

# Towards controlling the acceptance factors for a collaborative platform in engineering design

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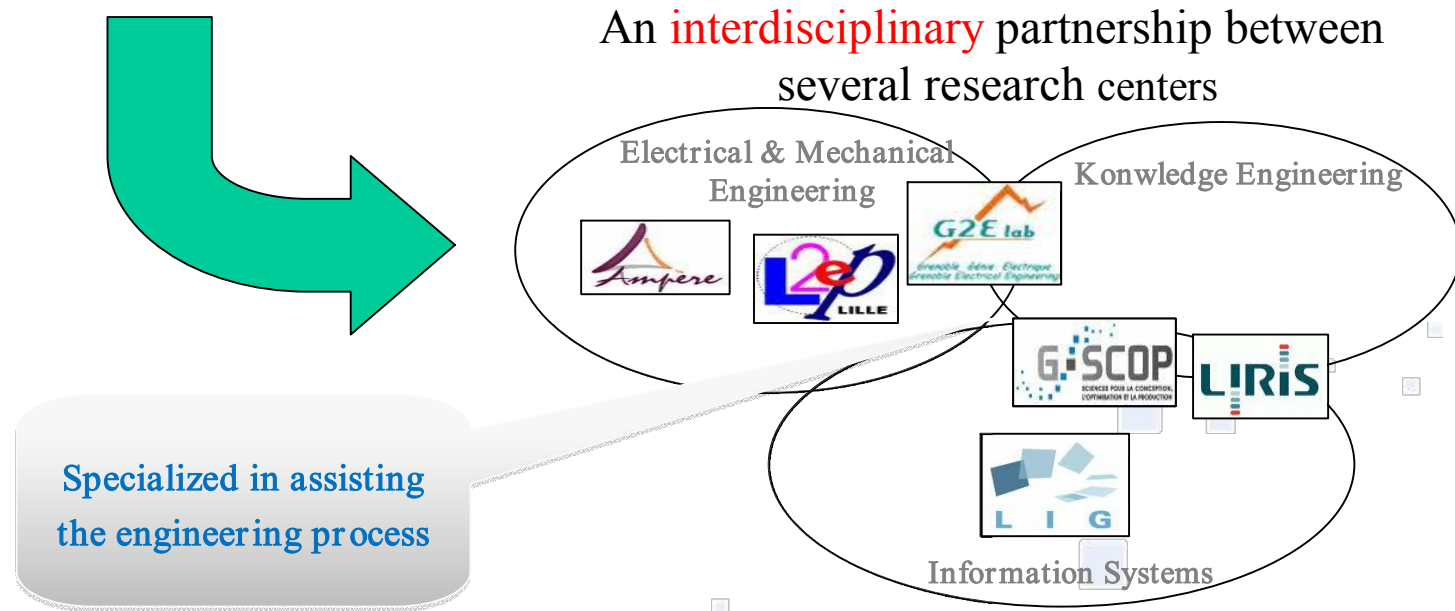
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# Context

**DIMOCODE** a project supported by CNRS:

Development of a **web-based collaborative platform** intended to technical knowledge (**physical & enegetic models**) sharing between engineers and researchers



# Agenda

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- ❑ Introduction
- ❑ Research problematic
- ❑ Research approach
- ❑ Literature review
- ❑ What is DIMOCODE?
- ❑ Primary factors selection & control
- ❑ Summary & Conclusion
- ❑ Limitation & Outlook

