In knowledge intensive collaborative tasks the main ‘production factor’ is cognitive effort. Therefore the cognitive load required in collaborative tasks is often a key determinant of productivity. Research on the cognitive load and cognitive activities involved in collaboration may give rise to design principles that help to more efficiently and effectively use cognitive capacity.

In order to design interventions that improve cognitive efficiency in collaborative tasks we need to understand cognitive patterns and activities in collaboration. Collaboration is typically used for complex problem solving tasks and, as such, makes it challenging to untangle the multifaceted cognitive processes involved. The fields of neuroscience and cognitive psychology may help collaboration researchers better understand the phenomena that give rise to effective collaboration under such conditions. The research in this minitrack often makes use of such referent disciplines to tackle the theoretical and methodological challenges of researching the interplay between cognition and collaboration.

With this challenging research direction we hope to better understand the cognitive processes involved in collaboration and the use of collaboration support tools. We present four papers that each offer unique perspectives on cognition in collaboration.

Commander’s Intent and Distributed Collaborating Teams discusses effective strategies to communicate intent and goals to a group.

Neurophysiologic Patterns of Learning in Decision Groups discusses an experimental study to understand learning in groups.

Why Shared Understanding Matters - Engineering a Collaboration Process for Shared Understanding to Improve Collaboration Effectiveness in Heterogeneous Teams discusses an approach to build shared understanding in groups.

An Evaluation of Trust Development in Group Collaborations: A Longitudinal Case Study offers insights in factors that influence trust development in teams.

These papers offer new insights on collaboration, and approach collaboration using innovative research methods. They show that this road is promising and full of many unanswered research questions. We recommend these papers to your reading and hope they inspire you to further explore the cognitive perspective on collaboration.