



# 2018 Citizen Solutions Catalogue

**URBAN INNOVATION  
CHALLENGE:  
CITYPRENEURS**

Young SDGs Start-up  
Competition in Seoul





# URBAN INNOVATION CHALLENGE : CITYPRENEURS

Young SDGs Start-up Competition in Seoul

## | Congratulatory Note



It was a great honour to have co-hosted the Urban Innovation Challenge: Citypreneurs event with Seoul Metropolitan Government, Seoul Digital Foundation, the World Federation of United Nations Associations, the United Nations Development Programme and the World Smart Sustainable Cities Organization. This event is part of an ongoing effort to broaden our outreach to young people with creative solutions using digital technology to resolve SDGs challenges in Seoul's urban setting.

With 20 venture capital investors joining the event as partners and over 150 applications from 36 countries, stakeholder interest from various sectors is proving strong in creating and supporting innovations for the UN Sustainable Development Goals (SDGs). Participating teams also benefitted from mentoring and workshops to improve their start-up skills and to align their businesses with the SDGs.

Although the emergence and proliferation of new technologies in the 4th Industrial Revolution (4IR) offer the potential to aid sustainable development efforts, there are also risks on the horizon that will need to be navigated, particularly around labour dislocation and exacerbation of inequalities. 'Leaving no one behind' is a key theme of the 2030 Agenda; considering this, we hosted a roundtable for stakeholders to discuss how to foster inclusive innovation that enables more women and other underrepresented groups, to be part of the economy of the future. The interactive policy dialogues address the pressing issue of barriers for youth entrepreneurship and the forthcoming challenge of taking advantage of the 4IR while minimizing risks such as exacerbating inequalities.

Using cities as laboratories for technology for good, the Citypreneurs platform offers an opportunity to bring people together to not only spread innovative solutions for the SDGs, but also build thriving inclusive start-up ecosystems around the world. I wish to congratulate all teams that participated and extend an invitation for everyone to join our growing global network of socially-minded innovators working with us to achieve the UN Sustainable Development Goals by 2030.

**Sangmin Nam**  
Interim Head, ENEA Office, UNESCAP



On behalf of the World Federation of United Nations Associations, I would like to congratulate all teams for being selected to participate in the second Urban Innovation Challenge: Citypreneurs in Seoul. It was a great pleasure to co-host Citypreneurs 2018 with UNESCAP, Seoul Metropolitan Government, Seoul Digital Foundation, UNDP, and WeGO. I wish to thank the co-hosts for partaking in the joint effort to build a better world for all.

Citypreneurs is an innovative platform bringing together young and talented entrepreneurs, private and public investors, the tech sector and government officials with the aim to solve urban challenges to achieve the UN Sustainable Development Goals. The inclusive and cross-cutting nature of Citypreneurs aligns well with WFUNA's mission to incorporate global citizens to furthering the mission and vision of the United Nations.

The network created around the shared values of sustainable development and urban problem-solving is already producing impressive results in the global market. We are proud to share the credit with passionate partners from all sectors, especially the Citypreneurs teams, who themselves became one of the main promoters of our program.

Welcome again to this journey, and we hope Citypreneurs will continue to be a vehicle that connects bright young minds and their technologies to building a more sustainable and inclusive future.

**Bonian Golmohammadi**  
Secretary-General, WFUNA



The Seoul Digital Foundation would like to congratulate and thank you all for participating in the Urban Innovation Challenge: Citypreneurs. It was a great honor to have co-hosted the Citypreneurs.

As the think tank of Seoul City, the Seoul Digital Foundation aims to build Smart Sustainable Cities with innovators like yourselves. To achieve this mission, we are inviting innovators together to share, collaborate, and develop solutions to solve urban issues through effective vehicles such as the Urban Innovation Challenge: Citypreneurs.

This challenge has proven to be an innovative platform for young innovators to bring in creative solutions and ideas, investors to collaborate with young innovators, and government officials to all work together in building Smart Sustainable Cities.

Not only so, the event also provides a policy foundation for discovering and supporting innovative ideas that can enhance sustainable life, both in Seoul and in other cities.

Let us continue to meet and work to make a better Seoul City and together achieve the UN Sustainable Development Goals together.

Seoul Digital Foundation



It was a great pleasure and honor to have co-hosted the second Urban Innovation Challenge: Citypreneurs with World Federation of United Nations Associations (WFUNA), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), World Smart Sustainable Cities Organization (WeGO), Seoul Metropolitan Government, and Seoul Digital Foundation.

The event brought together young entrepreneurs, investors, international organizations and government officials to discuss how to foster an inclusive, innovative ecosystem for young start-ups dedicated to achieving the Sustainable Development Goals (SDGs).

With rapid technological changes driven by the Fourth Industrial Revolution, the labour market is facing a paradigm shift in many aspects. Against this backdrop, UNDP is aiming to strengthen cooperation between partners from all sectors to support youth entrepreneurship, in line with the SDGs.

Therefore, we believe that Citypreneurs, as a crucial platform of network and ideas, would continue to encourage youth-led innovative solutions, while at the same time presenting potential ways forward.

UNDP would like to congratulate all the participants for their achievements, and we wish all current and future young entrepreneurs the very best in realizing their ideas and vision.

Artemy Izmetiev  
Director a.i., UNDP Seoul Policy Centre



The World Smart Sustainable Cities Organization (WeGO) is proud to be a co-host of the Urban Innovation Challenge: Citypreneurs Competition.

As an international organization of cities and other local governments, smart tech solutions providers, and national and regional institutions dedicated to the worldwide transformation of cities into Smart Sustainable Cities, WeGO strongly supports programs such as these which serve as a platform for young innovators to showcase their talents toward this shared aim.

Citypreneurs is an opportunity for stakeholders in the public and private sectors, academia, and international community to jointly tackle the urban challenges we face and make our cities both livable and lovable. Smart cities are happy cities for smart people—and we are making the world smarter with the creativity of our start-ups.

On behalf of WeGO, congratulations to all of the promising competitors this year. I look forward to seeing many more breakthroughs from others in the years to come.

Kyong-yul Lee  
Secretary General, WeGO

## 2018 Citizens Solutions Catalogue

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Chris DIGENNARO	Joohyun PARK	Li ZHOU











Urban Innovation Challenge: Citypreneurs 2018 took place in Seoul, in partnership with the Seoul Metropolitan Government for the second year, under the themes of Green Energy, Urban Mobility and Social Protection.

## A Platform for Start-ups

Citypreneurs focuses on the nexus of innovators, investors and policy makers to facilitate innovations that are focused on the public interest or social impact, where policy makers play a significant role. Through focusing on local contexts, innovations can be experimented on without relying on national level changes, and local ecosystems of innovators, investors and policy makers can be built to collaborate much more closely to address problems. By focusing on solutions that have or are close to a prototype, these innovations can also be scaled up relatively quickly if policy makers or investors believe them to be useful and valuable.

## Program Objectives

- 1 Promote the Sustainable Development Goals as opportunities for young innovators and entrepreneurs to focus their efforts on.
- 2 Provide a platform for young entrepreneurs to pitch their innovations to an audience of UN organizations, public officials, private sector leaders, and peers to receive feedback and find potential backers of their innovations.
- 3 Build a strong international start-up ecosystem and intersectoral collaboration through networking opportunities.
- 4 Find creative solutions using digital technology to resolve SDGs Challenges using Seoul's urban setting.

## HOSTS



## OFFICIAL INVESTORS



## PROJECT SPONSOR



## VENUE SPONSOR



**DATE** Wednesday, 31st October 2018

**THEMES** Green Energy, Urban Mobility, Social Protection

**LOCATIONS** Heyground & Prunus

**PARTICIPANTS** Young entrepreneurs and start-ups from all over the world

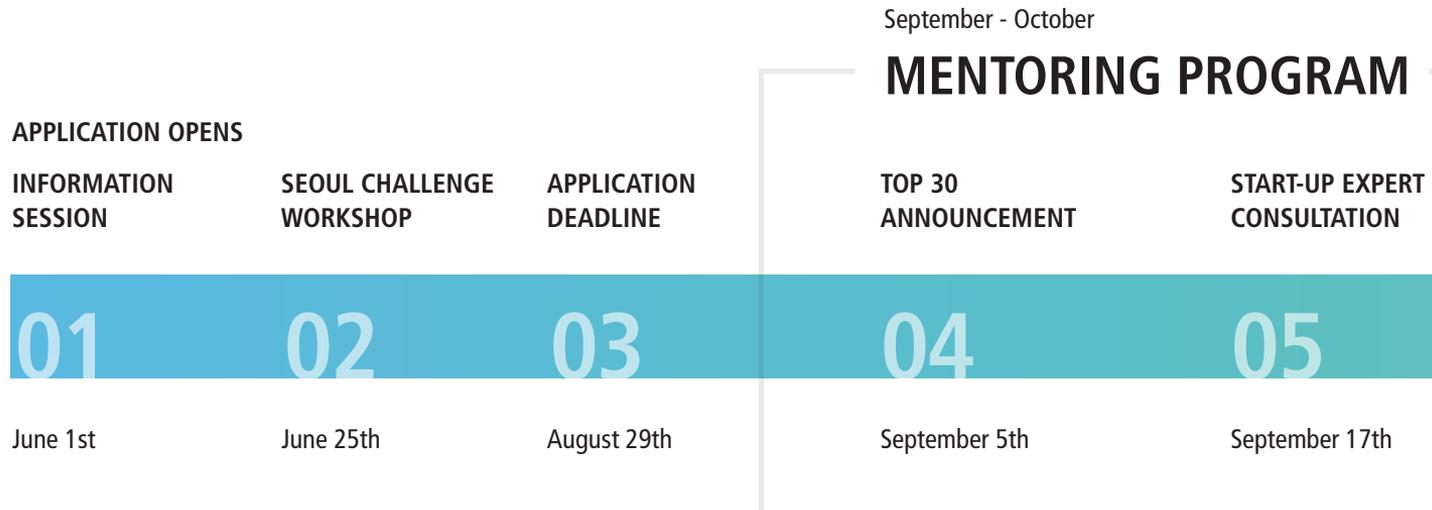
## TECH SPONSORS



## PUBLICITY SPONSORS

**BENEFIT** [onoffmix.com](http://onoffmix.com)

## CITYPRENEURS 2018 TIMELINE



**INVESTOR ROUNDTABLE &  
PITCH CLINIC**

**NETWORKING EVENT**

**MAIN EVENT**

**DEMO DAY**

**06**

**07**

**08**

**09**

October 26th

October 30th

October 31st

December 6th

## Citypreneurs Program Overview

The Citypreneurs Program is designed to provide selected teams with opportunities for growth by:

- Offering **capacity-building** activities for teams to enhance their technical and entrepreneurial skills, and further align their business models with the SDGs (Seoul Challenge Workshop, Start-up Expert Consultation, Investor Roundtable & Pitch Clinic, Mentoring Program).
- Fostering a **strong international start-up ecosystem** through multi-stakeholder dialogues and networking opportunities (Policy Interface, Networking Event).
- Providing a **platform** for young entrepreneurs to pitch their innovations to investors, public officials, private sector leaders, and peers to receive feedback and find potential backers of their innovations (Main Competition, Demo Day).

Citypreneurs acknowledges that start-ups might be at various stages of development by offering a dual track system: (a) The Seed Track is designed for early stage start-ups still working on their prototype development, with the flexibility to focus on urban issues specifically identified by partner agencies. (b) The Growth Track is for start-ups that have three or more years experience with market-tested prototypes and are looking to scale up.

### Seoul Challenge Workshop

The Seoul Challenge Workshop allows start-ups to explore urban challenges issued by Seoul City Government organizations under the 2018 Citypreneurs themes: Green Energy, Urban Mobility, and Social Protection. Targeted to Seed Track applicants, participants are given a chance to work on comprehensive and sustainable business models for pitching and to receive constructive and real-time feedback from city experts.



### Start-up Expert Consultation

The Start-up Expert Consultation consists of four different sessions designed to connect startups to key mentors and experts. Starting with a session on the SDGs and Business, the second session explores partnership opportunities with Citypreneurs 2018 Project Sponsor, YAP. The last two sessions offer a chance for participants to obtain guidance from startup experts in four different fields: Leadership and Teamwork, Technology, Marketing, and Financial Management.





### Investor Roundtable & Pitch Clinic

The Investor Roundtable & Pitch Clinic is an opportunity for selected start-ups to fine-tune their business pitches prior to the main event. The official Citypreneurs Investor panel provides insights and thoughts on elements investors seek for and ways for effective cooperation between investors and start-ups through a roundtable discussion. This is followed by a 1:1 pitch clinic session with mentors, which offers start-ups a chance to receive direct feedback and finalize their pitch decks. Live-online pitch clinic sessions are made available for teams abroad.



### Networking Event

The Networking Event brings together the Citypreneurs network and the global social entrepreneurs network to provide stakeholders from across sectors (ranging from other finalists, mentors, private investors, youth and many more) with a chance to connect with each other. This year's Networking Event also marks the beginning of a collaboration with WeWork, WeWork Labs and their global entrepreneur network.



SEMI-FINALS COMPETITIONS

VIP BREAKFAST

POLICY INTERFACE: PANEL 1 'Successes & Challenges of Youth Entrepreneurship for the SDGs in Seoul and Beyond'

POLICY INTERFACE: PANEL 2 'Youth Innovation for SDGs in the Fourth Industrial Revolution'

SPEED MENTORING W/ LUNCH

FINAL PITCHING

AWARDS & CLOSING CEREMONY

## The Competition

The Main Competition consists of two core components: The semi-final and final pitching rounds of the young SDGs start-up competition and an inclusive policy interface that brings together members of academia, the public and private sectors, civil society and international organizations to partake in policy discussions and set up an alliance of youth empowerment enablers.

## The Demo Day

Held after the competition, winning teams are given the exclusive opportunity to pitch their innovative solutions addressing the SDGs and local urban challenges and privately engage with investors, industry experts, media correspondents, and company executives.

DEMO DAY



OCTOBER 31<sup>ST</sup>, 2018

HEYGROUND & PRUNUS

HEYGROUND

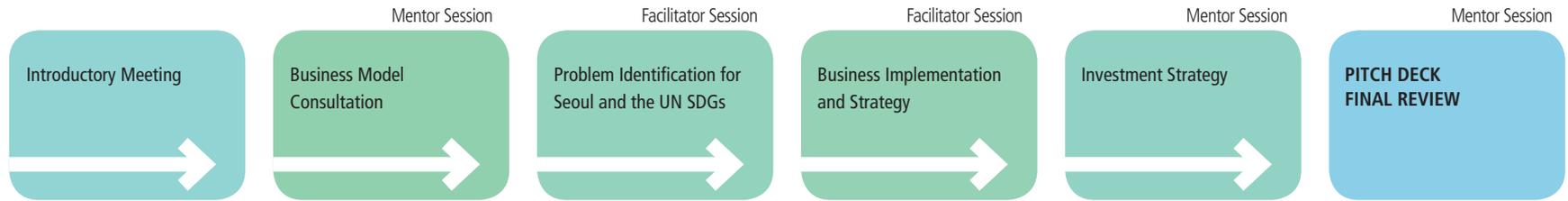


DECEMBER 6<sup>TH</sup>, 2018

WEWORK YEOUIDO

## Mentoring Program

As one of the core components of the Citypreneurs Program, the Mentoring Program provides start-ups with an opportunity to receive quality advice from global start-up experts to explore the intersection between the SDGs and business. The sessions with a designated mentor focus on developing and improving a start-up's business model as well as gaining further insights on the market context. Other sessions conducted with an assigned facilitator have the objective of developing competitiveness through three different aspects: (a) problem identification for Seoul and the UN SDGs, (b) business implementation and strategy, and (c) investment strategy. Each subject includes a list of items to be discussed to help the team become an SDGs-centered start-up. An SDGs Toolkit is provided to better assist and guide the team throughout the program.



## Benefits

### Project Sponsor: YAP



The **Project Sponsorship** is an opportunity for Citypreneurs start-ups to team up for a project with YAP, a Korean location-based coupon app operator that offers short-range network technology, dubbed the hybrid beacon, in its online-to-offline (O2O) commerce platform. Since its establishment in 2013, YAP has attracted over 84 billion won (\$72.6 million) in investments and has over 4 million users. The firm has since expanded into other Asian territories, including Vietnam, China and Hong Kong. In Seoul City alone, YAP has successfully installed more than 100,000 such beacons, creating a tech infrastructure on which other businesses can operate. With about 70 patents secured over its location-based network technologies, YAP's technology takes advantage of ultrasound frequencies and can operate even when users turn off their location tracking and Wi-Fi network on their smartphones. Citypreneurs teams are given the chance to secure opportunities to build a business around utilizing YAP's citywide O2O infrastructure.

### Tech Sponsors

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The **Tech Sponsorship** is an opportunity for Citypreneurs start-ups to try new technologies as part of their business model. Selected Citypreneurs teams will be given at least a 4-month period to use the sponsored technology and build a working prototype under the guidance of the tech sponsors.



- AI/Machine Learning:** Peltarion, a Stockholm-based operational AI platform company founded in 2004, is led by top engineers from Spotify, Skype, King, TrueCaller, and Google. Over 300 companies and organizations, including NASA, Tesla, General Electrics, Dell, BMW, Deutsche Bank, and the Universities of Harvard, MIT, and Oxford have used Peltarion's AI Technology.
- Internet of Things:** Interactor is an award-winning Silicon Valley-based IoT solution platform founded in 2014. Their product removes the complexities behind IoT sensor interaction, making IoT implementation simple and accessible for enterprises. Their client portfolio includes Cisco, IBM, GWC, Samsung, Panasonic, Fujitsu, Fabrix, and the US Department of Homeland Security.
- Blockchain:** Blocko's Coinstack platform is a blockchain solution that allows for a frictionless application development for enterprises. With Coinstack's ready-made APIs and SDKs, the deployment period for any single solution is reduced to two months. Blocko's partners include EY, Cisco, Hyundai-Kia Motors, KRX, KPMG, Samsung Card, Hyundai Card, IBM, and Amazon Web Services.
- Blockchain:** Chain Partners is a Korean Blockchain company builder with expertise in EOS-based projects. The company's proprietary crypto fund, crypto exchange, enterprise platform, accelerator/training program, and news media allow for a resourceful kick-off to a successful blockchain business.
- Voice Recognition:** As the first company in Korea to develop a voice recognition engine for disabled people and to commercialize a voice recognition engine for seniors, 2017 Citypreneurs First Prize Winner Eidware is a voice recognition software that has been developing 'warm technology' and universal design to assist non-mainstream users such as the disabled, children, and the elderly.