# Introduction: Interest of collaborative platforms for KM

Engineering Process



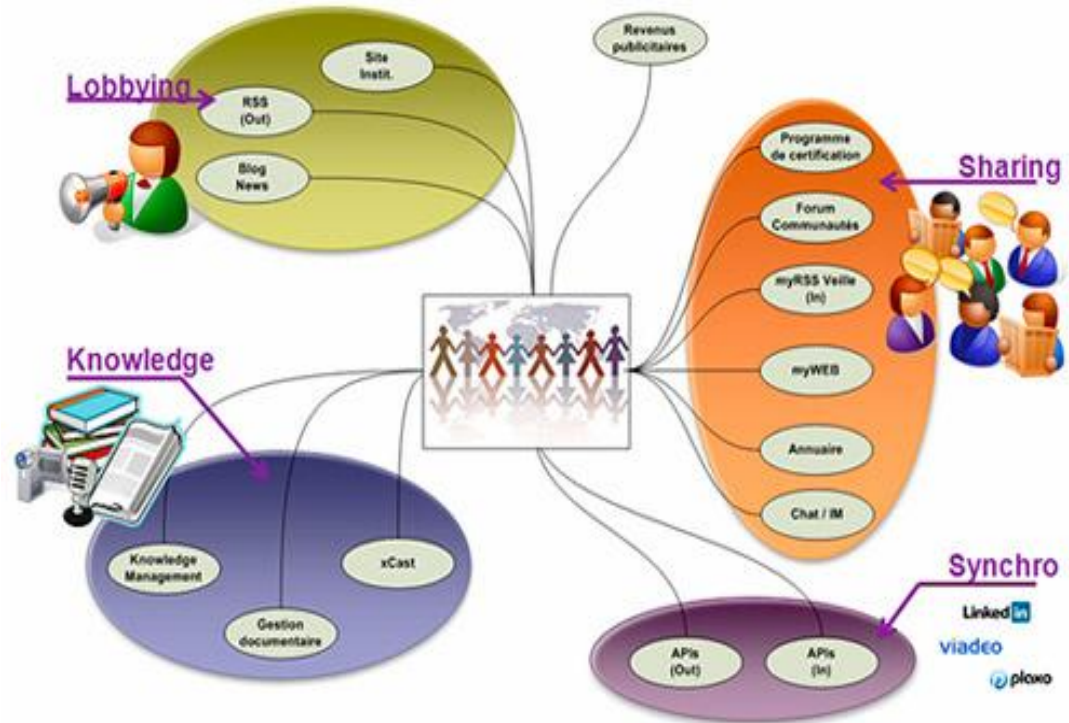
Knowledge exchange



Construction and sharing of knowledge



Collaborative platforms one of the best solutions



**Collaborative Platform :**  
**Means of Interaction + Information repositories**

## Introduction: limited success of the KMs

- ❑ Serious controversy around the success of Web-Based KM initiatives.

Despite many examples of successful implementations, the success of collaborative platforms within organisations is not always guaranteed



Lack of intention to use: the root cause of failures [Goodman & Darr;1998],[Bourdon & Vitari;2003]



Organisational & Technical issues , 2 main challenges KMs are facing with [Atwood;2002].

