

Dagfinn Moe SINTEF
Seniorforsker atferds- og nevrovitenskap

Molde 22 oktober 2024
Dagfinn Moe-Isabelle Roche-Cerasi
Bruk av skjermssystem i bil



Bil

Mercedes EQS SUV

Audi e-tron

Tesla Y

BMW X3M

Volvo X60



kognitive kart-navigering-oppmerksomhet
HVA-HVOR-NÅR-HVORDAN

The Nobel Prize in Physiology or Medicine 2014

John O'Keefe and the place in space
In 1971, John O'Keefe of University College London discovered that certain nerve cells in the hippocampus of a rat fire and generate a particular place in the environment. Other nerve cells are active only at certain times of the day, and others only when an animal is in a particular part of the brain called the hippocampus.

May-Britt and Edvard Moser find the coordinates
In 2005, May-Britt and Edvard S. Moser, of the Norwegian University of Science and Technology, discovered that nerve cells in the brain's inner regions are arranged like a coordinate grid. These cells, called grid cells, are arranged in a regular pattern that allows an animal to find its way. These grid cells form a coordinate system that allows an animal to find its way.

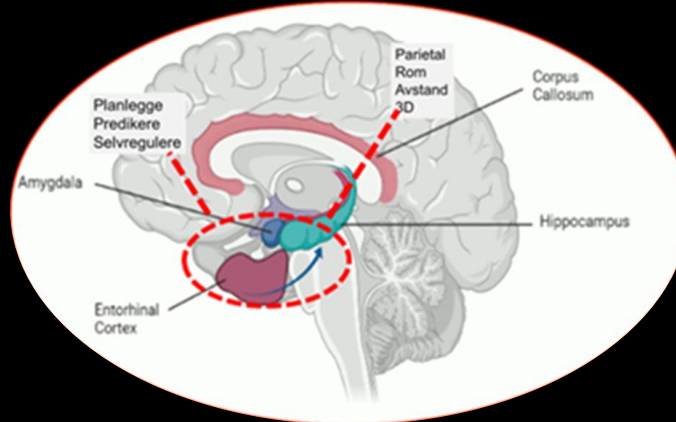
Finding your way with the brain's own GPS
The Nobel Prize in Physiology or Medicine 2014 is awarded with great honor to John O'Keefe, May-Britt Moser and Edvard S. Moser "for their discoveries of cells that constitute a positional system in the brain". How do we know where we are? How can we find our way from one place to another? And how can we store this information in such a way that we can retrieve it later? The brain has a system for this. It is called the hippocampus. It is a small structure in the brain that makes it possible to store information in space, demonstrating a cellular basis for higher-level navigation.

Nerve cell circuitry forms a GPS in the brain
One study together with other work in the field shows that the ability of the brain to find its way is based on a system of nerve cells that act like a GPS. The system is called the hippocampus. It is a small structure in the brain that makes it possible to store information in space, demonstrating a cellular basis for higher-level navigation.

A place for maps in the human brain
Recent studies have revealed that grid and place cells in the human brain are similar to those in the rat. This suggests that the human brain also has a coordinate system for navigation. The system is called the hippocampus. It is a small structure in the brain that makes it possible to store information in space, demonstrating a cellular basis for higher-level navigation.