## Awards

### TOP 30 Finalists

Right to use official CITYPRENEURS branding

Quality mentoring sessions with public sector officials, private investors, and accelerators

Participation in Start-up Expert Consultation, Investor Roundtable & Pitch Clinic

Pitching and networking opportunities between participants

Travel subsidy for teams coming from outside of Seoul

AI, IoT, Blockchain, Voice recognition tech sponsorship

YAP project sponsorship and mentoring opportunity

### WINNERS

Total Award of 24M KRW for Seed Track winners

Investment Reserve Fund of over \$50M USD

Awards from UN and Seoul City Officials

Private Demo Day with Business Growth Partners

Invitation to international forums and events

Publication in domestic/international investment magazines and reports

Collaborations to secure public contracts with Seoul Metropolitan Government

Free office space provided in Seoul

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**Winners of Citypreneurs 2017 |**  
: Introducing the teams and their progress

2017  
Citypreneurs  
Cohort



Tel. +82-2-312-8804  
Website [www.noldam.co.kr/](http://www.noldam.co.kr/)



Tel. +45-51-89-91-30  
Website [www.canopylab.com](http://www.canopylab.com)



Tel. +82-70-8152-3848  
Website [www.facebook.com/amongstudy/](http://www.facebook.com/amongstudy/)



Tel. +82-10-3625-5497  
Website [www.cafe.naver.com/curatesl](http://www.cafe.naver.com/curatesl)



Tel. +82-10-9384-3313



Tel. +82-10-9358-4429  
Website [Fb.me/Dashee.ON.School](https://fb.me/Dashee.ON.School)



Tel. +82-10-5062-8757  
Website App download link  
: <https://goo.gl/B8S4fc>



Tel. +82-2-853-0707  
Website [www.basearth.com](http://www.basearth.com)



Tel. +82-70-7749-7784  
Website [www.flint-world.com](http://www.flint-world.com)



Tel. +82-10-9964-4422  
Website [www.catalonix.com](http://www.catalonix.com)



Tel. +82-10-3246-1011  
Website [www.limsangwoo.com](http://www.limsangwoo.com)



Tel. +82-10-9836-9393  
Website [www.s-green.org](http://www.s-green.org)



Tel. +82-10-3278-8988  
Website [www.greenbim-eng.com](http://www.greenbim-eng.com)



Tel. +82-10-6240-5510  
Website [www.jevinci.io](http://www.jevinci.io)



Tel. +82-10-2528-4281  
Website [www.damogo.com](http://www.damogo.com) (coming soon)



Tel. +82-31-354-8098  
Website [www.blog.naver.com/lighteconergy](http://www.blog.naver.com/lighteconergy)



Tel. +82 10 5214 5023  
 Website [www.LibertyWindPower.com](http://www.LibertyWindPower.com)



Tel. +82-10-4750-7559  
 Website [www.blog.naver.com/rokisa\(temporary\)](http://www.blog.naver.com/rokisa(temporary))



Tel. +55-119-6684-1988  
 Website [www.bynd.com.br](http://www.bynd.com.br)



Tel. +82-10-7151-7906  
 Website [www.we2lab.net](http://www.we2lab.net)



Tel. +82-10-3800-8150  
 Website [www.facebook.com/She-for-Her-1972065216382703/?ref=bookmarks](http://www.facebook.com/She-for-Her-1972065216382703/?ref=bookmarks)



Tel. +82-10-2717-3520  
 Website [www.kez.co.kr](http://www.kez.co.kr)



Tel. +45-53-87-31-32  
 Website [www.askapp.dk](http://www.askapp.dk)



Tel. +82-10-2664-6048  
 Website [www.afterrain.kr](http://www.afterrain.kr)



Tel. +45-50-30-82-96  
 Website [www.intelflows.com](http://www.intelflows.com)



Tel. +82-10-9955-6369  
 Website [www.woorikids.com](http://www.woorikids.com)



Tel. +1(610)203-3091  
 Website [www.pathwaysai.com](http://www.pathwaysai.com)

**EIDWARE**

Tel. +82-70-4643-8843  
 Website [www.soundmind.life](http://www.soundmind.life)

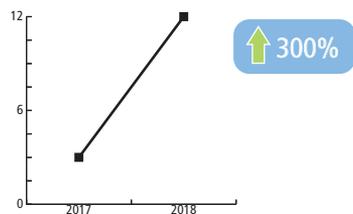


Tel. +82-10-9925-8684  
 Website [www.ziomedic.wixsite.com/doctorfriend](http://www.ziomedic.wixsite.com/doctorfriend)

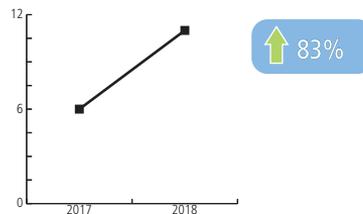
# In Numbers: Citypreneurs 2017 Winners Today

## Employee Growth Number of Employees

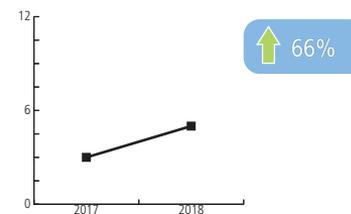
### DoBrain Inc.



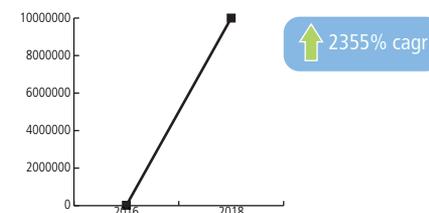
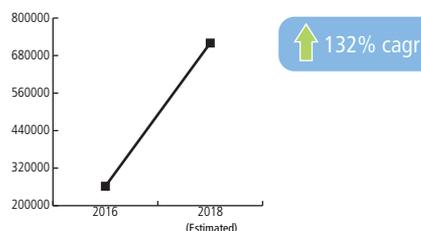
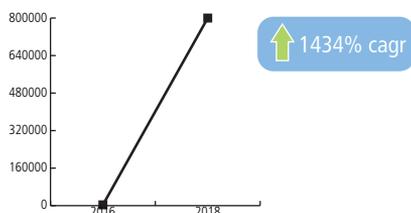
### Eidware Co., Ltd.



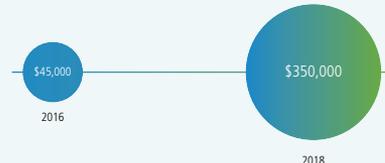
### LIBERTY Co., Ltd.



## Sales Revenue In US Dollar (\$) \*cagr: compound annual growth rate



## Received Investments In US Dollar (\$)



## Notable Achievements since 2017

- Working with Cambodia National Pediatric Hospital to provide DoBrain to children
- Conducting clinical research with Severance Hospital & Israel Child Rehabilitation Hospital
- Developing AI for the Diagnosis of Disability with Yonsei University Medical School
- Total user increase from 10,000 in 2017 to 150,000 in 2018

- Contracted with KT, SKTLink and Samsung Electronics in 2018
- SoundMind to be installed in KT's GigaGenie AI Speakers
- SoundMind to be installed in SKTLink and 'Hyodo God' phones

- Collaboration with Incheon City
- Won Grand Prize Incheon Mayor Award from 2018 Startup Competition
- Won \$10 million contract from customers such as KEPCO, Western Power and Goldwind

## How did Citypreneurs help?

- Strengthening of our business model through the SDGs
- Connections with international agencies; sound advice on launching our business globally

- Created meaningful networks with like-minded partners and startups

- Selection in Citypreneurs was an effective promotional tool on media

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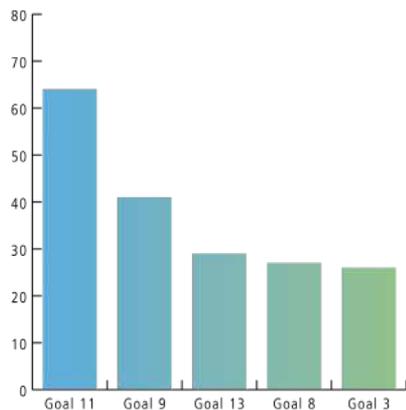
**Citypreneurs 2018 Applicants Survey Results |**

# Citypreneurs 2018 Applicant Survey Results

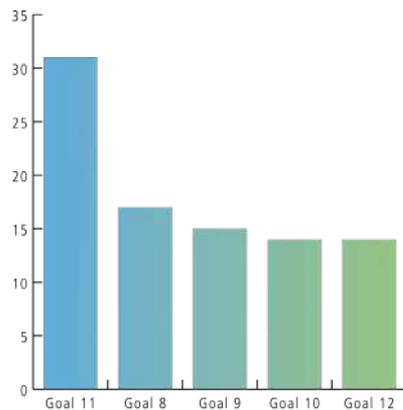
## Top UN SDGs Start-ups are Aligned With:



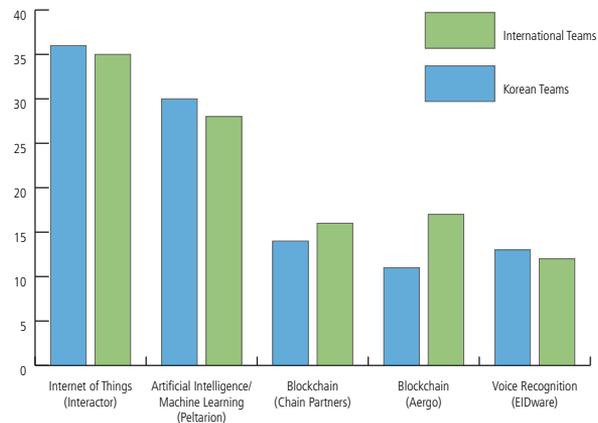
All Participants



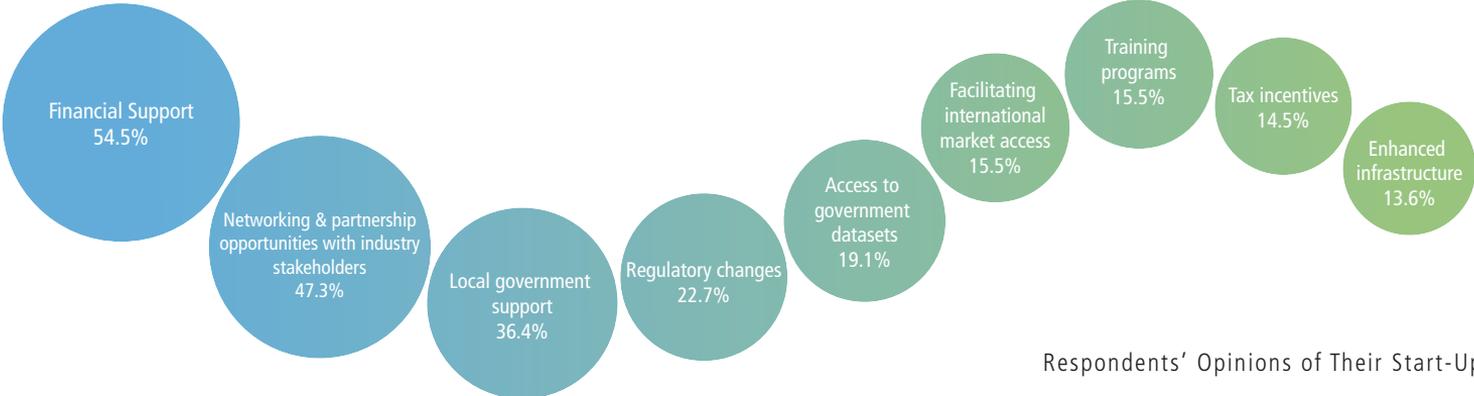
Korean Participants



Start-Up Teams' Most Desired Technology



# Most Desired Policy Support from Government or Policymakers



## Respondents' Opinions of Their Start-Ups

72.7%

"My start-up will adapt easily to the rapid technological changes brought by the 4IR."

60%

My start-up challenges existing business models through the application of technologies such as automation, IoT, AI, big data, cloud-based solutions, etc."

49.1%

"My start-up can better adapt if my country develops its science, technology and innovation capabilities, and improves the availability of efficient networks."

10.9%

"My start-up may struggle to face the rapid advances in information and communication technology that the 4IR will bring."

### Ways Governments Can Create a Stronger Start-Up Ecosystem

#### Space

- Cheap and accessible co-working spaces; free office space for young startups
- National Incubation centers that provide free office space for young start-ups
- "Pioneer parks" (incubation centers sponsored by the central/local government)

#### Funding

- Funding for research and development
- Seed funding for young start-ups
- Direct, non-dilutive funding options for start-ups
- Equity-free investments for start-ups, for example, in the product and technology development process
- Grants

#### Policies/Support

- Waive taxes
- Invite foreign investment
- Remove strict visa requirements
- Help establish networks between investors and entrepreneurs
- Networking opportunities between local and foreign entrepreneurs
- Vocational training programs, free counseling, mentorship
- Transparency in legal procedure
- Access to government datasets
- Raise public awareness of entrepreneurship

#### Technology

- Governments can enable greater access to open source technology (technical support)
  - For example: IoT, blockchain, etc.
- Computerizing/digitizing databases to make sure startups have easy access to them



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**Themes Introduction |**

# 2018 CITYPRENEURS THEMES

The economic transformation of many countries over the past centuries has brought significant benefits to society; however, environmental and social concerns are also rising around the globe. As of 2018, half of the worldwide population lives in urban areas, and the proportion is expected to increase to two-thirds by 2050<sup>1</sup>. Population growth and increasing individual consumption have doubled humanity's demand on the planet compared to 45 years ago, which has raised concerns over sustainability and the wellbeing of future generations.

Adopted by all United Nations Member States in 2015, the **2030 Agenda for Sustainable Development** (2030 Agenda) is a plan of action for all countries, developed and developing, to address global challenges that require urgent attention and solutions to achieve peace and prosperity for people and the planet, now and into the future. At its heart are the **17 Sustainable Development Goals** (SDGs) that define globally sustainable development priorities and aspirations for 2030. Coordinated around common set targets and indicators, the SDGs recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests.

**With the aim to achieve the 2030 Agenda, Urban Innovation Challenge: Citypreneurs is based around three themes identified by local city governments to find innovative solutions to urban problems, as defined and measured by the SDGs.**

The 2018 installment of Urban Innovation Challenge: Citypreneurs focused on the themes of Green Energy, Urban Mobility, and Social Protection to address Seoul's critical urban issues, embedded in the SDGs, as determined by data and citizen surveys collected by Seoul Metropolitan Government (SMG).



## Green Energy

In order to protect and provide a sustainable future for the next generation, we must act now to reduce nonrenewable energy consumption by upgrading to sources of **GREEN ENERGY** that are clean, inexhaustible, and competitive. Seoul accounts for 10% of the nation's total energy consumption and produces 4% of its own energy needs<sup>1</sup>. Current Seoul energy policy is focused on achieving 20% self-sufficiency by 2020 through decreasing energy usage and increasing the production of renewable energy<sup>2</sup>. A number of incentivized initiatives are currently set up to achieve this solar energy capacity<sup>3</sup>. Opportunities for innovation around green energy thus exist to achieve multiple SDGs such as goal 7, goal 9, goal 12, and goal 13. Due to the interlinked nature of the SDGs, possible solutions can address a number of SDG targets and indicators based on what start-ups identify as their priority areas of work.

Ensuring access to affordable, reliable, sustainable, and modern energy for all (SDG 7) will open a new world of opportunities for billions of people through new economic opportunities and jobs, empowered women, children, and youth, better education and health, more sustainable, equitable and inclusive communities, and greater protections from, and resilience to, climate change (SDG 13). In fact, urban energy demands lead to emissions of GHGs and CO<sub>2</sub> that have far-reaching consequences on the global climate and the environment, threatening the capacity of communities to sustain themselves. The expansion of renewable energy supply must be combined with infrastructure upgrading and smart energy management systems that reduce energy dependence during consumption and increase the efficiency of energy storage and recycling (SDG 9). The aim is to bring about greater adoption of clean and environmentally-friendly technologies and practices to improve urban life for all.

To improve its ability to provide, sustain, and efficiently manage energy and waste for all of its citizens, the Seoul Metropolitan Government (SMG) has identified specific areas to address under the **GREEN ENERGY** theme, which are:

- Promotion and expansion of new and renewable energy: In December 2017, the Korean government released its 'Renewable Energy 3020' strategy to increase the renewable energy share of the energy mix from the current level of 7% to 20% by 2030 through, among other things, the expansion of

<sup>1</sup> "Energy Overview." Seoul Urban Solutions Agency, December 23, 2016. <http://susa.or.kr/en/content/energy>.

<sup>2</sup> Ibid.

<sup>3</sup> Citypreneurs Youtube. "Seoul Challenge Workshop: Green Energy Challenges for Seed Track 2018," YouTube video, 13:28, posted by "Urban Innovation Challenge: Citypreneurs." July 10, 2018, <https://www.youtube.com/watch?v=BY1nA45qCfU>.



solar panel use by 19.9GW through an increase in the number of households equipped with solar power. New innovations are needed to make renewable energy supply more efficient, affordable , and scalable for large-scale household usage to provide incentives for citizens. Start-ups can take advantage of data analytics and innovative technologies to make renewable energy technologies like solar panels more affordable, customizable, and friendly.

- Smart energy management for energy data: Inefficient management, particularly lack of monitoring on how urban energy is stored and transported, or what air pollution it produced, can lead to issues related to wasted energy. By harnessing AI, data analytics, and IoT technology, startups can optimize how major Seoul city infrastructure and households expend energy, reducing energy waste and consequently allowing for a more stable energy supply and more self-sustaining communities.

Power generation capacities in South Korea in 2017 (Total: 117 GW)



Projected power generation capacities in South Korea in 2030 (Total: 173.7 GW)

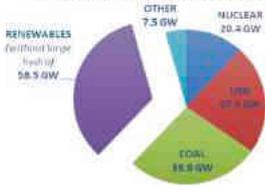


Figure: Overview of South Korea's "Renewable Energy 3020" strategy \*presented values are in percentages (%)

**7 AFFORDABLE AND CLEAN ENERGY**

**GOAL 7: AFFORDABLE AND CLEAN ENERGY**

- Production & Consumption of Renewable Energy
- Energy Efficiency
- Energy Storage and Recycling

PRIMARY SDG

**13 CLIMATE ACTION**

**GOAL 13 : CLIMATE ACTION**

- Climate resilience
- Decrease greenhouse gas emissions

SECONDARY SDG

**9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**

**GOAL 9: INDUSTRY, INNOVATION, AND INFRASTRUCTURE**

- Promote inclusive and sustainable industrialization and infrastructure
- Increase resource-use efficiency

SECONDARY SDG

# Urban Mobility

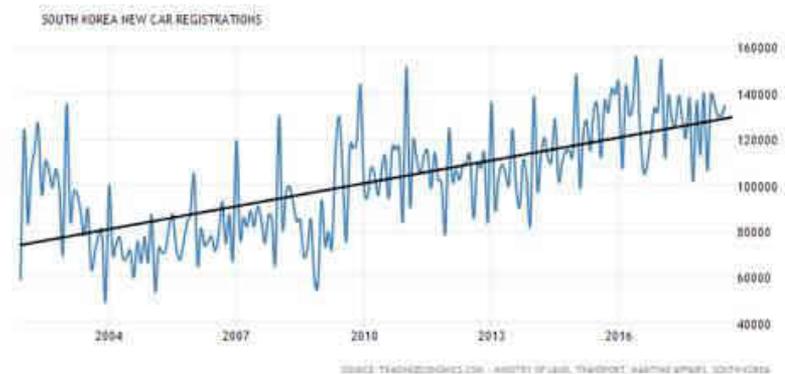
**URBAN MOBILITY** can be defined as the ability to get from point A to point B using one or more methods of transportation to meet the basic needs of living in a city. As a densely populated city of nearly 10 million with a high level of industrialization, Seoulites have identified traffic, pollution, and safety as part of the 9 Key Areas of Citizen Needs Survey, conducted by the Seoul Metropolitan City<sup>1</sup>. Seoul thus experiences a number of challenges around urban mobility to achieve multiple SDGs such as goal 3, goal 9, goal 11, and goal 13. Due to the interlinked nature of the SDGs, possible solutions can address a number of SDG targets and indicators based on what start-ups identify as their priority areas of work.

For instance, in order to make cities and human settlements inclusive, safe, resilient, and sustainable, the goal of SDG 11 is manifold. However, in the context of urban mobility, SDG 11 aims to ensure that by 2030, all citizens will be assured access to safe, affordable, accessible, and sustainable transport systems; measures also need to be made to improve road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, including women, children, persons with disabilities, and older persons (target 11.2). At the heart of this goal is inclusivity -- ensuring that cities accommodate those in vulnerable situations, including persons with disabilities, women, children, and older persons.

Seoul's challenge is moving around 10 million people. Commuters need to move around the city, but concurrently, they need personal space. Improving urban mobility is not restricted to increasing number of buses or expanding roads; there is a need for alternative services for improved urban mobility. And this will require an socially-minded, inclusive design-thinking process focused on human-centered innovations. As such, the **URBAN MOBILITY** theme seeks to find viable solutions to urban challenges linked, but not limited, to:

- **Traffic congestion and parking**, due to the growing population and high level of industrialization experienced by Seoul. For instance, the number of passenger cars has more than doubled since 2000. In 2016, 82.5% of these passenger cars were used by one individual - rather than being shared within a household or a group<sup>2</sup>. The Seoul Metropolitan Government plans to

reduce vehicle traffic volume by 30% and double the green transportation space for walking, bicycling, and public transportation by 2030. Comprehensive measures have been taken for the Seoul City Wall (HanyangDoseong) Green Transportation Promotion Zones to limit car access while securing space for walking and bicycling.