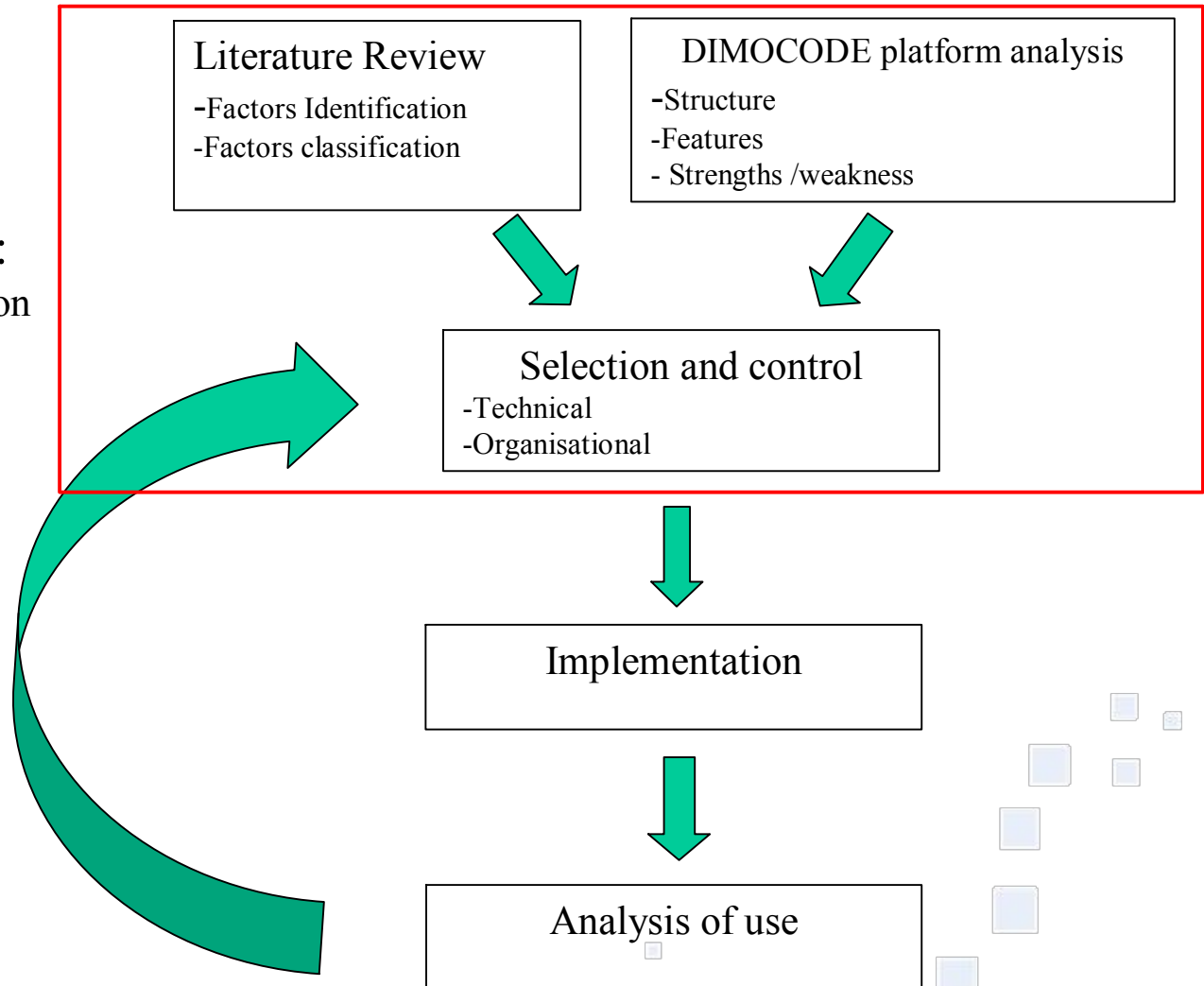
# Research problematic

- ❑ Human **intention to use** and **individual acceptance**: two key issues in the technology adoption challenge [Turner&Money;2005],[Kankanhalli et al.;2005]
- ❑ Making a mass of users: one of the major concerns in the institutional setting.

- ❑ How to incite scientists and engineers to interact more and more through a collaborative platform?
  - ❑ What are the main factors which may affect the adoption of a technology like DIMOCODE?
  - ❑ How to control these factors through organisational and technical means ?

# Research approach

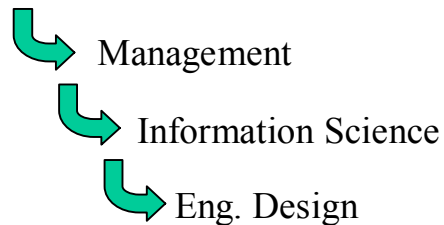
Specification part :  
Object of this presentation



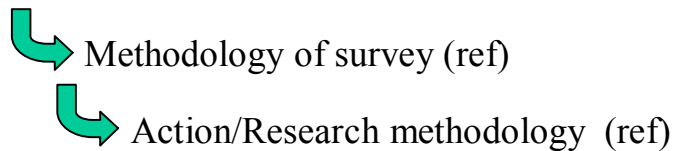
# Literature Review: Identification matter

□ Factors identification: a documentary work based on the analysis of **about forty empirical studies** from the literature :

- Examined papers mainly involving the following disciplines



- Research approaches applied in acceptance factors studies





□ Emersion of a 20 factors **candidate list**.

| Factors              | Short description  | Dimension                     | References   |
|----------------------|--|-------------------------------|--|
| Cooperative culture  | An organisational culture conducive to knowledge sharing causes the employees to recognize the benefits of knowledge sharing behavior. | <i>Organisational context</i> | [Leidner et al.;2006],<br>[Bernard;2006]<br>[Goodman& Darr;<br>1998] |
| Loss of power        | Reluctance to disseminate his knowledge using KMS<br>fear of losing the resulting superiority  | <i>Users</i>                  | [Bernard;2006]   |
| Perceived usefulness | Quality of contents, task-technology-fit and<br>awareness of potential benefits  | <i>Tool</i>                   | [ Lin & Huang;2008],<br>[Goodman & Darr;<br>1998]                    |
| Task Tacitness       | The proportion of tacit knowledge upon explicit one,<br>needed to perform a task using KM tool.  | <i>Task</i>                   | [Kankanhalli et al.;2005]<br>[Goodman&Darr;<br>1998]                 |

# Literature Review: classification

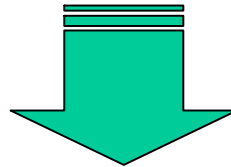
□ Two key point of view suggested for factors classification.

