



NORDIC
SMART
CITY
NETWORK



Nordic
Innovation



Nordic Urban Living Labs

www.NSCN.eu

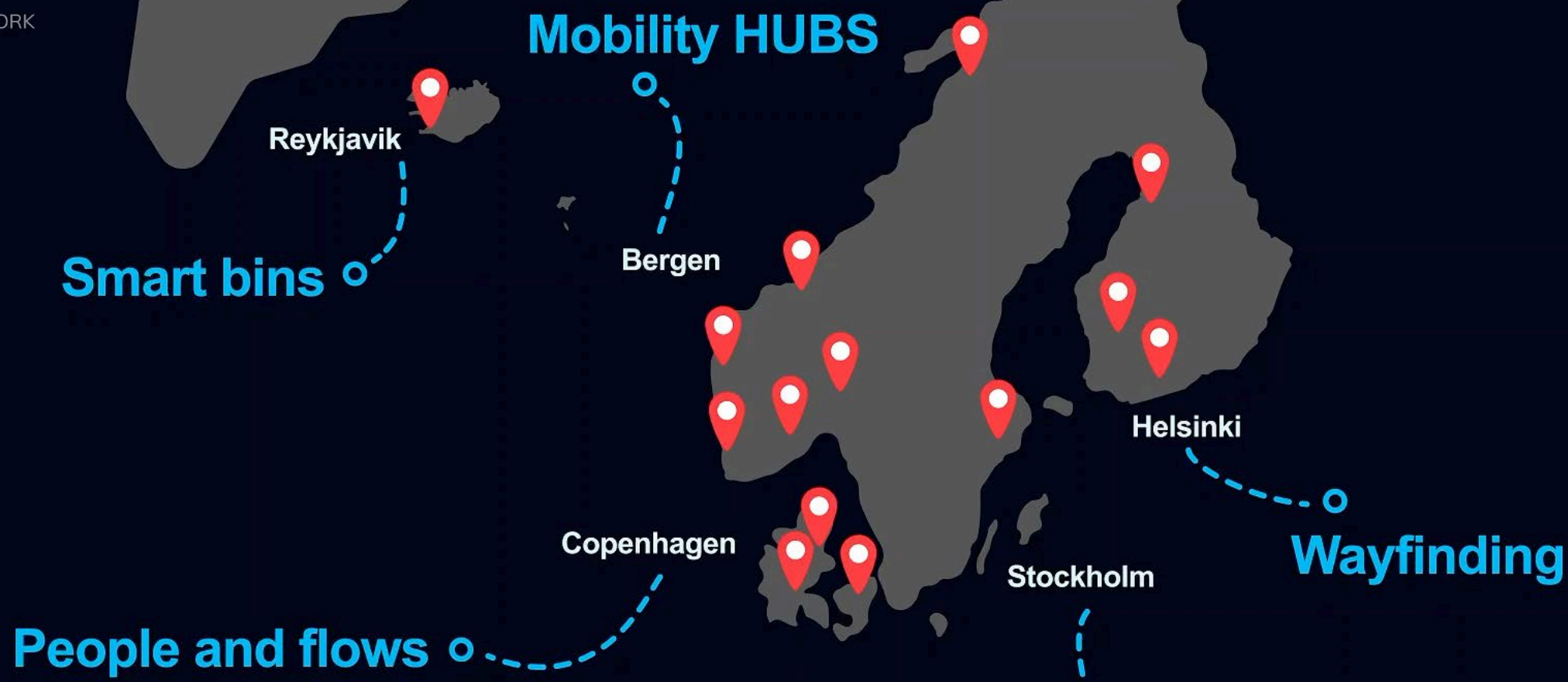
Aarhus, København, Vejle, Bergen, Trondheim, Oslo, Stavanger, Reykjavik, Tromsø, Kristiansand, Tampere, Oulu, Helsinki and Stockholm

Total Budget: 4.2 NKR

22 Months



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Do we need smart bin sensors?

Smart bin project lead by The City of Reykjavík



A full bin in Reykjavík city (June 2019)