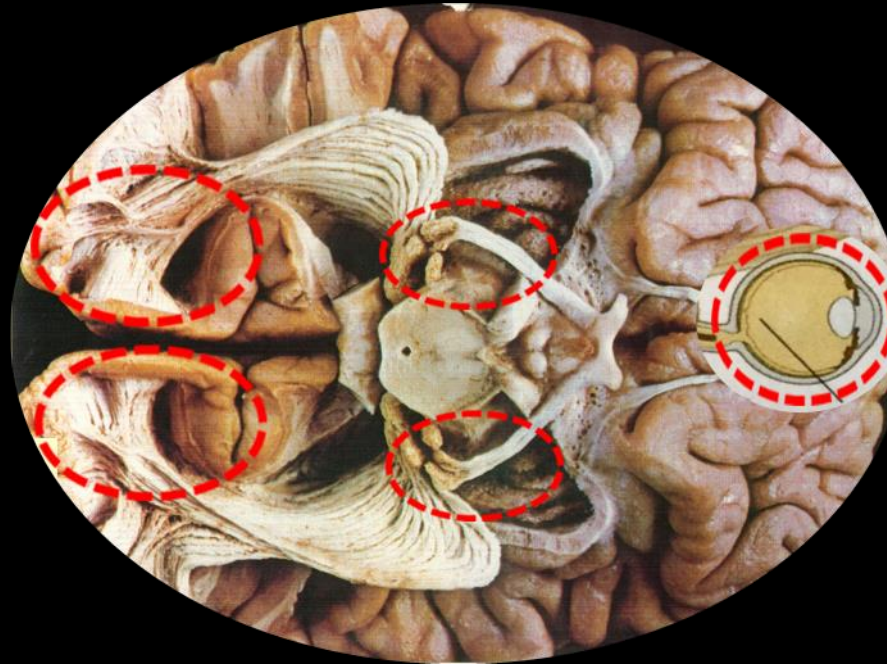
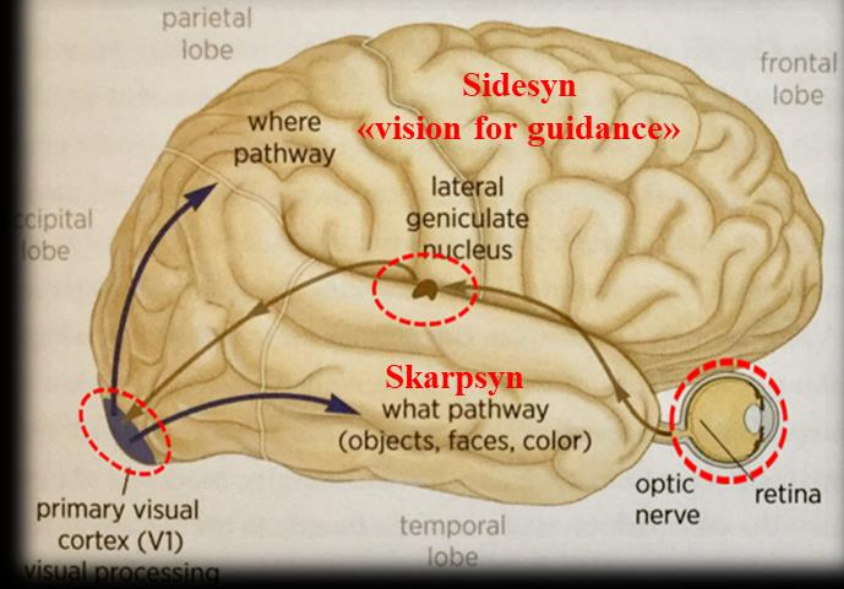
DET VISUELLE SYSTEMET

Hva bestemmer hvordan du bruker øynene?



Eyetracking

- fikseringer
- antall-varighet
- saccader
- korte-lange
- hastighet
- mønster-rekkefølge