1) According to their positive or negative effect on sharing behavior

2) Factors allocation to a fourfold dimension (**more common**)

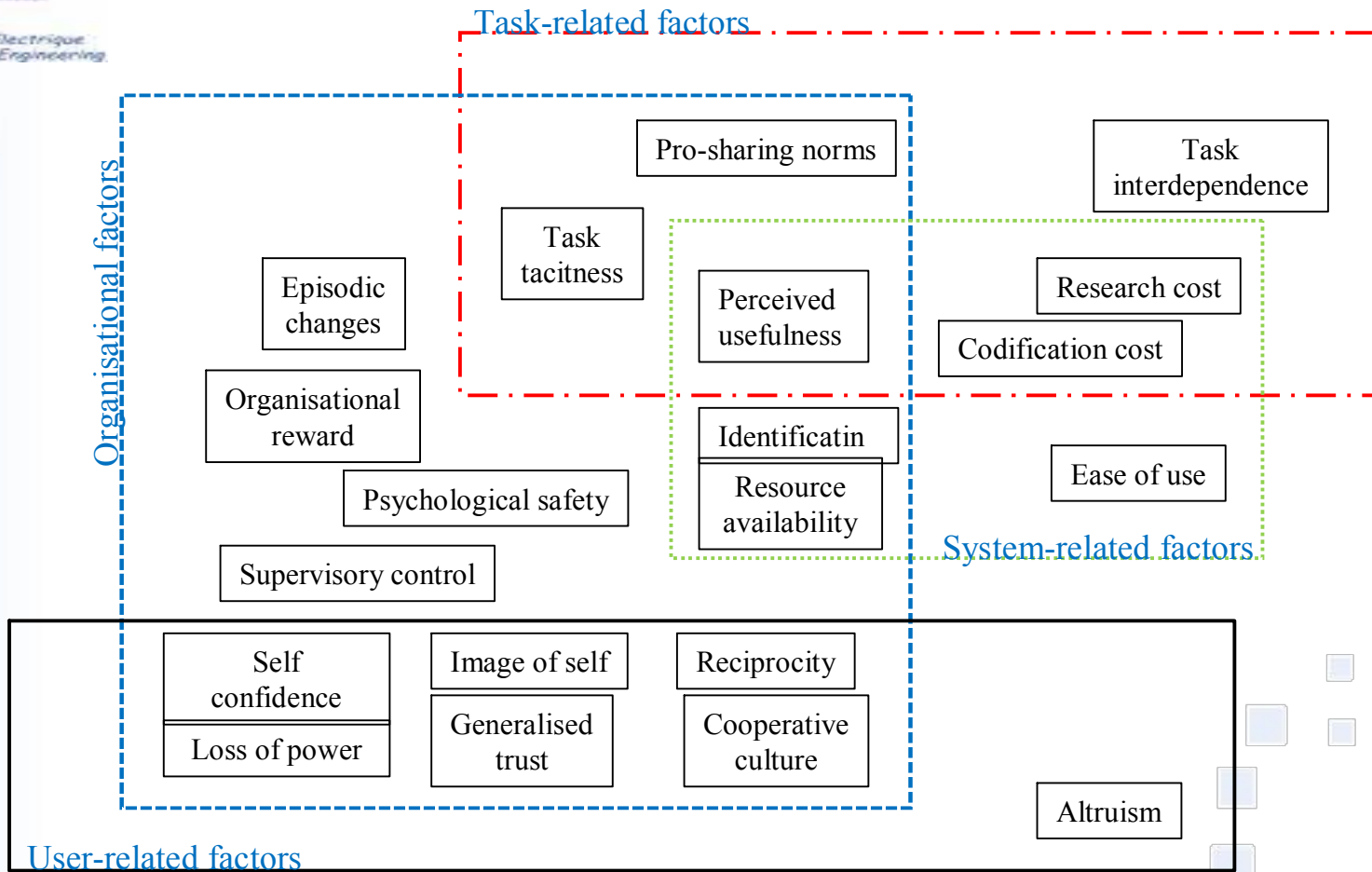


