Aspects Influencing Users' Trust in an Automated Delivery 'Bot' (ADR): A Pilot Study

PURPOSE & APPROACH

Purpose
Explore how logistic personnel experiences and trusts a bot as a tool for Last-Mile Deliveries (LMD) (conducted 2019-2021).

Approach
A mixed-method research design with pre- and post study data collection.

RESULTS

Artefact level

- "Suddenly it just breaks down.... it [the bot] ran five metres then therewere issues again.... No, there needs to be a machine you can trust, otherwise there will be trouble throughout the day"

Perceived performance of bot
- The logistic personnels' trust was negatively affected by the perceived probability that the bot's tasks could lead to negative consequences due to performance related issues.

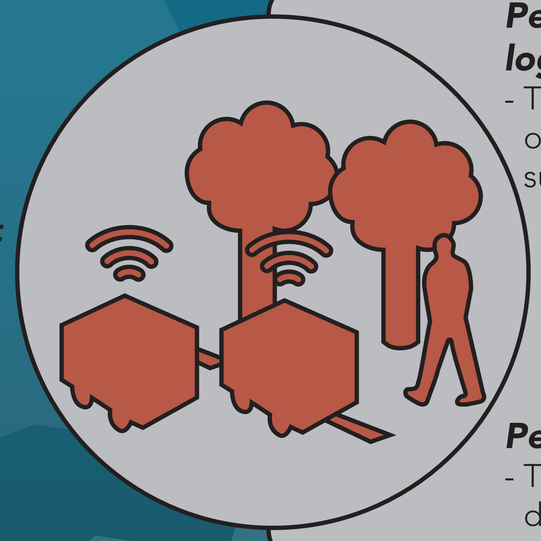
Environmental level

- "What happens if he [the bot] gets a blackout, goes down the stairs [there are several stairways on the University campus], hits somebody; we have a lot of visually impaired people[moving about on the campus],..."

Perceived risks for onseself & others in terms of possible theft and traffic accidents
- The logistic personnels' trust in the bot was negatively affected by perceived (traffic) risks for other road users and for goods being stolen and/or damaged when transported by the bot.

Organizational level

- "Unfortunately it doesn't do any work, but perhaps in the future, yes! But maybe not at the school [University] but in a shopping mall, at Volvo Trucks AB where everything is flat and indoors, or perhaps the hospital"



Perceived benefits of the bot as part of the logistic system
- The logistic personnels' trust was negatively affected by the perception of the bot not leading to any benefits but rather a logistic system sub-optimization due to having to assist the bot.

Perceived benevolence behind the development and introduction of the bot
- The logistic personnels' trust in the bot was negatively affected by the lack of information from management and designers behind the bot.

Perceived task difficulty and workload
- The logistic personnels' trust in the bot was negatively affected by the degree to which the bot influenced perceived task difficulty and workload.

CONCLUSION & QUESTIONS

Research Impact
Little research has been conducted on user trust in ADR technology and even less focus on accounting for contextual aspects in the overall logistic system and their effect on user trust. Therefore, the presented research shows the importance of taking a holistic approach towards trust in ADR when introducing it to the market.

Practical Impact
Introducing and implementing new technology such as ADR into a service is not a simple "plug and play" process. Instead, stakeholders responsible for the implementation needs to be aware of the specific needs of the user(s) i.e. people that on a daily basis interacts with the ADR such as logistic personnel. To support the introduction and implementation of ADR there needs to be a dialog between management and logistic personnel but also between developers and logistic personnel. A dialogue crucial to mitigate risks for over-under trust, acceptance issues but also to avoid negative consequences such as sub-optimal logistic services.

Questions
-What is needed to support the introduction of new technology such as ADR, so ADR becomes something positive for everyone?
-How can we support testing of novel technology such as ADR to be able to capture important factors that affects e.g. user trust in automated systems?
-Who should have the responsibility for the development and implementation of logistic technology that entails advantages not only for the employer/management but also for the logistic personnel?

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