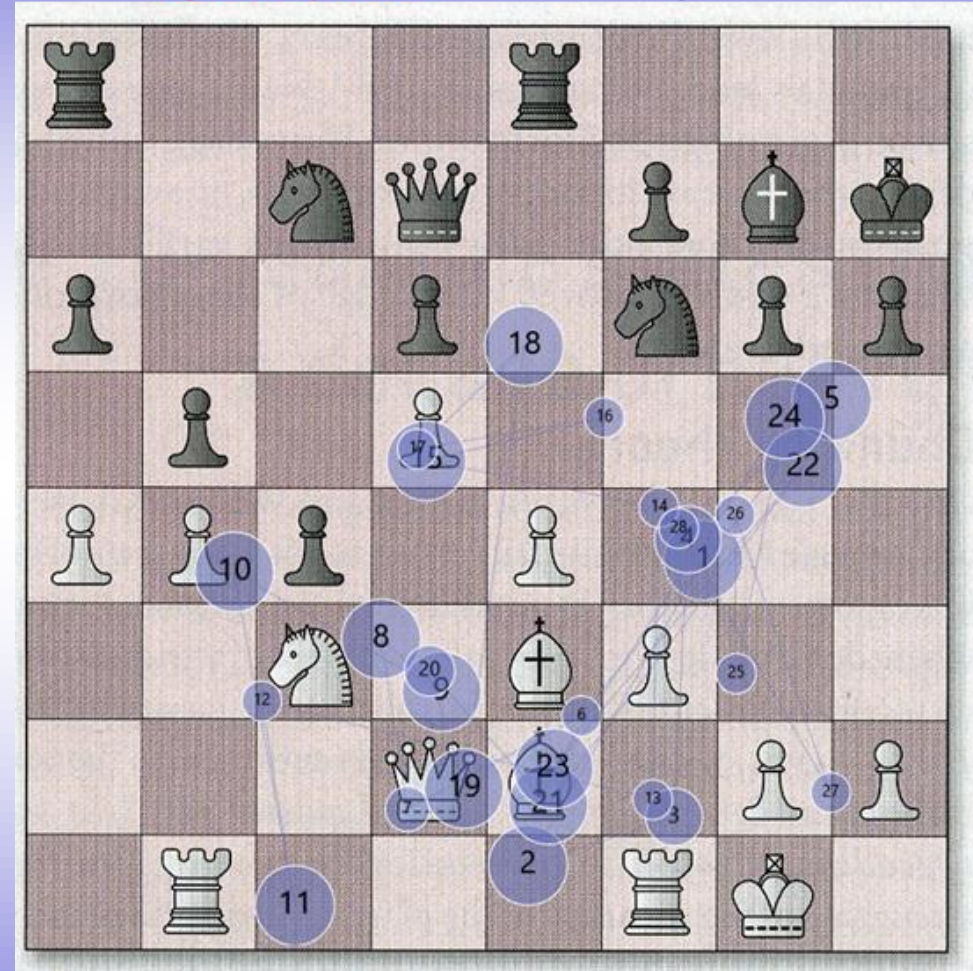


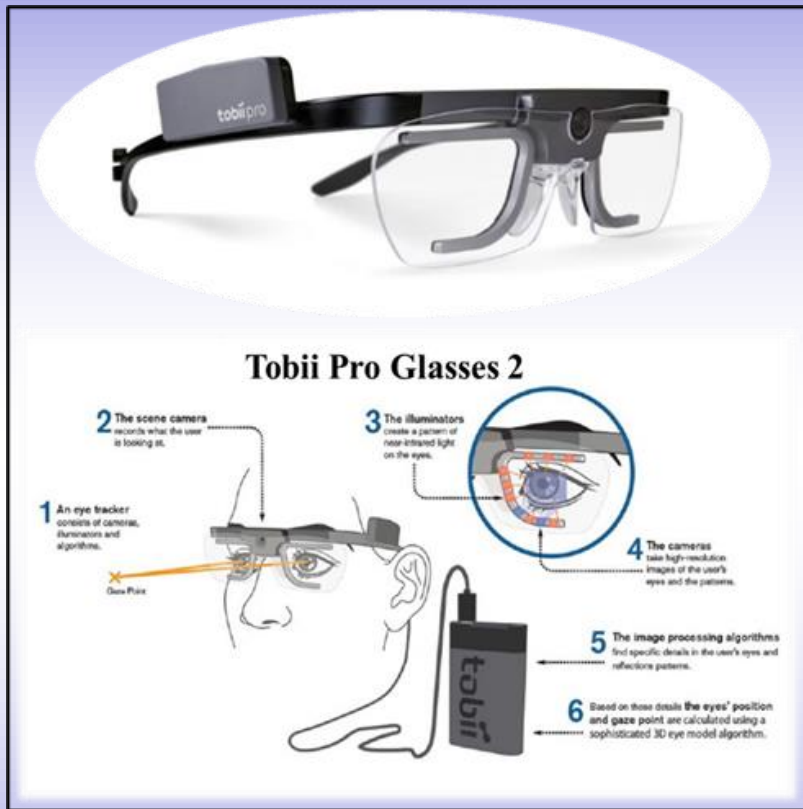
Scanning 10 sekunder ekte sjakkparti (Moe- SINTEF 2017)

