transition. Based out of Tampere, Cireco Finland works to provide design and construction solutions to create sustainable, carbon-neutral, and waste-free infrastructure in its home country. Perttu Ketola, the engineer behind the startup, had witnessed the challenges that the construction industry faces when it comes to material use and building practices. As a result, he decided to wield his expertise to lead the field in a more sustainable direction.

Cireco was originally founded back in 1999 under the name Fiber Valve Oy to provide civil engineering services to the private and the public sector. In 2019, under the leadership of its new owner Ketola, the startup amended its business model to align with the principles of circular design and economy. The idea behind the restructuring of the company was that circular economy solutions could make more efficient use of resources in the construction industry, lower the operating costs, and significantly reduce the environmental impact of construction, such as waste, emissions, and environmental load.

SUSTAINABILITY ACROSS THE ENTIRE CONSTRUCTION LIFECYCLE

In line with its pivot, Cireco's vision is to help customers effectively align their existing business model with the circular economy. To do so, the company takes into account the environmental impact and the recycling process at every stage of a building or development project. Boasting with a comprehensive approach, the company offers end-to-end services, from consulting and project design to concrete construction solutions and project management. Cireco focuses on fostering joint private-public innovation in construction, with clients including private construction companies and developers, municipalities, and cities alike.

From the very beginning of every project, the Cireco method of construction design and planning is rooted in the Built Positive framework, launched by the Dutch Cradle to Cradle Product Innovation Institute (C2CPII). The framework outlines several fundamental principles of designing a sustainable built environment, including circular design, material health, a collaborative approach, and others. Cireco implements the Built Positive practices, guided by the pan-European commitment to carbon neutrality by 2030.

For the startup, tracking the entire lifecycle of a project is crucial. As part of its service offering, Cireco implements a comprehensive ERP software that keeps track of a project's progress and regulatory compliance. More importantly, the startup uses the tool to make sure that material procurement, use, and disposal are done sustainably. In this way, building site materials that would otherwise be disposed of can be identified and used in another project or site.

"The circular economy is something that needs to happen, and we at Cireco have a real opportunity to have an impact on its development,"

SHARES KETOLA FOR VALUER.



When it comes to its construction services, Cireco emphasizes a careful assessment of the functionality of the existing infrastructure, as well as the local characteristics surrounding a construction site that will determine the kinds of materials and designs that are best suited to the area. Within these constraints, Cireco designs solutions that minimize the construction's carbon footprint in areas such as city planning, regional development, and road construction.

“Conventional construction pollutes the environment enormously and is just ignored. There is no recycling of materials and no attempt to control emissions,”

COMMENTS PERTTU KETOLA.

For example, for road construction, the company uses reclaimed asphalt and soil that have been discarded from nearby areas. On top of reusing materials, the team is also committed to green design and incorporating eco-friendly, non-toxic materials.

“In our projects, we recognize the effects of climate change, such as extreme temperature fluctuations, heavy rainfall, and floodwater management. We strive to prevent the release of chemicals into surrounding soil and water, as well as to protect the surrounding nature and utilize it in greenspace engineering and landscaping in ways that not only contribute to efficient construction, but also blend seamlessly into the surrounding nature,”

SHARES THE TEAM.

A CIRCULAR APPROACH THAT SUPPORTS BOTH BUSINESSES AND THE ENVIRONMENT

The Cireco circular approach has already been put to use in the Northbank project, a collaboration led by Cireco and joined by several Finish sustainable architecture and consultancy firms. Northbank is a scalable urban development located in the district of Hiedanranta, Tampere. The project combines smart living technology and ecological construction for residential, commercial, and community buildings. Although the construction phase is ongoing, the project has already received a Green Good Design Award from the Chicago Athenaeum Museum of Architecture and Design. A year prior, the startup was also featured on Sitra's list of "Most Interesting Companies in the Circular Economy in Finland."

For the Cireco team, sustainability, circularity, and cost-effectiveness in construction are tightly intertwined. According to Accenture Research, the circular economy could generate \$4.5 trillion of additional economic output by 2030. The report further identifies that volatile commodity prices and unreliable raw material supply will render traditional take-make-waste business models less profitable, opening up an avenue for new waste-to-wealth models that enjoy supply at a lower cost.

With the economic value of the circular economy approach on its side, the Finish startup is competing in the market for civil engineering services. A recently published report by Grand View Research states that the global market for these services will register a CAGR of 5.4% between 2020 and 2027. Just in 2019, its estimated value was \$8.73 trillion. An expanding real estate sector, a rapidly growing urban population, and infrastructural development as part of public-private partnerships are expected to drive the market's growth.

In the coming years, Cireco will focus on developing its circular model and securing additional projects to bring its model to scale.

“We are trying to speed the systemic change, and a holistic regional development approach is the key. Sustainable cities will likely be the winners in the future,”

CONCLUDES KETOLA.

