



Urban tech & decarbonizing the built environment 2023

Review of investment landscape & market outlook in Finland

Foreword

Sustainable business models in urban built environment play a major role in Climate tech

Built environment generate ~40% of the global GHG emissions. As investors are increasingly screening investment opportunities in climate tech, urban technologies that accelerate decarbonization in the built environment are becoming more relevant than ever. This provides opportunities for investors, start-ups and society to find sustainable growth that mitigates and adapts to climate change. Tesi's 'Urban Tech & decarbonizing the built environment' study focuses on the opportunities in the Finnish start-up and growth company ecosystem. Our study approach is inspired by Dealroom&2150.VC Urban tech reports.

Tesi

Tesi is a market-driven private equity and venture capital investor and market developer

2,5 bn €

Assets under management

100%

State-owned

450

Direct and indirect portfolio companies (FI)



SOLNET

Haltian

FLOW
TECHNOLOGIES

BOB W.



Fira





Tesi

Agenda

Key observations

Definitions of urban tech & decarbonizing the built environment

Funding

Investors

Ecosystem map

2024 Outlook

Summary | key observations

We have identified 260 growth companies

- Start-ups and growth companies that drive the innovation and decarbonization of the urban built environment focusing on four key segments; **Experience**, **Operate**, **Build** and **Enable** and other proptech.

+800 M€ funding raised 2015-2023

- Funding data looks promising, funding has grown 5x since 2019. Urban tech's share of Finnish growth funding market has averaged ~8% with median round size of 3 M€.

Investor data

- Number of investors investing to urban tech and built environment has grown, with peak year being 2021. Private funds cover ~55% of the market.
- Also, number of foreign investors is growing. Foreign investors have covered ~40% of the market since 2018. Based on our analysis 20% of the foreign private funds have more than one investment in Finland.

Ecosystem winners

- Based on our data we find that revenue growth of the underlying companies peaked in 2021 with clear segregation between winners and losers. So far, the winners have been business models in the EV (electric vehicle) value chain, renewable energy solutions, intelligent infrastructure and building IoT.

2024 Outlook

- We expect the market funding volumes to decrease in 2024 as 2023 funding volume growth was driven by limited number of larger funding rounds. But more companies are moving to A-round phase at the back of increased seed activity in 2020-2022
- Start-ups operating in the cyclical build or non-critical segments of proptech are likely to lose 1+ years of growth leading to difficulties in meeting the future funding requirements
- VC and growth funds are in good position to capture new deals as valuations are more attractive and the IPO market is unlikely to rebound for scale-ups until late 2024



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Defining of urban tech & decarbonizing the built environment

Experience

- o Work, live, stay healthy and safe in the build environment

N=36



Future of Work and remote workplace



Air quality and Air pollution



Healthy, safe and secure buildings

Operate

- o Business models to optimize urban assets from smart cities and buildings to urban logistics

N=70



Urban mobility and logistics



Building automation, heating & cooling | facility management



Sustainability tracking and management

Build

- o Transforming construction methods including buildings, infrastructure and production systems

N=76



New sustainable building material innovations



New construction methods and Carbon capture



Construction tech and automation

Enable

- o New infrastructure technologies and platforms that enable sustainable scaling of urban areas

N=58



Construction and building circularity



Intelligent infrastructure



Clean energy and grid technologies

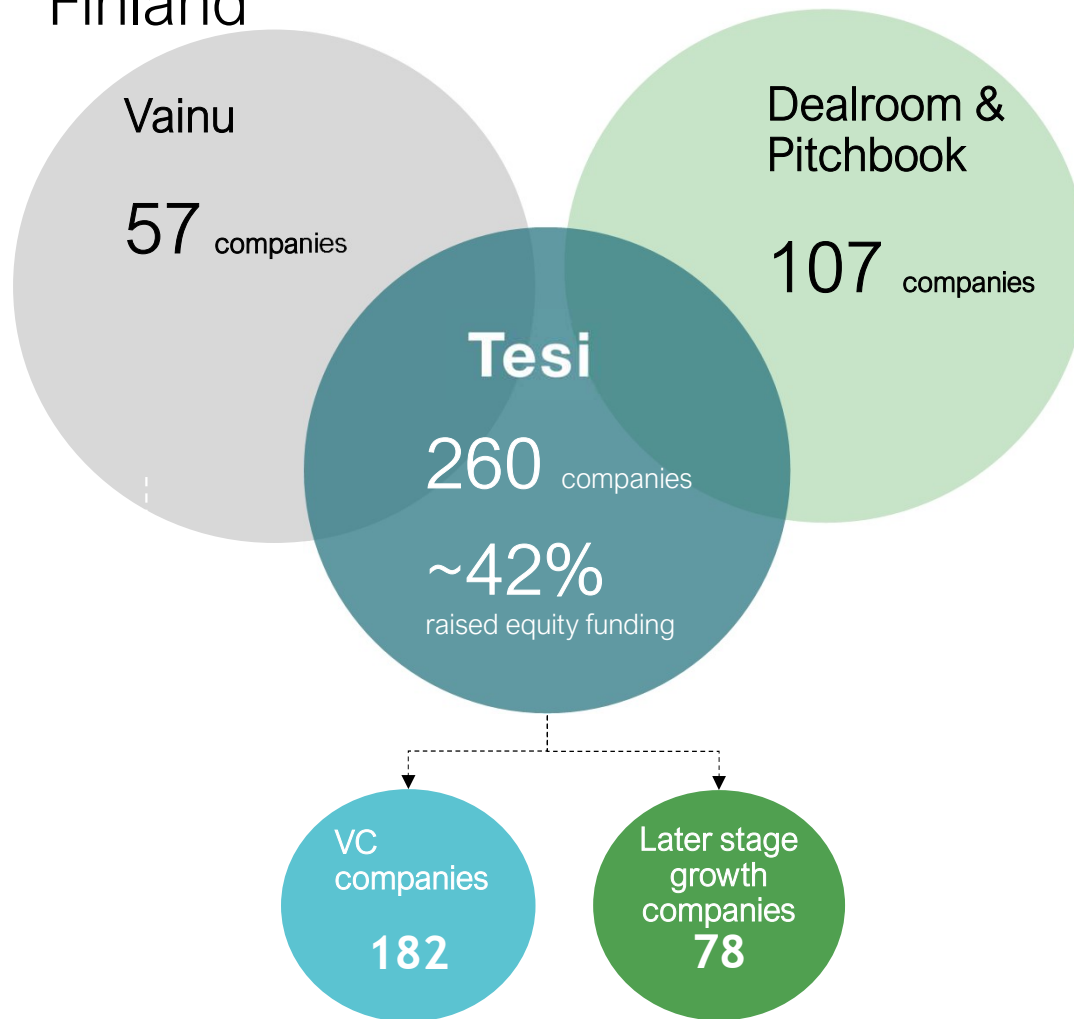
Other proptech

- o General proptech related start-ups

N=20

Study sample including total of 260 Finnish start-ups and growth companies

Tesi's definition of urban tech & decarbonizing the built environment in Finland



- Tesi's data selection is hand-picked from the Finnish ecosystem by sampling companies that meet the urban tech and decarbonization criteria. Companies have been manually screened from Dealroom, Pitchbook and Vainu data and categorized under Experience, Operate, Build and Enable by our investment research team.
- Companies are split to VC and Growth categories. VC data includes companies that have raised pre-seed, seed, series A, series B onwards. Growth category includes later stage and matured companies hand picked by Tesi that meet the criteria.
- Fund round data is based on primary equity financing rounds as this data is often disclosed and can be verified. This is often not the case with growth segment where deal size or round data is not available with exception of IPO's, thus we have excluded buy-out and other secondary share transaction data.



