

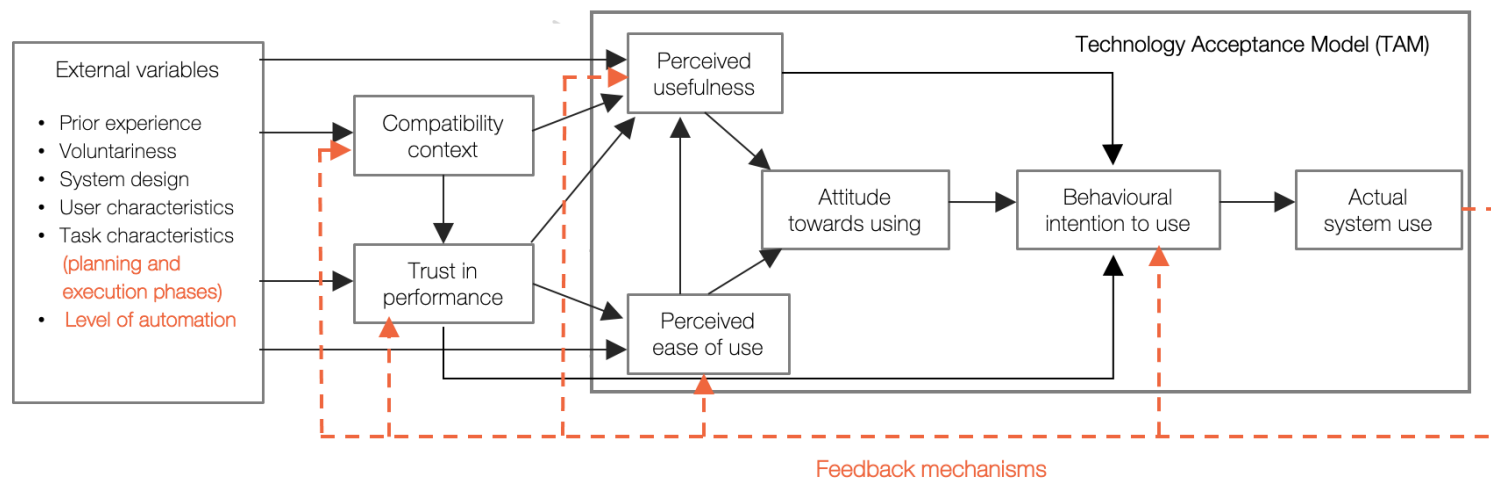
# Automation acceptance for sustainable digital daily life

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**Objective:** To improve understanding of factors which influence people's attitudes and acceptance of automation across different daily life activities.

We investigate different activities and whether: 1) acceptance occurs; 2) whether it is more likely to occur with particular influencing factors, or at specific phases of activities.