Some factors could correlate with more than a single dimension

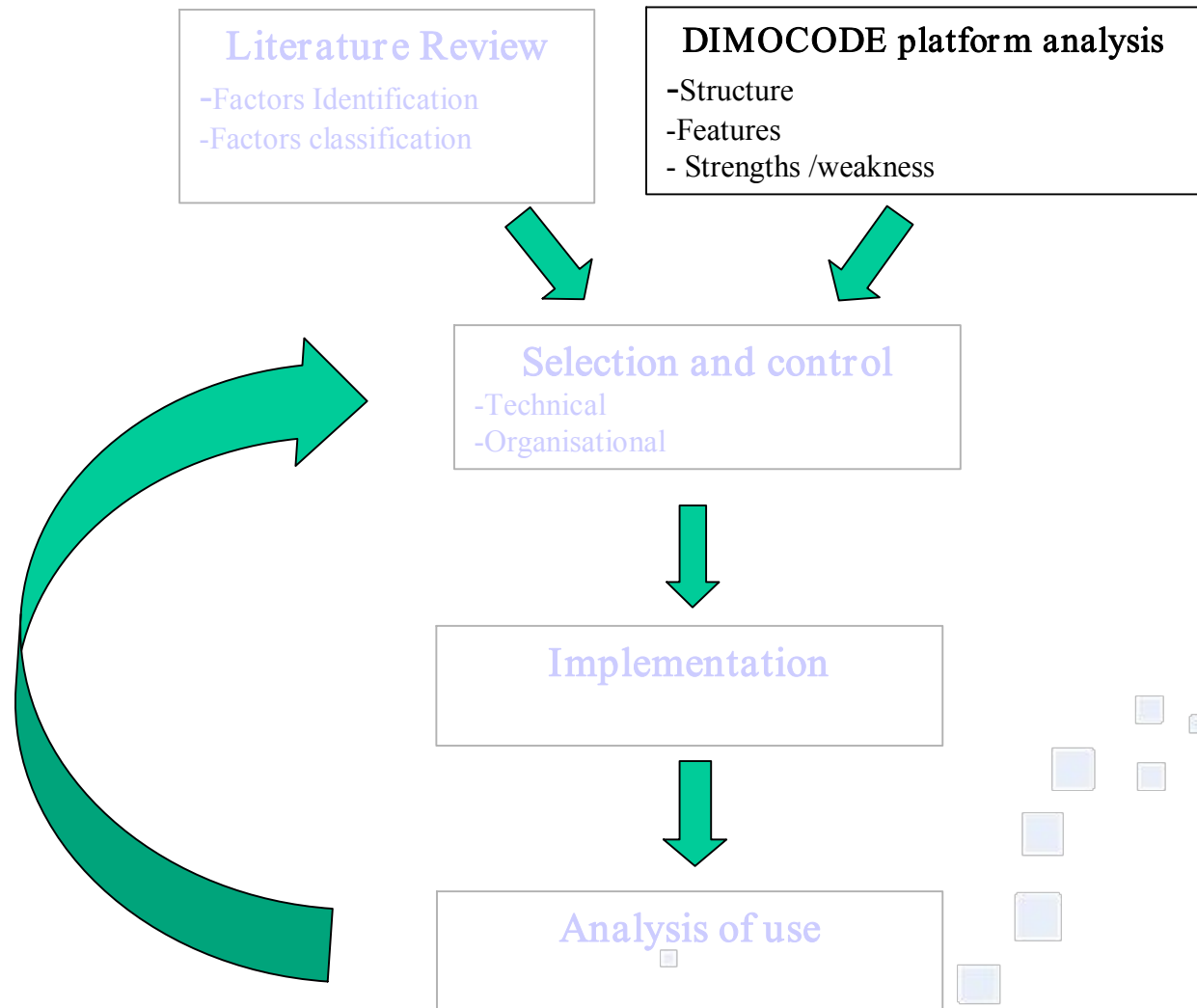


We propose a new way of classifying consistent with the multi-dimensional nature of these factors