<sup>1</sup> "Seoul Digital Master Plan 2020: Global Digital Seoul 2020." Seoul Policy Archive - Seoul Solution, December 12, 2016. <https://seoulsolution.kr/ko/content/ppt-서울-디지털-기-본계획/global-digital-seoul-2020>.

<sup>2</sup> "South Korea New Car Registrations." Trading Economics. <https://tradingeconomics.com/south-korea/car-registrations>.



- **Road safety and security**, which can be assessed through data-driven technology to monitor information such as the number of road accidents in the city.
- **Transportation accessibility and sustainability**, in line with the push to make Seoul's transportation and road infrastructure more inclusive, affordable, and safer for commuters in vulnerable situations, such as the elderly or people with disabilities. This issue can also address transportation emissions exacerbating climate change.
- **Urban environment attractiveness and quality**, addressing citizen concerns over safety, as well as aesthetics, of their city. Hazardous obstruction in Seoul's underground shopping malls for instance is a frequent occurrence that impacts safety standards<sup>1</sup>.



Number of Subway Users (2016)  
2,856,452,000



Transportation Safety Index (2016)  
77.6 Points



Daily Traffic Volume (2015)  
32,410,000 Trips/day

(The Seoul Research Data Service: <http://data.si.re.kr/eng-seoul-statistical-series>)

<p>11 SUSTAINABLE CITIES AND COMMUNITIES</p> 	<p><b>GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES</b></p> <ul style="list-style-type: none"> <li>• Traffic and Public Transportation</li> <li>• Parking</li> <li>• Urban Bicycles</li> </ul> <p><b>PRIMARY SDG</b></p>
<p>3 GOOD HEALTH AND WELL-BEING</p> 	<p><b>GOAL 3: GOOD HEALTH &amp; WELL-BEING</b></p> <ul style="list-style-type: none"> <li>• Reduce road traffic accidents</li> </ul> <p><b>SECONDARY SDG</b></p>
<p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> 	<p><b>GOAL 9: INDUSTRY, INNOVATION, AND INFRASTRUCTURE</b></p> <ul style="list-style-type: none"> <li>• Promote inclusive and sustainable industrialization and infrastructure</li> <li>• Increase resource-use efficiency</li> <li>• Affordable and equitable access for all</li> </ul> <p><b>SECONDARY SDG</b></p>

<sup>1</sup> "Seoul Challenge Workshop: Urban for Seed Track 2018," YouTube video, 15:10, posted by "Urban Innovation Challenge: Citypreneurs," July 10, 2018, <https://www.youtube.com/watch?v=-7if27qPLos>.

# Social Protection

Ensuring “no one is left behind,” **SOCIAL PROTECTION** refers to a set of policies or systems that facilitates access to basic social services and goods, especially for the marginalized. The notion of social protection encompasses a wide array of categories that address social inequalities, including gender, disability, and age. Going beyond addressing poverty reduction through measures such as universal healthcare system, it could be stretched into different types of protection including physical protection from natural disasters, as well as cyber protection.<sup>1</sup>

South Korea has been working towards social protection for the past few decades to improve the lives of its citizens and foster a more inclusive economic growth. The country has also enacted different reforms like the Equal Employment Opportunity Act, which prohibits employers’ gender discrimination in hiring. Moreover, South Korea has ministries, such as the Ministry of Gender Equality and Family, which covers policies for teenagers and multicultural families. However, there is still much to be done as some parts of Korean society still face challenges related to social protection. For one, concerns have risen as the population of elderly people continues to drastically increase whereas the youth population growth has slowed down. This is also relevant to the Seoul Metropolitan City, of which the elderly population aged 65 or over increased markedly from 2.5% in 1980 to 9.3% in 2010<sup>2</sup>, jumping to 13.9% in 2018<sup>3</sup>.

Identified in the 9 Key Areas of Citizen Needs Survey conducted by the Seoul Metropolitan City, issues around social protection, notably access to basic services and facilities, reflect multiple SDGs such as goal 1, goal 3, goal 5, goal 8, goal 10, and goal 16<sup>4</sup>. Due to the interlinked nature of the SDGs, possible solutions can address a number of SDG targets and indicators based on what start-ups identify as their priority areas of work.

1 UNDP (2015). “Leaving No One Behind: A Social Protection Primer for Practitioners.” United Nations Development Programme, October 5, 2016. <http://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/-leaving-no-one-behind--a-social-protection-primer-for-practitio.html>.

2 “Population Structure by Age.” Seoul Research Data Service, <http://data.si.re.kr/node/121>.

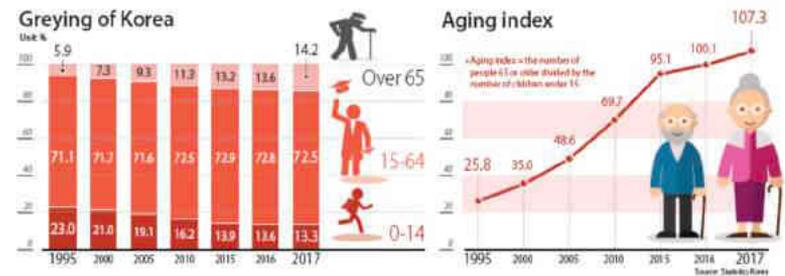
3 “2018 Statistics on the Aged.” Statistics Korea, September 27, 2018. [http://kostat.go.kr/portal/korea/kor\\_nw/2/6/5/index.board?bmode=read&aSeq=370779](http://kostat.go.kr/portal/korea/kor_nw/2/6/5/index.board?bmode=read&aSeq=370779).

4 “Seoul Digital Master Plan 2020: Global Digital Seoul 2020.” Seoul Policy Archive - Seoul Solution, December 12, 2016. <https://seoulsolution.kr/ko/content/ppt-서울-디지털-기 본계획global-digital-seoul-2020>.

In the context of Seoul, SDG 10 aiming to empower and promote the social, economic, and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status by 2030 (target 10.2), would be in line with addressing urban challenges.

As such, the **SOCIAL PROTECTION** theme seeks to find viable solutions to urban challenges linked, but not limited, to:

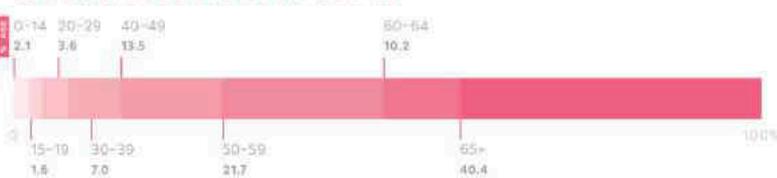
- Access to care services for the elderly, in line with the rapidly aging society. The number of Koreans over 65 is increasing year-on-year, accounting for 14.2 percent of the total population as of 2017.



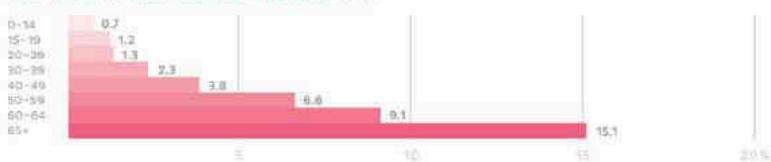


- Tools for assisting people with disabilities, using frontier technologies such as AI and Internet of Things (IoT).
- Ensuring cybersecurity around personal data protection. With the technological changes due to the Fourth Industrial Revolution, there has been a rising concern on the breach of social protection regarding cyber space, such as data hacks.

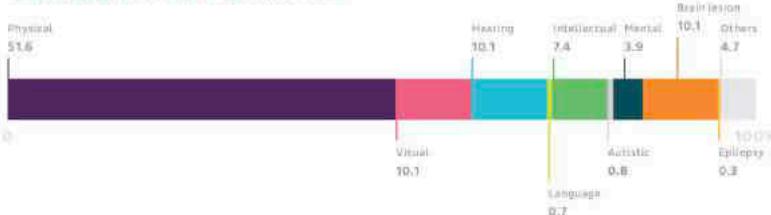
DISTRIBUTION OF DISABILITY BY AGE GROUP (%)



AGE-SPECIFIC PREVALENCE OF DISABILITY (%)



DISTRIBUTION BY TYPE OF DISABILITY (%)



EMPLOYMENT OF PERSONS WITH DISABILITIES BY SECTOR (%)



SOURCE: MINISTRY OF HEALTH & WELFARE / BUREAU ON POLICY FOR PERSONS WITH DISABILITIES (2015)  
 \*UNESCAP (2016). "Disability at a Glance 2015: Strengthening Employment Prospects for Persons with Disabilities in Asia & the Pacific."

**10 REDUCED INEQUALITIES**

**GOAL 10: REDUCED INEQUALITIES**

- Income inequality
- Social protection systems
- Age, disability, gender inequalities

PRIMARY SDG

**3 GOOD HEALTH AND WELL-BEING**

**GOAL 3: GOOD HEALTH & WELLBEING**

- High quality healthcare
- Population aging

SECONDARY SDG

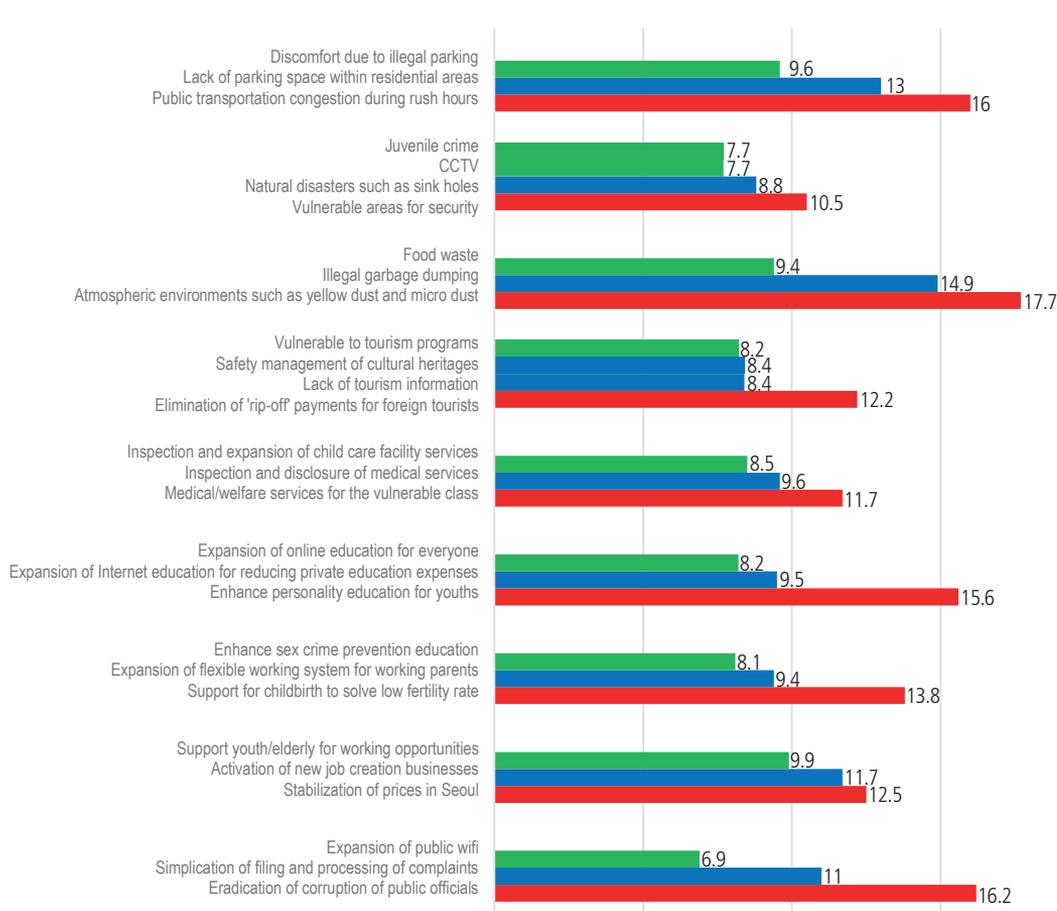
**16 PEACE, JUSTICE AND STRONG INSTITUTIONS**

**GOAL 16 : PEACE, JUSTICE AND STRONG INSTITUTIONS**

- Safety and security
- Cybersecurity
- Reducing violence and crime

SECONDARY SDG

## Seoul Metropolitan City: 9 Key Areas of Citizen Needs



2

Traffic

1

Safety

Environment

Culture/  
Tourism

3

Welfare

Education

Women/  
Family

City  
Economy

Administration

3<sup>rd</sup>: Dongdaemun-gu/Male/65y +/-/Jobless  
 2<sup>nd</sup>: Geumcheon-gu/Male/65y +/-/Wholesale and retail  
 1<sup>st</sup>: Gwanak-gu/Female/20s/Student  
 Keywords: Bus/Info/Service

3<sup>rd</sup>: Dongdaemun-gu/Male/40s/Others  
 3<sup>rd</sup>: Geumcheon-gu/Female/65y +/-/Public Worker  
 2<sup>nd</sup>: Seongbuk-gu/Female/30s/Housewife  
 1<sup>st</sup>: Eunpyeong-gu/Male/65y +/-/Jobless  
 Keywords: Safety/Service/CCTV

3<sup>rd</sup>: Yangcheon-gu/Female/65y +/-/Public worker  
 2<sup>nd</sup>: Jung-gu/Male/65y +/-/Jobless  
 1<sup>st</sup>: Eunpyeong-gu/Female/30s/Professional  
 Keywords: Garbage/Pollution/Environment

3<sup>rd</sup>: Seongbuk-gu/Male/65y +/-/Public worker  
 2<sup>nd</sup>: Jongro-gu/Female/65y +/-/Jobless  
 2<sup>nd</sup>: Geumcheon-gu/Male/65y +/-/Production worker  
 1<sup>st</sup>: Dongdaemun-gu/Male/30s/Public worker  
 Keywords: Info/App/Program/Service

3<sup>rd</sup>: Guro-gu/Female/30s/Public worker  
 2<sup>nd</sup>: Gangbuk-gu/Female/65y +/-/Jobless  
 1<sup>st</sup>: Jung-gu/Male/65y +/-/Production worker  
 Keywords: Elderly/Vulnerable class/Expansion

3<sup>rd</sup>: Gwanak-gu/Male/50-64 y/Production worker  
 2<sup>nd</sup>: Dobong-gu/Female/30s/Housewife  
 1<sup>st</sup>: Geumcheon-gu/Female/40s/Others  
 Keywords: IT/Expansion/Free education

3<sup>rd</sup>: Nowon-gu/Female/30s/Production worker  
 2<sup>nd</sup>: Jung-gu/Male/30s/Public worker  
 1<sup>st</sup>: Gangbuk-gu/Male/65y +/-/Wholesale and retail  
 Keywords: Homecoming/Eradication/Psychology(counsel)/Safe

3<sup>rd</sup>: Dongdaemun-gu/Female/65y +/-/Production worker  
 2<sup>nd</sup>: Dongdaemun-gu/Male/50-64 y/Service  
 1<sup>st</sup>: Dobong-gu/Female/30s/Others  
 Keywords: Job(employment)/Info/Start-up

3<sup>rd</sup>: Gangbuk-gu/Female/20s/Student  
 2<sup>nd</sup>: Jung-gu/Female/65y +/-/Production worker  
 1<sup>st</sup>: Seongdong-gu/Male/30s/Others  
 Keywords: Transparent gov't/Wifi

/Improvements of complaints





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**Urban Innovation Challenge: High-level Stakeholders Meeting |**

## Technology, Innovation & Inclusion

### List of Participants

#### VIP DISCUSSANTS

30+ experts from the public, private, non-profit, and international organization sectors

**Misha Gonzago ABDULLAH:** Manager, Strategic Industry Development, Cyberview  
**Alessandra APICELLA:** Head of Science and Technology Office, Embassy of Switzerland  
**Jung Hwan BANG:** Head, ASEAN Business Center  
**Margarida CAMPOLARGO:** Vice-President of International Relations, Brazilian Human Smart Cities Network  
**Isobel Anya CHEN:** Youth Representative, Minerva KGI  
**Yejin CHOI:** DoBrain Inc. CEO, 2017 Citypreneurs Grand Prize Winner  
**Carmen CIRNU:** Head of Cybersecurity Department, ICI Bucharest  
**Robinson HERNANDEZ:** Executive Director, The Urban Tech Hub  
**Limin HEE:** Director of Research, Center for Liveable Cities  
**Ji Ae HONG:** Accelerating Manager, Sopoong  
**Martin R. HOXER:** Executive Director, Innovation Center Denmark in Seoul  
**Zahin HUSSAIN:** Programs Manager, Hanyang University Social Innovation Center  
**Artemy IZMESTIEV:** Officer-in-Charge, UNDP Seoul Policy Centre  
**David KANG:** Head of International Startup, Global Entrepreneurs Foundation  
**Nobuko KAJIURA:** Sustainable Development Officer, UNESCAP East & Northeast Asia Office  
**Bok Jae KIM:** Managing Director, Seoul Metropolitan Government  
**Clay KIM:** CSO, Pulzze Systems  
**Michael KIM:** Director, Yonsei Center for Social Innovation  
**Chi Hyung LEE:** President, Seoul Digital Foundation  
**Chloe LI:** Curator, TED X ZizhuPark  
**Jerome LEE:** Director & Head of Strategic Partnership, Ground X  
**Anurag MALOO:** Regional Manager for South and Central Asia, Techstars  
**Davor MEERSMAN:** General Manager, Open & Agile Smart Cities  
**Daniela MONTEIRO:** Head of Entrepreneurship, Digital Porto  
**Ryan MOON:** Labs Manager, WeWork Labs Korea  
**Julien NGAO:** Project Manager, Embassy of Switzerland  
**Trung Quynh NGUYEN:** Acting Chairman, Hoa Lac Hi-Tech Park  
**Sartayev OLZHAS:** Chairman of the Board, JSC Astana Innovations  
**Savinda RANATHUNGA:** Asia-Pacific Youth Project Coordinator, UNDP  
**Eske B. ROSENBERG:** Research & Innovation Counselor, Innovation Center Denmark in Seoul  
**Alexandra SIDOROVA:** Senior Program Officer, Secretariat of World Smart Sustainable Cities Organization  
**Sky SO:** CEO, Dream Factory  
**Ting SONG:** Independent tech-arts curator, Co-founder & Advisor to DoraHacks,  
**Jill TANG:** Co-Founder, Ladies Who Tech  
**Jae Won YOON:** Senior Manager, Public Affairs, WeWork Labs Korea  
**Alfie Kai ZHANG:** Assistant Secretary General, Zijiang Foundation  
**Jade ZHAO:** Co-Founder, Design Sprint China

**Moderators****Joseph Jisong LIM:** Senior Partnerships and Innovation Officer, WFUNA**Li ZHOU:** Associate Sustainable Development Officer, UNESCAP**Opening Remarks****Chi Hyung LEE:** President, Seoul Digital Foundation**01 [What is inclusion and why does it matter in technology and innovation?]**

Discussants shared their various perspectives on inclusion and echoed the importance of the Sustainable Development Goals' commitment to "Leave No One Behind" as the guiding principle in its consideration. Discussants viewed inclusion not only through an economic dimension but also through a social dimension. Considerations were given to social identifiers such as gender, race, age, religion, disabilities, and sexual orientation. Discussants agreed that **inclusion should be grounded in providing universal accessibility and equal opportunities for everyone.**

Discussants proceeded to acknowledge that inclusion, however, is not often a key consideration for businesses, and that there is a misconception that an inclusion agenda runs counterproductive to a profit agenda. Discussants discussed this misconception and sought to challenge its proliferation – arguing that the importance of inclusion for businesses goes far beyond social good, and that it can also align with a business's economic interests. It was argued that **having a diverse range of perspectives is important in generating different ideas and fostering innovation, in helping businesses to successfully breach different markets, and in challenging hidden assumptions and groupthink.**

Tangible statistics were provided to support the notion that inclusion and profit can be economically aligned. Companies whose boards had a higher than average percentage of women outperformed those with fewer than average<sup>1</sup>. A 2017 McKinsey report found that if there are three or more women on the board of a company or in a startup, statistically they generate a 47% higher return on equity and 55% higher earnings before interest and tax<sup>2</sup>. A PIIIE report also noted that companies whose executives comprised of greater than 30% women earned, on average, 6% more net profit than those with less than 30%. Diversity<sup>3</sup> practices positively impact competitiveness through increased team efficiency and 60% higher results<sup>4</sup>. As such, in addition to more creativity, innovation, and balance, inclusion can generate concrete and tangible benefits as well.