Ikke sjakkspiller-54 blikkpunkt



Sjakkspiller – 28 blikkpunkt



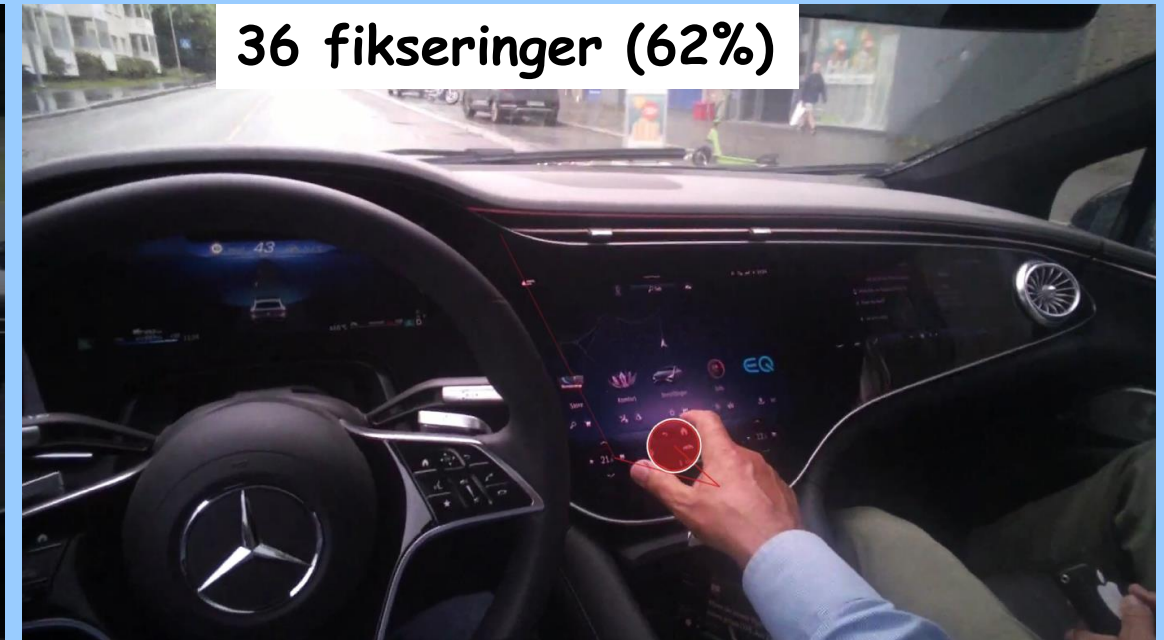
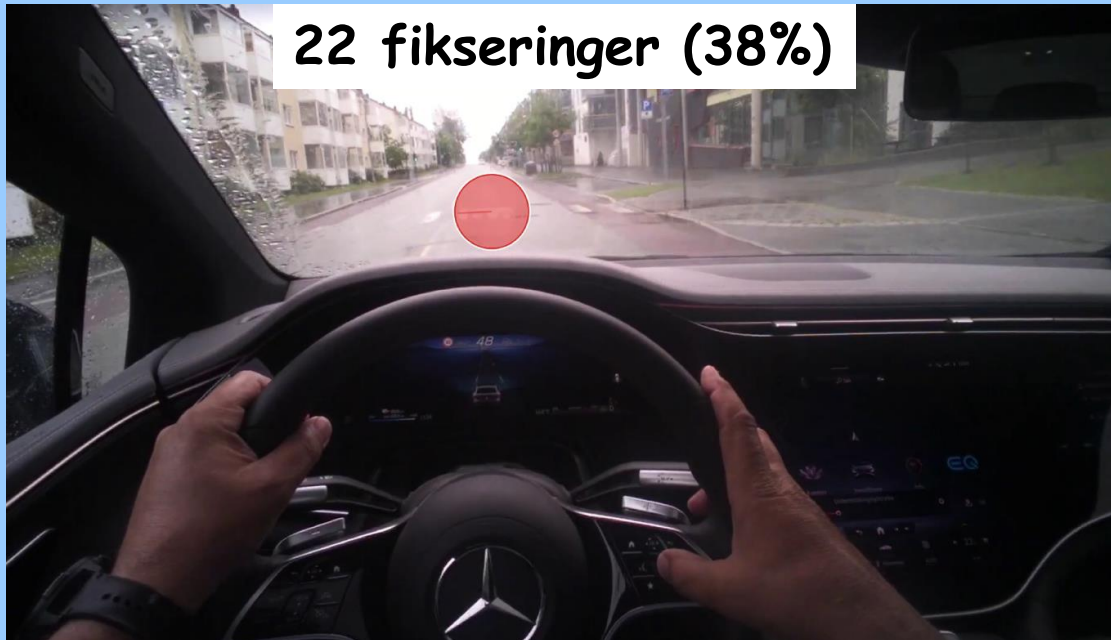