CONCLUSION: KEY TAKEAWAYS AND WHAT WE EXPECT IN THE FUTURE

The 17 UN Sustainable Development Goals were explicitly designed to engage the business sector in addressing some of the greatest challenges humanity is facing. This publication was created to promote the idea that organizations can become more environmentally-conscious in a way that lowers costs and opens the doors to new business opportunities.

Focusing on SDG 11: *Sustainable cities and communities*, this report stresses the benefits that can emerge when large organizations align their operations with the goal by adopting innovative technology.

THESE ARE SOME OF THE REPORT'S KEY TAKEAWAYS:

Technological innovation is imperative to achieving the SDGs: We're moving too slowly and struggling to keep pace with the growing societal needs. In this regard, technological breakthroughs and creativity hold the highest potential for reducing the time and cost necessary to achieve results.

Startups can help corporations become more sustainable: Since startups are inherently innovative, large organizations can benefit from collaborating with them. This is one of the most promising ways of finding new sustainability-related technologies that work for a company.

Urban areas attract residents faster than ever before: Businesses are not only well-positioned to deliver on the SDG 11 promise but can also expect multi-faceted business opportunities. More sustainable cities, among other perks, translate into a better operating environment, lower running costs, and healthier, more productive citizens.

A growing number of companies are announcing SDG 11 strategies: Rapidly growing cities mean higher energy demands, more waste production, and challenges with traditional mobility and infrastructure, which calls for innovation in sustainable practices. From restaurant chefs and soda manufacturers to city officials and real estate developers—all sectors are now responding to this imperative.

There are steps companies can take to make aligning with SDG 11 easier: To make aligning easier, corporations are advised to analyze the environmental impact of their office buildings, take into account their entire footprint, define priorities, outline specific KPIs, announce their plans, and achieve business growth through innovation and collaboration with other companies.

Companies can expect numerous benefits from aligning with SDG 11: By investing in the sustainability of their communities, companies can benefit from an improved brand image, a higher employee retention rate, and an increase in their financial performance. Moreover, they will be able to meet changing regulations in a timely manner and avoid penalties under their state's environment legislature.

The smart transportation market is estimated to advance at a CAGR of 14.7% between 2017 and 2023: The market is expected to grow from \$55 billion in 2017 to \$149.2 billion by 2023. Some of the market's currently trending technologies are last-mile transport solutions, autonomous vehicles, and smart traffic optimization software.

The global waste management market will reach \$530 billion by 2025: The market will be growing from an estimated \$330.6 billion in 2017 at a CAGR of 6%. Some of the technology trends within the market are anaerobic digestion of waste, automated systems for optical waste sorting, and IoT solutions for smart waste management.

Modular construction is gaining traction as an offsite and resource-efficient answer to the challenges with affordable housing: Markets and Markets estimates that the global modular construction market will grow at a CAGR of 6.9% between 2017 and 2023. Moreover, the global construction sustainable materials market is expected to grow at a CAGR of 11.6% between 2017 and 2026.

Organizations are approaching sustainability from different angles that make the most sense to their ambitions: The report includes the stories of Rambøll, Siemens, and IBM as some of the large organizations that are successfully engaging with SDG 11.



THE COMPANY OF THE FUTURE IS SUSTAINABLE

As the Harvard Business Review once put it: *There's no alternative to sustainable development*. The increasingly evident climate change (and stricter regulations), coupled with the modern needs of the informed customer, mean that business-as-usual won't cut it anymore. Fortunately, this new reality doesn't only bring threats, but also numerous new business opportunities to those that embrace it on time.

**IN SUPPORT OF OUR CONCLUSION,
A STUDY CONDUCTED BY HBR POINTS
OUT THAT:**

“Sustainability is a mother lode of organizational and technological innovations that yield both bottom-line and top-line returns. [...] In fact, because those are the goals of corporate innovation, we find that smart companies now treat sustainability as innovation's new frontier.”

VALUER HELPS CORPORATIONS BLEND PURPOSE WITH PROFIT

There's no one-size-fits-all approach to corporate sustainability. This is why it's essential that each organization addresses the challenge from a perspective that makes the most sense to its strategies.

By finding startups with innovative solutions that complement a corporation's unique needs, the Valuer AI platform helps organizations adopt the most compatible sustainability-related technologies.

The platform's data-driven approach empowers companies to find previously unseen opportunities, enabling a move from cost-cutting to opportunity-driven profit generation.

Learn more about how the Valuer AI platform works on page 5.

ACTIVATE THE VALUER RADAR

Use our AI platform to find the startups that will help you
become sustainable and gain competitive advantage



SET YOUR
SUSTAINABLE
DEVELOPMENT
AGENDA



ACTIVATE YOUR RADAR
THROUGH THE VALUER
PLATFORM



GET MATCHED WITH
ACTIONABLE SDG
CANDIDATES