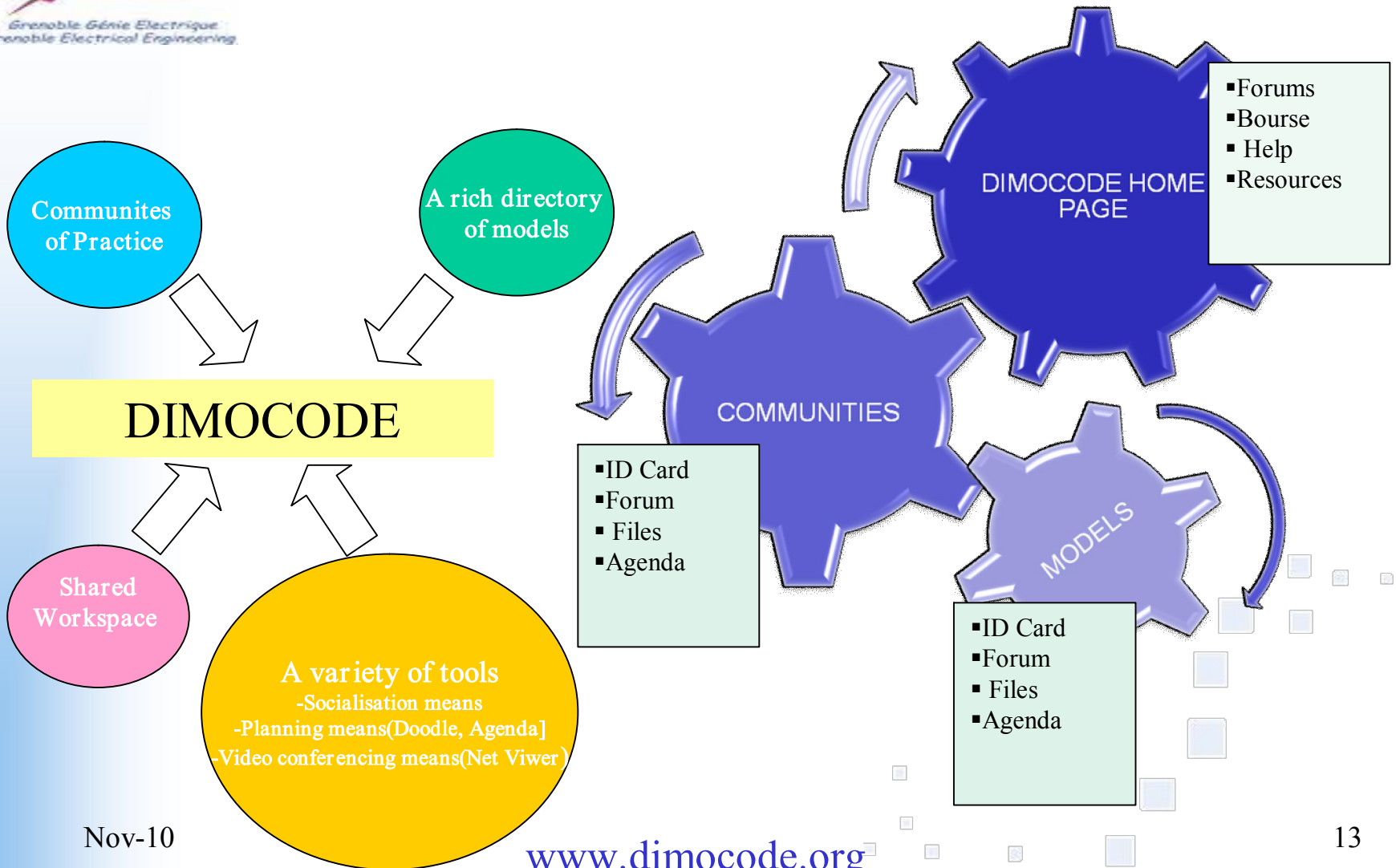
# Literature Review: classification matter



# DIMOCODE Presentation



# What is DIMOCODE?





# What is DIMOCODE?

The image displays two browser windows from the CollaborativeECM website. The left window shows the main site navigation and a sidebar with links to resources, models, forums, and communities. The right window shows a detailed view of a model titled "Alternateur à haut rendement énergétique".

**Dimocode**  
Diffusion par Internet des Modèles pour la Conception Optimale des Dispositifs Energétiques

**Vous êtes ici :** Accueil > Modèles > Alternateur à haut rendement énergétique

**La carte d'identité du modèle**  
**Alternateur à haut rendement énergétique**

Dimensionnement d'un alternateur de nouvelle génération à haut rendement énergétique.

Contexte et objectif de création : développement d'une technologie de troisième génération dimensionnement de gamme  
Pré-requis théoriques : moteurs à courant continu &  
Mots-clés : Non renseigné

**Caractéristiques spécifiques**  
Domaines physiques : Génie électrique & optimisation & pré-dimensionnement &

| NOM                       | UNITE | VALEUR PAR DEFAUT | DESCRIPTION |
|---------------------------|-------|-------------------|-------------|
| Puissance requise         | W     |                   |             |
| Tension de sortie         | U     |                   |             |
| Dimension caractéristique | mm    |                   |             |

Entrées :

| NOM            | UNITE | VALEUR PAR DEFAUT | DESCRIPTION |
|----------------|-------|-------------------|-------------|
| Intensité      | A     |                   |             |
| Masse bobinage | kg    |                   |             |

Sorties :

Hypothèses : induction dans l'entrefer rectangulaire &

**Métadonnées**  
Gestionnaire : Franck Pourroy  
Date de création : 26 janv. 2010  
Date de modification : 26 janv. 2010

