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Smart Cities Research Group

Smart Cities:
Combining Technology with Citizen Participation

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Agenda

- Smart Cities
- Participation
  - Political
  - Non-political
- Lightweight democracy
- Pilot project: Post Local

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Smart cities

- Smart city is a concept
- Most definitions includes the use of computer technology
- Main objective is to improve quality of life for its citizens
  - Provide better services
  - Reduce environmental footprint, sustainability
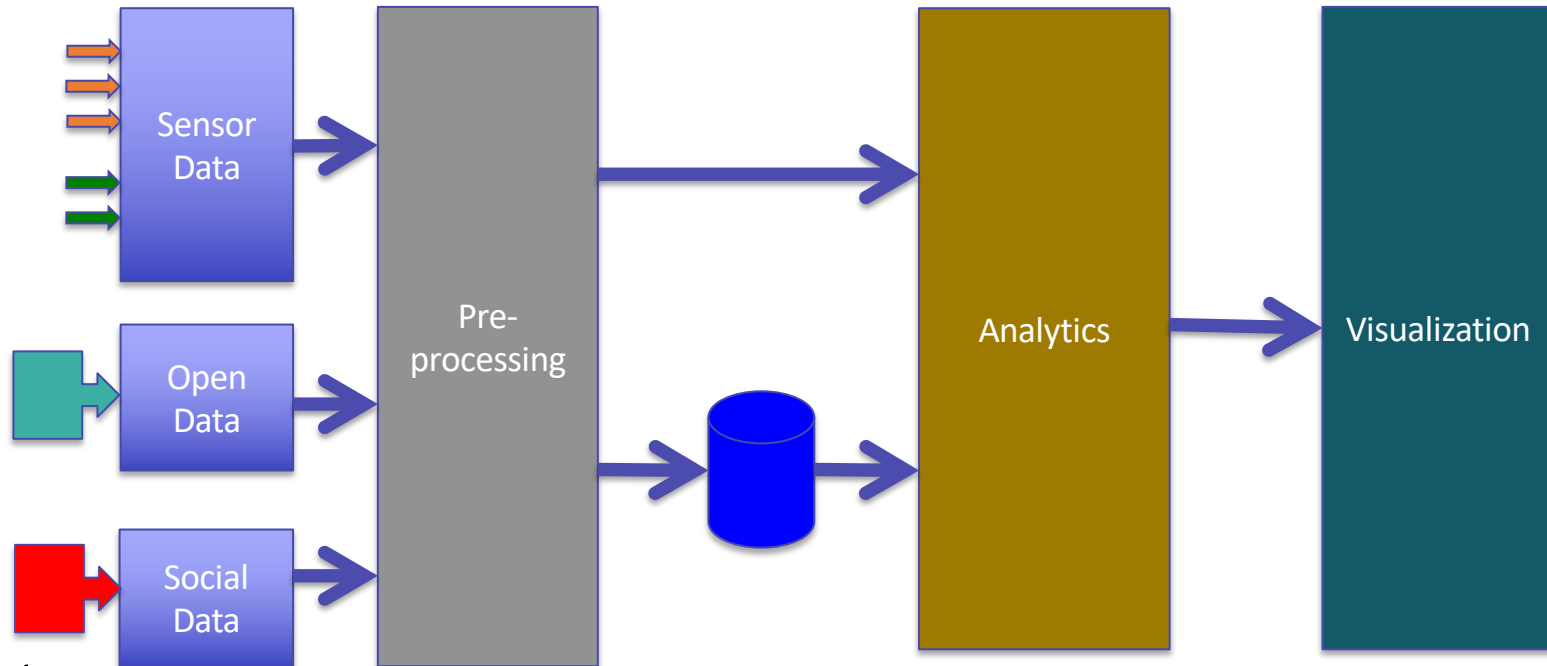 - **Facilitate participation**

Citizen Participation

Political participation

Non-political participation

- experts (sharing their competence)

- as volunteers (sharing their time) or both

Our Approach to Smart Cities Research and Development

Citizens as Sensors

- Citizens collect data using their own senses and make an action to report their observations, but they can also be sensor platforms by carrying sensors around

- We define a "human sensor" as a citizen that helps collect data about his/her surroundings

Literature Study

Found 23 papers describing human sensor projects:
- Public transport,
- Smart parking,
- Air quality monitoring,
- Waste reporting,
- Urban planning and development,
- Crisis/emergency response.