TOBII EYETRACKING SINTEF

Kjøring 42 sekunder:

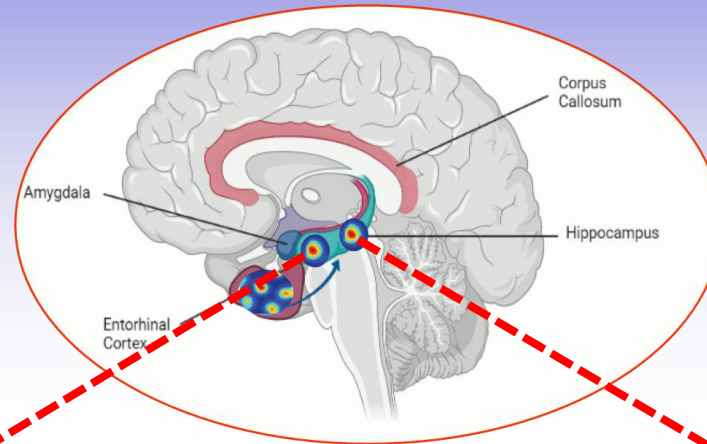
Totalt 58 fikseringer-tidsfordeling veg-skjerm 50-50

Switching-remapping: 25 ganger mellom veg-skjerm



REMAPPING

switcher mellom to forskjellige kognitive kart





SINTEF

DATAINNSAMLING - 44 personer

Studenter trafikk lærerutdanningen NORD universitet

Kjørerute varighet 25-30 min ca 15 km

Fremtind  **SINTEF**  **NORD**
universitet



OPPGAVER UNDER KJØRING

Utføres frivillig relatert til kontekst

- radiokanal
- musikkstykke
- justere temperatur
- styre luft mot frontrute
- aktivere ACC
- taste inn adresse
- slå telefonnummer
- aktivere vindusvisker

ETTER KJØRING

- Stressevaluering NASA RTLX
- Spørreskjema vanskegrad og risiko
- Dybdeintervju-samtale