**Communauté(s) associée(s)**

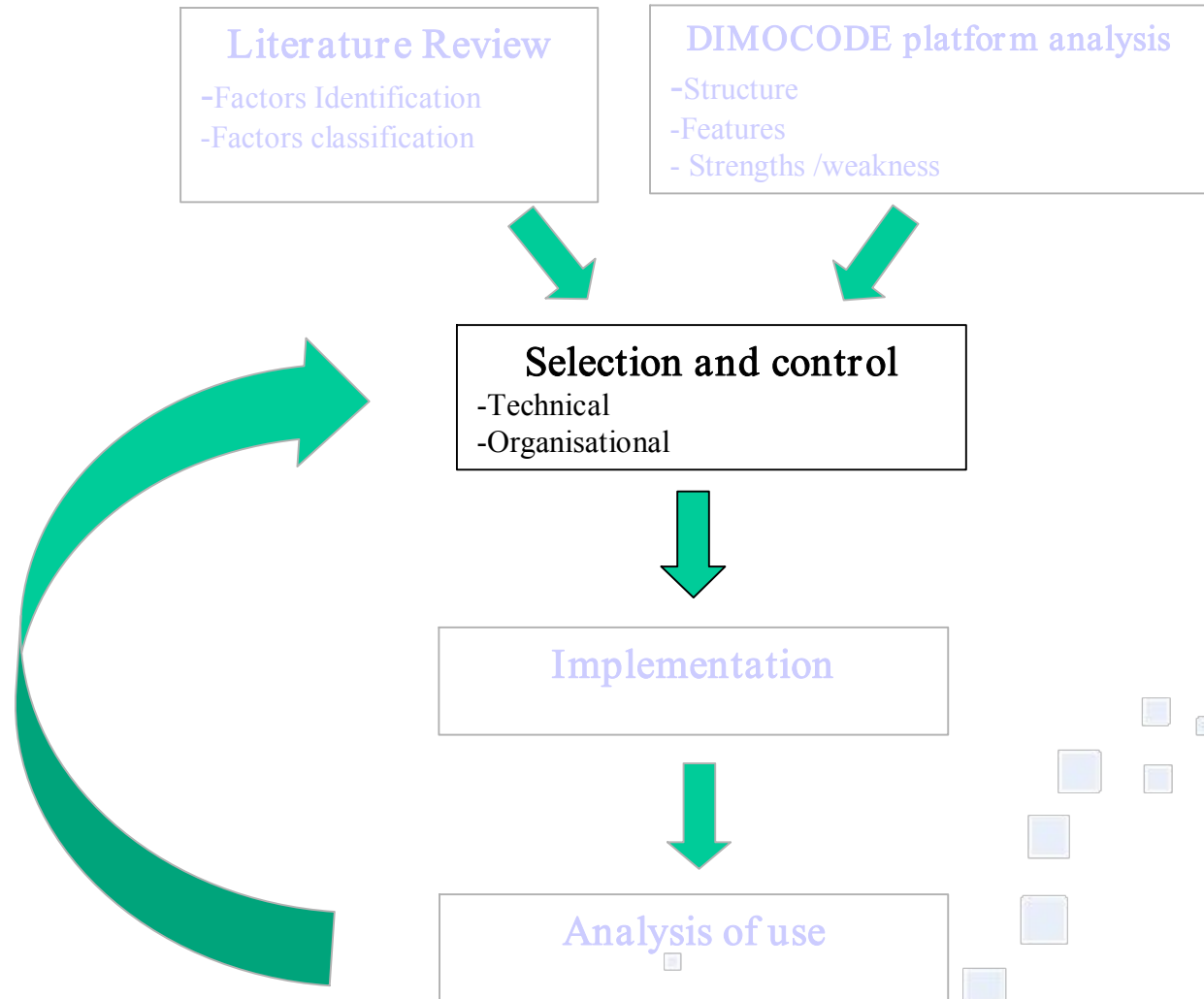
**Ressources exploitables**  
Références bibliographiques :  
Formats de documents disponibles : Non renseigné

**Diagramme technique :** A detailed electrical schematic of the alternator system. It includes a central alternator (Alternateur) connected to a control logic (Logique Amorçage) and a starter motor (Démarreur). The system is powered by a 12V battery (Batterie 12V) and includes various relays (R1, R2, R3), diodes (D1-D9), and a contactor (Contacteur Neiman). Labels include "Câble de liaison Batterie / Démarreur", "Masse bloc moteur", "Tresse de liaison Bloc moteur / Chassis", "Masse Chassis", "Démarre", "Arrêt", "Marche", and "Accessoires".