Case Studies

- FixMyStreet (FiksGataMi)

  - Web application to report problems, mostly related to infrastructure

- MinSak

  - Web application to submit citizen initiatives and collect signatures

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Why This Case Studies?

- The simple answer: Data access
- In both cases data is available, and easy to harvest through web mining

FixMyStreet (FiksGataMi)

- Norwegian version of FixMyStreet: FiksGataMi

- FixMyStreet is a web application allowing citizens to report issues and problems related to infrastructure and waste to local authorities

- Was developed by mySociety, a British NGO with a mission to make citizens more powerful in the civic and democratic parts of their lives. (Open Source)

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FixMyStreet (FiksGataMi)

- The original FixMyStreet was launched in 2007. The application is location based. The user may pinpoint the location on a map

- Typical problems are holes in the road, broken light bulbs in street lighting, abandoned vehicles, broken water pipes, etc.

- Norwegian version was developed and is maintained by the Norwegian Unix User Group. Released in 2011

FixMyStreet (FiksGataMi)

FixMyStreet (FiksGataMi)

FixMyStreet (FiksGataMi)

The use has been quite stable since its launch in 2011. The first year had more reports, probably because of novelty and press coverage.

Year	Number of reports
2011	9.751
2012	5.381
2013	6.655
2014	6.016
2015	6.365
2016	6.375
2017	6.932

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FixMyStreet (FiksGataMi)

Rank	Report recipient (authority)	Number
1	Public Road Administration, region east	2,490
2	Public Road Administration, region west	1,113
3	Public Road Administration, region middle	880
4	Public Road Administration, region south	834
5	Oslo	603
6	Trondheim	490
7	Hamar	472
8	Public Road Administration, region north	454
9	Bergen	357
10	Halden	253

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FixMyStreet (FiksGataMi)

Category (Norwegian)	Category (English)	#
Annet	Other	72
Buss- og togstopp	Bus and train stops	52
Dumpet skrot	Flytipping	44
Forlatte kjøretøy	Abandoned vehicles	62
Forsøpling	Rubbish (refuse and recycling)	70
Fortau/gangstier	Pavements/footpaths	340
Gatefeiing	Street cleaning	124
Gatelys	Street lighting	1,820
Gater/Veier	Roads/highways	830
Graffiti/tagging	Graffiti	0
Hull i vei	Potholes	1,847
Offentlige toaletter	Public toilets	1
Oljesøl	(Oil spill)	1

Park/landskap	Parks/landscapes	50
Parkering	Car parking	75
Snøbrøyting	(Snow ploughing)	195
Sykkelveier	(Bike roads)	106
Tette avløpsrister	Blocked drainage gullies	119
Trær	Trees	116
Trafikklys	Traffic lights	83
Trafikkskilter	Road traffic signs	195
Ulovlige oppslag	Flyposting	4
Universell utforming	(Universal design)	13
Vannforsyning	(Water supply)	16
Veinavn-skilter	Street nameplates	31
	- No category -	290

Citizen Initiative

- Between elections, citizens can raise issues by making a "citizen initiative"
- The citizen initiative is embedded in the legislation. If the initiator manages to collect signatures from 2% of the population or 300 signatures, the local council is obligated to discuss the initiative
- No positive response is guaranteed

MinSak.no (MyCase)

- The government has established a platform "minsak.no" to facilitate both submission of initiatives and collection of signatures

MinSak.no

MinSak.no

MinSak.no

FixMyStreet vs. MinSak.no

- FixMyStreet (started 03.2011): **61.221**

- MinSak.no (started 02.2013): **1.950**

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Findings

- It is easier to get citizens involved with non-political participation than with political participation

- For non-political participation in may be a combination of egoistic and altruistic motives
  - I want this problem to be fixed for myself
  - I want this problem fixed so other citizens may benefit

Findings

- For political participation, the lower engagement may be caused by several factors:

  - The process of submitting a citizen initiative may be to complicated

  - Few citizen initiatives are successful.