**02 [Positive Precedents of Policies, Practices & Projects]**

Discussants shared several examples of policies and projects that had successfully challenged harmful stereotypes and encouraged greater inclusion in the technology and innovation space.

- One example given was from New York City, which spends \$16 billion USD annually on project procurement. The policy cited was one that stipulated that of the annual budget for procurement, a minimum of 8% must go to Women- and Minority-owned Business Enterprises (WMBEs). This

example highlighted the critical role that governments can play in making investments and hence their potential in creating more opportunities for underrepresented groups.

- Another example given was from Brazil, where the City of Porto and several other cities together hosted a Hackathon, called Hackacity. Under the partnership with the Human Smart Cities Network, these cities opened up their databases and invited citizens from the community to come up with innovative solutions to the community's urban problems. For example, in Belo Horizonte, the Open Data Portal was newly launched for the Hackathon. The first winner of the Hackathon was a low-income, homosexual woman of Afro-descent, challenging the stereotype of what an innovator should look like and alleviating the unwarranted fear of policymakers in the opening up of data.
- One last example given came from Portugal, an initiative called "Portuguese Women in Tech". Structured as a competition, it was launched to recognise and award women who were making contributions to the technology industry. The initiative was seen to be important in showcasing female role models within the technology industry in the hope that it may inspire other women.

**03 [Challenges and Barriers to Inclusion]**

Discussants shared the various challenges that they had encountered in the process of pushing for greater inclusion in their respective areas of responsibility. Policymakers noted that the public sector generally lacks sufficient understanding and knowledge on the full potential of technology, which leads to confusion on what policy agenda should be pursued with regarding inclusion. The space is new even from a policy perspective, which signifies that there are not many clear precedents on many of the topics that need to be addressed. **Therefore, the issue is not only about the implementation of good policies, but also about the identification of such policies are.** Even when good practices are identified, it is often hard to scale them up to a meaningful degree,

1 Catalyst Knowledge Center (March 2017). "Women on Corporate Boards Globally: Quick Take." <https://www.catalyst.org/knowledge/women-corporate-boards-globally>

2 McKinsey & Company (October 2017). "Women Matter: Time to Accelerate – Ten Years of Insights into Gender Diversity." <https://mck.co/2SiUurO>

3 Barbara Kotschwar, Tyler Moran & Marcus Noland (February 2016). "Is Gender Diversity Profitable? Evidence from a Global Survey." Peterson Institute for International Economics Working Paper Series. <https://piie.com/system/files/documents/wp16-3.pdf>

4 Cloverpop (2017). "Hacking Diversity with Inclusive Decision Making." <https://www.cloverpop.com/blog/research-shows-diversity-inclusion-better-decision-making-at-work>

especially when complemented with the necessity to accommodate the needs of everyone. In addition, investors are generally interested in matters of return on their investments, with less attention given to the importance of inclusion and sustainability, which naturally leads to a lack of funding for many social and impact-driven startups.

#### 04 [Current Issues Experienced by Young Innovators]

Discussions heard from a young entrepreneur based in Seoul with regards to her experience navigating the policy landscape of Seoul City. Three points were raised that she felt to be important.

- i) Social welfare for workers is often tied to their employer, not directly to the government. As a result, workers will often be hesitant to enter newer, more fledging organisations as these organisations are generally not able to provide the same level of social welfare benefits as larger employers. Therefore, it is important that the government provides adequate social protection and social services to reduce workers' reliance on employer-based benefits, and hence encourage more participation in the startup space.
- ii) **Governments should measure the success of their innovation and startup funding through a more diverse set of criteria.** Currently, the criteria for measuring the success of a startup are heavily skewed towards metrics around how much employment the startup generates. The government should consider a broader set of criteria, including metrics that account for growth and innovation. This shift is crucial in facilitating the increasing youth demand to pursue impact-driven enterprises in Korea.
- iii) Support from the government for innovation and startups is currently limited in the avenues through which support is provided. Currently, government support is primarily through funding and other financial support. **However, the support from the government should be more all-encompassing – including infrastructure, mentoring systems, and the creation of an ecosystem conducive to innovation in order to maximise the chances of success for startups.**

#### 05 [Efforts of the Seoul Metropolitan Government]

Governments have become increasingly aware of the impact that social enterprises have on the building of sustainable, inclusive communities. Representatives from the Seoul Metropolitan Government (SMG) discussed some of their work and challenges within the space.

- The SMG is engaged in ongoing efforts targeted towards human development and inclusion. One of the key considerations of any project it engages in is the distributional effect of the funds invested within the community. An example of this is in the method through which the SMG makes group purchases for its operations – it grants special benefits to female-led enterprises through procedures such as a preferential purchasing system or sealed, competitive bidding.
- There has been a minimal increase in the proportion of startups founded by women in the past

five years. The SMG had previously opened the Seoul Startup Hub in Mapo City and set up fifteen entrepreneurship support centres exclusively for women; however, female entrepreneurs are not making full use of the infrastructure. This highlights the difficult nature of gender inequality in the innovation space, an issue that the SMG will continue to work diligently on.

The efforts of the SMG are still in their early stages. As such, the government lacks proper indicators to guide and measure the success of impact-driven startups. The public sector in South Korea has been earmarked to significantly expand its interest in social enterprises as well as small to medium-sized businesses. It is hoped that together with this shift in focus from the government, there will be increasing commercial interest from investors.

From a perspective on policy implementation, the discussion of whether new policies should be introduced or existing policies should be transformed is still ongoing. Working through changes of administration is an issue confronting all departments. Designing robust and sustainable solutions is, therefore, a must.

#### 06 [On the Way Forward]

Education is a crucial factor in the continued focus on inclusion and sustainability and in the progress towards an informed, inclusive ecosystem. Those in power need to take the lead in challenging stereotypes, pushing for change, demonstrating the importance of inclusion, and sharing best practices that local communities can learn from. **For full impact, leaders need to play an active part in the promotion of inclusion to demonstrate their commitment to the wider community.**

Idea and policy assessment from diverse stakeholders are imperative, given that opportunities and policy impact will differ depending on the context. **Based on the resulting feedback, policymakers should adopt a more longitudinal perspective in their analysis of challenges and opportunities to ensure that their policies are not counter-productive.** In this light, SDGs 17 – strengthening the means of implementation and revitalizing the global partnership for sustainable development – is the key to scaling-up and expanding the results of discussions/dialogues.

It is important that there be an aggregation of ideas and assessments from a diverse range of stakeholders. **There needs to be a multisectoral platform to attract voices from all pockets of society to tackle issues confronting the innovation and technology space.**

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**Urban Innovation Challenge: Citypreneurs Policy Interface |**

## Panel 1: Successes & Challenges of Youth Entrepreneurship for the SDGs in Seoul and Beyond

### List of Participants

#### PANELISTS

**Yejin CHOI:** CEO, DoBrain Inc., 2017 Citypreneurs Grand Prize Winner

**Zahin HUSSAIN:** Programs Manager, Hanyang University Social Innovation Center

**Jungwoo LEE:** Managing Director, Seoul Digital Foundation

#### MODERATOR

**Savinda RANATHUNGA:** Asia-Pacific Youth Project Coordinator, UNDP

### 01 [Challenges Faced by Youth-led Startups]

From the perspective of young entrepreneurs, main challenges include a lack of funding and facilities, difficulty in sustaining the motivation within the team, and a lack of networking opportunities, especially for young female entrepreneurs. **To address such impediments, along with appropriate support from the government, young people need to be aware of the different market needs and regulations on startups and be prepared (be ready) to analyze and understand essential trends in social innovation.** Citypreneurs can be a great platform for youth-led startups to exchange opinions as well as acknowledge the importance of social impact.

### 02 [Sharing Good Practices Of Public-Private Partnership In Tackling Urban Issues in Seoul]

Case 1 – Seoul Metropolitan City partnering with KT Corporation on designing optimal night bus routes by using big data: In order to establish night bus routes, KT collected data on mobile phone call history and taxi rides across the city to visualize the moving pattern of citizens on a map.  
Case 2 – Waste management solution for Bukchon village by Ecube Labs: The Seoul City was able to optimize the operations of waste management by engaging a startup that installed sensors on every trash bin in the tourist area.

### 03 [The Mindset Of Starting and Running Startups]

It is necessary to point out that the essence of a startup is on solving social problems with entrepreneurship rather than expecting financial success. Thus, young people need the entrepreneurial mindset of not giving up and consistently looking for opportunities that would enable them to realize their ideas. **Going beyond ideation, it is also crucial to validate feasibility and resilience of the startup for the purpose of trust-building when it comes to receiving investment from the government or private sector partners.**

### 04 [The Role of Educational Institutions in Fostering Youth Entrepreneurship]

**University should encourage youth to realize what they are passionate about and what impact they want to make by promoting awareness on social issues.** Prior to incubating startups, educational institutions should play a role of “sandbox” where young people could engage in creative thinking without having to worry about failures. **Connecting them with impact-oriented entrepreneurs at both local and overseas levels through programs such as networking events and boot camps,** would empower youth to come up with innovative solutions to challenges hindering sustainable development.

### 05 [The Role of the Government in Strengthening the Ecosystem for Youth-led Startups]

**Policy makers need to pay more attention to youth-led startups in order to minimize policy gaps and strengthen connectivity between different stakeholders.** For example, there is a mismatch between reality and policies in government-led key performance indicators and lack of expertise in shaping programs related to fostering startups. Certain regulations on investment also impede the government from providing swift support to entrepreneurs. Therefore, there needs to be more understanding and cooperation between stakeholders to resolve such issues. **Trust can be built through consistent communication between young people and the government.**

### 06 [The Importance of International Cooperation between Cities in Fostering Startups]

With growing interconnectedness of the world, **the government needs to work on strengthening international ties between cities, as well as startup ecosystems, in order to encourage Korean youth entrepreneurs to go beyond borders and strive to contribute to the Sustainable Development Goals.** In doing so, thorough research and analysis of good practices from both developed and developing countries would be essential for more diversity and inclusivity. City of Shenzhen in China can be a good lesson on how public-private-academia cooperation towards accelerating the startup ecosystem is being implemented.

## Panel 2: Youth Innovation for SDGs in the Fourth Industrial Revolution

### List of Participants

#### PANELISTS

**Sophie Soowon EOM:** Founder, Adriel AI / Solidware, UN high-level Panel on Digital Cooperation Committee Member

**Anurag MALOO:** Regional Manager for South and Central Asia, Techstars

**Jill TANG:** Co-Founder, Ladies Who Tech

#### MODERATOR

**Li ZHOU:** Associate Sustainable Development Officer, UNESCAP

### 01 [Opportunities of Frontier Technologies for Start-ups]

Frontier technologies associated with the 4th Industrial Revolution (4IR) will transform many parts of our economy and society. This will offer opportunities for start-ups, particularly those that **leverage new technologies to create new markets or disrupt dominant providers in existing markets through increased efficiency and product differentiation.** The scale of transformation associated with 4IR will generate many opportunities, and start-ups will drive a lot of this transformation if it is in an environment where dominant players are not shielded from competition.

### 02 [Considerations of Risks Associated with Frontier Technologies]

As with all economic transformations, there are risks associated with frontier technologies. One area of concern that has already showed up in statistics is the **impact of automation technologies on employment**, particularly youth employment. Young people in the Republic of Korea have experienced a trend of declining employment rates, not just in manufacturing, but also in professional services and office clerical work. As the country leads the world in robots per capita, the trend of AI displacing non-manufacturing employment may be an early data point signaling potential labour market disruptions. Supporting youth entrepreneurship is therefore an important opportunity for young people as traditional avenues of employment narrow.

### 03 [Ethical and Human-Centered Development of 4th Industrial Revolution]

Citypreneurs focuses on impact, including economic, social, and environmental impact. Inherent in this approach is to integrate externalities into the assessment of business models. Therefore, **it is important to consider the ethics surrounding the way new technologies are used, and whether it is environmentally and socially sustainable; the assessment should also include both the outcomes (the ends) as well as the process (the means).** A human-centered approach is not only important from the perspective of positive impact; it is also crucial in the era of increased human-computer interaction that still relies on humans to make choices in the marketplace. A human-centered approach is therefore also important to access new markets and generate revenue.

### 04 [Building an Inclusive Fourth Industrial Revolution]

The transformative potential of 4IR will affect everyone in society in profound ways, making it important that everyone be included in this revolution. Inclusion is important both in the composition of its workforce and in their approach to customers. If opportunities arising from 4IR continue to be dominated by one segment of the population while the dislocation effects are borne by others, the social sustainability of 4IR will be challenged. **Inclusion in hiring and investments will be a crucial factor in expanding opportunity and mitigating against increasing inequality. Additionally, the engagement of diverse groups in the development and implementation of new technologies will be important to spread the benefits of 4IR products.** This is particularly important in the context of rapid population ageing, in which a large portion of the population may not be digital natives. An inclusive approach here will further support the expansion of new markets for 4IR start-ups.

### 05 [Open and Competitive Markets]

To successfully take advantage of 4IR, start-ups and innovators must have access to competitive markets. **Existing corporations and the government will have a role to play in ensuring the market is open and competitive.** Zero-sum thinking can inhibit the generation and diffusion of innovation and lead innovators to relocate to markets that are more open, therefore weakening the innovation system overall. The interlinked nature of 4IR technologies further benefits from positive sum thinking that promotes collaboration.

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CITYPRENEURS 2018



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**Featured Panelists, Moderators, VIP Discussants, |  
Mentors & Investors**



ASSOCIATE SUSTAINABLE DEVELOPMENT OFFICIER,  
UNESCAP EAST & NORTHEAST ASIA

LI ZHOU

BREAKFAST MODERATOR



SENIOR PARTNERSHIPS AND INNOVATION OFFICER,  
WFUNA

임지성 / JOE LIM

BREAKFAST MODERATOR



HEAD OF SCIENCE & TECHNOLOGY OFFICE,  
EMBASSY OF SWITZERLAND

ALESSANDRA APICELLA



REGIONAL MANAGER FOR SOUTH AND CENTRAL ASIA,  
TECHSTARS

ANURAG MALOO



SENIOR PROGRAM OFFICER,  
WORLD SMART SUSTAINABLE CITIES ORGANIZATION (WeGO)

ALEXANDRA SIDOROVA



CURATOR, TEDXZIZHUPARK

CLOE LI



ASSISTANT SECRETARY GENERAL, ZIJIANG FOUNDATION

ALFIE KAI ZHANG



HEAD OF ENTREPRENEURSHIP, DIGITAL PORTO

DANIELA MONTEIRO



**GENERAL MANAGER, OPEN & AGILE SMART CITIES**

**DAVOR MEERSMAN, PH.D**



**YOUTH REPRESENTATIVE, MINERVA KGI**

**ISOBEL ANYA CHEN**



**HEAD OF CYBERSECURITY DEPARTMENT,  
NATIONAL INSTITUTE FOR INFORMATICS**

**DR. CARMEN CIRNU**



**CO-FOUNDER, DESIGN SPRINT CHINA**

**JADE ZHAO**



**DIRECTOR OF RESEARCH,  
SINGAPORE'S CENTRE FOR LIVABLE CITIES (CLC)**

**DR. LIMIN HEE**



**CO-FOUNDER, LADIES WHO TECH**

**JILL TANG**



**RESEARCH & INNOVATION COUNSELLOR,  
EMBASSY OF DENMARK**

**ESKE BO ROSENBERG**



**ARCHITECT/PROJECT MANAGER, EMBASSY OF SWITZERLAND**

**JULIEN NGAO**



**PRESIDENT, SEOUL DIGITAL FOUNDATION**

**이치형 / DR. CHI HYUNG LEE**

**HOST**



**CHAIRMAN, SMART ASTANA**

**MR. OLZHAS SARTAYEV**



**VICE PRESIDENT OF INTERNATIONAL RELATIONS,  
BRAZILIAN HUMAN SMART CITIES NETWORK**

**MARGARIDA CAMPOLARGO**



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**MARTIN HOXER**



**SUSTAINABLE DEVELOPMENT OFFICER, UNESCAP**

**NOBUKO KAJIURA**



**MANAGER STRATEGIC INDUSTRY DEVELOPMENT, CYBERVIEW**

**MISHA GONZAGO ABDULLAH**



**EXECUTIVE DIRECTOR, NYC URBAN TECH HUB**

**ROBINSON HERNANDEZ**



REGIONAL YOUTH PROJECT COORDINATOR, UNDP ASIA-PACIFIC

SAVINDA RANATHUNGA



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GLOBAL ENTREPRENEURS FOUNDATION

강동원 / DAVID KANG



FOUNDER ADRIEL AI / SOLIDWARE, UN HIGH-LEVEL PANEL  
ON DIGITAL COOPERATION COMMITTEE MEMBER

SOPHIE EOM



DIRECTOR, YONSEI CENTER FOR SOCIAL INNOVATION

김마이클 / MICHAEL KIM



INDEPENDENT TECH-ARTS CURATOR / CO-FOUNDER &  
ADVISOR, DORAHACKS

TING SONG



CSO, PULZZE SYSTEMS

김민석 / CLAY KIM



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ZAHIN HUSSAIN



DIRECTOR OF DIGITAL BUSINESS & START-UP INCUBATION,  
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**방정환 / JUNGHWAN BANG**



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**최예진 / YEJIN CHOI**



**ACCELERATING MANAGER, SOPOONG**

**홍지애 / JIAE HONG**



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**Policy Interface Panels |**

## POLICY INTERFACE PANELS

### PANEL 1: "SUCCESSSES & CHALLENGES OF YOUTH ENTREPRENEURSHIP FOR THE SDGS IN SEOUL & BEYOND



REGIONAL YOUTH PROJECT COORDINATOR, UNDP ASIA-PACIFIC

**SAVINDA RANATHUNGA** PANEL 1 MODERATOR



PROGRAMS MANAGER,  
HANYANG UNI. SOCIAL INNOVATION CENTER

**ZAHIN HUSSAIN** PANELIST



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**최예진 / YEJIN CHOI** PANELIST



MANAGING DIRECTOR,  
SEOUL DIGITAL FOUNDATION

**이정우 / JUNGWOO LEE** PANELIST

**PANEL 2: "YOUTH INNOVATION THE SDGS IN THE FOURTH INDUSTRIAL REVOLUTION"**



**ASSOCIATE SUSTAINABLE DEVELOPMENT OFFICIER,  
UNESCAP EAST & NORTHEAST ASIA**

**LI ZHOU**

**PANEL 2 MODERATOR**



**REGIONAL MANAGER FOR SOUTH AND CENTRAL ASIA,  
TECHSTARS**

**ANURAG MALOO**

**PANELIST**



**FOUNDER ADRIEL AI / SOLIDWARE, UN HIGH-LEVEL PANEL  
ON DIGITAL COOPERATION COMMITTEE MEMBER**

**SOPHIE EOM**

**PANELIST**



**CO-FOUNDER, LADIES WHO TECH**

**JILL TANG**

**PANELIST**



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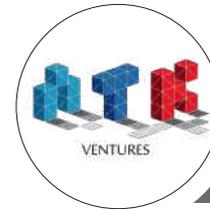
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**CEO, DOBRAIN INC.,  
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## SPECIALISTS

Field specialists were invited to provide expert seminars and pitch clinics for the Citypreneurs teams.



