

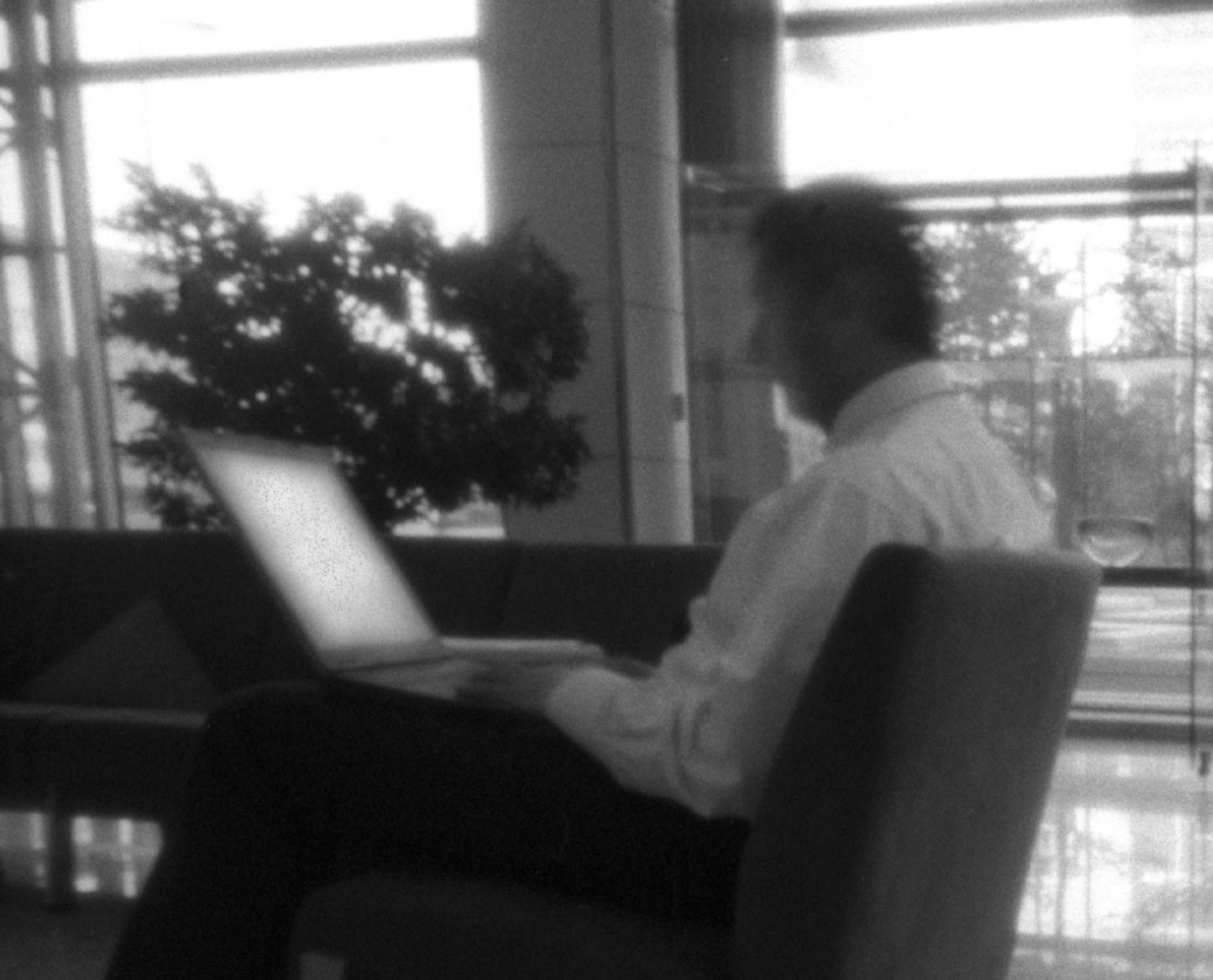
Rapid Enterprise Design

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This book describes a ten-year research period oriented toward the design of organizations by means of 'Design & Engineering Methodology for Organizations' (DEMO). The study and the book have been assigned the name 'Rapid Enterprise Design', and cover the rapid design of an organization's business functions, business processes, structure, and information provision. In short, the study deals with the issue of whether or not DEMO is an adequate method for the design of both large and small organizations. Investigation was also performed on ways in which DEMO could be further supplemented with a project management method so that it could justifiably be regarded as a completely formal method.