Company name	Nordsense	Sensoneo	Wastehero	Plokk-In	EcubeLabs	Enevo	Smartbin
Product name	NS Pod TALL and NS Pod FLAT	Single sensor Double sensor	Waste hero sensor	Plokk-sensor	CleanFLEX	WE-008	
Sensing option	Distance (optical); tilt; geo-location optional	Distance (ultrasonic); temperature; tilt;	Distance (ultrasonic and laser)	Distance, GPS location	Distance; temperature; tilt; geo-location	Distance; tilt;	Distance; temperature; tilt; geo-location
Detection range	0-500 cm	15-255 cm 15-400 cm	0-400 cm	Laser sensor for smaller bins goes up to 120cm. For larger bins sensor goes up to 3 meters.	2-400 cm	25-400 cm	NA-400 cm
Number of measurements per time	16 measurements (3D topology)	Single 1 point and double 2 points	16+1	3 points	1	1	1
Material and rating	ABS/PC IP67	Recylable, polymide with optical fibers IP67	ABS IP67	ABS	ABS/Polycarbonate IP67; IK70	Polyurethane IP66	NA
Connectivity	Global 2G/3G/CAT-M1/NB-IOT	Single: LoRa, Sigfox, GSM (slave) Double: GSM SMS/GRPS Double can be used as gateway for up to 16 singles	LoRaWAN; Sigfox; NB-Iot; GSM	NB-Iot	3G/2G; LoRa; MB-IoT	3G	NA
Antenna	External; Internal	Internal	Internal	Internal	External; Internal	Internal	Internal
Size	TALL:59x103x52mm FLAT:60x97x30mm	Single: 50x120x54mm Double: 53x220x87mm	115x115x50mm	75x30x50mm	NA	71x95mm	NA
Application	Level, routes, location, analysis	Level, routes, location, analysis	Level, routes, location, analysis	Level, routes	Level, routes, location, analysis	Level, routes, location, analysis	Level, routes, location, analysis
Costs	12€/month first year prepaid	10-25€/month	NA	NA	NA	NA	NA
Battery life	TALL: 10 years FLAT: 7 years	7 years Replacable lithium battery	10 years	5-10 years	Replaveable lithium battery	10 years	NA
Measurement interval	Configurable (Hourly / Daily /etc.)	Single: 6x/day Double: Configurable (Hourly / Daily /etc.)	Configurable (Hourly / Daily /etc.)	Configurable	Configurable (Hourly / Daily /etc.)	NA	NA
Operating temprature		-30°C to 70°C	-20°C to 70°C	-20°C to 70°C	-30°C to 80°C	-40°C to 80°C	NA
External API	Yes	Yes	Yes	Yes	Yes	NA	NA
Citizen input	No	Yes	No	Yes	No	NA	NA
Website	www.nordsense.com	www.sensoneo.com	www.ioteelab.com	NA	www.ecubelabs.com	www.enevo.com	www.smartbin.com
Country of origin	DK	SVK	DK	IS	KOR	FI	IR



SCALING UP LEARNINGS: Agile piloting goes Norway



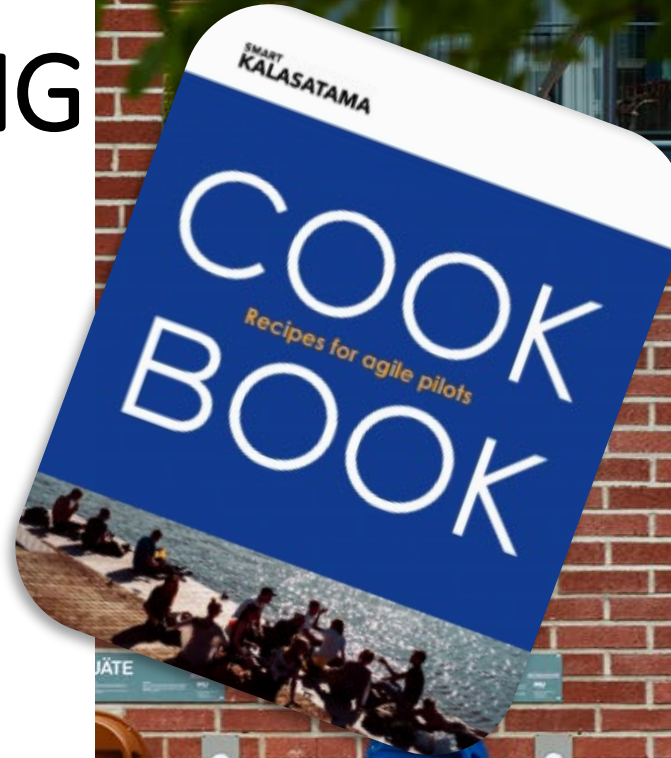
City of
Stavanger



AGILE PILOTING PROGRAMME

Co-creating
Prototyping
Learning by doing
Creating ecosystems

Co-developing and
experimenting in real-life
urban environment



**+20 pilots in
Smart
Kalasatama**

+50 pilots in Helsinki

+100 pilots in Finland



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Photo: Riku Pihlanto

Agile Piloting in Stavanger

- Politically approved
 - Copying (with pride)
 - NOK 1.5 million NOK (EUR 150k)
 - Success = 2x yearly
- Local adaptations
- Local partnership
 - Nordic Edge Smart City Innovation Cluster

- Thematic area selection - October
- Open call - November



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Saksprotokoll

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Org.nr. 96495226

SAKSBEHANDLER	ARKIVSAK	ARKIVNR.	DATO
Gunnar Edwin Crawford	19/14664		

Uvalg: Stavanger formannskap
Motedato: 13.06.2019
Sak: 98/19

Agil pilotering
Resultat: På sakslisten

Arkivsak: 19/14664
Stavanger formannskap har behandlet saken i møte 13.06.2019 sak 98/19

Formannskapet enstemmige vedtak:

Stavanger formannskap godkjenner anvendelsen av inntil 1,5 mill. kroner til å etablere et eget program for anskaffelseskonkurranser for gründer- og oppstartsbedrifter. Beløpet dekker konkurransehonorerer i tilknytning til uttesting av programmet «agil pilotering» høsten 2019, og etablering av programmets endelige form i løpet av 2020.

Beløpet dekkes via investeringsmidlene til Smartbyen.

Dokumentet er elektronisk godkjent og sendes uten signatur.



City of
Stavanger

25.09.2019

People and Flow



Copenhagen flowdata case

- Before / after measurements of the opening of the new metro line in Copenhagen
- Developing new ways of getting knowledge on how new infrastructure influences the urban flows
- Getting understanding of how people move around the city as pedestrians or on bikes and what might affect their flow



Town Hall Square

- Public Life Public Space study before and after opening

Gehl

- Two digital motion sensors data monitoring over a year

SPRINGBOARD.

- Analysis of change in public life before and after the opening of metro, including synthesis of digital and analog pedestrian counting



Nordic Smart City Network - The friendly vikings!