A New Way of eParticipation

Results from a Pilot Project

Background

- Research by Hibbing and Theiss-Morse has shown that citizens are not necessarily eager to participate

- The citizens have voted for politicians to handle politics and are more concerned that the government provide good services to its citizens

J. R. Hibbing and E. Theiss-Morse. "*Stealth Democracy- Americans' beliefs about how government should work*". Cambridge University Press, 2002.

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Social Media

- Many citizens avoid discussing politics in social media
- Debate climate is often harsh, and dominated by «trolls»
- Discussions often ends up with attacks on persons and not discussing issues in a peaceful way

- **The need for an alternative solution**

Lightweight Democracy

- Our research group discussed the concept of lightweight democracy in a conference paper and a book chapter in 2016

- In January 2018, we met two entrepreneurs, Trond Henriksen and Terje Andersen, sharing the same ideas of political participation

Berntzen, L., & Johannessen, M. R. (2016). The Role of Citizen Participation in Municipal Smart City Projects: Lessons Learned from Norway. In J. R. Gil-Garcia, T. A. Pardo, & T. Nam (Eds.), *Smarter as the New Urban Agenda: A Comprehensive View of the 21st Century City*. Switzerland: Springer.

Johannessen, M.R., & Berntzen, L. (2016). Smart Cities Through Implicit Participation: Using Gamification to Generate Citizen Input for Public Transport Planning. In *Electronic Government and Electronic participation*.

Pilot Project

- Financed from regional research fund

- Aim: Develop an app where the mayor of the can consult with citizens on current issues (*In practice it is not the mayor that decides on questions, it is more the executive council, but citizens relate to the mayor*)

- Aim: Use not more than two-three minutes to respond, so easy to use that you can do it in the checkout queue at the supermarket

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Architecture

Question generator

Dialog tool

Analysis tool

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App Screen Shots

Screen shots are not shown in the
public slides for IPR reasons

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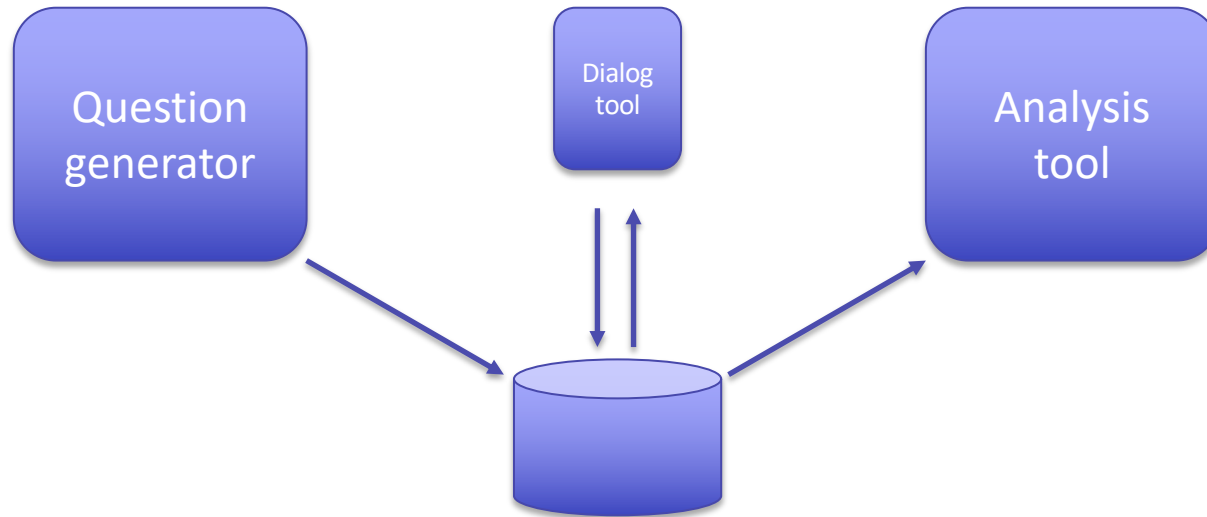
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Methodology