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정회훈 / HWE HOON JUNG



CEO, SEOUL BUSINESS SCHOOL

최효석 / WILLIAM HYO CHOI



CEO, WISEWIDE INC.

최병준 / BYUNG JOON CHOI



CEO, DREAM FACTORY

소관룡 / SKY SO



CEO, Startup-LAB

최평국 / PYONGKOOK CHOI



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**RICHARD KIM**



**CSO, INTERACTOR**

**김민석 / CLAY KIM**



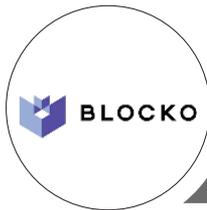
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2017 CITYPRENEURS WINNER**

**신대진 / DAEJIN SHIN**



**PR MANAGER, BLOCKO**

**김한석 / HANSEOK KIM**

**FACILITATORS** |

Facilitators are volunteer experts and students who have committed themselves to providing the best growth environment for Citypreneurs teams.

**윤라경 / RAGYEUNG YOON**

KOREA UNIVERSITY

**소보윤 / BO YUN SO**

HANKUK UNIVERSITY OF FOREIGN STUDIES

**SAMER SAMHOUN**

FREELANCER

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**이다영 / ANNA LEE**CONTENT BIZ DIVISION,  
THIRTEENTH FLOOR CORP.**장은주 / EUNJU JANG**

NATIONWIDE YOUTH MERCHANT ASSOCIATION



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**SDGs Urban Impact Summary |**  
: Company Profiles

GRAND PRIZE

Seoul Mayor's Award



**Taewoo Lee**  
CEO / hi@Alt-a.net  
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**Saena Park**  
Designer / birdme@Alt-a.net  
**Hyungjun Ahn**  
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Tel +82-10-9147-7840  
Website www.alt-a.net

### Company Introduction

Alt-A seeks to make spaces shared by humans and vehicle traffic safer and smarter. Using 3D mapping, real-time data collection, and intelligent sensor technologies, our alert system increases safety for pedestrians and vehicles alike.

### Relevant UN SDGs

main



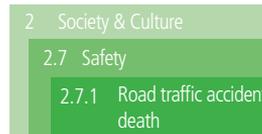
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### Relevant UN SDGs Indicators

- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
- 3.6.1 : Death rate due to road traffic injuries

### Relevant Seoul SDGs



### Urban Issue Addressed



### Impact Investment Theme



## Description of core product

With the goal of upgrading the system to intelligent security cameras, our core product ALT-PLUS can be installed inside or outside the body of security cameras.

ALT-PLUS also serves as a Smart Safety Beacon which includes features such as traffic light detection of pedestrians in drivers' blind spots and the detection of illegal parking on fire zones and so on.

**Solution** ALT-PLUS

ALT-PLUS, the solution from ALT-A

**ALT PLUS**  
IoT EMBEDDED PCB

ALT-PLUS is competitive in **upgrading** rather than replacing an existing Security Camera

Safety facilities responsible for safety precaution in private properties

Introduction of new **ROI** (return on investment)



# AmuseTravel

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Facebook @amusetravel

## Company Introduction

Amuse Travel is a barrier-free travel start-up that offers travel content specialized for people with disabilities. To do this, we collect "points of interests" (POI) data, such as accessible sidewalk information, check the POI data of locations to be visited, secure the mobility data of our users, and provide tailored service for our clients to enjoy traveling independently.

## Relevant UN SDGs

main



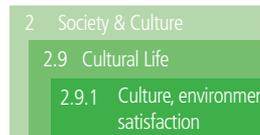
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## Relevant UN SDGs Indicators

- 11.2.1 : Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
- 11.7.1 : Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

Our aim is to solve the biggest travel inconvenience for people with disabilities, especially wheelchair users: lack of accessible sidewalk information.

Sidewalk curbs, ramps, and braille blocks have standardized specifications and images that can be used for the manual and bulk collection of accessible sidewalk data. We aim to facilitate this with our automatic POI data collection service, which not only collects onsite POI data, but also analyzes street view and road view images to provide standardized accessible sidewalk information for disabled travelers.

### Amuse?

Why do not you go out?  
**There is nothing that the disabled can enjoy and play. And move is difficult.**  
 So if you can go out, what do you want to do best? It is a travel.

- Half of the disabled have no one meeting in the week  
 - 18.8% do not leave the house at all

February 1, 2014 Able News article content (2018 Seoul Welfare Foundation referenced)  
<http://www.ablenews.co.kr/Blogs/News/Content.aspx?Category=1&ID=002&NewsIndex=002&ArticleIndex=1379541189>

### Opportunity of the market

Type	Absence of the products for the disabled	Lack of knowledge of the path and the facility	Expense cost	Preference of the non-disabled
Domestic	Physical obstacle	49.1	81.8	33.8
	Human obstacle	51.1	73.2	54.0
	Money obstacle	23.7	65.3	21.1
Total	44.8	76.1	30.8	13.0
Abroad	Physical obstacle	57.3	57.1	64.9
	Human obstacle	58.0	44.8	68.0
	Money obstacle	42.9	14.2	61.9
Total	54.7	45.7	65.0	13.9

Product Facility

Source: Tourism Policy Division and Ministry of Health and Welfare of Seoul Government, 2015

### Market Expansion Strategy : Classification of Image

Why Semantic Segmentation?

- Real scene understanding
- Automatic recognition and analysis of each scene

**Classification of Image Techniques to differentiate between steps and uphill**  
**There are Braille Blocks on the steps and uphill that you can go to**

- POI data Gathering
- Checked directly from the first 6months : 1,000 data - 6 data per day
- Through street view in the next 3months : 30,000 data - 340 data per day
- If we get 300 data by using the technology of image classification for the next 3months?
- If we only find the spot block without pavement block?
- Tabata per 20sec. in 1month : 129600data - 4320 data per day

# Besides Besides

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## Company Introduction

The stress from being handicapped can cause serious social problems. Did you know that the family of a disabled person is also exposed to serious situations? They suffer from the stress from their daily lives that do not change.

Our solution, Asteroid, delivers happiness to them much like a scarecrow that delivers small happiness in everyday life. Beyond simply selling products or providing services, we provide a platform that can not only enable users to share their joy and pain with each other, but also provide information and opportunities to get support.

## Relevant UN SDGs

main



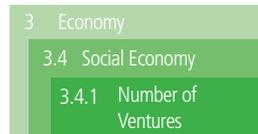
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## Relevant UN SDGs Indicators

- 8.5.1 : Average hourly earnings of female and male employees, by occupation, age and persons with disabilities
- 10.2.1 : Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities

## Relevant Seoul SDGs



## Urban Issue Addressed

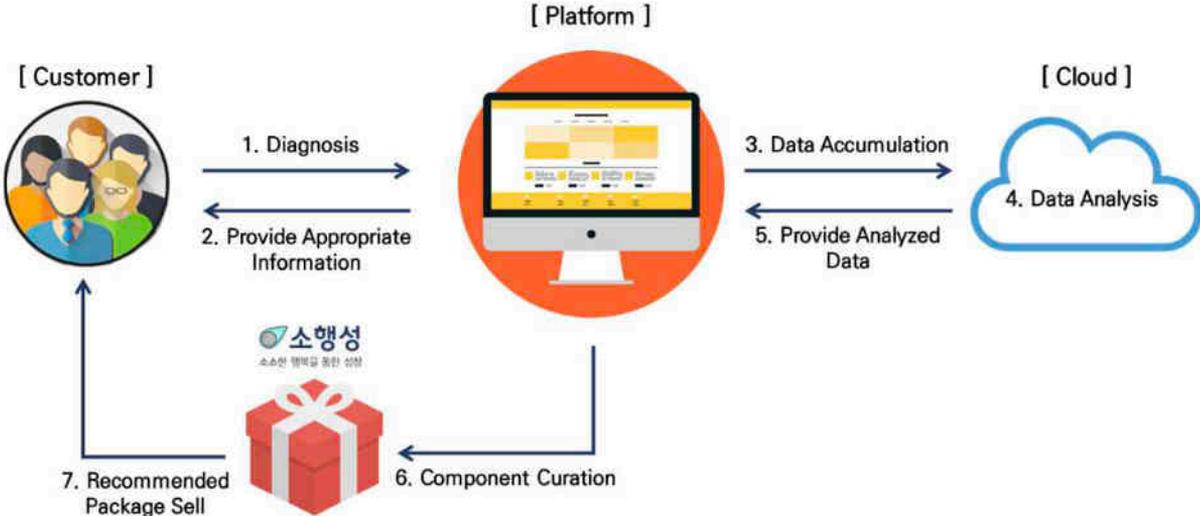


## Impact Investment Theme



**Description of core product**

Asteroid is a curation service that uses Big Data. Based on the analysis of accumulated customer data, a customized package is constructed and linked to sales. The package includes healing components such as disability welfare policies, welfare facility information, as well as failover cases, activities, and calligraphic framing. In addition, you can enclose products that can be linked to your hobby, so you can pursue fun in your daily life and maintain your wellbeing.



# careband CareBand

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## Company Introduction

Today, 40 million people are living with dementia around the world, with forecasts showing that this number will triple by 2050. We have an obligation to care for our population as it ages; these are our mothers, fathers, and elders in our communities. Amongst those with dementia, there is a dangerous, prevalent problem, which also causes caregivers stress and worry. This problem is wandering. About 60% of those living with dementia will wander or get lost by leaving their home or care facility, which can lead to injury or possibly death.

CareBand was founded in 2016 with the mission of helping seniors living with dementia stay safe and providing families with peace of mind. By combining emerging IoT location tracking technologies with deep learning, CareBand helps caregivers check in on their loved ones and enables seniors to stay out of the hospital and remain independent for longer. The world is aging, and we desperately need cost-effective solutions today to help protect and support people at scale.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 11.2.1 : Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
- 11.7.1 : Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
- 3.8.1 : Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)

## Relevant Seoul SDGs



## Urban Issue Addressed



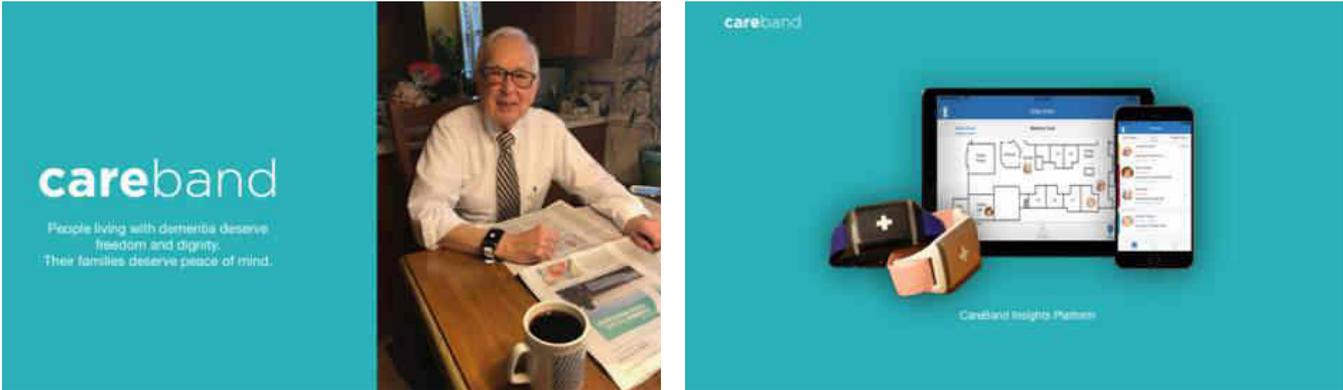
## Impact Investment Theme



**Description of core product**

CareBand is a behavior analytics and care management solution for seniors. Initially targeted at people living with dementia, our solution includes wearable technology that provides real-time indoor and outdoor location tracking without the use of wifi or cellular technology, a help button, and machine learning models that monitor and identify early changes in health conditions such as urinary tract infections or agitation. Family members or caregivers can use our CareBand Insights Platform, available via mobile app or web browser, to view statuses and insights; they can also sign up to receive notifications via text message, phone call, or email. This allows us to make CareBand accessible to the most diverse group of people - across a range of ages, technology exposures, and backgrounds.

CareBand can also be used in populations with mental health conditions, substance abuse, and special needs.



# CUBE Cube Intelligence

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## Company Introduction

Cube Intelligence leverages technology to build Future Mobility Solutions. Specifically, we are using blockchain technology to gather mobility data and incentivize transportation mode shift. We have identified four key areas where mobility behavior imposes social impacts (externalities) on urban environments and its citizens: traffic congestion, parking, emissions and public health. Most cities are tackling these issues in a variety of ways such as improving bicycling infrastructure and creating low emission zones, but these solutions tend to be expensive and heavy-handed, restricting rather than expanding the choices available to citizens. The bigger problem is that most cities are blind – they have very little data on mobility patterns, and such data is not gathered in real-time, negating the opportunity for swift demand response.

## Relevant UN SDGs

main



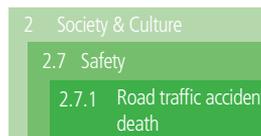
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## Relevant UN SDGs Indicators

- 3.6.1 : Death rate due to road traffic injuries
- 11.2.1 : Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

At the heart of our solution is the Cube Mobility Wallet. This stores the records of the user’s transactions, holds the user’s token balance and controls the dynamic consent functionality. It acts as the control tower for the user’s data transactions, directing the flow of mobility data to next-generation distributed storage facilities, determining which parties can access the user’s data, receiving and holding Cube tokens in compensation for the data, and enabling P2P value transfers with Cube tokens.

The data is primarily generated from our proprietary Cubebox that gathers real-time data such as vehicle speed, location, RPM, emissions, and can interpret diagnostics error codes. The Cubebox is installed with LTE connectivity and is fitted with manual and automatic SOS call features. Data is also generated from the user’s mobile phone when the user is away from the vehicle, when walking or cycling or using public transport.



GRAND  
PRIZEInvestor's  
Pick

# dot :: Dot Incorporation

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## Company Introduction

Dot strives to be a pioneer in accessible and affordable innovations for the vision-impaired and the deafblind to lead independent lives. Our mission is to make the world accessible, dot by dot. To do this, we developed the world's first braille smartwatch, the Dot Watch. But Dot is more than just the watch: we are creating a whole new media universe for a previously unserved target group.

Soon to be launched, the Dot Mini is the first smart media device for the visually impaired. It can be used in classrooms and libraries to access digital text content. We are also working on the Dot Pad, a multi-layered braille display that will make graphics and images possible.

Ultimately, we want technology to change the lives of the people, in their everyday lives. To do this, our Dot Public project aims to make even public infrastructure like transportation, public buildings, and others accessible.

## Relevant UN SDGs

main



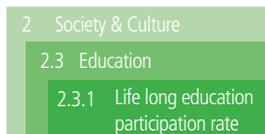
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## Relevant UN SDGs Indicators

- 11.2.1 : Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
- 11.7.1 : Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities
- 4.A.1 : Proportion of schools with access to (a) electricity; (b) the Internet for pedagogical purposes; (c) computers for pedagogical purposes; (d) adapted infrastructure and materials for students with disabilities; (e) basic drinking water; (f) single-sex basic sanitation facilities; and (g) basic handwashing facilities (as per the WASH indicator definitions)

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

The Dot Watch is a smartwatch that can connect to your smartphone via Bluetooth and can receive text information from any app or service. It comes with a full watch functionality such as alarms, stopwatch, and timer. It is made from super light and durable aluminum, and the battery lasts for seven days.

The Dot Mini is a device that can be used to read longer texts in braille. It can access any digital text and has a 16-cell braille display. It comes with a full audio support and has various interfaces such as USB, SD card, and Bluetooth. With intuitive control elements, the Dot Mini can store up to 10,000 books.

The Dot Pad is a multi-layered braille display. With active braille cell technology to show graphs such as shapes and sizes of figures and images. This will bring tactile communications from reading to visualization.

The Dot Public allows public information such as real-time bus, train, subway to be accessible. It is targeting public buildings such as airports, museums, and official government buildings to have their information ready for the visually-impaired, the hearing-impaired, foreigners, children, and just about anyone who needs to get access to the right information.



DS Insight Lab **DS Insight Lab**

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**Company Introduction**

Our world is facing serious issues related to the impacts of global warming, 1.5 °C above pre-industrial levels, and on related global greenhouse gas emission pathways. DS Insight Lab wants to contribute to accelerating the world's transportation transition to sustainable energy.

In Korea there are currently 22 million registered vehicles that take about 3 minutes to fill up their fuel tank, with 13 thousand gas stations to support it. If EV were to take up 5% of the total number of registered vehicles, which is 1.1 million units, how many electric charging stations do you think would be required to keep them running? You may already be aware that it generally takes a good 60 minutes to charge an EV battery back up to 80% from 0. If we were to adopt the same type of infrastructure, we would theoretically need another 13 thousand electric charging stations just to keep up.

Finding a solution to this problem also appears a lot more urgent considering that current EV charging infrastructure already comes with high costs, a complicated installation and maintenance issues. Moreover, people do not use their vehicles 80% of the day and the electric bill peak time cost is 3 times higher than off-peak time. These factors offer a business opportunity if correctly approached. Our goal is to set up a green ecosystem in the EV charging infrastructure to provide a valuable and differentiated service based on IoT, AI and V2G technology.

**Relevant UN SDGs**

main



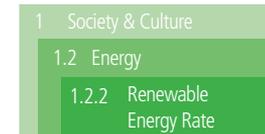
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**Relevant UN SDGs Indicators**

- 7.1.2 : Proportion of population with primary reliance on clean fuels and technology
- 7.2.1 : Renewable energy share in the total final energy consumption
- 7.3.1 : Energy intensity measured in terms of primary energy and GDP

**Relevant Seoul SDGs**



**Urban Issue Addressed**



**Impact Investment Theme**



**Description of core product**

Our Two-Way EV Slow-Charging Platform is based on IoT-AI Technology to overcome this problem. We aim to set up an IoT-V2G (Vehicle to Grid) charging infrastructure based on low cost and simple things from IoT to get a range of data. We also aim to develop our business platform to provide our new service through an IoT-AI engine for customers. If an EV battery is used for storing energy like an ESS device, the IoT-AI Engine should support two-way electric power control between any building and EV Battery. This is done through V2G Technology depending on the energy level in the building.

It provides both the building and EV users with the benefit of cost reduction. And we improve the transparency of energy exchange and reduce transaction costs. Also, it should help us to easily handle decentralized data from each things.

The collage consists of four presentation slides:

- Slide 1:** Titled "Two-way EV Charging Platform based on IoT-AI Technology" with the "V2charG" logo. It features a circular diagram showing "Electric Power" flowing from a building to an EV and "Payment" flowing from the EV to the building, with "V2G" in the center.
- Slide 2:** Features the "V CHARG" logo and the text "Two-way EV Charging Platform based on IoT AI Technology".
- Slide 3:** Titled "Problem & Opportunity". It lists "At least 60 minutes..." and provides statistics: "22,000,000 The # of registered vehicles", "1,100,000 The # of EVs", "13,000 EV charging stations", and "13,000 EV charging stations". It includes images of charging stations and the text "High Cost, Complicated Installation, Maintenance Issues".
- Slide 4:** Features the "DS Insight Lab" logo.

# ExpertServe

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## Company Introduction

ExpertServe is an early stage start-up with the mission to enable society to reach its full potential by harnessing the power of technology.