For the study, the Action Research method was chosen: a method in which research is performed in stages and research questions are formulated for each stage on the basis of the results of the previous stage. Twenty-eight projects were implemented using DEMO, three of which are described as case studies in this book. The book describes the research in six stages.

Existing methods for redesigning organizations are often not capable of meeting the required rate of change. This applies in particular to development methods for IT applications: the average automation procedure takes around two years to implement. Therefore, there is an urgent need for methods that make it possible to redesign and restructure organizations, preferably in an integral manner, within a few months. This demands a fundamentally different (scientifically grounded) method that can precisely specify the necessary interaction between the organization, communication, and information (systems). In 1996, this idea formed the impulse for the quest for a method of Rapid Design that could embrace the entire Enterprise.

Popular management literature concerning the redesign of business processes, also referred to as 'Business Process Re-engineering (BPR)', appears to have created more myths than methods. Particularly the lack of integration between the design of business processes and the design of information systems gave rise to a situation where the solution to this issue had to be sought in a different way of thinking and working.

The first stage in a quest for a method that could rapidly design the strategy, business processes, organizational structure, and information systems of an organization began in a research school that views the business communication of organizations in a completely different manner. This school, called the 'Language Action Perspective', consists of an international group of researchers. On this basis, research is performed at various universities throughout the world, including the University of Montreal (Canada), Staffordshire University (UK), Rutgers University (New Jersey, USA), and Linköping University (Sweden). In Dutch-language areas, research within the Language Action Perspective is performed by Hans Weigand (University of Tilburg), Aldo de Moor (Vrije Universiteit, Brussels), Erik Proper and Stijn Hoppenbrouwers (Radboud University, Nijmegen), and Jan Dietz (Delft University of Technology).

One example demonstrates the difference in approach between the Language Action Perspective and common notions of communication. Organization consultants and automation experts nurture the idea that a cash dispenser has completely assumed the function of the bank clerk. If we examine matters from a communications perspective, we realize that this is only partly true. The cash dispenser is indeed capable of supporting communication. An example of successful communication with a cash dispenser is as follows:

Customer X requests the delivery of: 100 Euro¹
 Bank Y states that it will deliver: 100 Euro
 The sum is issued
 Bank Y declares the delivery of: 100 Euro
 Customer X accepts the delivery of: 100 Euro

The result is: 100 Euro is delivered by
 Bank Y to
 Customer X

The customer legitimizes himself/herself by means of a bank pass and PIN number. In the past, proof of identity was required and the customer had to state the bank account number to the bank clerk. However, the request to withdraw money has remained essentially the same.



The successful communication between the Customer and the Bank, as indicated above, is supported by a cash dispenser. However, imagine that the cash dispenser only provides one 50-Euro note instead of two, or that the cash dispenser does not return the bank pass. The customer will not accept this. The question is then: will the customer enter into discussion with the cash dispenser or will he or she go to the bank clerk? The latter is the case. The customer will address the clerk about the unsuccessful cash withdrawal and they will enter a discussion. The discussion may end in a dispute which a third party may eventually be requested to solve.

This example shows that physical and information processes, including the filling in of a cash withdrawal form or the counting out of banknotes, can be assumed by dispensers and computers. But, because communication does not always occur successfully, a role is always reserved for humans. In the Language Action Perspective, this essential role is referred to as an 'actor'. The pattern of request-state-implementation-declare-accept is referred to as the success layer of an essential transaction. The transaction pattern also contains a discussion and a discourse layer. All kinds of discussions take place in the discussion layer, such as the refusal of a request by the supplier or the non-acceptance of the result by the customer. In the discourse layer, the background conditions of the transaction, such as the general terms of delivery, are probed and changed, if necessary. In this situation, the parties can call in a mediator, expert or arbitrator to solve the dispute. He or she will ensure that the claims are negotiable, will examine them, or give a judgement on them.