## 1 Theoretical framework Adapted from Ghazizadeh et al., 2012; Bieser and Hilty, 2020.



## 2 Living lab trials



## 3 Automation usage during trials User preference for controlling activity planning

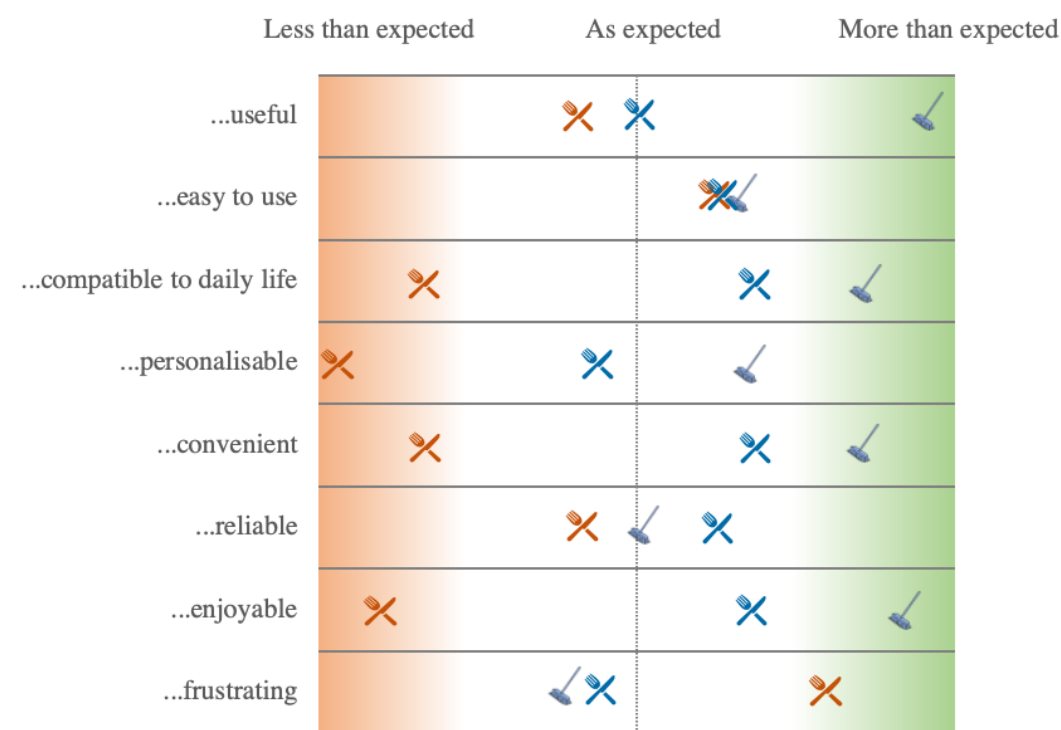
| Activity aspects                       | Level of automation (LoA) |                                 |                         |
|--|---------------------------|---------------------------------|-------------------------|
|  | Pre-trial                 | Potential from trial innovation | Actual use during trial |
| <b>Floor cleaning - Planning</b>       |                           |                                 |                         |
| Awareness of dirt/dust                 | 👤                         |                                 | 👤                       |
| Decide when to clean                   | 👤                         | 🕒                               | 👤                       |
| Decide where to clean                  | 👤                         | 🕒                               | 👤                       |
| Remove items from floor                | 👤                         | 👤                               | 👤                       |
| <b>Floor cleaning - Execution</b>      |                           |                                 |                         |
| Retrieve brush/vacuum from storage     | 👤                         | 🖥️                              | 🖥️                      |
| Use brush or vacuum in desired area    | 👤                         | 🖥️                              | 🖥️                      |
| Follow a pattern (avoid missing areas) | 👤                         | 🖥️                              | 🖥️                      |
| Empty dust collector                   | 👤                         | 👤                               | 👤                       |
| Return brush/vacuum to storage         | 👤                         | 🖥️                              | 🖥️                      |
| <b>Grocery shopping - Planning</b>     |                           |                                 |                         |
| Assess dietary needs                   | 👤                         | 🕒                               | 👤                       |
| Create meal plan                       | 👤 <sup>a</sup>            | 🖥️                              | 👤                       |
| Make a shopping list                   | 👤 <sup>b</sup>            | 🖥️                              | 🖥️                      |
| Decide when to get ingredients         | 👤                         | 🕒                               | 🕒                       |
| Decide where to go shopping            | 👤                         |                                 |                         |
| <b>Grocery shopping - Execution</b>    |                           |                                 |                         |
| Travel to the store                    | 👤                         |                                 |                         |
| Compare products/prices                | 👤                         | 🖥️                              | 👤                       |
| Check expiry dates in store            | 👤                         | 🖥️                              | 🖥️                      |
| Select ingredients                     | 👤                         | 🖥️                              | 👤                       |
| Review cart before checkout            | 👤                         | 🖥️                              | 👤                       |
| Go through checkout                    | 👤                         | 🕒                               | 🕒                       |
| Pack ingredients                       | 👤                         | 🖥️                              | 🖥️                      |
| Transport ingredients                  | 👤                         | 🖥️                              | 🖥️                      |
| Unpack/store items                     | 👤                         | 👤                               | 👤                       |

## 5 Acceptance of additional activities Facilitator of spillover was found to be perceived usefulness

| Activity                     | Robotic floor cleaner (positive) | Meal kit delivery (positive) | Meal kit delivery (negative) |
|------------------------------|----------------------------------|------------------------------|------------------------------|
| Listening to music/ podcasts |                                  |                              |                              |
| Watching a film/ TV episode  |                                  |                              |                              |
| Waste disposal               |                                  |                              |                              |
| Surface cleaning             |                                  |                              |                              |
| Shopping                     |                                  |                              |                              |
| <b>Grocery shopping</b>      |                                  |                              |                              |
| <b>Floor cleaning</b>        |                                  |                              |                              |
| Laundry                      |                                  |                              |                              |
| Ironing and folding          |                                  |                              |                              |
| Gardening                    |                                  |                              |                              |
| Charging devices             |                                  |                              |                              |
| Home security                |                                  |                              |                              |
| Home lighting                |                                  |                              |                              |
| Meal planning                |                                  |                              |                              |
| Food prep and baking         |                                  |                              |                              |
| Dish washing                 |                                  |                              |                              |
| Climate control              |                                  |                              |                              |
| Vehicle driving              |                                  |                              |                              |
| Travel booking               |                                  |                              |                              |

Darker colour signifies higher levels of automation acceptance post trial.

## 4 Expectations vs. experience Expectation-reality gap and the need to build trust



Participant responses on their experience post-trial.

- 👤 Robotic floor cleaner (Positive experience)
- 👤 Meal kit delivery (Positive experience)
- 👤 Meal kit delivery (Negative experience)

LoA Key: 👤 manual (L1), 🕒 schedule (L3), 🖥️ autonomous (L5)