Ergonomic intervention as a way to improve technological adoption

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Summary

1. Research context
2. Technological adoption
3. Methods
4. Results
5. Conclusion

1. Research context

- Viticultural practices criticized because of chemicals dependency

(Béguin et Pueyo, 2011 ; Garrigou et al., 2012 ; Métral et al., 2012 ; Moreiro, 2017)

- A way to change = agricultural advise sustained by technologies

(Cerf et Magne, 2007 ; Filippi et Frey, 2015)

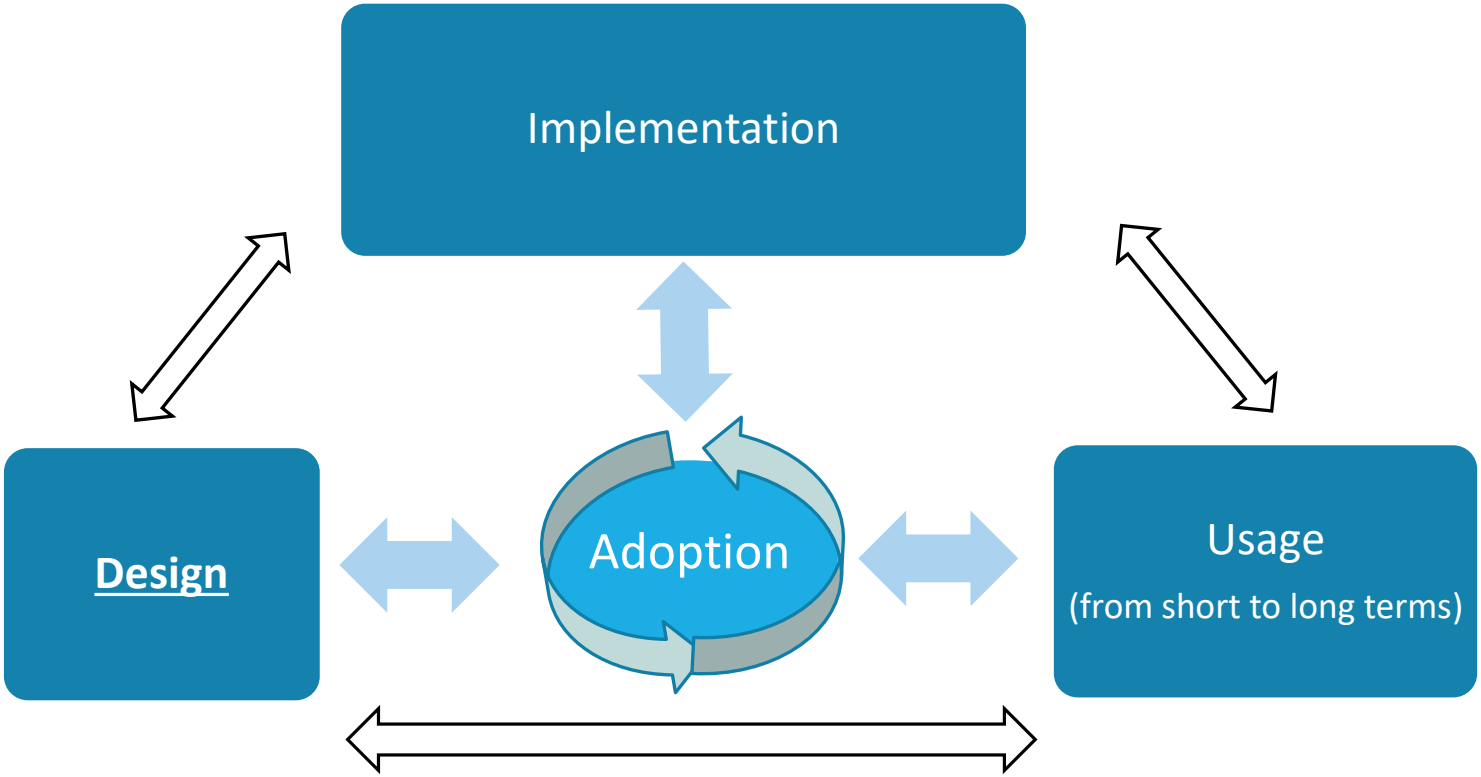
- But technologies are barely adopted in agriculture

(Eastwood, Trotter, & Scott, 2013 ; Tey & Brindal, 2012)

- Especially because technological adoption is not taken into account

(Lamb, Frazier, et Adams, 2008)

2. Technological adoption



2. Technological adoption

- Adoption begins at the design stage, which can be seen as a « representations building activity » (Visser, 2009)
- Representations = internal entities, different from the things their represent (Greco, 1995) about :
  - the design process: goals, the role of the different actors… (Cahour, 2002 ; Tricot & Plégat-Soutjis, 2003)
  - the users and the uses (Akrich, 1993 ; Folcher, 2015)
- Representations are “crystallized into the design” (Béguin, 2007)

2. Technological adoption

Representations about users and uses :

- Can be based on:
  - « the common sense » (Akrich, 1993)
  - the personal experience (Akrich, 1993)

- Are often disconnected from the users' real work

(Béguin & Cerf, 2004 ; Caroly, 2007)

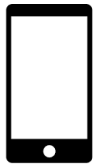
How to build « a representation in common » (Tricot & Plégat-Soutjis, 2003) about the user's activity, between the project's actors ?

3. Methods

- Reflexive practice about the ergonomic intervention performed

(Béguin, 2004 ; Daniellou, Escouteloup, & Beaujouan, 2011 ; Lecoester, Gaillard, Forrierre, & Six, 2018)

- Aim of this intervention : support the design of a phone app for an agricultural advisor
  - Collect data in the fields, at a numeric format
  - Give recommendations to the vine growers



3. Methods

1. Elaborating a representation of the advisor's activity

2. Identifying the designers' representations about the advisor's activity

3. Building a representation in common about the advisor's activity

4. Results

Ergonomic analysis

- The nature of the recommendation can vary
  - Chemicals intervention
  - Fertilization intervention
  - Green operation
  - Intervention on the soil
  - …

Designers' representations

- The nature of the recommendation is always the same
  - Chemicals intervention

4. Results

Ergonomic analysis

- The justification of the advise can vary
  - Observations on the vineyard
  - Mandatory interventions
  - Weather alert
  - …

Designers' representations

- The justification of the intervention is always the same
  - Observations on the vineyard

4. Results

Ergonomic analysis

- The advise is both individual and collective

Designers' representations

- The advise is always individual

4. Results

2 main results :

- the designers' representations changed
- the envisaged phone app evolved. New specifications about :
  - Nature of the advise
  - Justifications of the advise
  - Recipients of the advise

5. Conclusion

- Goals of the study = analyse the effects of the ergonomic intervention on the technology acceptability

- The ergonomic intervention led to a « cognitive synchronisation » (Falzon, 2005), about the advisor's activity, between the project's actors, reducing the "sociocognitive gaps" (Cahour, 2002).

- The ergonomic intervention can foster the adoption because :
  - It is based on the future users real work
  - It takes place at the design stage where adoption begins

Thank you for your attention

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