Summarizing, the transaction pattern presents 13 statuses and 23 types of 'messages' in one go. In doing so, the transaction concept reduces the complexity of business communication in a simple manner.

A second example is necessary to illustrate another view held by the Language Action Perspective concerning information and its support by Information Technology (IT). The large volumes of information that organizations produce and require in order to function properly have led to an abundance of manual and automated information systems. Combine these with the possibilities of the internet, the great quantity of systems and messages (in paper, electronic and spoken

forms) and it will be evident that it is increasingly difficult to obtain and maintain an overview of all sources of information. In order to keep and grasp on these developments, it is important to be able to distinguish the main issues (the sources of information) from the side issues (the supporting technology). From the Language Action Perspective, sources of information are easily found by seeking the facts. A fact is created when actors agree on a certain assignment and subsequently accept its result. A collection of facts is called a 'fact bank', to prevent confusion with IT terminology involving information systems and databases.

An example of an essential fact is: a father goes to the Municipal Registry Office to have the birth of his child recorded. The father requests the civil servant to register the name, birthplace and gender of his child. The civil servant receives the request, but before promising to register the child, he checks whether or not the name is allowed and that the place and date are correct. Assuming that everything is correct, the civil servant then performs a number of actions and then declares that the child has been registered. The father checks the declaration, which is an extract from the Register of Births, Deaths and Marriages, for writing or typing errors. At the moment that the father agrees, a fact has been created. A child bears the fact of this transaction a whole life long, on a driving licence, for example, or a passport, bank pass, credit card, library pass, health insurance registration, etc. until the certificate of death.

A driving licence is also a declaration of a successful transaction between two actors. As an established fact, the driving licence contains the date of issue (such as 18-10-2004, for instance) by the issuing body (in the Netherlands this may be the Mayor of The Hague, for example), and the number of the driving licence. None of the other information on the driving licence has been created; it has been copied from other fact banks. The copied facts are taken from Birth Register for the name, birthplace and date of birth, the Municipal Register for the address, and the declaration of the approved driving test institute that the candidate has succeeded in passing a certain type of driving test on a certain date (for Category B for cars under 3500 kg with a maximum of 1+8 passengers as of 10-9-1987, for exam-



ple). Thus, the driving licence contains one fact, namely, the driving licence with number X was issued by Mayor Y on date Z to the person in question. All the rest has been copied. The same applies to the passport, bank pass, credit card, library ticket, health care registration, and death certificate. These, too, are declarations in an essential transaction that contain one fact and many copied data.

Nowadays, a fact bank is supported by many and various manual and automated information systems. Because an information system contains much material copied from other fact banks, in addition to true facts, one occasionally cannot see the wood for the trees (information systems). It is difficult to retain an overall view in this complexity of information systems. It is easier to abstract from all documents and information systems and to return to everyday practice, namely, the essential transaction whose result is stored in a fact bank. The concept of abstraction is not new. As far back as the 1970s a distinction was being made between documents (physical level) and information (logical level) in order to be able to design a single complex information system. Nowadays, a third level of abstraction is necessary to reduce the complexity of the many information systems. This third essential level consists of essential transactions and fact banks. Information systems can be designed easier and better from that level.

Besides the transaction and abstraction concepts, as outlined in the first and second examples, DEMO also comprises the system concept. DEMO makes models of organizations. These models describe organizations as systems consisting of social actors, essential transactions, and facts. The system concept specifies an organization as the cohesion of actors, transactions, and fact banks. As a consequence, DEMO does not regard processes or information separately, but integrates both in the transaction. What DEMO links to these is a note of which two actors are responsible for the completion of a transaction. Due to the system concept it is easy to see who does what when. Designing an organization as a social system is a feature of the DEMO manner of thinking, and recurs in the models.