## Relevant UN SDGs

main



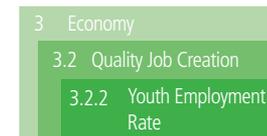
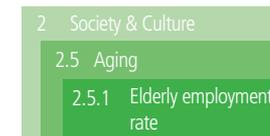
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## Relevant UN SDGs Indicators

- 8.5.2 : Unemployment rate, by sex, age and persons with disabilities
- 10.2.1 : Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme

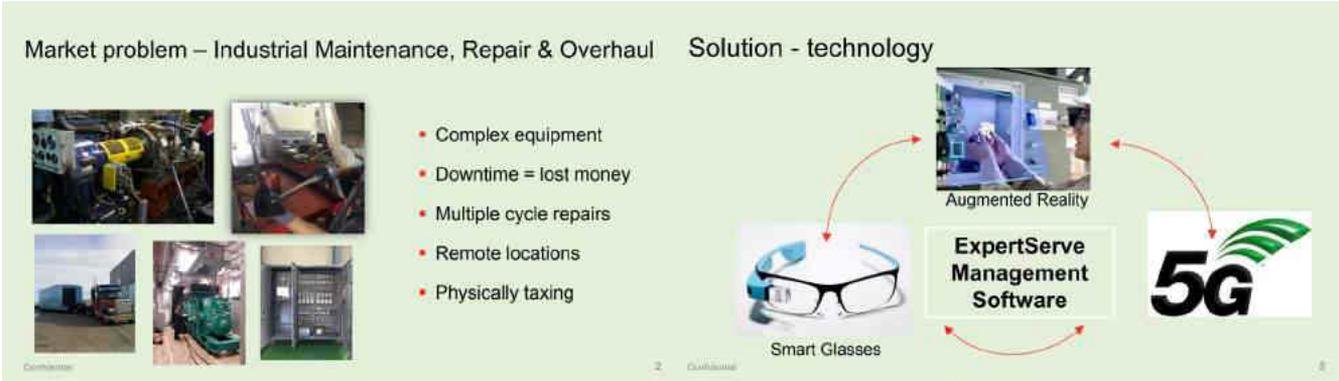


**Description of core product**

ExpertServe provides all technicians with real-time access to expert advice and guidance for heavy equipment repair and the maintenance industry through the integration of smart glasses, 3G, AI, and augmented reality. The results are happy customers that get their problems solved on the first try and a more productive and safer technician workforce.

Every year, highly experienced and trained technicians are leaving the workforce, either due to retirement or physical conditions that make it difficult to continue doing their work. Not enough people are entering this industry and the retention of new technicians is difficult. Safety is also a concern for inexperienced technicians and dealing with angry customers leads to high turnover.

Now enters ExpertServe. With its integration of smart glasses, 3G, AI, and augmented reality, these inexperienced technicians now have instantaneous access to a highly experienced technician that can help them diagnose and solve the issue. The experienced technician can also point out or answer any safety concerns inexperienced technicians may have. For the experienced technician, they are allowed the dignity and respect of leveraging their years of experience through meaningful and relevant work without having to deal with difficult physical requirements. And for customers, they get their problems solved in the best way: quickly, safely, and the on the first try!



INVESTOR'S PICK

# FLINT Flint Lab

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## Company Introduction

Flint Technology changes the paradigm of energy by offering new bio-energy technology to solve climate change problems and energy issues.

Our technology is available regardless of region or economic condition. It is sustainable, environmentally-friendly and compatible with all industries. Based on this, our business addresses not only issues around climate change, but also those around energy poverty. These issues have prompted us to come up with a clean combustion technology that uses biofuel.

## Relevant UN SDGs

main



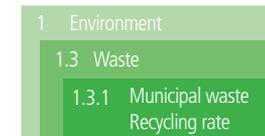
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## Relevant UN SDGs Indicators

- 1.4.1 : Proportion of population living in households with access to basic services
- 7.2.1 : Renewable energy share in the total final energy consumption
- 11.1.1 : Proportion of urban population living in slums, informal settlements or inadequate housing
- 12.5.1 : National recycling rate, tons of material recycled

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

**CLEAN COOKSTOVE & CLEAN HEATER**

Flint Cookstove was invented to reduce increasing energy costs and indoor air pollution in developing countries. Instead of purchasing expensive nonrenewable fuel or cutting down trees, our stove is suitable for easy and safe household cooking by burning waste cooking oil or plant oil. Moreover, it's a safer solution.

**Product** ▶ **Product Description** **FLINT**

Flint combustion technology can change recyclable animal / plant oil and waste cooking oil into thermal energy without pretreatment or conversion



• **Conversion of waste cooking oil to thermal energy without refinement**





# GreenBIM Engineering

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## Company Introduction

Would you like to give a chance to a business that is profitable, but also contributes to tackling environmental issues that affect our population's health such as the current high level of air pollution in Korea?

GreenBIM Engineering is a start-up specialized in Building Energy Optimization, as well as the Green Building and Environmental Certification of buildings, with the objective to make a positive environmental change on society.

The company has seen an exponential growth during the last 3 years with the award of 50+ projects in 10+ different countries. Our renowned clients include Nike, Converse, Chanel, Toyota, Deloitte Finance, Bureau Veritas and many others.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 7.2.1 : Renewable energy share in the total final energy consumption
- 7.3.1 : Energy intensity measured in terms of primary energy and GDP
- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



## Description of core product

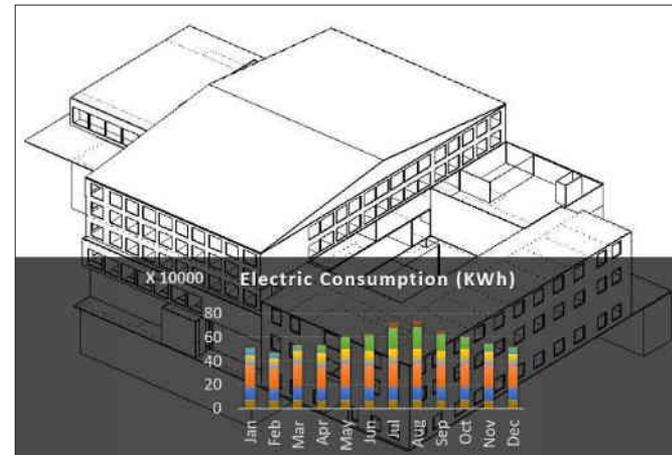
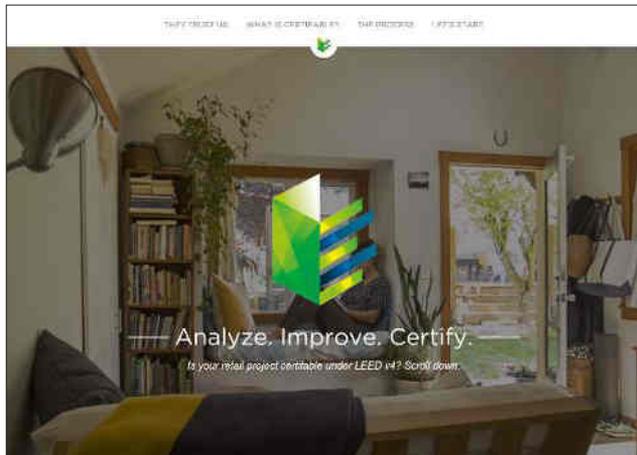
We provide a Building Energy Analysis and eco-friendly designs service. We work with large companies, architects and construction professionals by performing:

- Analysis and prediction of future building energy consumption.
- Optimization of building's design to reduce energy costs and impact.

Certification of internationally recognized Green Building labels: LEED®, BREEAM®, HQE® and many others.

Our activity is divided into 2 parts:

- Building energy analysis - Certifiable platform.
- A feasibility study platform for Green Labels certification.



INVESTOR'S PICK



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### Company Introduction

Haezoom is accelerating the transition to clean energy by providing software and services that reduce the soft-costs of renewables projects such as customer acquisition and O&M. More than 0.7 million users have used Haezoom's "Korean Solar Map", and our AI-based anomaly detection service has been utilized by more than 2,000 PV plants in South Korea.

### Relevant UN SDGs

main



sub



### Relevant UN SDGs Indicators

- 7.1.1 : Proportion of population with access to electricity
- 7.2.1 : Renewable energy share in the total final energy consumption
- 7.3.1 : Energy intensity measured in terms of primary energy and GDP

### Relevant Seoul SDGs



### Urban Issue Addressed



### Impact Investment Theme



**Description of core product**

Solar map: Everyone with an interest in small-scale PV installations can easily perform a cost-benefit analysis with minimal parameters. The annual PV performance forecasting has an accuracy rate of up to 98%. Our service can significantly reduce customer acquisition costs, and we can directly facilitate competitive offers to users.

PV anomaly detection: We analyze satellite imagery using machine learning algorithms and estimate PV performance every 15 minutes to identify abnormalities. This approach eliminates the need for additional sensors, and thus substantially lowers O&M costs.

**3D SolarMap: A Green Energy Solution for Smart and Sustainable Megacities**

Haezoom is accelerating the Energy Transition by providing software and services that reduces the soft-costs of renewables projects such as customer acquisition and O&M. **More than 0.7 million users** have used Haezoom's "Korean Solar Map" and our A.I. based anomaly detection service has been utilised by **more than 2,000 PV plants** in South Korea.

**Korean Solar Map (2012)**  
**> 0.7M users**

**PV Anomaly Detection (2014)**  
**> 2,000 PV Plants**

**3D Solar Map for Smart Cities (2019)**  
**Rooftop + building integrated photovoltaics**

- **Solar map:** Everyone with an interest in small-scale PV installations can easily perform a cost-benefit analysis with minimal parameters. The annual PV performance forecasting has an accuracy rate of up to 98%. Our service significantly reduces customer acquisition costs, and we can directly suggest or mediate competitive offers to users.
- **PV anomaly detection:** We analyse satellite imagery using machine learning algorithms and estimate PV performance every 15 minutes to identify abnormalities. This approach eliminates the need for additional sensors and substantially lowers O&M costs.

Haezoom Inc, Seoul, South Korea (contact: [service@haezoom.com](mailto:service@haezoom.com))



# HeatGrade

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## Company Introduction

**MISSION:** HeatGrade aims to accelerate the reduction of urban greenhouse gas emissions by making the invisible problem of heat loss visible and easily solvable for commercial and residential property owners. This data-powered solution targets SDGs 7, 11 and 13.

### Relevant UN SDGs

main



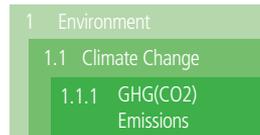
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### Relevant UN SDGs Indicators

- 7.3.1 : Energy intensity measured in terms of primary energy and GDP
- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

### Relevant Seoul SDGs



### Urban Issue Addressed



### Impact Investment Theme



### Description of core product

HOW: Our company collates cutting-edge thermal imaging, taken in real-time, and uses machine learning algorithms to analyse this for homeowners as well as contractors. HeatGrade deploys community vehicles with thermal-imaging cameras that create frequent and on-going heat maps of thousands of homes and buildings, detecting fixable leaks in building envelopes—windows, doors, walls, and foundations—to help home owners curb energy loss. The HeatGrade platform provides users with the information they need to understand building energy loss as well as ways to increase efficiency, reduce consumption and save money.

IMPACT & BENEFITS: This technology provides a non-invasive way to measure the efficiency levels of towns and cities with the aim of improving homeowner awareness. This data provides an improved oversight of emissions for local councils, a value proposition from the get-go for contractors, and the ability for homeowners to engage with their heat losses in a cost-effective way while holding contractors accountable.

## How does HEATGRADE work?

### 01 Continuous thermal image capture

- Hardware on community vehicles:
- **Thermal cameras** (Long Wave Infrared and Mid Wave Infrared cameras)
  - **LIDAR sensor** (distance measurements)
  - **Normal camera** (building/object identification)

### 02 Image Processing and Classification

- Utilise **Convolutional Neural Network (CNN)** for (thermal) images training
- **Artificial Neural Network (ANN)** for additional data training. Parameters that can build on the thermal image calculations include: **external temperature, community property data** (open APIs for many communities), **material conductivity** and infrared **satellite low resolution images** (for rooftops).

### 03 Calculations and AI/ML

After evaluation of energy inefficient spots and heat loss, databases with current technology solutions will be used to work out **potential improvements and cost savings**. Training based on **AI model (Tensor flow)** will enable quicker and more accurate processing/classification/calculations. AI can **later enable forecasting** for heat consumption vital for grid planning.

### 04 Communication

- Internet-of-Things technology** to:
- send data back-and-forth from cloud
  - via **raspberry pi** (later Galileo or others)



### 05 HeatGrade

**Front-end for customers** (improvements and tentative cost savings), **communities** (heat map) and **contractors** (household thermal data for further analysis)

# HUBRIZ Hubriz

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## Company Introduction

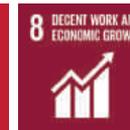
Hubriz is an O2O solutions company that seeks and addresses social issues using IT technology. Our first product is the launch and operation of a service called 'DORBOM' that addresses child care needs and job creation for career discontinuities. The company aims to produce and service O2O solutions in various areas as well as various care solutions.

## Relevant UN SDGs

main



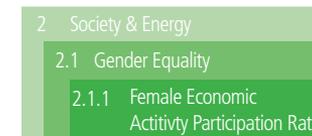
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## Relevant UN SDGs Indicators

- 3.71 : Proportion of women of reproductive age (aged 15–49 years) who have their need for family planning satisfied with modern methods
- 4.2.1 : Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex
- 8.6.1 : Proportion of youth (aged 15–24 years) not in education, employment or training "

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

This service matches parents with women who have experience as a nursery teacher or babysitter through an artificial intelligence matching algorithm. Parents can safely check the process through video interview, location sharing, electronic contract, and CCTV.





# LBSTECH

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YouTube @LBSTech korea

## Company Introduction

LBSTECH's mission is to improve the quality of life and autonomy of people with blindness and low vision by creating tools that enhance the relationship between people and society by making the world a more accessible and connected place. Together and with the conviction that technology can improve the quality of life of people with disabilities, we started working in 2017 on the G-EYE project.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 9.c.1 : Proportion of population covered by a mobile network, by technology
- 11.2.1 :Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
- 11.7.1 : Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

## Relevant Seoul SDGs

- 2 Society & Environment
  - 2.1 Gender Equality
    - 2.1.1 Female Economic Activity Participation Rate

## Urban Issue Addressed



## Impact Investment Theme



## Description of core product

G-EYE is a location information app that provides location and nearby service information via voice message.

- **Pointing mode:** Provides information about the building and directions where the smartphone is pointing. Entrance information of the building can also be checked.
- **Surrounding mode:** Provide convenience facilities or risk information located around the user.
- **Position mode:** Ability to check the current user's location and share with others.

Use filters to get the information you want and filter out what you don't need to know. Choose how you want to be guided (distance in meters or on a clock face). Select the span and distance of the field of vision.





# Mobilized Construction

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## Company Introduction

Mobilized Construction collects ultra-high frequency mobility data using our proprietary Internet-of-Things (IoT) sensor. Every person uses roads every single day. Better data reduces accidents to improve road safety and build smarter cities to move people and businesses.

We equip any vehicle, government fleets, business fleets, or private vehicles, with our sensor in less than 2 minutes. Data collection is automated, and there is 0 additional vehicle operational cost. Data is analyzed, stored, and visualized over the cloud to enable anywhere access and standardized report generation.

We generate machine learning and artificial intelligence algorithms to process data with external factors like population density, traffic flow, and time series to unlock hidden insights. Analysis and reports include monitoring utility company road works, pothole detection, road repair scheduling, congestion analysis, longitudinal analysis, and air quality concentration alerts.

## Relevant UN SDGs

main



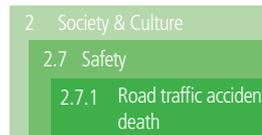
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## Relevant UN SDGs Indicators

- 11.A.1 : Proportion of population living in cities that implement urban and regional development plans integrating population projections and resource needs, by size of city
- 3.6.1 : Death rate due to road traffic injuries

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

An Internet-of-Things (IoT) sensor collects and transmits data. Real-time data improves management and facilitates faster road repairs to increase road safety across entire road networks. Sensors are attached to the dashboard of any vehicle in 2 minutes to collect data at 0 additional operational cost. Our fit and forget installation requires 0 user interaction to ensure consistent data and driver safety. Online access and visualization deliver instant insights to improve decision-making.

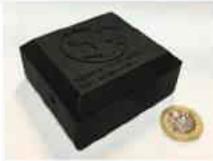
Data captured: Road surface quality (IRI), traffic corridor speeds, pothole identification.  
Analysis: Network health, pothole repair scheduling, longitudinal traffic study & more.



**Our solution: IoT sensor installed onto service vehicles to collect mobility data**



Seismic reading



IoT sensor

**Summary**

-  Highly scalable: solution
-  Downstream use cases & reporting
-  Social, economic, and environmental impact

Detect road anomalies faster: 100x more frequent empirical data

Centralized storage & historical tracking: Easy access & hidden insights

Improving road safety & reducing accidents: 330,000 in Korea in 2017

Tangible value to citizens: £350 in damages per vehicle per year

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### Company Introduction

‘Make a better patient experience through ingenuity for a healthcare provider’ is our mission. Our aim is to create a hospital environment where medical personnel can work more safely and ultimately contribute to improve medical care quality to benefit patients.

### Relevant UN SDGs

main



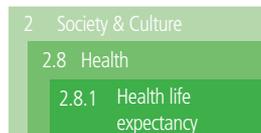
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### Relevant UN SDGs Indicators

- 3.9.2 : Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)
- 3.9.3 : Mortality rate attributed to unintentional poisoning
- 6.2.1 : Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water

### Relevant Seoul SDGs



### Urban Issue Addressed



### Impact Investment Theme



**Description of core product**

Save nurses from Secondary Infection with our one-stop solution for safe syringe disposal: ANDY (Automatic Needle Disposal system).

ANDY is a device that automatically separates and disposes when a used syringe is inserted, allowing nurses to handle the syringe easily and safely. This can reduce the incidence of injuries related to the needle (Needlestick Injuries) that occur most frequently during the post-use disposal process. It can also prevent hepatitis B and C, which are blood-borne infectious diseases caused by needlestick injuries, and reduce the treatment cost incurred by throwing out the whole syringe.

**Toss & Done**  
When a syringe is inserted into ANDY, ANDY handles the whole process automatically from separation of needle from the syringe to disposing the barrel.

**Easy to Setup**  
Attachable to the existing change container. No extra power needed for disposing reusable needles. No complicated process for cleaning all parts that have possibility of contamination are easy to replace with reusable.

**One-Stop Solution for Safe Syringe Disposal**  
Make better patient experience through increasing the welfare of a healthcare provider. MUNE exists to improve the welfare of a healthcare provider. We believe it can give a better patient experience. A hospital where patients and healthcare providers both can be safe and healthier, MUNE will make it.

**Compact**  
ANDY is portable and compact. It is easily attached to the medical cart and can be used anywhere.

**ANDY**  
Automatic Needle Disposal System  
ANDY separates and disposes of needles in one-stop process when a syringe is inserted. This not only prevents the needlestick injuries but helps healthcare provider efficiency.

MUNE

FIRST PRIZE

UNESCAP  
 ENEA  
 Director's  
 Award



# Nice Visions

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## Company Introduction

Nice Visions is a creative studio with the mission to create a better and sustainable future.

Soon there will be 9 billion people on this planet. Most of them will live in the cities. These people will need resources, accommodation, and food. They will also deserve a happy and comfortable life. This population increase will create a fundamental change in the way we live in our cities. We created Nice Visions in order to support this change and make cities more livable.

We focus on creative strategies to fulfil basic human needs within urban areas. Energy production is among our top priorities: We are developing new ways for how to seamlessly integrate sources of renewable energy into architecture. Our first product Solar Tiles is proof that solar energy can be made beautiful and bring new quality to the urban environment.