- Workshops with politicians (12 mayors, more than 50 politicians)
- Alpha-testers (lean startup, minimum viable product)
- Beta-testers from five municipalities (approx. 250)
- Survey of beta-testers (183)

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Workshops with Politicians and other Stakeholders

- Agreement that municipalities have a potential for better communication with their citizens, especially regarding younger citizens

- Concerns about ownership of data and privacy

- Should everyone be included or use a representative group of citizens?

- What questions can be asked?

- Who will develop the questions (e.g. executive council)?

Workshops with Politicians and other Stakeholders

- The project is only partly about technology
- **The most important issue is how to use the app to achieve the objective of better communication**
- **Therefore, most of the work has been targeting procedures, and proper training of the politicians**
- It should be used to get input on everyday issues, not ideology
- Lots of positive feedback from mayors and politicians

The Survey

- Distributed to 250 test users
- Received 183 responses

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Gender and Age

	15-24	25-39	40-54	55+
Series1	35	56	56	36
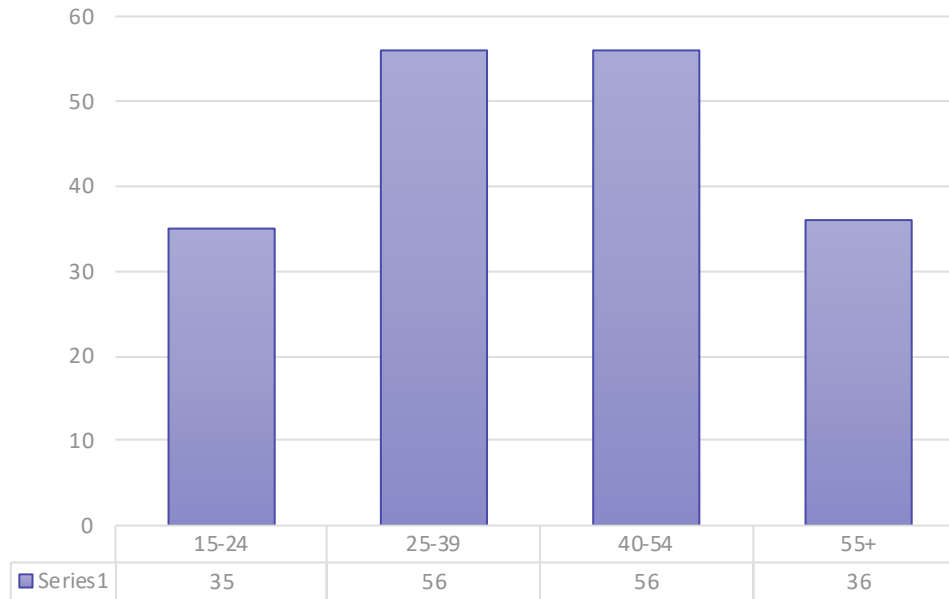
Education Level

Education level	%
Primary school	18,6
Secondary school	16,5
Vocational school	8,5
University (undergraduate)	27,1
University (graduate)	29,3

Education level is somewhat higher than national average

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Gamification

We wanted to know how gamification would motivate the users, e.g., some kind of rewards or getting levelled up.

Gamification motivates use?

- Blue: Totally agree
- Light green: Partly agree
- Dark green: Neutral
- Yellow: Partly disagree
- Red: Totally disagree

■ Helt enig ■ Delvis enig ■ Nøytral ■ Delvis uenig ■ Helt uenig

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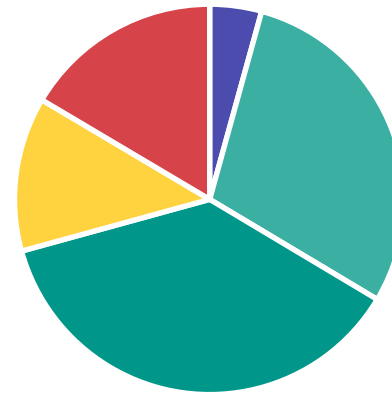
Gamification

