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Hajo A. Reijers^a; Selma Limam Mansar^b; Michael Rosemann^c

^a Eindhoven University of Technology, ^b Carnegie Mellon in Qatar, ^c Queensland University of Technology,

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From the Editors: Introduction and a Compass for Business Process Design

Hajo A. Reijers¹, Selma Limam Mansar², and Michael Rosemann³, Special Editors

¹*Eindhoven University of Technology*

²*Carnegie Mellon in Qatar*

³*Queensland University of Technology*

Introduction

In this editorial letter, we provide the readers of *Information Systems Management* with a background on process design before we discuss the content of the special issue proper. By introducing and describing a so-called *process design compass* we aim to clarify what developments in the field are taking place and how the papers in this special issue expand on our current knowledge in this domain.

Background

By the end of the 1980s, the term “Reengineering” was coined to denote several radical organizational change projects within large companies, which allegedly resulted in improved business performance. In the early 1990s, this idea was expanded to argue that companies should use modern IT to help radically *redesign* their business processes to gain ‘dramatic’ performance improvement. Mainly due to publications by prominent authors like Hammer and Davenport, the concept of BPR received considerable interest in the international business community and was regarded as one of the most important issues on the managerial agenda. Towards the end of the 1990s, however, the interest for BPR sharply declined. One can say that it “turned from fad to flop.” Various organizations grew disenchanted with BPR for a variety of reasons and failed to achieve the performance improvements that were reported elsewhere.

Surprisingly, during the start of the 21st century, process redesign went through a revival. A tool survey in 2005 among 1000 managers indicated that BPR is utilized by some 61% of the involved companies as opposed to 69% in 1995, BPR’s heyday year (Rigby & Bilodeau, 2005). Another survey conducted in 2007, also indicates that the great majority of respondents have a strong and continued interest in improving processes (Wolf & Harmon, 2008). Their interest ranges from processes that change the way the company does business

(discontinuous innovation) through major redesigns to streamline global supply chains, to Lean Six Sigma initiatives to improve the way routine processes function. In other words, no matter the label attached to it or the scope of the initiative, process redesign is “in demand” again.

Now demand is fine, of course, but is anyone able to deliver? In other words, is our IS community of researchers and practitioners providing ways to improve business processes towards increased performance and conformance? Arguably, there was no clear idea about this at all at the start of the BPR wave. What worked well for one company was tried in another setting but with mixed results, see e.g. (Sarker & Lee, 1999). One of the big issues that have been intensely debated in this context is about the pace of the redesign effort, i.e., whether to aim for radical or gradual change (Stoddard & Jarvenpaa, 1995; O’Neill & Sohal, 1999). More worrying still is that there was no insight from the start into what exactly needed to be changed in a process to improve it. For example, how to choose between adding extra resources in a process versus organizing the process in a more concurrent way? Finally, existing tools and methodologies could not provide support for any “deep” issues beyond a sketch of the broad steps to be undertaken and documented in a BPR project. These developments have led many researchers to articulate the need to improve the redesign process itself (Nissen, 1998; Hofacker & Vetschera, 2001; Reijers, 2003).

But things have started to look up in the past years. Various initiatives have been undertaken to rationalize the art of process redesign. Notable examples are the process handbook initiative initiated at MIT (Malone, Crowston, Lee, & Pentland, 2001), the work by Mark Nissen on the KOPer tool (Nissen, 1998), and, more recently, the development of process design methodologies and software by Eindhoven University of Technology and its partners (Reijers, Limam Mansar, & van der Aalst, 2003; Reijers & Limam Mansar, 2005). We have also witnessed in the previous BPD workshops that besides research on BPD methodologies, there is a trend and a

focus on addressing constraints in process design, user involvement, process reference models and process design quality. This special issue was launched as an attempt to stimulate the publication and dissemination of new ideas and developments in this field.

The Process Compass

To keep track of and categorize the various process design approaches, both old and new, we suggest the use of the compass as visualized in Figure 1.

In this process design compass, three planes can be distinguished. The uppermost plane refers to the *design* level. Here, the central issue is of a conceptual nature, namely how to derive a process that is superior in one or more respects to the process that is in place, if any. The middle plane deals with capturing such a process design in some kind of a *model*. Models are used for a variety of purposes in the context of process redesign, for example to communicate intended changes within an organization or as starting point for information system development. Finally, the bottom plane of the compass refers to the *evaluation* of a process design. Designs are usually evaluated by subjecting a model of such a design to, for example, simulation and verification techniques.

