

A Social-Technical Perspective Over Business Process Management and Resilience

Position Paper

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Business process management (BPM) plays a central role in current organizations, bringing together the business and technological requirements into one common arena focused on reducing the gap between the external environment and the internal structures, resources and activities. BPM technology offers an effective platform to move from service demand to deployment at a very fast pace, because the coordination of activities and information logistics are managed by a flexible and reusable service oriented infrastructure.

However, this infrastructure is not without problems. For instance, although the work processes carried out by most organizations belong to a continuum ranging from totally expected, relatively expected, slightly unexpected to completely unexpected, the current infrastructures do not support a seamless transition between these very different work models. Other identified problems include the inability to cope with flexible work contexts, the gap between the users and technology and risks originated by combining human limitations with technological limitations. These problems certainly do not contribute to resilience.

We have seen several attempts to increase the capability of BPM technology to handle “small” deviations in work models. Most often, the proposed solutions are limited by the consistency requirement: consent users to carry out ad-hoc interventions as far as they do not violate the system consistency (i.e. the system is controlling the users).

Such approaches, although yielding more slack to BPM, still do not cover “large” deviations due to unexpected business conditions or even true exceptions (meaning that nothing similar has happened before and the organization must rethink and redesign itself). Such large deviations introduce the openness requirement: consent users to carry out any ad-hoc interventions necessary to overcome the unexpected conditions (i.e. the users are controlling the system).

The problem however is that completeness and openness are contradictory. On the one hand, the restrictions imposed to avoid system inconsistencies reduce the openness required to overcome unexpected situations. On the other hand, the completely open support to ad-hoc interventions reduces the advantages of BPM orchestrating services and coordinating information flows. Completely ad-hoc interventions may lead to system misbehaviors and crashes.

My research goals have been centered on reconciling these two apparently contradictory requirements. My perspective is founded on the observation that large deviations in business processes require collaboration support.

Collaboration support integrates technology with communication, coordination, human judgment and decision making under an organizational setting characterized by common goals and interdependence. Collaboration support integrates the humanistic and organizational views with the system- and service-oriented views, leading to a more comprehensive perspective over BPM.

By incorporating collaboration support, BPM technology may increase the capacity to cope with unexpected deviations between the system and the real world. Users may collaboratively discuss what is wrong with the system and devise strategies to bring the system into normal behavior.

The infrastructure necessary to accomplish this vision is quite demanding. Besides many technical aspects related with work modeling, consistency checking and on-the-fly changes, we have been addressing the following socio-technical requirements:

- Group awareness - The system should make the users aware of the deviations, exceptions and other relevant environmental changes with negative impact on the system behavior.
- Orchestrating human participation - The system should bring together the relevant users, taking into consideration their competencies and the organizational context. This orchestration may follow a trajectory that starts by involving one single user and later on involves coworkers, supervisors and ultimately the whole organization.
- Sensemaking - The system should be proactive and facilitate the collective understanding of the situation. This issue is also related with visualization: how to show system data in a way that is meaningful to users? How to relate that data with the business and organizational environments?
- Collaborative repair - The system should provide efficient and robust tools to overcome the deviations and exceptions. Collaborative repair may follow a trajectory where control resides on the system, moves temporarily to specific users and comes back to the system when normal behavior is regained.

In summary, my main concern has been on increasing resilience to unexpected business conditions. My perspective is that, when business conditions fall closer to the completely unexpected, users will be required to take control and overcome the system limitations. During these episodes, the technology should support two fundamental trajectories: one involving as many users in the process as required, and another managing flexibly who exerts control until normal behavior is regained.