The conclusion drawn on the basis of a study of the literature

(stage 1) was that DEMO could be capable of designing the business functions, business processes, information systems, and structure of an organization. In order to test this preliminary conclusion, the practical applicability of DEMO was subsequently investigated in relation to several case studies, of which the Stichting Geschillencommissies Consumentenzaken, SGC (Dispute Settlement Boards for Consumer Affairs) is the most important. The results of this study confirm the supposed suitability of DEMO for the redesign of business processes and information systems. In stage 2, the redesign of business processes was covered but not the redefinition of business functions. Neither was the organizational structure dealt with. For this reason, a following stage ought to examine the question: 'How can a redesign of the business functions and organizational structure be realized by means of DEMO?'

In addition, it has been observed that, in the SGC case study, the DEMO method provided a thinking and modeling approach but not a formal project management approach. In the SGC case study, the need for electronic support in creating models remained restricted to pen and paper. Thus, DEMO describes the products but not the process of organizational design. The SGC case study indicates that the quality of the design product is good. Covering a span of weeks rather than months, the DEMO design process is exceptionally rapid in comparison to the structured design and analysis method that was applied within SGC previously. A disadvantage of this speed of designing is the fact that the staff are confronted with a new business process in a very short time and also, in this particular case study, with a new information system. To enhance the acceptance, it is required that the staff participate in the process at an earlier date – thus not during the construction or implementation of the information system but preferably already during the designing of the organization. This participatory project management approach induces the question: 'How can members of staff and management apply DEMO?'

After SGC, the DEMO method was applied in more than 25 case studies, all of which concern the (re)design of business processes or of information systems, and often both of these. A participatory approach was followed in these case studies where management and staff



mastered the DEMO manner of thinking and modeling. This also applied to the assignment issued by a large regional police force, which initially concerned information planning. Political developments were responsible for the assignment taking a different course. The management of the police force then decided not only to use the research results for the information planning but also for the redefinition and the restructuring of the organization. In this decision-making process, intensive use was made of an group support system, which enabled the management and staff to take painstaking decisions on the desired business functions and organizational structure within several hours. The results of stage 3 indicate that the DEMO method thus fulfils all the demands specified in the research objectives, including the extension of the project approach, the working method, and the support by an group support system mentioned above.

What still had to be completed was the validation of the approach in such a way and on such a scale that the conclusions could be generalized in a scientifically responsible manner. Validation was the theme of stage 4. Accordingly, a substantial project was needed. This was found in VISI, an initiative for the rapid design of project organizations involving all the parties that participate in large civil construction projects. Between 1998 and 2004, VISI developed to become the method for the design of project organizations in the construction sector. Various research projects and case studies have indicated that project managers in the construction sector have been able to design and structure (project) organizations in a quick and adequate manner. With VISI's findings in building practice, the quest for a Rapid Design method covering the entire Enterprise came to a satisfying end.

In short, the conclusion of the research is that DEMO, supplemented by a project management approach, is an excellent method for the rapid (re)design of both small and large organizations.



De bestaande methoden voor het ontwerpen van organisaties en informatiesystemen kunnen het vereiste tempo van veranderingen vaak niet aan. Er bestaat dringend behoefte aan methoden die het mogelijk maken organisaties in enkele maanden opnieuw te ontwerpen en in te richten.

Dit boek beschrijft een periode van tien jaar onderzoek, die was gericht op het ontwerpen van organisaties met de 'Design & Engineering Methodology for Organizations' (DEMO). In die periode zijn door de auteur 28 projecten uitgevoerd met DEMO, waarvan er drie als casestudy zijn beschreven in dit boek. De conclusie van het onderzoek is dat DEMO een goede methode is voor het snel (her)ontwerpen van de bedrijfsfuncties, bedrijfsprocessen, structuur en informatievoorziening van zowel kleine als grote organisaties. Het onderzoek en het boek hebben daarom de naam '**RED**' gekregen: een '**Rapid**', de gehele '**Enterprise**' omvattende, '**Design**'- methodiek.