- Scale is:
  - Left: Totally agree
  - Right: Totally disagree
- Broken down into age groups:
  - Red: 15-24
  - Yellow: 25-39
  - Dark green: 40-54
  - Light green: 55+

Gamification may have impact on some users

Age and Motivation by Gamification

Legend: Aldersgruppe, Aldersgruppe 55+, Aldersgruppe 40-54, Aldersgruppe 25-39, Aldersgruppe 15-24

Categories: Helt enig, Delvis enig, Nøytral, Delvis uenig, Helt uening

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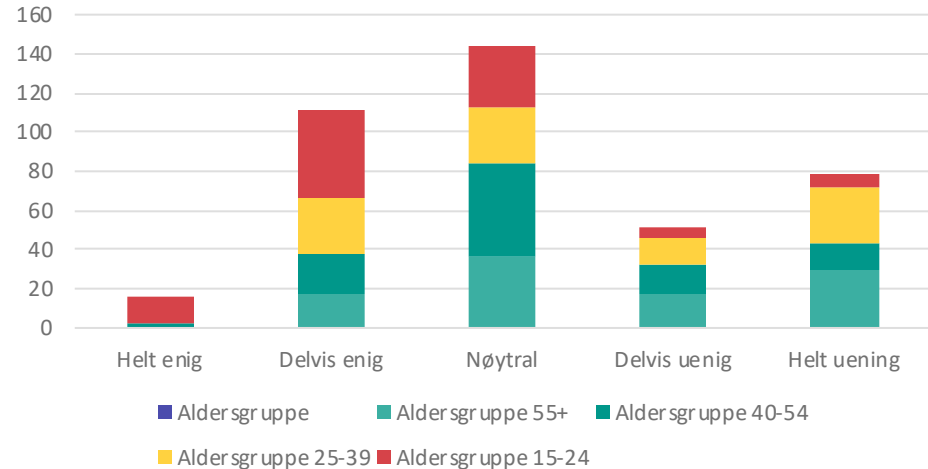
Political Activity

- Been member of or liked a group or page discussing politics (35,5)
- Been member of, or liked politician or party in social media (25,5)
- Signed a petition/campaign (25,5)
- Been in contact with a politician by phone, e-mail or personal meeting (25,0)
- Commented on a political entry in social media (23,9)
- Participated in a people´s meeting (19,7)

- Been member of a political party (18,6)
- Been in contact with a politician or party through social media (16,0)
- Written an opinion in the newspaper (13,3)
- Expressed opinion in a people´s meeting (12,2)
- Used the comment function in electronic newspapers (12,2)
- Participated in public demonstration (8,0)
- Written political blog entry (2,0)

The Mayor on the Greeting Page

- The first thing the citizen sees is a picture of the mayor and a request to provide feedback.
- Green = neither/nor
- Yellow = positive
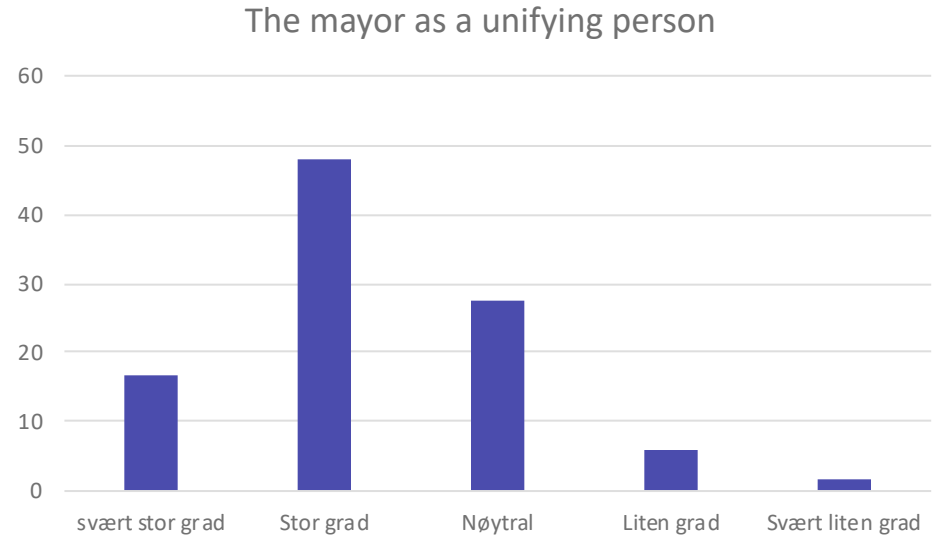- Red = very positive