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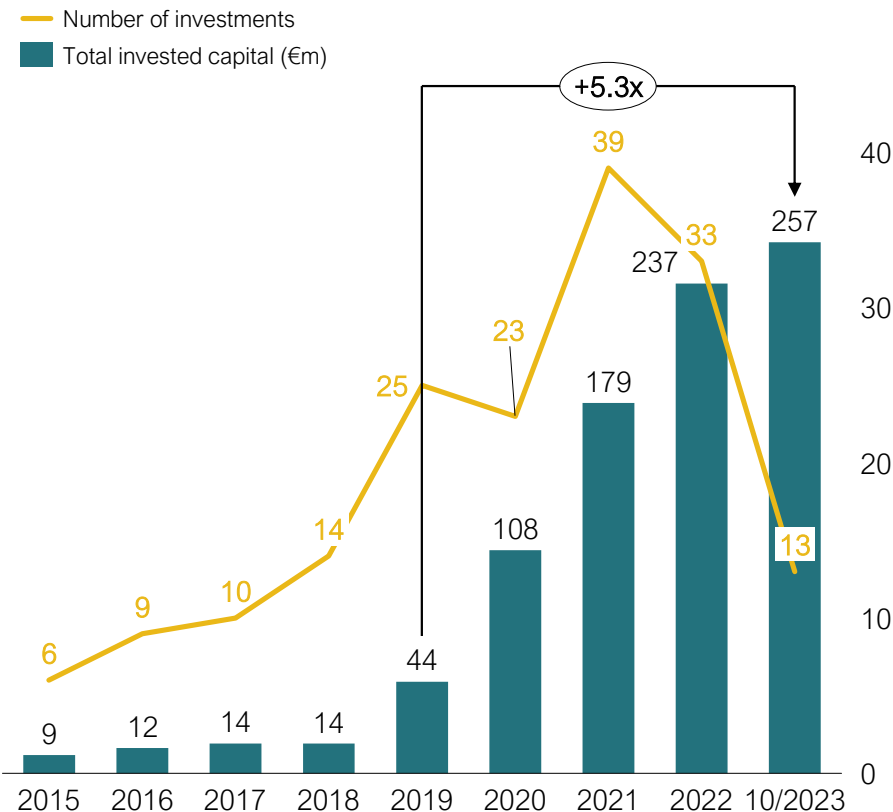
Ecosystem map

2024 Outlook

Investments into urban tech & built environment continue to grow

Development of investments in urban tech 2015-2023

€m, number of deals



Comments

- Funding data looks promising, a new segment of urban tech & built environment companies have emerged since 2019. Most successful sub-segments have been EV value chain players, renewable energy solutions (storage, solar, intelligent infrastructure) and building IoT.
- IPO market was a credible alternative for the Finnish scale-ups during 2020 – 2021 with handful of urban tech companies raising ~150 m€ growth funding through share listing in Helsinki.
- Going into 2024, we expect to see increasing number of A-rounds across the Experience, Operate, Build and Enable segments. Underlying market situation is gradually improving, but we recognize that the construction & property market downturn continue to slow down contech & part of the proptech market.

€ 874 M€
total invested capital through
2015-2023

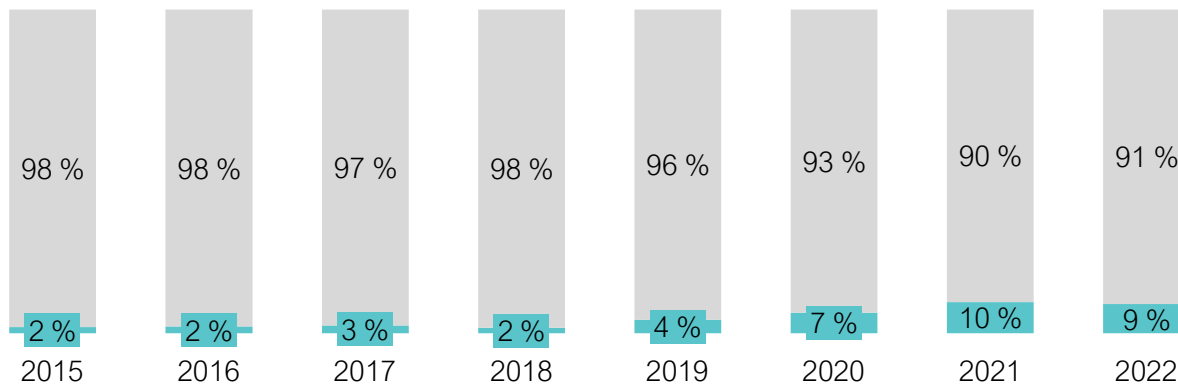
+53 %
CAGR 2015-2023

172 rounds
investments to 92 companies through
2015-2023

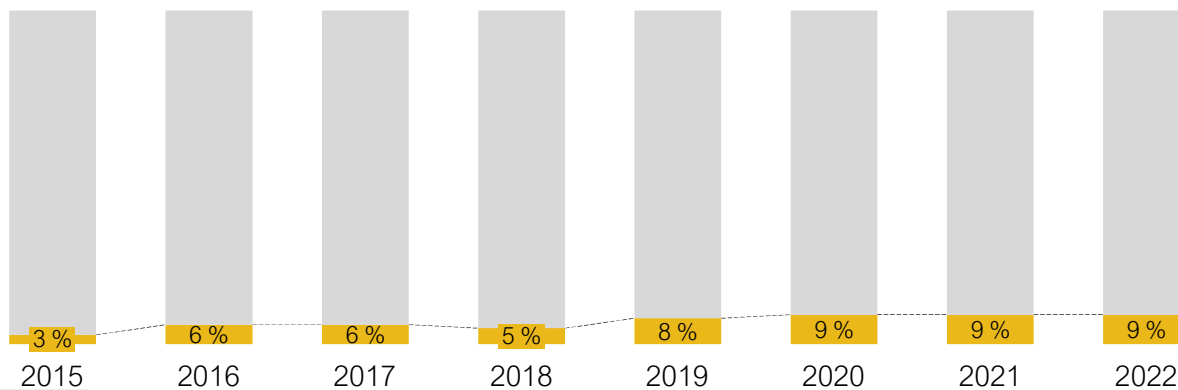
5x
growth through
2015-2023

Funding data indicates larger rounds whereas built environment share of transaction volume has remained the same

Share of of total invested capital
(Growth, and venture capital investments)



Share of transaction volume, number of transactions
(Growth, and venture capital investment rounds)