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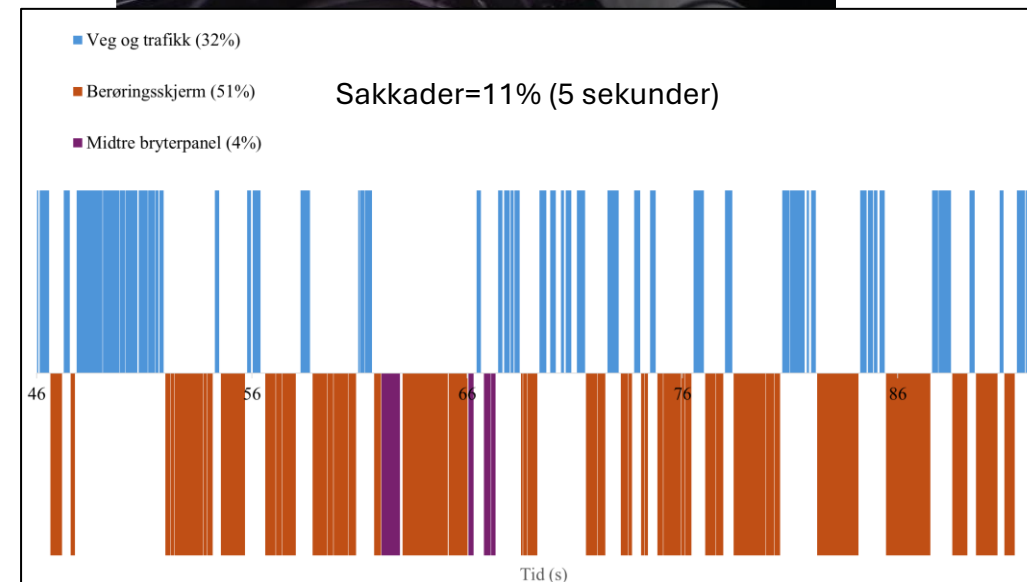
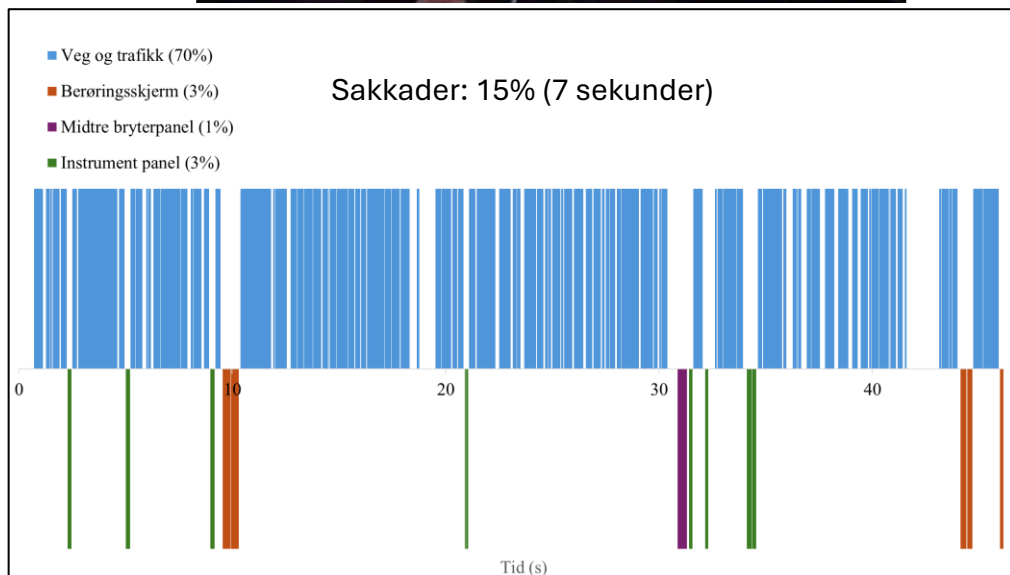
Navigasjon