## Relevant UN SDGs

main



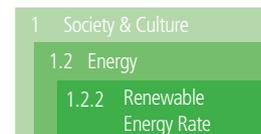
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## Relevant UN SDGs Indicators

- 7.1.2 : Proportion of population with primary reliance on clean fuels and technology
- 7.2.1 : Renewable energy share in the total final energy consumption
- 9.4.1 : CO2 emission per unit of value added

## Relevant Seoul SDGs



## Urban Issue Addressed

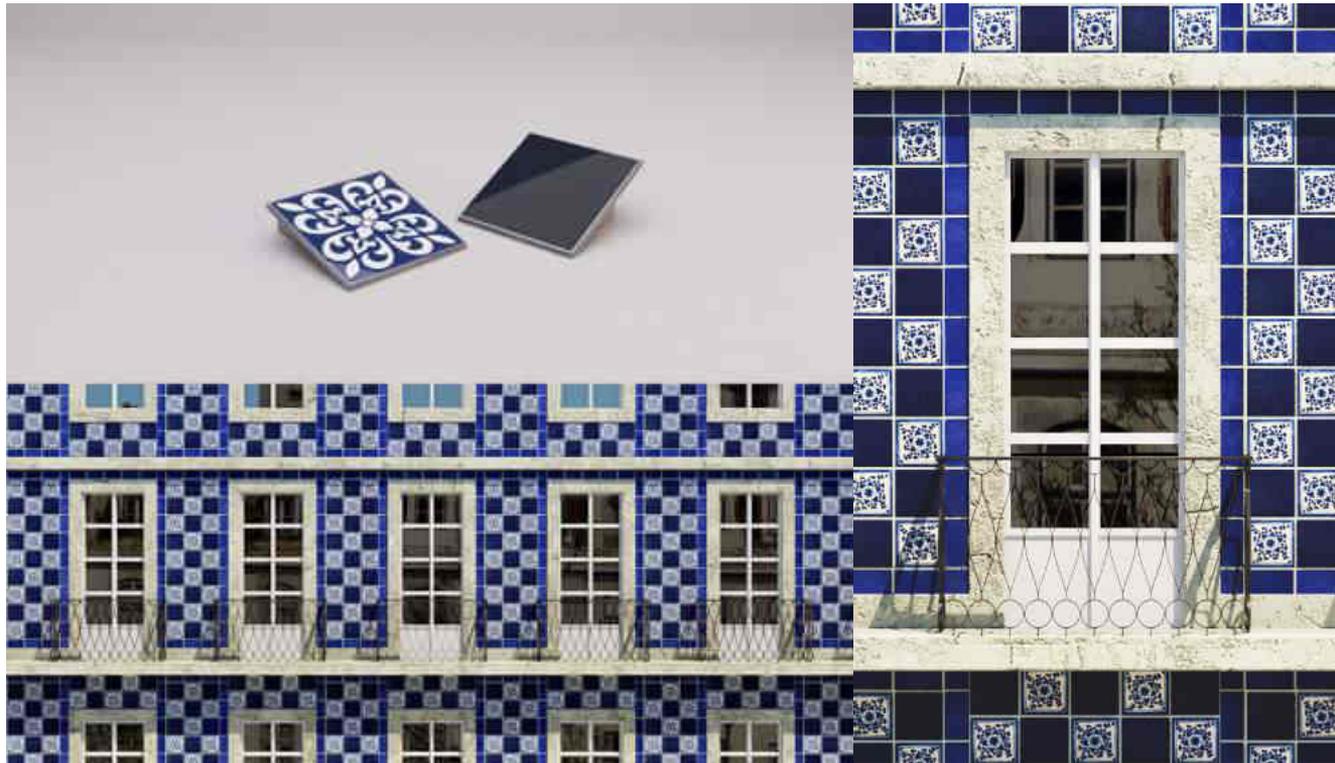


## Impact Investment Theme



**Description of  
core product**

Solar Tiles represent a quantum leap in the development of solar panels. They introduce beauty and redesigned user experience to the purely utilitarian product. Tiles are specially designed for urban areas, where design and visual impact are as equally important as energy production. Solar Tiles expand usable area within cities where energy can be produced. Thanks to their long lifecycle, which is matched with the lifecycle of contemporary buildings, the investment will return by several times.





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### Company Introduction

NineWatt believes that the existing energy saving method for "universal energy saving" must change: saving energy through cost investments is not suitable for ordinary people.

We provide a universal service that anyone can participate in to find a way to identify and reduce wasted energy and costs using big data and artificial intelligence.

### Relevant UN SDGs

main



sub



### Relevant UN SDGs Indicators

- 7.3.1 : Energy intensity measured in terms of primary energy and GDP
- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

### Relevant Seoul SDGs



### Urban Issue Addressed



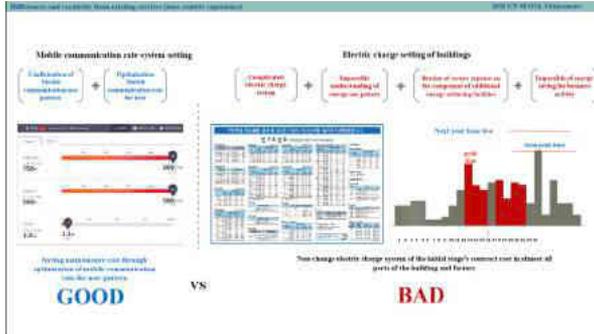
### Impact Investment Theme



**Description of core product**

1. Energy cost reduction service without cost investment and facility replacement
  - Additional energy saving equipment and facility replacement not needed
  - Present expected energy savings with investment of less than 5 minutes
2. Induced self-saving energy wasted unnecessarily
  - Spontaneous savings through similar building comparisons, such as building use, size, and rate plans
  - Study on the Appropriateness of Energy through the ranking of Similar Buildings

3. Energy bill error and cost reduction factor analysis
  - Study on the Optimal Fee System through the Analysis of Energy Consumption Big Data
  - Calculate energy costs that are over-set or wasted by plan errors
4. Energy-saving services that improve consumer accessibility
  - Easy-to-use, user-friendly service for everyone
  - Present management elements, methods and management time to achieve energy saving targets





# Obital

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## Company Introduction

Obital develops low-cost software-based eye tracking technology that can be used in several industries. Our eye tracking technology is mobile-based, which means that unlike any other type of eye trackers out there, it uses only the built-in front camera of a smartphone and does not require any additional hardware. This results in a price reduction of approximately 80-90% compared to our closest competitor, Tobii.

Since our technology is 100% digital, the software can be downloaded as an application through the App Store to a smartphone, making it the world's most scalable eye tracker. Our first product, Enable, combines Obital's eye tracking technology with existing smart home devices in an application focusing on motor-disabled people.

## Relevant UN SDGs

main



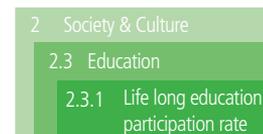
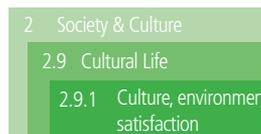
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## Relevant UN SDGs Indicators

- 11.2.1 : Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities
- 1.3.1 : Proportion of population covered by social protection floors/systems, by sex, distinguishing children, unemployed persons, older persons, persons with disabilities, pregnant women, newborns, work-injury victims and the poor and the vulnerable

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of  
core product**

Enable is the solution that makes smart home devices available to people with motor disabilities. The smart home devices are accessed by our innovative eye tracking technology, which is controlled using simple movements with the eyes. The simple and intuitive interaction form can be used directly on the user's smartphone through an application, which can be downloaded from the App Store and used right out of the box- without the need for additional hardware or need for Calibration.





# PackTripper

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## Company Introduction

The Chinese plastic ban has shed a stronger light on South Korea's issues with waste management, specifically in plastic waste. The increase in plastic waste shows the overwhelming need for better monetization of plastic waste in South Korea as well as in the Asia Pacific region in general.

We intend to create a high-quality product made completely of recycled materials. This patent pending product will be licensed to large corporations for manufacturing and marketed to a number of cohorts throughout the country as well as on an international scale.

## Relevant UN SDGs

main



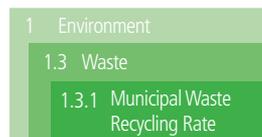
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## Relevant UN SDGs Indicators

- 12.5.1 : National recycling rate, tons of material recycled
- 12.B.1 : Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

PackTripper is a hand-held lightweight vacuum suction device used for both travel and home storage. Simply place your soft items inside the PackTripper storage bag, seal it, and remove the excess air to reduce the baggage size by up to 50 percent! PackTripper provides more space within your luggage in order to pack more and reduce baggage weight. PackTripper helps the environment through upcycling plastic waste, makes travel safer and more convenient, and comes at an affordable price.

**Our Mission**



**Transform waste into value**

**Our Goal**

We believe we are creating an upcycled product that *reduces waste and adds value* to life, travel, and home.



We provide single dwellers eco-friendly storage solutions that can transition with them

Eco-friendly solution for increasingly common problem



Patent pending design for licensing

**100% Recycled Plastics**



What is **PackTripper**



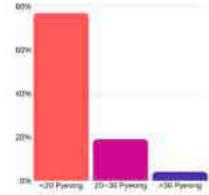
**Hand-held Light-Weight Vacuum Suction Device**

Removes excess air for better storage options.




**Problems: Target Market**

Size of Single Housing Less Than 29 Pyeong



Housing Size	Percentage
<29 Pyeong	~80%
30-39 Pyeong	~20%
>39 Pyeong	~5%

Storage Needs

**MUST BE CREATIVE**




**4 SEASONS FULL-TIME ACCESS**

**BLANKETS COATS ACCESSORIES**






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### Company Introduction

Puréefy is an idea established from all the hearts of city people. City-dwellers, you and me, spend almost 80% of our time indoors - did you know that indoor air pollution and fine dust concentration can be up to 5 times worse than outdoors? Therefore, we at Puréefy, a vibrant team coming from 2 beautiful countries in Southeast Asia that are adorned by nature, hope to bring fresh air through these green initiatives into the small closed rooms of all city people!

### Relevant UN SDGs

main



sub



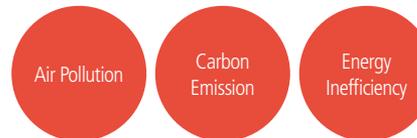
### Relevant UN SDGs Indicators

- 3.9.1 : Mortality rate attributed to household and ambient air pollution
- 11.6.2 : Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)

### Relevant Seoul SDGs



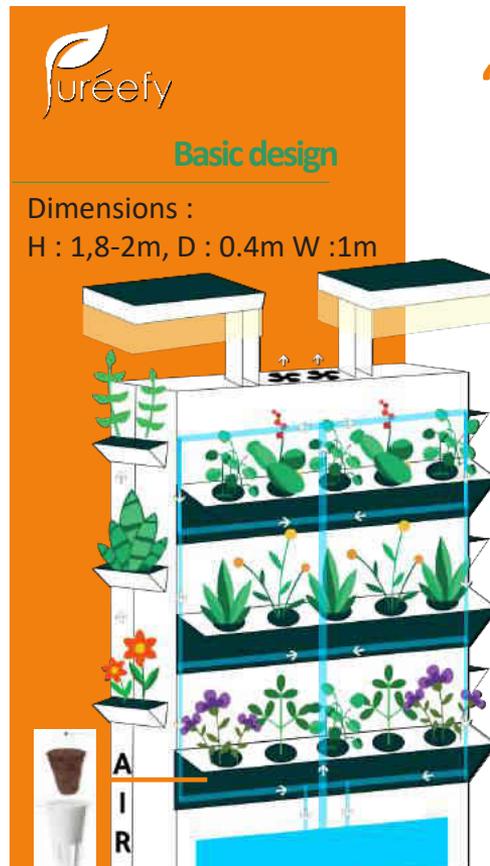
### Urban Issue Addressed



### Impact Investment Theme



## Description of core product



“ Puréefy provides an Indoor Hydroponic Garden that creates **healthier air and lifestyles** ”

### Technologies involved:

#### Vertical farming framework

- Efficient space management
- Suitable for majority urban spaces
- Able to plant up to 21 plants

#### Hydroponic system

- Soil is replaced by rock wool
- Automatic, smart water circulation
- Really easy to take care! (Water once a week or two)

#### A.I integrated, in-built fan system

- Capture the air from surrounding and circulate it in an **algorithmic way** in our inner air chamber lined up with air-purifying herbs to maximise the natural air purification process of plants- **phytoremediation**
- Our physical framework is also made up of Zeolite and crushed Activated Carbon, to further purify the air.

One Puréefy can clean an **average 1,800 square foot spaces**, with **50% higher efficiency than mere plants** and **up to 80% harmful VOCs** (Volatile Organic Compounds) absorption in the air.



**SUBSCRIPTION MODEL**

**One-off Payment + Monthly Subscription fee**

#### Services include:

- Consultation service (need-assessment)
- Labour setting-up
- Supply (every 3 months) of **Fixed selected 10 herbs and Random 5 herbs (optional for new-testers!)**
- Maintenance (every 3 months)
  - Parasite control
  - pH and nutrient control
  - Plants maintenance

PURIMEDI

# PuriMedi

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## Company Introduction

PuriMedi aims to become a company that provides high-quality expertise and solutions in industrial safety management for all. To allow small- and medium-sized manufacturers access to smart industrial safety management, we provide 'CANARIA software', an artificial intelligence consultant for industrial safety management.

Currently, we selected the KIC (Korea Innovation Center) in Silicon Valley and the Facebook Accelerator programme for AI specialized companies, called TRT (Technology, Revolution, and Together). We will work in Silicon Valley from September 2018 to June 2019 to validate our technical feasibility and business viability.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 8.8.1 : Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status
- 12.4.2 :Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

CANARIA, an artificial intelligence consultant for industrial safety management, provides consulting services from the diagnosis of risk factors to suggest cost-effective solutions by matching these factors with government financial support programmes. This service is for small- and medium-sized manufacturers who lack an effective industrial safety management system and may have faced needless industrial accidents and financial losses as a result.

CANARIA is a machine learning based software with data on over one million industrial accident cases. It shows a check list (what kinds of risk factors are urgent issues), and gives predictive analysis of industrial accidents, suggests a cost-effective management route, and helps match government financial support.





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### Company Introduction

We are RE:TRACK; a team of individuals who want to make a green impact on the streets of Seoul. We aim to nudge people to recycle properly by creating the right tools for them. With innovative designs, we believe we can reimagine the way people dispose of their waste. Ultimately, we want to transform Seoul into an eco-friendly city.

### Relevant UN SDGs

main



sub



### Relevant UN SDGs Indicators

- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically
- 11.6.1 : Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities
- 11.6.2 : Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)
- 12.5.1 : National recycling rate, tons of material recycled

### Relevant Seoul SDGs



### Urban Issue Addressed

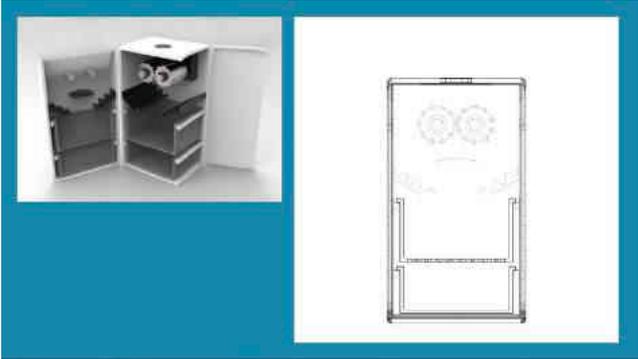


### Impact Investment Theme



**Description of core product**

We bring freshness to ordinary trash cans with innovations in design and functionality. Our product utilizes a multicompartment system that is specifically crafted to separate liquid from solid trash. By doing so, we can reduce the amount of foul odor coming from waste. Our bins are ergonomic to use and easy to maintain.



**Value Proposal**

**3** GOOD HEALTH AND WELL-BEING

**Citizens**

- Cleaner bus station
- Real time information

**11** SUSTAINABLE CITIES AND COMMUNITIES

**Seoul City**

- Easily collect liquid separately
- Provide timely information to the citizens
- Collect data

**Sensors**



**Head counter**



**Thermometer**



**Microdust detector**





# Startuptogether

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## Company Introduction

StartupTogether begins with an idea of cooperation between disconnected and isolated people. It aims to develop opportunities based on relationships.

Senior Advisory service is the first project that encourages seniors to enrich the second half of their lives by utilizing their career experience in helping and interacting with young innovators based on their business needs.

StartupTogether is looking for partners to develop together in a considerate and joyful way.

## Relevant UN SDGs

main



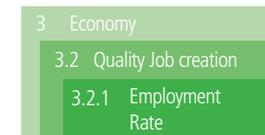
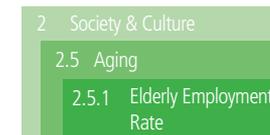
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## Relevant UN SDGs Indicators

- 8.5.2 : Unemployment rate, by sex, age and persons with disabilities
- 3.C.1 : Health worker density and distribution

## Relevant Seoul SDGs



## Urban Issue Addressed



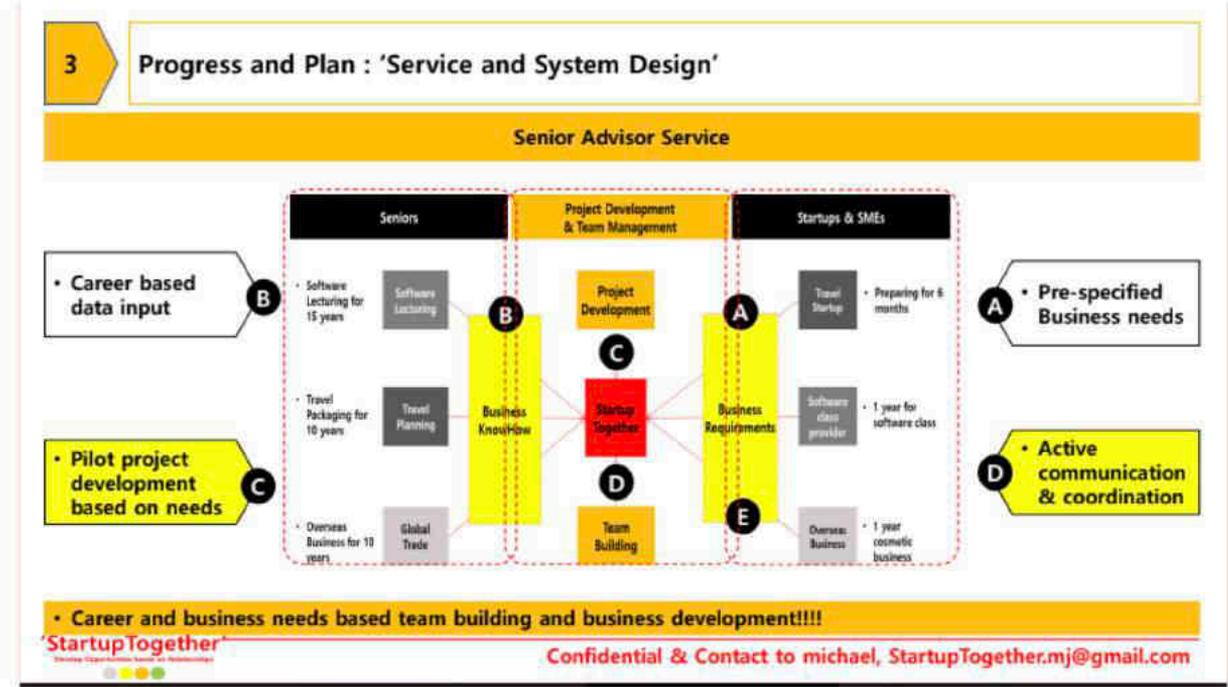
## Impact Investment Theme



**Description of core product**

StartupTogether is proposing a 'Senior Advisory Service' that develops business opportunities effectively by matching seniors with career experience with young startups and SMEs looking for business experience.

