Available online at www.sciencedirect.com
SCIENCE DIRECT
Int. J. Human-Computer Studies 64 (2006) 611–621
International Journal of Human-Computer Studies
www.elsevier.com/locate/ijhcs

A conceptual foundation of the thinkLet concept for Collaboration Engineering

Gwendolyn L. Kolfschoten[a,*], Robert O. Briggs[a,b], Gert-Jan de Vreede[a,c], Peter H.M. Jacobs[a], Jaco H. Appelman[a]

[a]*Faculty of Technology, Policy and Management, Delft University of Technology, P.O. Box 5015 – 2600 GA Delft, The Netherlands*
[b]*Center for Distance Education, College of Rural and Community Development, University of Alaska Fairbanks, US*
[c]*College of Information Science & Technology, University of Nebraska at Omaha, US*

Available online 20 March 2006

Abstract

Organizations increasingly use collaborative teams in order to create value for their stakeholders. This trend has given rise to a new research field: Collaboration Engineering. The goal of Collaboration Engineering is to design and deploy processes for high-value recurring collaborative tasks, and to design these processes such that practitioners can execute them successfully without the intervention of professional facilitators. One of the key concepts in Collaboration Engineering is the thinkLet—a codified facilitation technique that creates a predictable pattern of collaboration. Because thinkLets produce a predictable pattern of interactions among people working together toward a goal they can be used as snap-together building blocks for team process designs. This paper presents an analysis of the thinkLet concept and proposes a conceptual object model of a thinkLet that may inform further developments in Collaboration Engineering.

Keywords: Collaboration Engineering; ThinkLets; Collaboration; Object oriented modeling; Collaboration process design; Facilitation; Group Support Systems

1. Introduction

People frequently join forces to accomplish goals through collaboration that they could not achieve as individuals. By collaboration we mean joint effort toward a goal. Collaboration is essential for value creation (Hlupic and Qureshi, 2002, 2003), and often used for mission critical tasks. While team efforts can be productive and successful, group work is fraught with challenges that can lead to unproductive processes and failed efforts (Nunamaker et al., 1991). Many teams therefore rely on professional facilitators to design and conduct high-value or high-risk tasks (Niederman et al., 1996; Griffith et al., 1998).

The need for facilitation increases when teams seek to use Group Support Systems (GSS) technology. Under certain circumstances, GSS can lead to order-of-magnitude increases in team productivity (see (Fjermestad and Hiltz, 1999, 2001) for a comprehensive overview of GSS research). However, the success of a GSS session is by no means assured, see e.g. (de Vreede et al., 2003). As with many tools, GSS must be wielded with intelligence guided by experience in order for its potential to be realized. Novice users find the GSS tools easy to operate, but they typically cannot use the full potential of GSS. Most GSS users must therefore rely on professional facilitators in order to derive the benefits offered by GSS (Briggs et al., 2003; de Vreede and Briggs, 2005).

Skilled facilitators, however, tend to be expensive. They either have to be trained in-house, or hired as external consultants. Therefore, many teams who could benefit from facilitation interventions and from GSS must often manage without them. One solution to this challenge would be to reduce the need for skilled facilitation

*Corresponding author. Tel.: +31 (0)15 2783567; fax: +31 152 783429.
E-mail addresses: g.l.kolfschoten@tbm.tudelft.nl (G.L. Kolfschoten), bob.briggs@uaf.edu (R.O. Briggs), gdevreede@mail.unomaha.edu (G.J. de Vreede), p.h.m.jacobs@tbm.tudelft.nl (P.H.M. Jacobs), j.h.appelman@tbm.tudelft.nl (J.H. Appelman).

1071-5819/$ - see front matter © 2006 Elsevier Ltd. All rights reserved.
doi:10.1016/j.ijhcs.2006.02.002

expertise; to find a way that a team could wield the GSS and manage its collaboration process for itself, without the ongoing intervention of a professional facilitator but with predictable results. Addressing this challenge is the domain of the emerging field of Collaboration Engineering.

Collaboration Engineering is an approach that designs, models and deploys repeatable collaboration processes for recurring high-value collaborative tasks that are executed by practitioners using facilitation techniques and technology. Collaboration processes designed in Collaboration Engineering are processes that support a group effort towards a specific goal, mostly within a specific timeframe. The process is build as a sequence of facilitation interventions that create patterns of collaboration; predictable group behavior with respect to a goal. The effort involves a continuous reciprocal interaction (Thompson, 1967), but does not require co-location of participants. Collaboration Engineering researchers seek to codify and package key facilitation interventions in forms that can be re-used readily and successfully by teams that do not have professional facilitators at their disposal. Therefore, there are three key roles within Collaboration Engineering:

A *facilitator* both designs and conducts a dynamic process that involves managing relationships, tasks and technology, as well as structuring tasks and contributing to the effective accomplishment of the meeting's outcome (Bostrom et al., 1993).

A *practitioner* is a task specialist who must execute some important collaborative task like risk assessment or requirements definition as a part of his or her professional duties. A practitioner is *not* necessarily a professional facilitator who designs new processes for new situations; a practitioner executes a specific collaboration process on a recurring basis (Briggs et al., 2003; de Vreede and Briggs, 2005). A practitioner therefore does not need extensive training as a facilitator, but only needs to learn the specific skills required to accomplish a particular collaboration process. The practitioner needs a high-quality, reusable, transferable process design that can deliver predictable results.

A *collaboration engineer* designs and documents collaboration processes that can be readily transferred to a practitioner. This means that a practitioner can execute the process without any further support from the collaboration engineer, nor from a professional facilitator.

Table 1 describes the collaboration engineering roles, their tasks in terms of collaboration process design and execution, and their required expertise. TextBox 1 provides an example of a collaboration engineer designing and transferring a risk management process in a large financial services firm.

To achieve the required quality and predictability described above, one of the current foci of Collaboration Engineering research is to identify and document reusable elementary building blocks for group process design.

Table 1
Collaboration Engineering roles

Role	Process design	Process execution	Expertise
Collaboration engineer	Repeatable, transferable processes	No execution, just process transfer	Both process and application domain
Facilitator	Ad hoc, context specific processes	Execution and ad hoc modification	Process
Practitioner	No design	Execution	Application domain

Textbox 1
Collaboration Engineering example

A large international financial services organization was faced with the challenge to perform hundreds of operational risk management (ORM) workshops. They requested a repeatable collaborative ORM process to be developed that operational risk managers could execute themselves. Based on the experiences and the requirements from the ORM domain experts, collaboration engineers developed a first prototype of a repeatable collaborative ORM process. This process was evaluated in a pilot project within a business unit, leading to a number of modifications to the definition of the overall process in terms of collaborative activities, their interdependencies, and the facilitation techniques used. The resulting collaborative ORM process was shown to a group of 12 ORM experts. During a half day discussion, the wording and order of activities was modified and the proposed collaborative activities where tested with a number of chosen facilitation techniques. In the period that followed, over 200 ORM practitioners were trained to execute this process. To date, these ORM practitioners have moderated hundreds of workshops where business participants identify, assess, and mitigate operational risks.