Comments

- Urban tech share of invested capital in the Finnish VC ecosystem has averaged ~8% in the 2020's
- Data indicates a step change after 2018;
 - Share of total invested capital growing ~4x
 - Share of transaction volume growing ~2x
 - This indicated larger funding rounds which is supported by round size data
- Median round size;
 - ~1 M€ between 2015 – 2018
 - ~3 M€ by 2022
 - Median round size in line with the wider VC market
 - Largest rounds between 50-100M€ during 2021 – 2023



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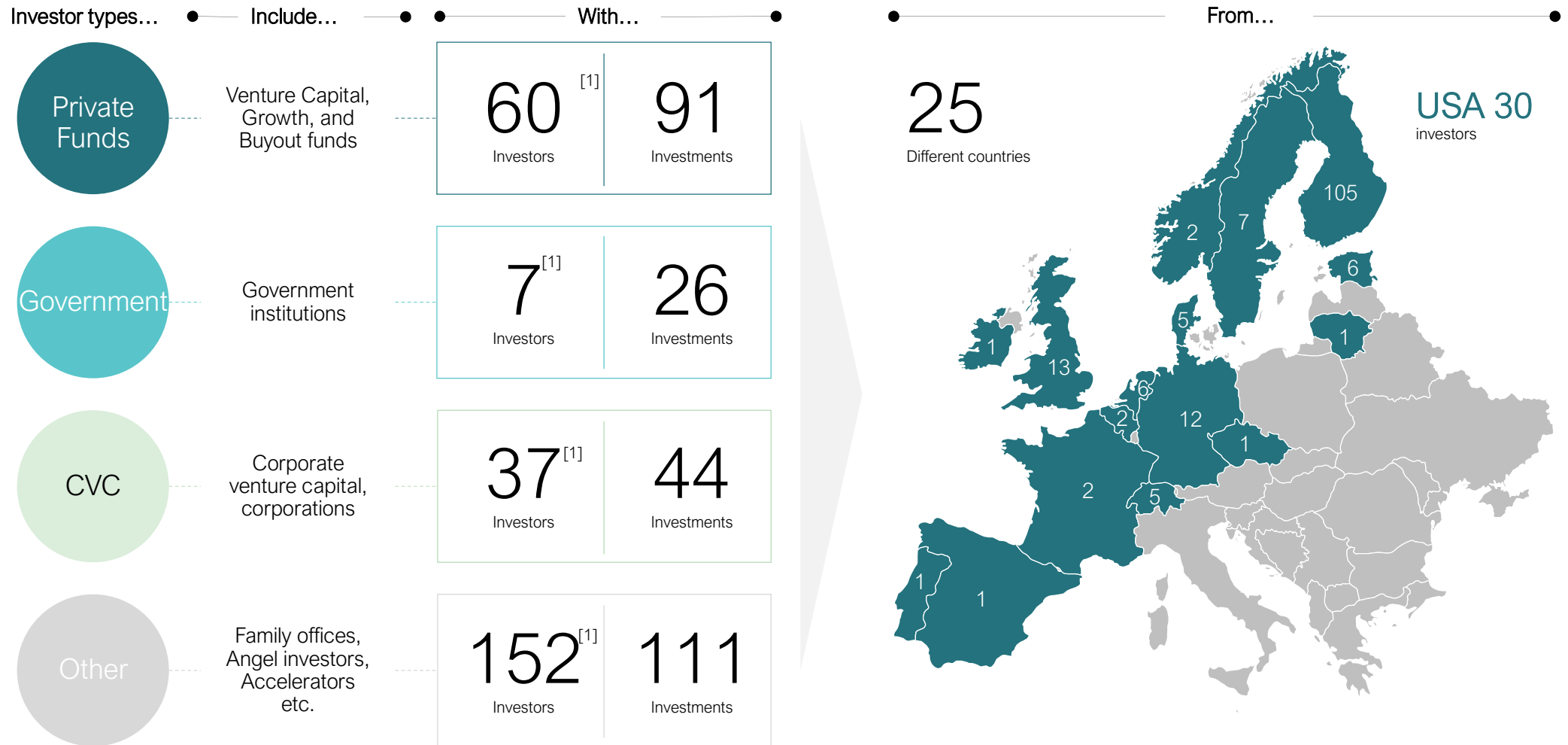
Funding