Clearly, the core of the process design challenge is related to the upper level, but the issues of modeling and evaluation are very closely related to it. For example, it seems hard to envision a design that is not translated to some form of model at any stage or a design that is adopted by an organization without any attempt to evaluate it beforehand. As can be seen in the compass, the upper plane itself is divided into various parts. Basically, there are two dimensions that generate this distinction. On the one hand, process design approaches can be either *revolutionary*, in the sense that they aim at generating a great improvement with perhaps unorthodox steps, or *evolutionary*, in the sense that small improvements are aimed for by taking a more gradual path. The

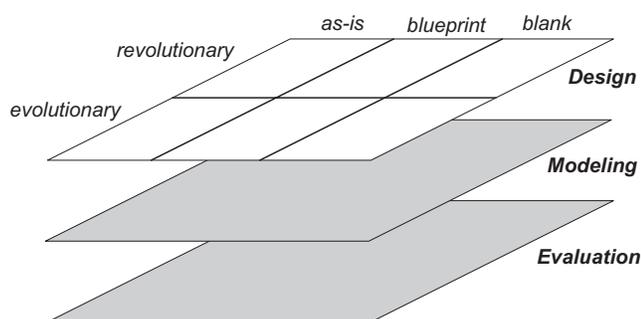


Figure 1. The process design compass.

original idea coined by Hammer *cum suis* had clearly been to advocate a revolutionary approach, while later authors have suggested applying a more incremental approach. The impetus for revolutionary approaches, however, has not disappeared completely, see for example (Reijers et al., 2003).

With respect to the other dimension that is used in the upper plane, a distinction can be made between approaches that take as starting point:

1. an existing process (*as is*);
2. a reference model (*blueprint*); and
3. no process at all (*blank*).

Once more, Michael Hammer as one of the BPR pioneers clearly advocated the “clean slate” approach, in other words, to completely ignore the current version of the process that must be improved. But also in this respect, later authors reported more success with using the as-is process as starting point for redesign initiatives and to gradually improve it, for example using a set of *best practices* (Reijers & Limam Mansar, 2005). Currently, a very popular approach in practice is to adopt a process design from some industry standard (e.g., SCOR, Supply Chain Operations Reference model) to use as starting point as some way of a compromise between the as-is and clean-slate approaches. The MIT Handbook initiative is a clear example of this approach as well; SAP business map, the IBM process repository, and the IBM-BPEL repository are other examples of process repositories currently available.

Note that the choice for the starting point is not completely determined by the choice for an evolutionary or a revolutionary redesign approach. Indeed, most revolutionary approaches are using a blank sheet of paper as a starting point and most evolutionary ones are using the existing process as a backbone. Nonetheless, new hybrid forms are emerging, for example, where reference models are used as a starting point and gradually adapt them to local conditions.

Finally, it is worthwhile noting that the upper plane of the compass could have easily been extended with another dimension, namely whether the approach is dominantly *participative*, meaning that it relies on the involvement of human stakeholders, or *formal*, in the sense that analytical techniques and derivations are key.

Content of the Special Issue

This special issue is closely related to the workshop on business process design (BPD), which is organized yearly by the special issue editors in conjunction with the International Conference on Business Process Management.¹ In response to the call-for-papers for this special issue,

over 20 submissions were received from all over the world. After a first screening, the authors of 7 papers were selected to present their work during the third 2007 BPD workshop edition in Brisbane. A second review round of extended versions of the accepted papers then resulted in inviting 6 of these for the special issue and finally accepting 4 papers for publication.

The first paper, "Towards Collaboration Maturity in Business Processes: An Approach and a Case Study in Oil Production Processes," is written by a team of Brazilian researchers from the Federal University of the State of Rio De Janeiro. It gives a detailed case description of a redesign project for a Brazilian petroleum company. The paper provides a "hands on" experience on how redesign projects are carried out. It transcends a mere case study by addressing specifically how an evolutionary redesign approach that focuses on the as-is process can profit from integrating collaboration issues in the process design.

The second paper, "Measurement of Compliance Distance in Business Work Practice," is written by Australian researchers from the University of Queensland and deals with the increasingly important issue of delivering process designs that not only perform well but also conform to various legislations and regulations. As such, their analytical approach can be placed in the evolutionary plane of the process design compass. The outcomes of their technique can be iteratively used for deriving a concrete process design.

Third in this special issue is a paper from a team of Dutch researchers from Eindhoven University of Technology, entitled "Quantifying the Performance of Workflows." Their interest is with the performance evaluation of so-called *best practices* to derive improved process redesigns in an evolutionary fashion. Just like the former paper, the paper's contribution is mainly in the evaluation plane of the process compass although it may be expected to feed approaches in the upper plane, particularly from the evolutionary category. The paper's main contribution lies in presenting a large set of performance measures and a simulation toolkit to support the quantification of the impact of the implementation of redesign best practices.

The final paper in this special issue, "Generating Business Process Models from Object Behavior Models," is contributed by a mixed team of researchers from Queensland University of Technology, the University of Tartu, and an industrial party. Their concern is with capturing a process design in a process model once the design has been completed, in particular when an object-oriented approach has been selected to capture relevant behavior in the first place. The main contribution is in

helping to bridge the gap between process design and consequent software development and thus situates this paper in the modeling plane of the process design compass.

As can be read from these descriptions, the various contributions relate to various aspects of the process design compass, which we find characteristic for the numerous developments in this area all over the world. But while they differ in the specific emphasis they place, we believe that these are a very fine representation of the state of the art in process design. We hope they serve as an inspiration for other researchers so that we can increasingly "deliver" to the companies that yearn for improved performance and conformance of their business processes.

Note

1. See for an overview of the conference series: <http://www.bpm-conference.org/>

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