Nov-10

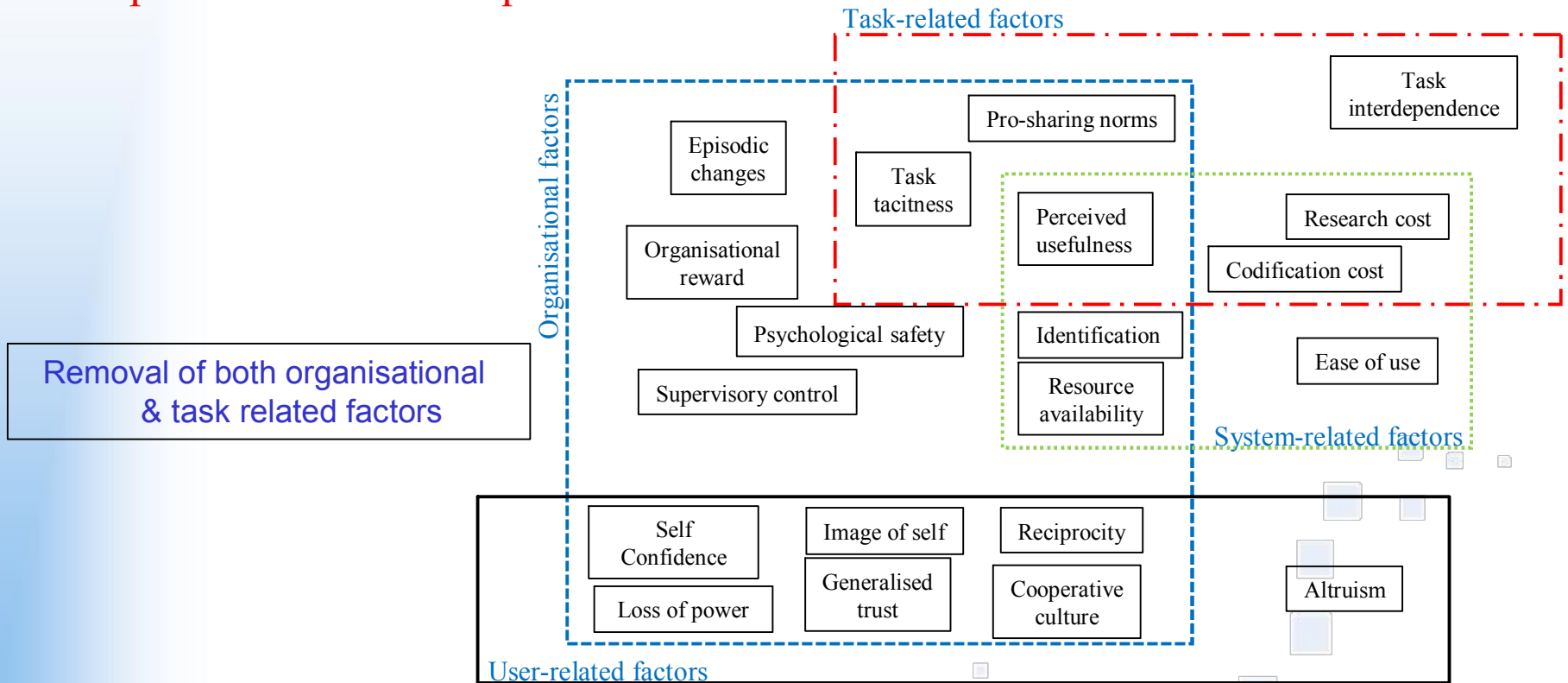
www.dimocode.org

# Selection & Control



# Selection & Control

- ❑ Selection of the primary factors from the initial set based on **Dimocode specifications** and **requirements**

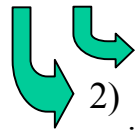




# Selection & Control

❑ Controlling for the effect of the selected factors: a high priority in order to insure a **dynamic life** of the DIMOCODE platform.

❑ A two-step control method



1) Associate each factors with one or more strategies

2) Find the suitable leverage for action( organisational & technical) to put into action these strategies

| Factors       | Strategy                        | Leverage for action                                       |  |
|---------------|---------------------------------|---|--|
|               |                                 | Organisational  | technical  |
| Image of self | Making the contributors visible | Identification of the most relevant contributions         | Publication on the news pages of the communities |
|               |                                 | Organising the invited online conferences from the expert | Visio-conference facilities                      |

## Summary & conclusion

- ❑ A **candidate list** of 20 factors was established.
- ❑ A **new classification** manner which is consistent with the **multi-dimensional** property of some factors was advised.
- ❑ A decade of **primary factors** was qualified for DIMOCODE context among those of the candidate list.
- ❑ The associated **strategies** with corresponding organisational & technical **levers of action** were defined to moderate the primary **factors effects** on **user contribution** to DIMOCODE

More generally, the suggested method is supposed to be useful for every kind of collaborative platforms

## Limitations & Outlook

- ❑ Taking into account and studying the observed causality relationship between some of the factors as a plausible moderator of the factors influence.
- ❑ Completing the research process for DIMOCODE to validate the performed selection of factors and the Control strategies.
- ❑ Applying our proposed method to some other collaborative platforms in order to test our hypothesis.