- 1. Currently, more than 40 seniors with 15 years of business experience in business development, project management, etc. have expressed their willingness to offer their expertise
- 2. More than 20 startups are expressing interest in this service
- 3. StartupTogether is developing 2 pilot projects and expanding relationships with various partners in the startup and SME industries





# Triple EEE

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## Company Introduction

Triple EEE (Energy.Environment.Earth) is an initial-stage startup (less than one year old) trying to make people all over the world happy. This team consists of one graduate student studying renewable energy engineering and four undergraduate students studying computer science in Pohang University of Science and Technology (POSTECH), a top-class university in the Republic of Korea. Triple EEE aims to develop a platform that facilitates people to use renewable and sustainable energy technology more easily and effectively. The team hopes to share their own values and philosophy about energy and environmental issues with people all over the world and help them make a cleaner and more comfortable world by themselves for their happiness.

## Relevant UN SDGs

main



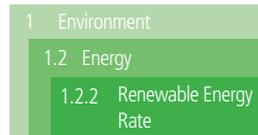
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## Relevant UN SDGs Indicators

- 7.B.1 : Investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services
- 7.1.2 : Proportion of population with primary reliance on clean fuels and technology
- 11.3.2 : Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme

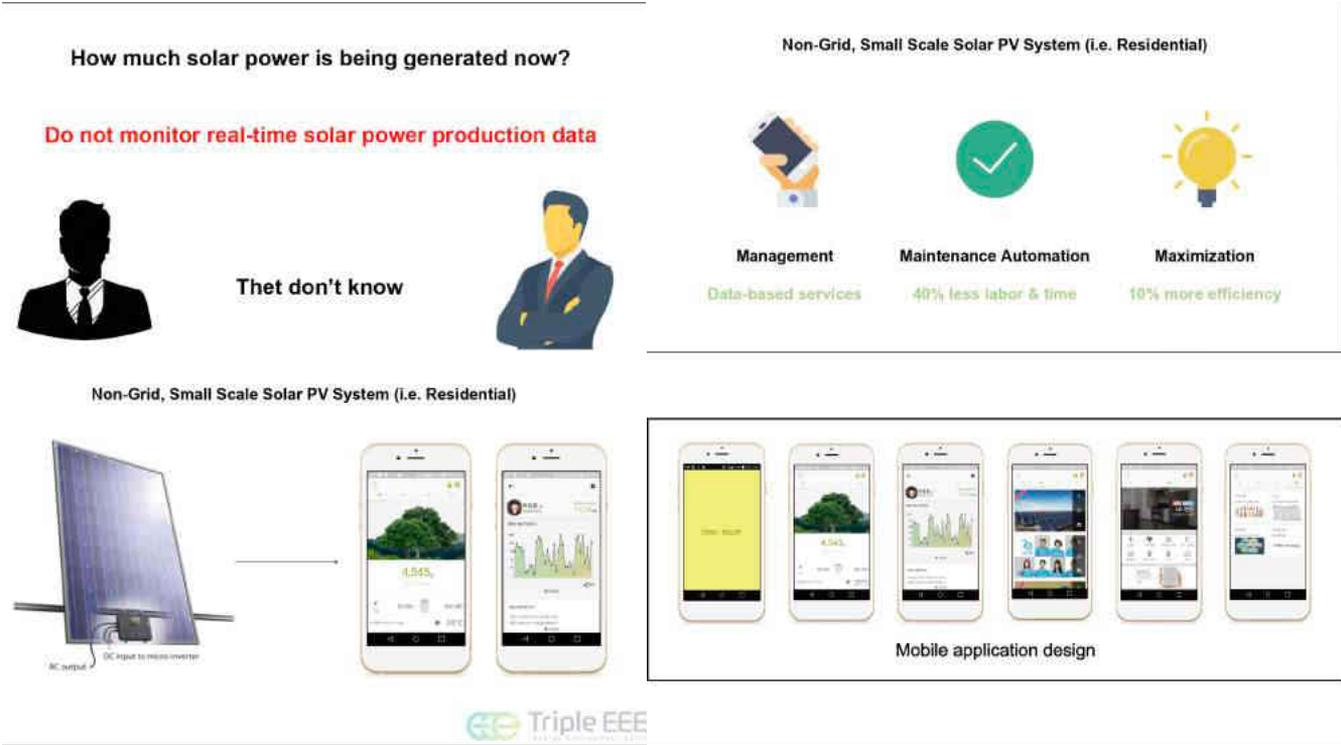


**Description of core product**

IoT System and Big Data Analysis Platform for Small Scale Solar PV System

Real-time solar production data of small scale (i.e. residential) solar PV systems are accumulated, managed, and analyzed to provide users with:

- 1. Real-time solar production data
- 2. Suggestions for the maximization of solar power generation by analyzing solar irradiation levels, location, weather patterns etc.
- 3. Automated maintenance process to decrease unnecessary labor and time
- 4. A variety of user services such as credits





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## Company Introduction

Wasteupso is a zero-waste retail solution for the digital generation. We are a no-plastic packaging grocery market that incorporates technology driven retail solutions to optimize the shopping experience – making it more convenient, affordable, and environmentally conscious.

Seoul’s dependency on plastic packaging creates sustainability issues in waste management. China’s import ban exacerbated this issue by tripling Korea’s plastic waste intake. This plastic waste crisis is causing serious health and social hazards – particularly for the poor and those already disadvantaged in society. It is our mission to simply do our part to help our local environment and the planet by enhancing retail and grocery buying experiences globally.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 12.3.1 : Global food loss index
- 2.c.1 : Indicator of food price anomalies
- 11.6.1 : Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

Wasteupso is a Korean zero-waste startup disrupting the global grocery retail industry with a digital-first shopping experience concept that breaks social norms by offering unpackaged merchandise via omni-channel retailing.

We aim to significantly reduce and ultimately eliminate energy production from packaging manufacturing by transitioning customers from simple consumers and purchasers to accountability drivers and co-operators. Combining zero-waste with new retail methodologies, Wasteupso optimizes the grocery retail experience by using data-driven and customer-centric operations to create a digital brick and mortar ecosystem.



FIRST PRIZE

WeGO Secretary General's Award



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### Company Introduction

WeavAir offers a sensors array network and predictive analytics solution that will fundamentally change the way we manage buildings, saving energy while reducing the health impacts of poor indoor air pollution. It is the first system to combine physical, chemical and biological metrics in a small module that can be added to any HVAC system, providing comprehensive insights on indoor environment, in which we spend more than 80% of our day. The data is shared securely with building managers, contractors and occupants via a blockchain-based digital ledger. Our algorithms provide a way to not just detect issues early, but also provide a way to fix them. The system will prevent contamination issues, helping save over \$45 B per year and will reduce building energy consumption by 11 Billion BTU each month. It will also help improve our comfort and health, saving organizations over \$6.5K/person/year.

### Relevant UN SDGs

main



sub



### Relevant UN SDGs Indicators

- 3.9.1 : Mortality rate attributed to household and ambient air pollution
- 11.6.2 : Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)

### Relevant Seoul SDGs



### Urban Issue Addressed



### Impact Investment Theme

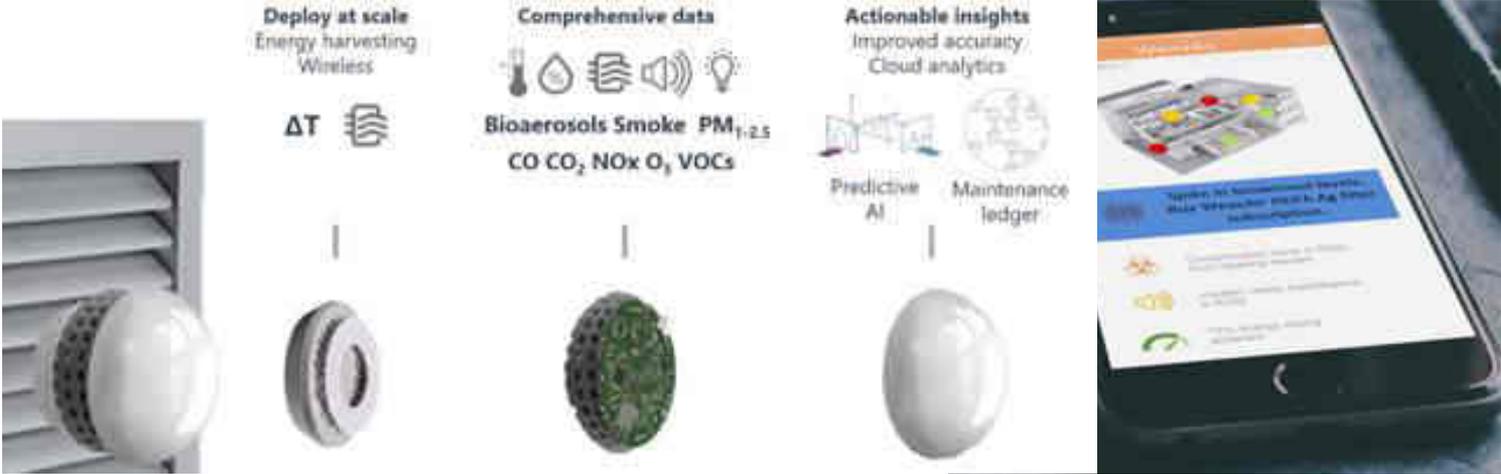


### Description of core product

WeavAir makes use of advanced sensors array modules that attach to vents to measure the air coming out of these systems. Our patent-pending devices measure 7 diagnostic metrics (including gases, particles, bioaerosols, temperature, humidity, noise, vibration, pressure and space occupancy), streaming wirelessly in real time. The system is easy to integrate in both new and legacy buildings.

Our product contains an integrated module that generates power from the airflow and temperature gradient in the HVAC system vents, making it wireless and easy to deploy and maintain at scale. The solution is both personalized, tracking occupant-specific metrics, as well as adaptable, responding to changes in environmental conditions. As such, the system can optimize the operation of HVAC and provide actionable insights to building managers. We make use of real-time data to drive behavior change on an individual level. We combine sensor networks with predictive algorithms based on neural networks to prevent HVAC system failure and improve the energy efficiency of HVAC systems. We also offer air filtration solutions that help improve building occupant wellbeing. The system stores data in a digital maintenance ledger, which acts as a state machine for building operations, automating and logging all key operations, and automating building management through effective alerts.

Other products in the WeavAir product pipeline include modules integrated in vehicles, which reduce fuel consumption and air pollution.



# 우리아이 Woorikids

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## Company Introduction

Woori Kids is a start-up enterprise that provides an IoT-based hand disinfectant stamp for preventing children from disease infection. We have applied for 3 domestic patents and registered 1 overseas PCT. We are targeting Southeast Asian and Middle East markets where the sanitation environment is weak due to water pollution and water shortage.

Our prototype has received positive evaluations from leading global companies (Amazon) and venture investment companies at foreign investment fairs as well as positive reviews on proposed collaborations from domestic and global companies such as Merck and Henkel. We are actively promoting for investments from foreign market and are hoping to attract strategic venture investors who are active in VC or related industries with an investment experience in health, hygiene and cosmetics.

## Relevant UN SDGs

main



sub



## Relevant UN SDGs Indicators

- 6.2.1 : Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water
- 3.9.2 : Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)
- 3.D.1 : International Health Regulations (IHR) capacity and health emergency preparedness"

## Relevant Seoul SDGs

2 Society & Culture

2.8 Health

2.8.1 Health life expectancy

## Urban Issue Addressed



## Impact Investment Theme



**Description of core product**

Stamp-type hand disinfection device that can be refilled. When a stamp is placed on the hand, a bacterial hand disinfectant is sprayed. Our device can be used without water and has a 98% hand cleaning effect; collects the frequency of hand disinfection and transfers the data to a mobile App for habit analysis; maximizes learning effectiveness and provides continuous monitoring of learning outcomes; provides additional responsive animated content that can attract children’s interests.

**Product Advantages / Differentiators / Innovation**

- 1. An analysis on the pattern of a child living environment
  - location-tracking service
  - sanitary habits / infection information etc.
- 2. Provision of liquid-type customized capsules such as a Nespresso capsule
  - Hand sanitizer for kids, lotion, and sun cream etc.
- 3. Provision of regular delivery of liquid-type refill (for subscription)
- 4. Invigorating community by providing information on kids through IoT-based stamp

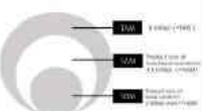
**Solution**

**“Woorikids” is the Solution**

- Hand hygiene alerts and alerts for certain contaminated areas.
- Regular shipping of refills such as hand sanitizer, lotion, hand cream, sunscreen, etc.
- Monitoring system connected to hospital’s cloud-based system.
- Provides individual / group hand hygiene performance status daily, weekly, monthly reports.



**Target Market**



**Market Test in 2018**

2018 1st quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 2nd quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 3rd quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 4th quarter sales: 2,300 x 3,000 = 6,900,000  
 Total 2018 sales: 27,600,000  
 2018 MVP Test  
 2018 1st quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 2nd quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 3rd quarter sales: 2,300 x 3,000 = 6,900,000  
 2018 4th quarter sales: 2,300 x 3,000 = 6,900,000  
 Total 2018 sales: 27,600,000

**Problem**



- In European hospitals, patients have **high morbidity** due to HCAI (healthcare-associated infections).
- The **evaluation system** for hand hygiene compliance has **not improved**.

**Revenue Model**

Income from products which is focused on refill  
 Cost-friendly customized stamp  
 Regular refill delivery can be done on APP order system



**Achievements**

- The Korea Creative Business Agency selected the smart venture cards in 2017 and awarded for the second quarter year in 2018
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# zephframe Zephframe

## Joseph Hill

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## Company Introduction

Zephframe is a first-of-its-kind smart door system. Its goal is to re-define how cities cool and heat buildings, and to improve overall safety and connectivity by evolving the standard door into the modern age. Zephframe's unique in-door ventilation system along with its swappable and upgradable module system make it an attractive solution for all markets, from low-income markets to ultra-premium ones. Zephframe's goal is to create a paradigm shift for the ever-increasing problem of air conditioning pollution and unsustainable energy use, and to bring a whole new level of security and connectivity to something that is found in every home: the door.

## Relevant UN SDGs

main



sub



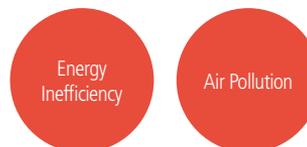
## Relevant UN SDGs Indicators

- 3.9.1 : Mortality rate attributed to household and ambient air pollution
- 11.1.1 : Proportion of urban population living in slums, informal settlements or inadequate housing

## Relevant Seoul SDGs



## Urban Issue Addressed



## Impact Investment Theme

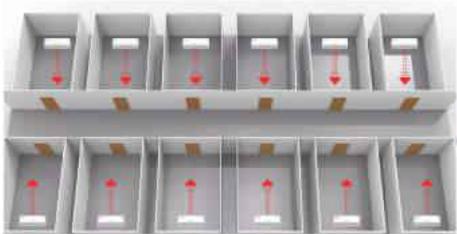


**Description of core product**

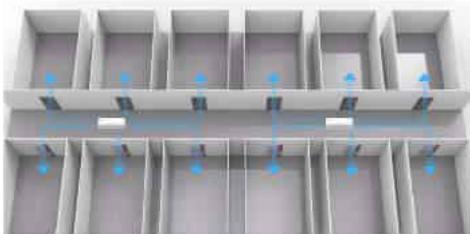
Zephframe is an all-in-one smart door solution for cities. Each Zephframe door is completely modular, with space for up to three fan assemblies that include advanced HEPA air filtration. These fan systems are designed to bring in the cool air of hallway spaces in the summer, and warm air in winter while purifying it by up to 99.7%. This allows for a complete change in how buildings and cities manage pollution, climate control and energy use by creating a completely new heating and cooling system. Zephframe also features space for up to three modules for connected smart systems such as security systems, fire extinguishing systems and package delivery systems.



Zephframe was designed to completely change city design. One of the main goals of Zephframe is to completely reinvent how buildings are cooled and heated, on a global scale. Instead of using many independent air conditioning units in each room of a building, a drastically smaller number of larger, more efficient units can be used in the hallway. The cool or warm air can be sent into each room, and by controlling the fan speeds of each Zephframe, the temperature of each room can be perfectly controlled.



Current inefficient method for cooling and heating buildings



Future plan to efficiently circulate the exact amount of 99.7% HEPA purified warm or cool air into rooms using the Zephframe system from a shared hallway

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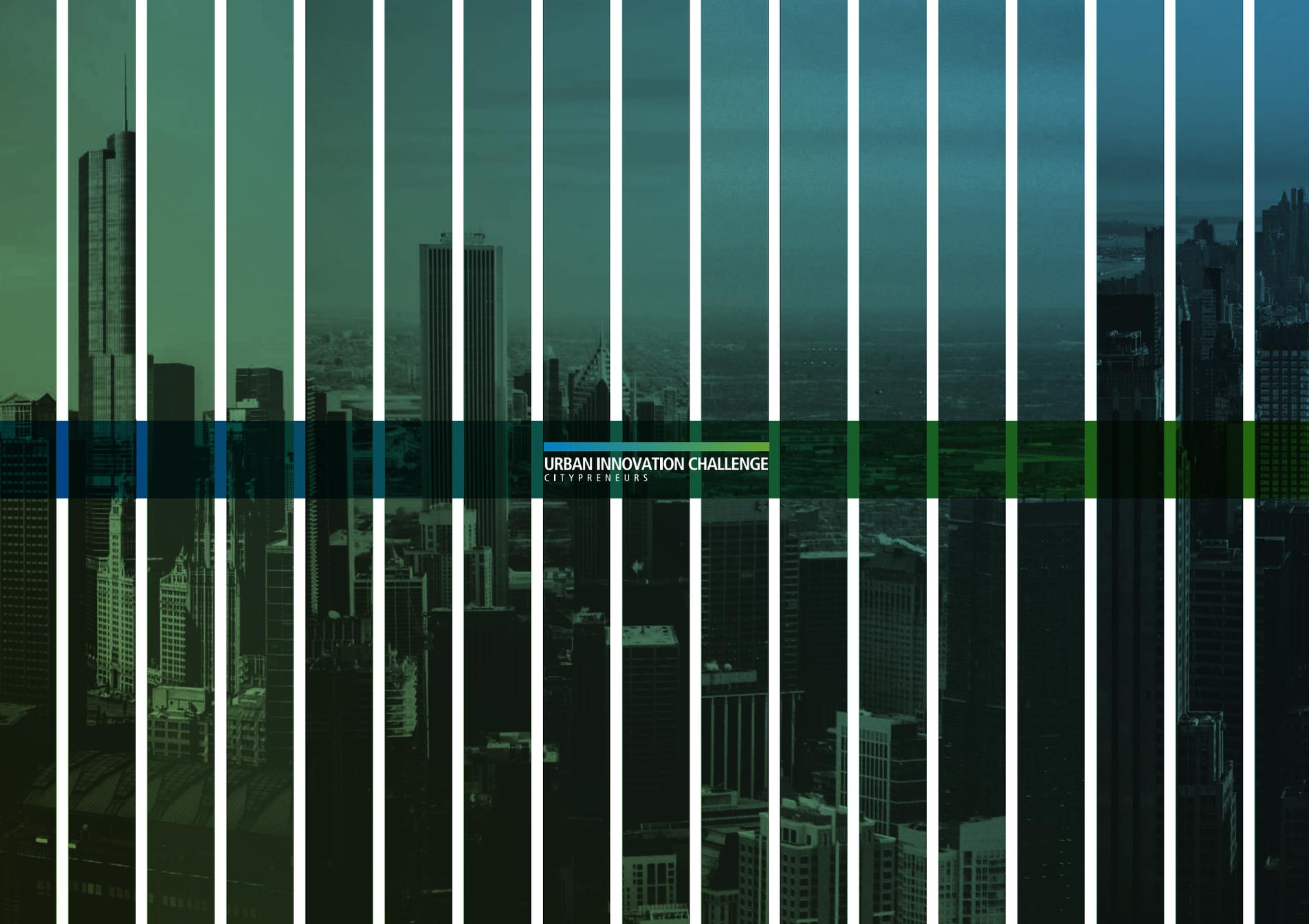
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