Veg-trafikk | Skjerm

Kjører inn mot og gjennom rundkjøring



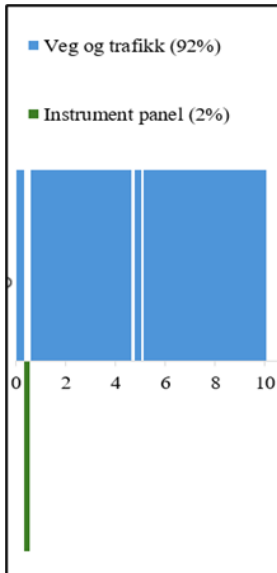
Kjører og starter inntasting av adresse



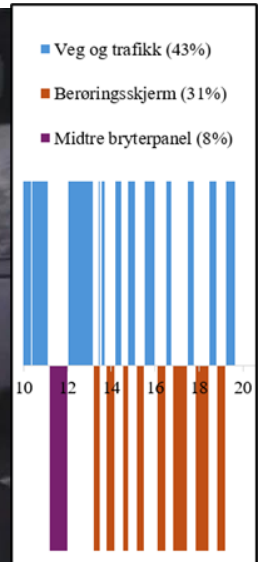
Endre temperatur under kjøring

 Veg-trafikk
  Skjerm

Kjører og oppover veien



Kjører og endrer temperatur





SINTEF

Fører skal slå telefonnummer



Teknologi for et bedre samfunn



Rapport

Infotainmentsystemer og oppmerksomhetsfordeling i bil

Forfattere:

Dagfinn Moe og Isabelle Roche-Cerasi

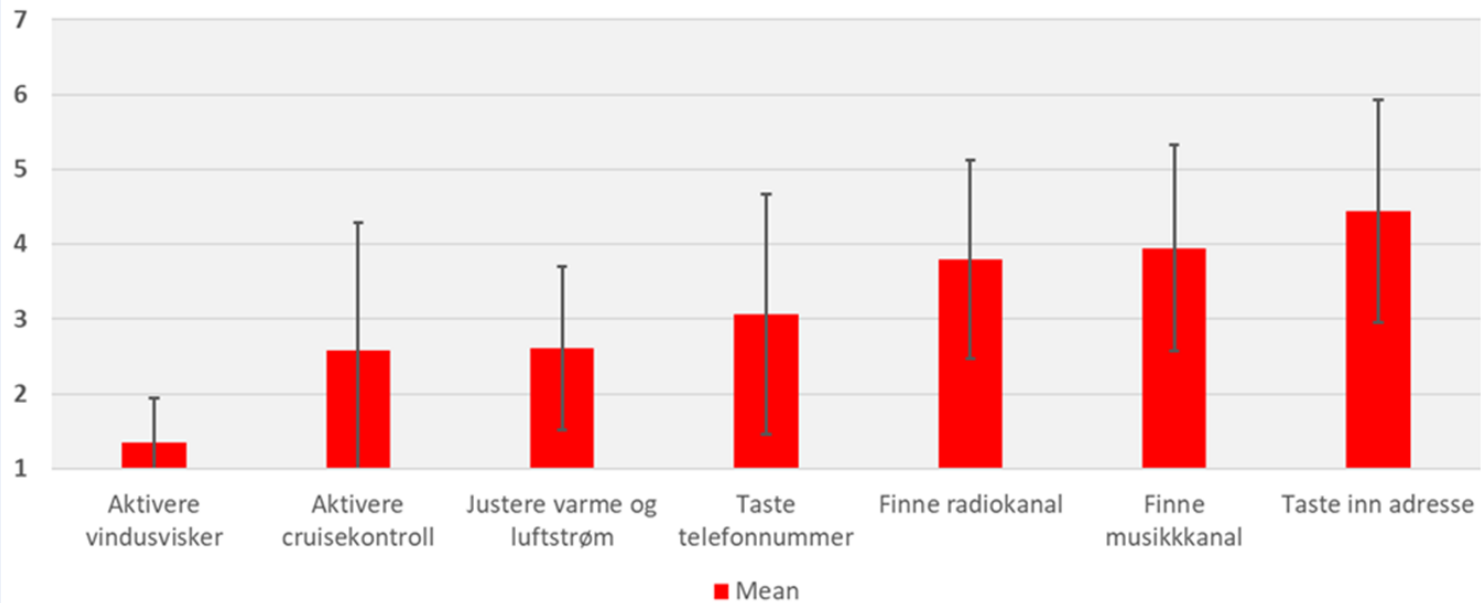
Rapportnummer:

2024:00967 - Åpen

Oppdragsgiver:

Trygg trafikk

Belastning ved å utføre oppgavene 1=(lav)-7(høy) N=44





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Teknologi for et bedre samfunn