

Data management is a very nice area: research is well motivated by real world problems and techniques developed are used to make software systems better. In fact, the research area really grew out of application needs of data management in financial systems, inventory management, etc. in the 60's and early 70's.

The information technology innovations (computer hardware, software, networking, data management systems, the Internet, World Wide Web, etc.) in the last two decades is causing a fundamental change in almost all things we do, all spectrum of life, and all corners of modern societies. As computer scientists, we are now used to phrases such as “*digital YYY*” (YYY being *library, government, classroom, health care*—a new phase I learned in China this summer and translated here, ...) and “*e-ZZZ*” (ZZZ being *mail, tailer, science, book, ...*). However, *all things is not well here*. There are many *new* challenges arising from the real world software systems and applications, as suggested by some keywords selected from this year's SIGMOD/VLDB/ICDE/EDBT session titles: “security” and “privacy”, “entity resolution”, “information extraction”, “data” on “modern hardware”, “provenance”, “uncertainty”, “social networking”, “mobility”, “data quality”, “meta data”, etc. In this special issue, I would like to take a few minutes of your time to go on a tour of a *not-so-new* area but a *hidden treasure*: “business process management” or “BPM”.

Roughly speaking, a *business process* is a collection of activities and services assembled together to accomplish a business goal (admitting a student, visiting doctor for an illness, reimbursing a business trip, granting a construction permit, establishing a law, ...). BPM refers to the management and support for a collection of inter-related business processes, often within an organization (government agency, real estate agency, hospital, institute, university, ...). This includes the management of all necessary resources (e.g., human) to ensure successful execution of all business processes, handling of exceptional cases, making needed changes for a range of reasons such as market competition, compliance to new laws and regulations, incorporation of new technology, and better management of resources. Clearly this is a *very old* problem!

What I am really speaking of is a new twist: when BPM meets IT! The availability of electronic storage, computer network, and advanced software development platforms is turning paper into digital documents and business processes into workflows (i.e., business processes aided by software systems). The BPM market (related to computer software) has already exceeded the billion-dollar mark. As a consequence, many management functionality now relies on software support. This is where things don't work very well. BPM practitioners today are facing enormous difficulties in many aspects due to a *profound* lack of technology related to IT.

The workflow concept is not new, definitely not to the database community. Traditional business process/workflow models focus mostly on the “control flow” aspect. In applications, the documents or data going through the workflow often play a vital role in determining whether the workflow would run correctly, effectively, and even efficiently. It's only natural that the area of workflow/BPM is embracing a significant shift from control flow-centric to *data-centric* workflow design and specification. Data-centricity is interesting and new. It has two facets. First, conceptual models for *data-aware workflow* elevate the data being manipulated by the workflows to the same level of prominence as given to control flow in traditional models. Second, the topic of *workflow as data* is emerging in recent studies on scientific workflow and business applications. A key issue is to easily represent, store, and query both workflow schemas and executions (or enactments).

I am happy to present this special issue on the interplay between data and processes in the context of BPM. These papers are authored by experts in the area and focus on three topics: *data-centric workflow models* ([Cohn and Hull], [Abiteboul, Segoufin, and Vianu], and [van der Aalst, Mans, and Russell]), *querying workflow models* ([Dumas, García-Bañuelos, and Dijkmanet] and [Deutch and Milo]), and *data and processes* ([Dayal, Wilkinson, Simitsis, and Castellanos], [zur Muehlen], and [Truong and Dustdar]). They can be a good starting point for your exploration but do not represent a comprehensive survey of the field. I hope you will enjoy this issue.