Investors

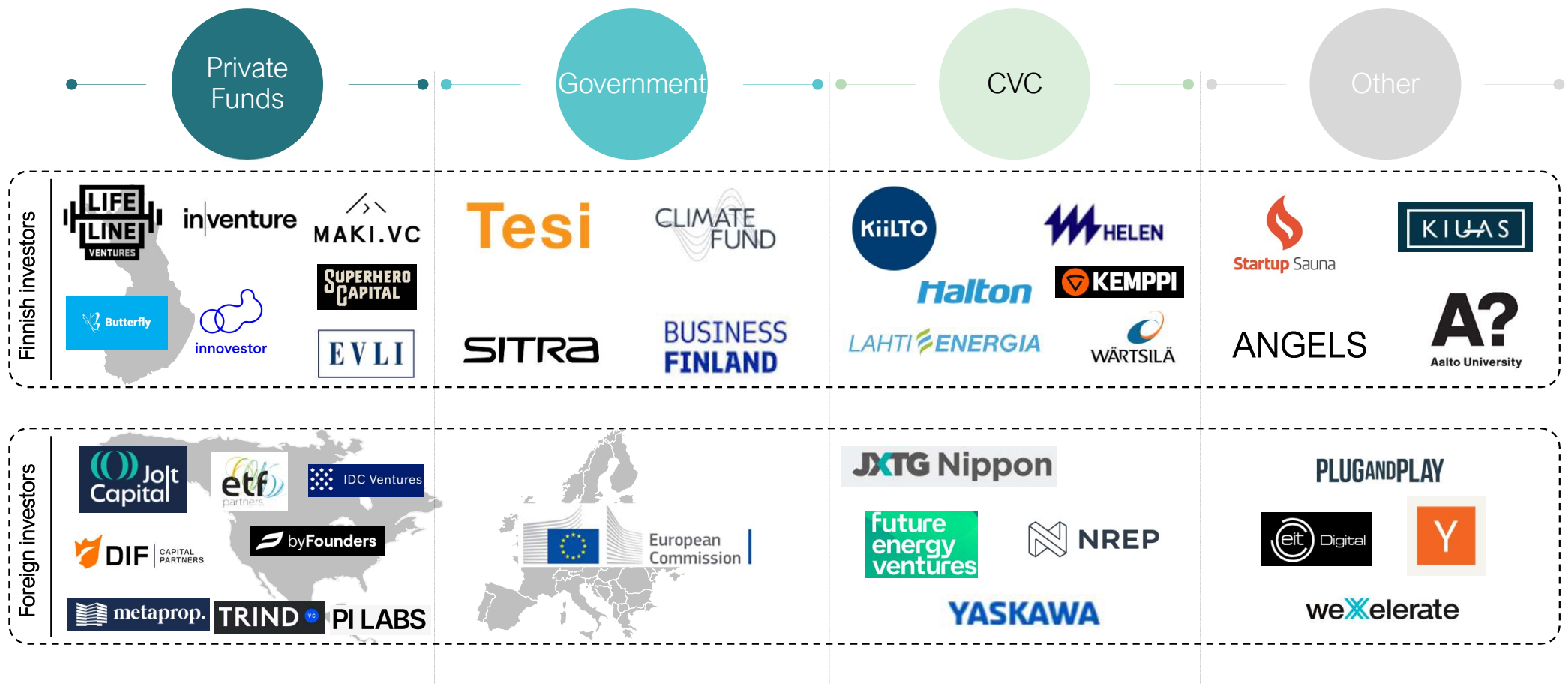
Ecosystem map

2024 Outlook

Investors in the Finnish urban tech landscape



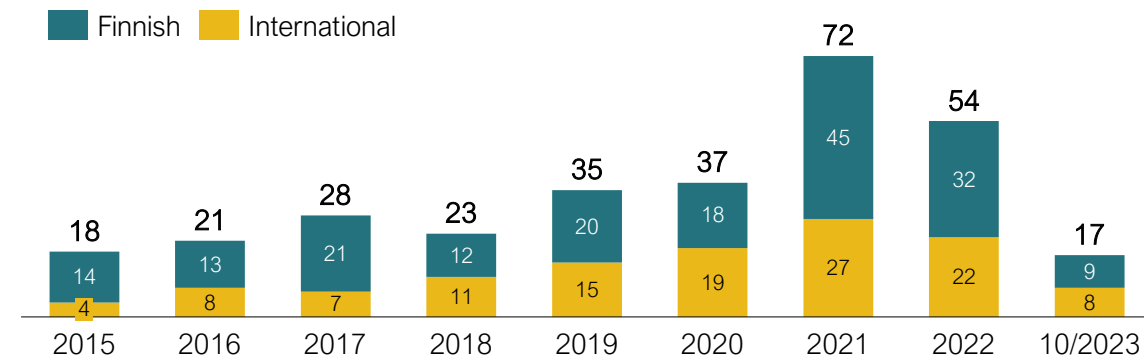
Most notable investors in the Finnish urban tech ecosystem



Foreign investors share has averaged ~40% market

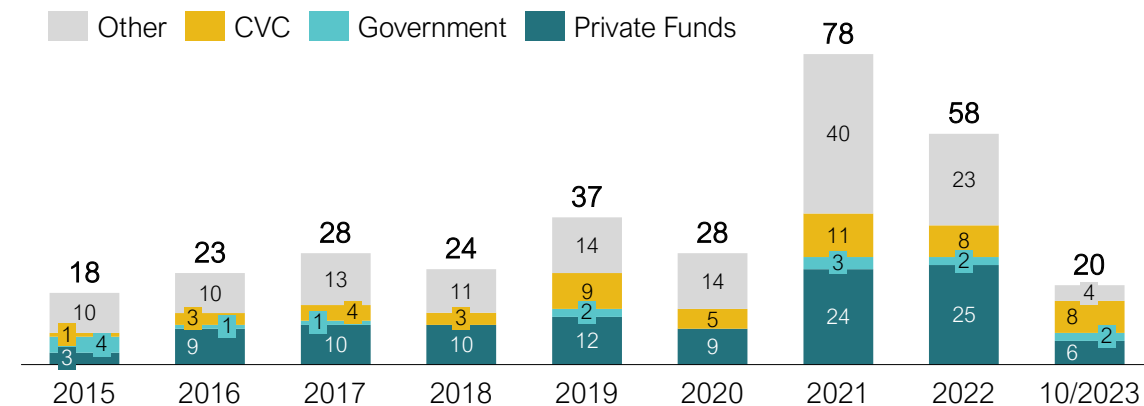
Nationality of investors

Number of investors (data available for 85% of the investors)



Type of investors investing in urban tech & built environment markets

Number of investors (data available for 87% of the investors)



Comments

- **Number of investors is increasing** with private funds (venture, growth, buyout) and corporate venture funds having ~55% share of the market since 2019.
- **Number of foreign investors** has grown especially since 2018 where the ratio of foreign funds vs. domestic funds were ~40%. Finnish investor data includes high number of angels & non-institutional investors 2021 - 2022.
- It is now likely that 2023 will have less investors at back of the drop in wider VC market with number of active investors falling to 2018 – 2020 levels.

20 % of foreign private funds with existing investments in Finland have more than one investment in the Finnish urban tech



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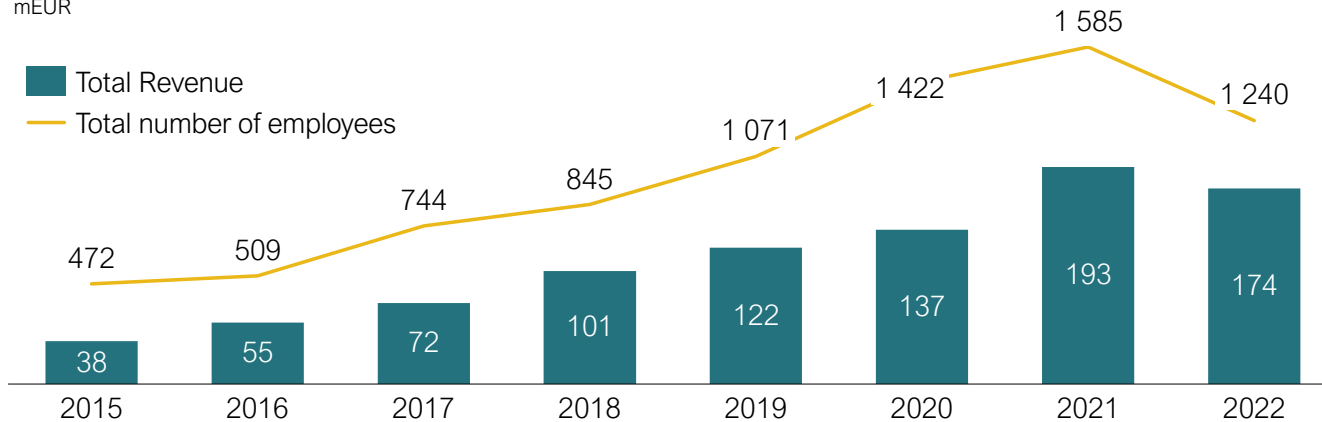
Investors

Ecosystem map

2024 Outlook

Urban tech ecosystem's revenue growth has segregated since 2021

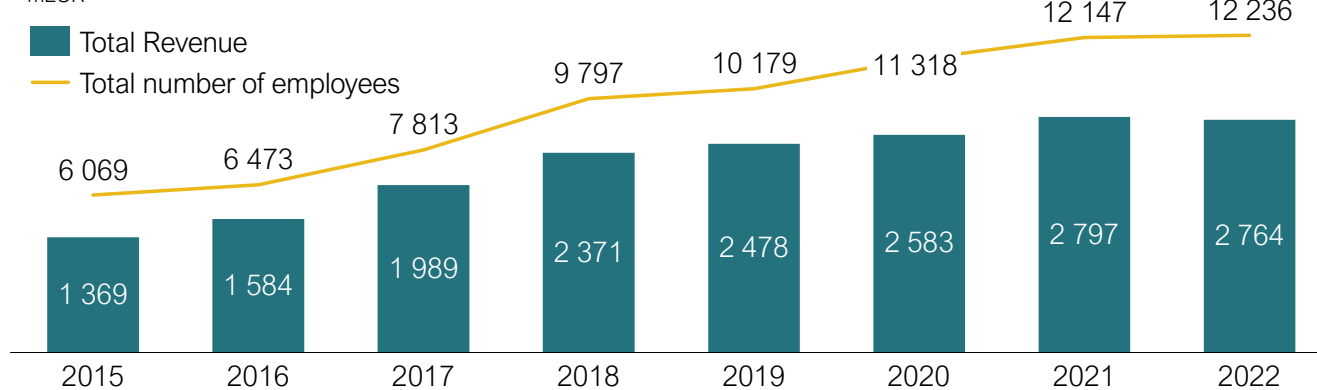
Development of total revenue and total number of employees in venture capital segment
mEUR



