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Abstract. Collaboration is the basis for conceiving, coordinating and implementing the tasks associated to complex goals. Collaboration is pervasive: there is practically no human challenging domain that is not influenced by collaborative processes, in particular Education in formal and informal settings. For these reasons we have to consider collaboration at a distance as a "new" key phenomenon that deserves to be studied, thus modeled in order as much as possible to foresee its effects. In the global village, synthetically represented by "the Web", many collaborative contexts exist; each with its properties.

In all these different contexts where the collaboration quality depends on some particular property like the collaboration goal, tasks, and constraints, classical performance evaluation methods are not adequate and cannot be applied directly. In this paper, we discuss a new e-collaboration evaluation approach based on the analysis of scenarios.

Keywords: e-collaboration, performance evaluation, scenario based analysis.

1 Problem Position

Frequently, two or many persons in different ends of the world have common interests and need to collaborate. Such a requirement imposes multiple constraints, but at the same time could produce very interesting results promoting a significant progress in the concerned domain. Thanks to the existing technologies, collaborative work can be encouraged with a minimum of constraints. Actually, a wide range of collaborative platforms is available offering services more and more sophisticated and adapted to all the needs. Despite all this technological wealth in perpetual growth, its exploitation is still limited and slowed by a weak reliability level. The improvement of this situation can't be ensured without the application of largely validated performance evaluation methods permitting to detect and eventually solve the existing problems.

In the literature, there are many works on e-collaboration performance evaluation developing different ideas generally without any validation [3][4]. This explains the

lack of standards for performance evaluation and the frequency of subjective statements on e-collaboration performance. In this paper, we present a scenario based analysis of e-collaboration environments as a first step of a new, hopefully well founded, performance evaluation approach that we are currently studying.

2   E-Collaboration Analysis

At the end of this analytical phase, we wish to obtain the abstractions representing the reality in a significant way. We considered that the best mean to ensure this purpose, is to start from observing real e-collaboration cases like e-learning sessions [1], vote scenarios [2] and virtual meetings of research teams; this way we choose an empirical approach to experimentation. In the following, we present the preliminary conclusions we have obtained.

2.1   Observing Results

The observation showed that despite their diversity, all e-collaboration scenarios are supported by a communication tool permitting to participants to work with each other. The collaborator's interactions available in any scenario generate interesting knowledge and expertise exchanges responsible of the sub-goal satisfaction and so the accomplishment of the global goal. From this common description of e-collaboration scenarios shown in Figure 1, we can cite the following elements as their most important constituents: collaborators, e-collaboration tool, interactions, sub-goals and global goal. The aspects related to individual exchanges can be considered as the e-collaboration kernel and deserve a more elaborated description as suggested hereafter.
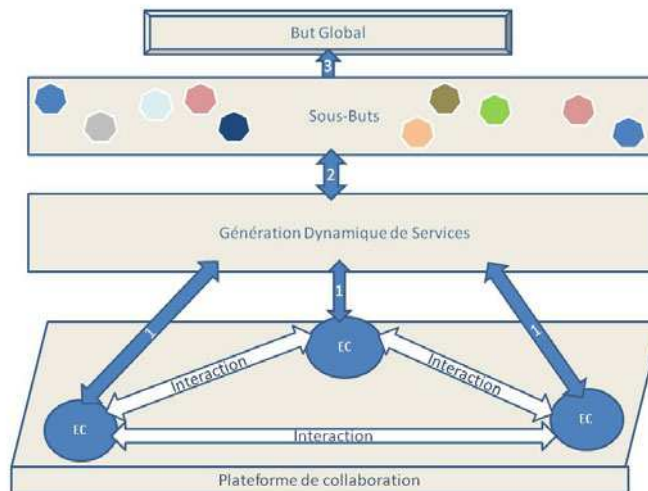

Fig. 1. Formalization of e-collaboration scenarios

In every e-collaboration scenario, exchanges are ensured by series of "communication moves" between the collaborators. In order to communicate with collaborator B, collaborator A needs to interact with his/her computer which needs to interact on its turn with the recipient's computer. To access to the received information, collaborator B has also to communicate with his/her computer. From this description, three types of interactions [5] can be identified during an e-collaboration session: Computer to Computer Interaction; Collaborator to Computer Interaction; Collaborator to Collaborator Interaction.

The previously described work [5] was based on particular scenarios and provided a general formalization of e-collaboration sessions. This generalization is useful as it will be a starting point for the reusable evaluation method to propose. Once the most important e-collaboration constituents are available, the principal aspects having to be evaluated can be hopefully determined (measured): the platform's performance, the accomplishment of the global goal in terms of sub goals and the quality of the exchanges.

3   Discussion

The three cited evaluating aspects haven't the same importance. In fact, thanks to technological progress, e-collaboration platforms performances are continuously improved and nowadays are generally satisfactory. In addition, evaluating goal's accomplishment is easy to carry out in any e-collaboration scenario. The last point concerning exchanges is estimated to be the most difficult to deal with; so our future analysis will be focused on it.

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