Mayor on the Greeting Page
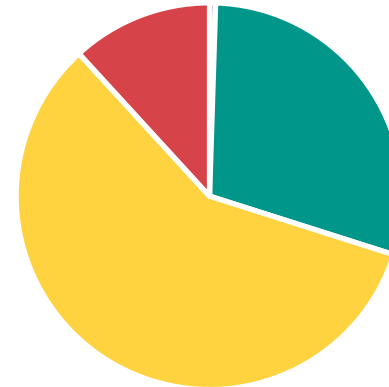
■ Svært negativt   ■ Negativt   ■ Hverken eller   ■ Positivt   ■ Svært positivt

The Mayor as a Unifying Person

- We wanted to know if the mayor is regarded as a unifying person (a mayor for all citizens).
- Scale:
  - Left: Very large extent
  - Rigth: Very small extent

The mayor as a unifying person

|	sværd stor grad	Stor grad	Nøytral	Liten grad	Svært liten grad
Value	~17	~48	~27	~6	~2

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Expectations

We asked the respondents of their expectations:

- I expect my input to have direct impact on the municipal policy-making (6,5)

- <u>I expect to be listened to, and that my opinion is taken into account when discussing relevant issues (64,1)</u>

- I have my say, but am not expecting that it is used (22,2)

- No expectations (7,1)

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Continued Use

A. If the app gets available for everyone, I will continue to use it

B. I will probably use the app if it is available after the testing period

C. It is more likely that I will say may opinion to the municipality through the app
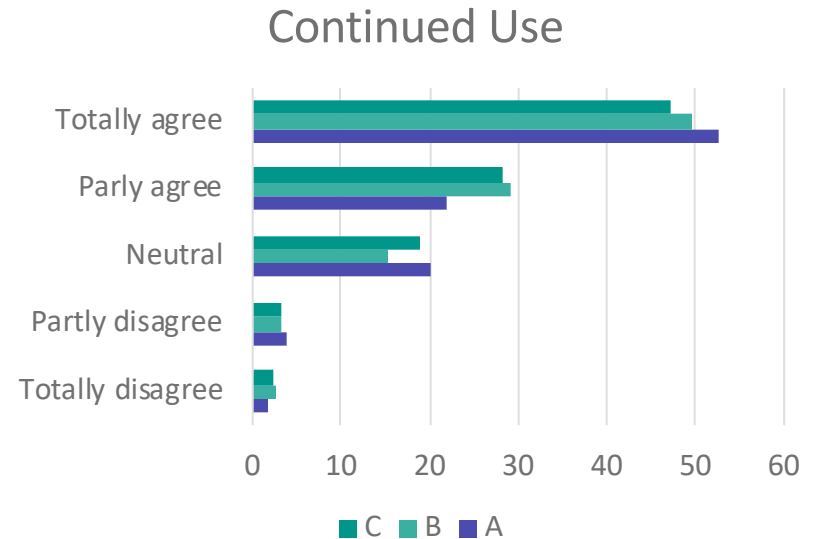
Continued Use

Continued Use

- The previous slide shows reasonably good agreement on the answers from the three questions

- Just over 70% answer "completely agree" or "partially agree" on whether they will continue to use the app if it becomes available, while about 25% are neutral

- Thus, only 5% partially or totally disagree that they will continue to use the app to provide input to the municipality

- The results are promising, giving hope for success if the solution is operated properly in each municipality

Thank you for listening

If you are interested, please stay in touch

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