Venture capital segment

- High growth until 2021 with 5 year CARG's;
 - Median revenue +22%
 - Employee job creation +8%
- Venture capital data shows growth stagnating in all categories after 2021. Our hypothesis is that start-ups have not been able to adapt to external shocks in the economy and the new emerging segments e.g. energy are not visible in 2022 figures.

Development of total revenue and total number of employees in later stage/matured growth segment
mEUR



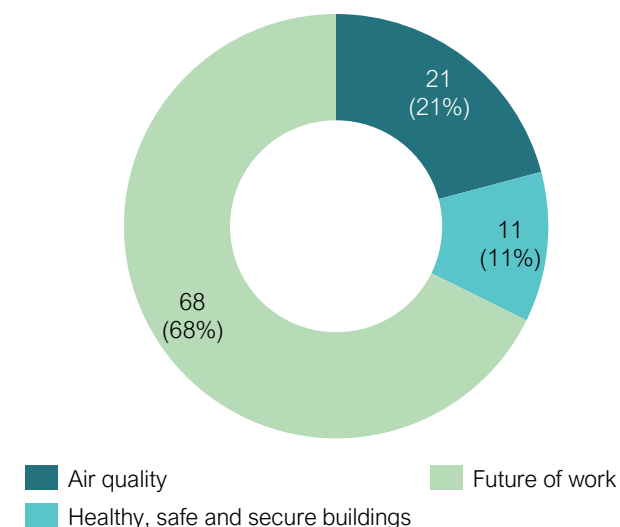
Growth capital segment

- Segment growth until 2021 with 5 year CAGR's;
 - Median revenue +22%
 - Employee job creation +8%
- Segregation of growth between different segments; clear winners in enable segment, where companies have been able driven by EV value chain and renewable energy post Ukraine war driven supply shocks.

Experience – ecosystem summary

- The 'Experience' sub-section includes innovations that enable living and working in healthy and safe conditions in the built world. In essence, it is the section of urban tech innovations that directly affect the user *experience* of being in an urban environment.
- 'Future of Work' related businesses have lately driven the equity financing volumes (68% of recorded equity financing), however, it is recognized that many of the growth companies in scope are able to fund their operations without external equity financing.
- *Future of Work* related businesses serve the evolving needs of the workforce, workplaces and the work itself. This can mean everything from tools for work life optimization to solutions enabling efficient hybrid working or modular space innovations.
- Companies addressing the issues related to *air pollution and indoor air quality* provide solutions to the issue often with software-driven hardware used to gain clear improvements in air quality.
- *Healthy, safe and secure buildings* related businesses aim to improve the current user experience of the built world with novel technologies.

Experience - Invested capital 2015 -2023
(mEUR)

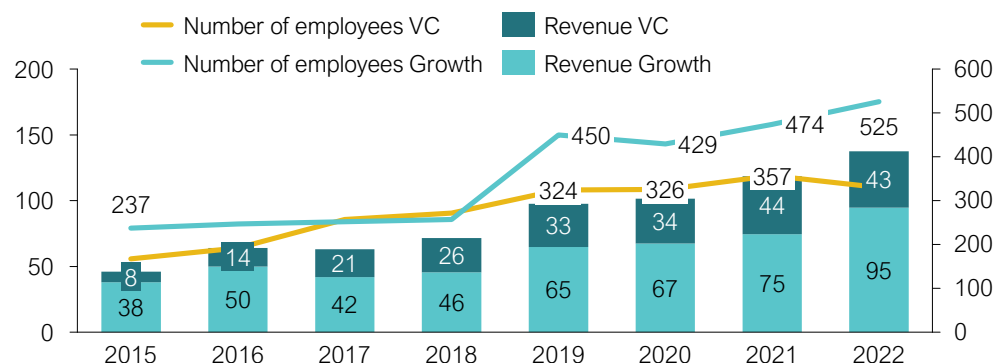


Selected companies from the Finnish ecosystem

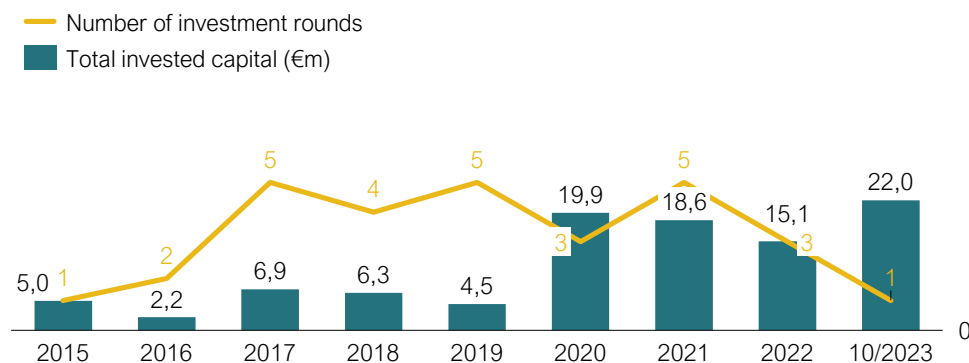
 Future of Work remote workplace			 Air quality Air pollution			 Healthy, safe and secure buildings		
								
								
								

Experience – ecosystem key figures

Development of total revenue and total number of employees in Experience segment
mEUR



Development of investments in Experience segment
€m, number of deals



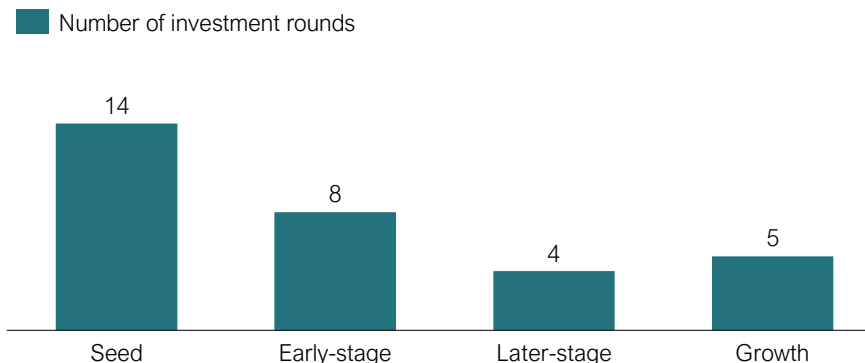
VC

- Clear step-up in the financing volumes in the segment since 2019, which is driven to large part by 'Future of Work' businesses (80% of venture capital or growth equity financing since 2019).
- The start-ups in the segment are still very much in early commercialization phase as ~95% of the start-ups recorded less than 10 m€ revenue in 2022.

Growth

- The growth track in the segment is two-fold: essential products for day-to-day facility management have grown sales even through the pandemic, while solutions relying on high office utilization rate have struggled since 2019.
- Private equity buy-out funds have been active in the area with several growth companies (e.g. iLoq, Vetrospace) being acquired by buy-out funds since 2019.

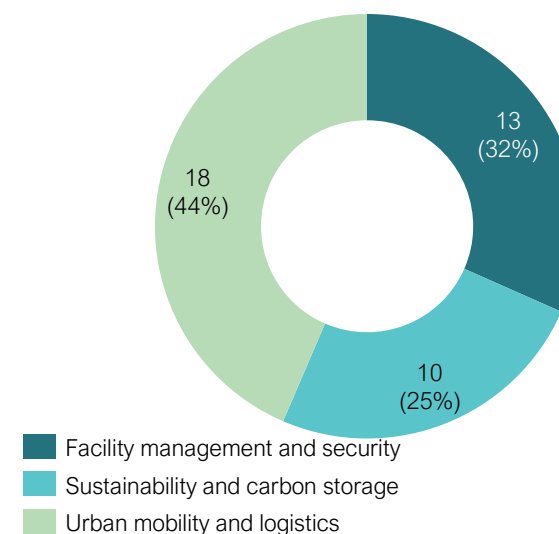
Number of investment rounds by phase, Experience segment
Seed, Early-stage, Later-stage, Growth 2015 - 2023



Operate – ecosystem summary

- The '**Operate**' sub-section covers companies providing modern means and technology to optimize the usage of urban infrastructure, facilities and logistics.
- During 2015-2023, only ~41 m€ of equity financing was raised by the studied companies, which can partly be explained by the share of early phase start-ups (69%) in the scope and lack of large growth equity rounds during the time span (no rounds above 10 m€).
- **Urban mobility and logistics** sub-section covers start-ups and growth companies that focus on improving mobility and logistics options in urban environment with completely new methods or tools optimizing the use of the current technology available.
- Companies operating in the **Building automation, heating & cooling or Facility management** space provide solutions for optimizing the management and operation of built environment either at single or multi property level.
- **Sustainability tracking and management** tools enable managing and tracking sustainability data of the built world e.g. for decision-making support, project management and external reporting in businesses.

Operate - Invested capital 2015 -2023
(mEUR)

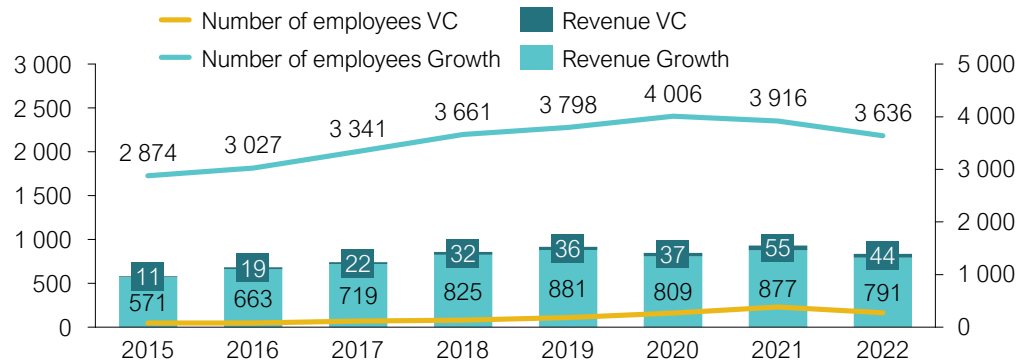


Selected companies from the Finnish ecosystem

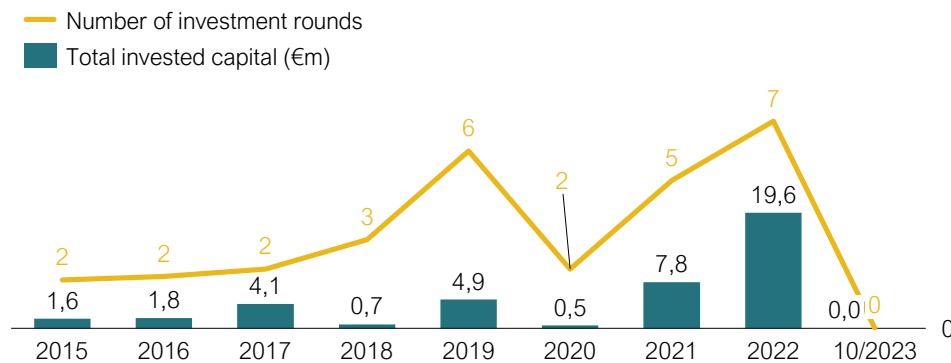
Urban mobility and logistics	Building automation, heating & cooling facility management	Sustainability tracking & management
AAVISTA AUGMENT.ECO Fiuge	kapacity.io leak look iLiving	Skenario Labs The Upright Project infine
MELUTA SHIPIT eMabler	Smartvatten siMAP AVAA.IO	MATERIA LISTING One Click LCA biocode
OUCA BIKES ABAX FINNPARK yeply	OptiWatti Fidelix CASA MBI COBA	

Operate – ecosystem key figures

Development of total revenue and total number of employees in Operate segment
mEUR



Development of investments in Operate segment
€m, number of deals



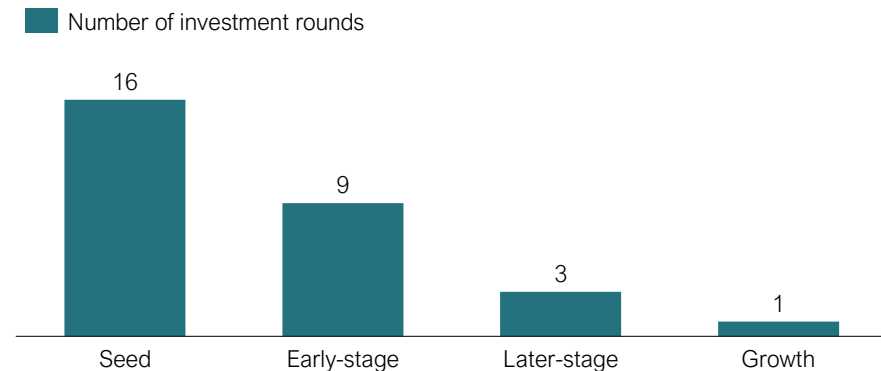
VC

- VC investments in areas like micro-mobility and carbon accounting have surged in the past few years. This has led to intense competition for the market share from well-funded players, potentially hindering the growth of their Finnish peers.
- 80%+ of the segment's VC funding in 2021-2022 was accumulated by mobility related businesses or sustainability management tools, albeit 2023 tells a different story as the lack of secured VC funding is evident from the data.

Growth

- The growth and subsequent decrease of both sales and employment generation has been driven by a small number of companies. The pandemic has hindered the growth, but M&A activity has remained steady with several growth companies being acquired since 2019 (e.g. Smartvatten, Raksystems).

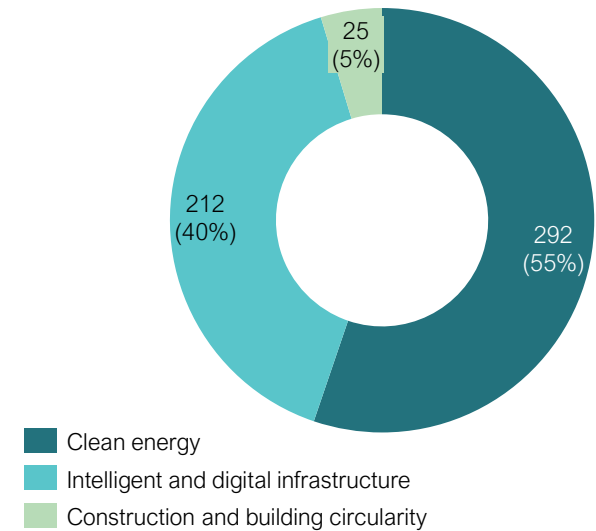
Number of investment rounds by phase, Operate segment
Seed, Early-stage, Later-stage, Growth 2015 - 2023



Enable – ecosystem summary

- The 'Enable' sub-section covers technologies and services that support sustainable scaling and management of cities or other urban areas at infrastructure level.
- With over 500 m€ invested in this area since 2015, the 'Enable' sub-section covers a good representation of both early stage start-ups (n=33) as well as more established growth companies (n=25).
- *Construction and building circularity* section refers to businesses enabling more efficient, circular material usage in the value chains of the built world or new waste management solutions and technologies.
- *Intelligent infrastructure* businesses provide products for building the digital infrastructure or optimize the use of infrastructure resources through software, hardware, or as a combination of both.
- Companies in the *clean energy* and *grid energy* sub-section provide low-emission, sustainable alternatives to infrastructure level energy solution offering and/or support for grid decarbonization and demand response capabilities.

Enable - Invested capital 2015 -2023
(mEUR)

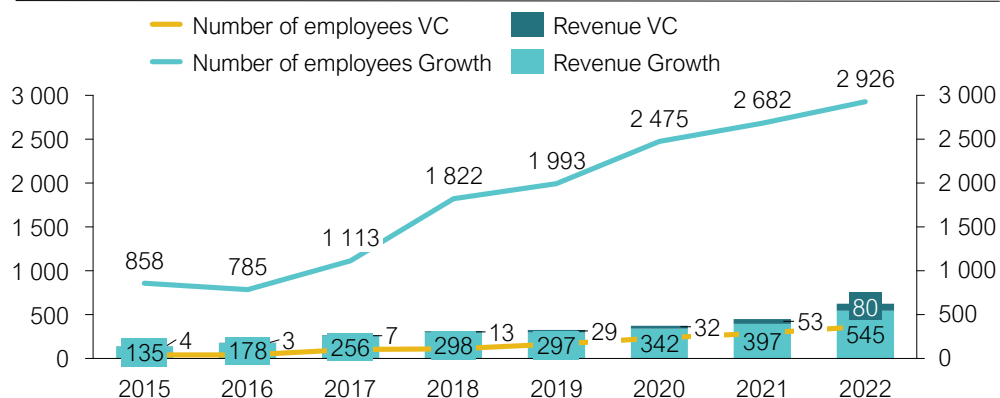


Selected companies from the Finnish ecosystem

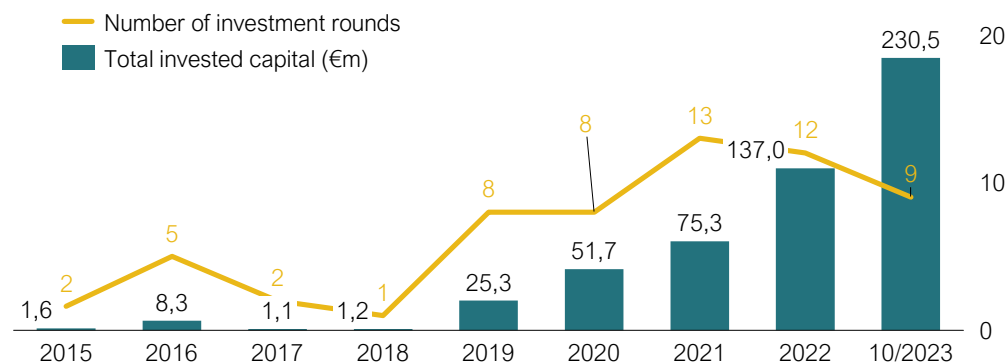
Construction and building circularity			Intelligent infrastructure			Clean energy & grid technologies		

Enable – ecosystem key figures

Development of total revenue and total number of employees in Enable segment
mEUR



Development of investments in Enable segment
€m, number of deals



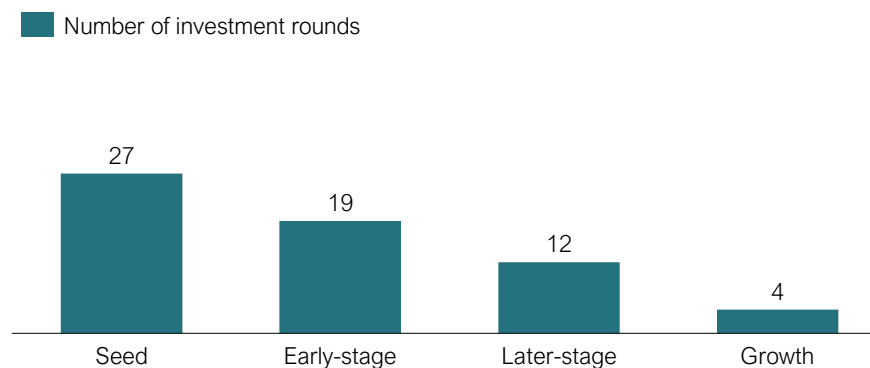
VC

- The clean energy markets have grown substantially over the past decade, playing a major part of the segment's revenue growth during the past 4-5 years.
- 2021-2023 have showed signs of companies graduating from the early to later stage venture or growth phase (e.g. Virta) with both revenue levels and gathered equity financing amounts on the rise.

Growth

- Despite the challenging macro environment, at least five growth companies in the segment have been acquired or publicly listed (IPO) since Q1 2022.
- Boosted by the growth of EV markets, total sales have continued to grow through 2020-2022.

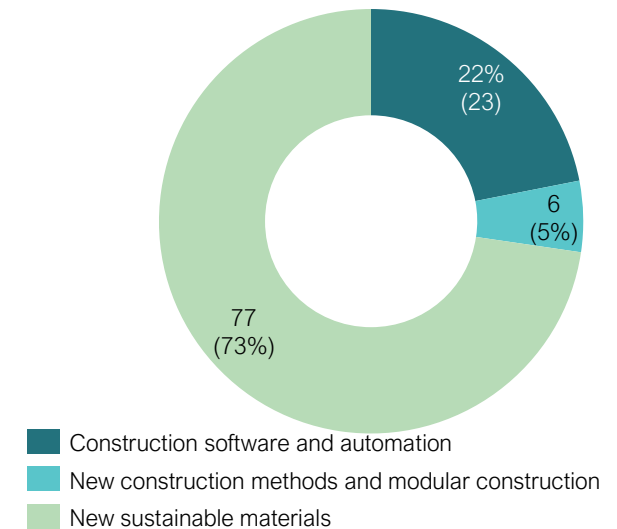
Number of investment rounds by phase, Enable segment
Seed, Early-stage, Later-stage, Growth 2015 - 2023



Build – ecosystem summary

- The 'Build' sub-section includes technologies and services that scale sustainable planning, construction and materials used in the urban environment.
- *New sustainable building material innovations* means renewable biobased material innovations mainly to reduce carbon footprint in building materials. Key challenge to construction industry is to reduce committed carbon in building materials. Key emission drivers has traditionally related to high carbon emissions of concrete manufacturing. Two main innovation segments; i) companies developing carbon neutral concrete solutions, ii) companies creating biobased renewable materials e.g., biochar.
- *New construction methods and modular construction* to increase productivity and industrialize building methods to automated pre-fabricated modular solutions. Innovations including 3D printing, modular robotics and pre-fabricated materials. *Carbon capture* means direct-to-air carbon emission capturing in urban solutions.
- *Construction software* to automatize urban & building planning, production work-flow and to reduce construction time enabling lower cost, higher quality, safe work environment and lower overall environmental impacts.

Build - Invested capital 2015 -2023
(mEUR)



Selected companies from the Finnish ecosystem



New sustainable building material innovations



New construction methods, Modular construction & Carbon capture

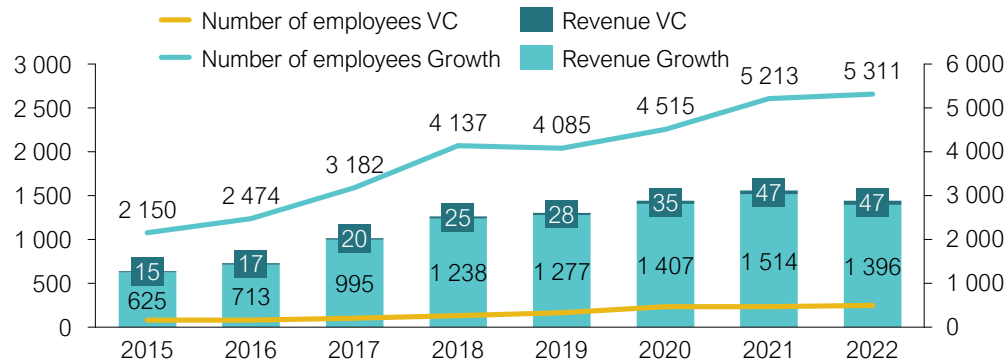


Construction software & automation

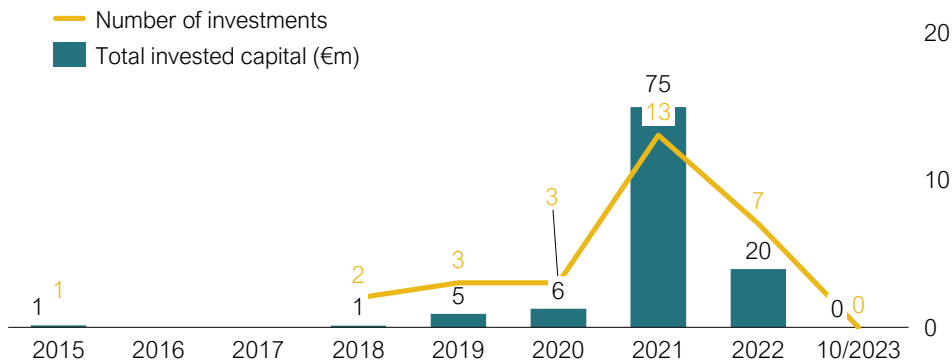


Build – ecosystem key figures

Development of total revenue and total number of employees in Build segment
mEUR



Development of investments in Build segment
€m, number of deals



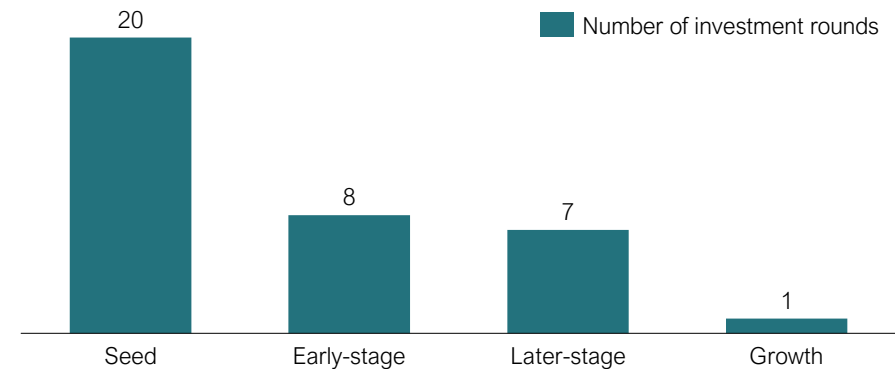
VC

- Material innovations focusing on carbon neutral concrete and biochar and/or wood-based façade and interior materials. Limited number of companies, but significant funding rounds in 2020-2022.
- Several Contech companies have raised a seed round, but the market has not seen larger A-rounds with exception of Infrakit. Some early consolidation has led to corporates owning & developing part of Contech software market

Growth

- Matured market in terms of modular construction of assembled and reassembled buildings. Traditionally high number companies utilizing modular wood. Biggest challenge in finding cost parity compared to traditional methods (CLT, lumber vs. concrete) despite the committed carbon benefits.

Number of investment rounds by phase, Build segment
Seed, Early-stage, Later-stage, Growth 2015 - 2023





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2024 Outlook

2024 Outlook - what we expect for the next year

- 1 The increased traction of urban tech & built environment decarbonization ecosystem is clearly visible in the related funding data
- 2 As interest rate environment stabilizes, we expect gradual recovery of the underlying property market, that should support urban tech companies
- 3 Start-ups operating in the cyclical build or non-critical segments of proptech are likely to lose 1+ years of growth leading to difficulties in future funding requirements
- 4 Companies with the most successful growth tracks so far operate in the EV value chain, renewable energy, carbon capture/new materials and energy related IoT
- 5 We expect further +10M€ A-rounds to happen in 2024 at the back of increased seed activity in 2020-2022, and new climate tech investors focusing on the urban tech and built environment opportunities
- 6 Despite the challenging macro environment, we expect M&A transactions to materialize in 2024 supporting the built environment ecosystem
- 7 VC and growth funds are in good position to capture new deals as valuations are more attractive and the IPO market is unlikely to rebound for scale-ups until late 2024
- 8 We expect the market funding volumes to decrease in 2024 as 2023 funding amount growth was driven by limited number of larger funding rounds.

Questions? Comments? Get in touch with our team



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