Anatomy of a process mapping workshop

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Abstract Many tools are in use for representing and analyzing business processes, but little information is available on how these tools are used in practice by process design teams. This paper analyzes one process mapping workshop in detail. Over three days, two facilitators and five representatives of the organization and business functions redesigned the core auto insurance business at a mid-size Swiss insurance company. The mapping tool used during the session was IDEF0. The purpose of this paper is to share our experiences in using IDEF0 in the workshop setting. In addition to a narrative description of the workshop, we offer our observations on how such workshops can be conducted effectively and on the strengths and weaknesses of IDEF0 in this context. The final business process map did not emerge from a logical, linear development process. Rather, the workshop was characterized by constant refinement and development of an existing structure, punctuated by an occasional radical idea that forced the group to throw out the current process and start over. The hierarchical approach of IDEF0 proved critical in keeping the group focused on its task of abstracting the essence of the process itself from the details of current practice. The mapping tool proved to be less convenient for representing a sequence of events in time, multiple cases, and conditional flows of work.

The setting
Secura Insurance is a mid-size, all-lines Swiss insurance company, with annual premium income of $350 million, or approximately 1.6 per cent of the Swiss insurance market. Secura was started in 1959 by the MIGROS business empire. MIGROS, which was founded in 1925 by Gottlieb Duttweiler, is a unique Swiss institution. Originally begun as an effort to provide low-cost food staples to the rural population, it has grown over the years to dominate Swiss retail food sales with a market share around 25 per cent. It has also branched out into banking, insurance, general retailing, travel, communications, education, and other businesses.

In 1993, Secura undertook an ambitious effort to redesign its business processes and to introduce workflow management technology (Blaser and Meiler, 1996). Pilot projects were carried out with two software integrators, IBM and UNISYS. The winning firm was UNISYS, which planned to use the Staffware workflow engine, also called Staffware, on this project. However, the software had to be converted to the OS/2 operating system for compatibility with Secura’s existing systems infrastructure. The resulting system failed to perform adequately and was eventually abandoned. This failure was owing to a combination of technical problems (involving Smalltalk and OS/2) and conflicts between the two separate teams involved in the implementation, one
from the vendor and one from the client firm. This effort lasted three years and consumed several million dollars, but in the end resulted in neither a redesign of the business processes nor a new system architecture, but rather a failed re-implementation of the pre-existing business processes.

In mid-1997 Secura hired Coopers & Lybrand Informatik AG in Zurich, to undertake a new evaluation of its processes and systems in the auto insurance division, with an eye to determining whether the time was now ripe for introducing workflow technology. If so, the auto insurance business (which accounts for about 40 per cent of total revenues) would serve as a model for implementation in the other business lines. An important observation made in the Coopers & Lybrand study was that while customer fulfillment could take as long as 80 days in some cases, only one hour of that time was actually taken up by information processing. Thus an elaborate workflow management system was not required. However, the underlying transactions systems at Secura continued to rely on centralized mainframe computers, and Coopers & Lybrand recommended that a complete rebuild using client-server technology would be required within the next few years.

Coopers & Lybrand was then asked by Secura to provide a design concept for this new system architecture, and to validate it on the auto insurance business. Coopers & Lybrand’s plan was to develop the new conceptual business model on which to base the new system architecture in an intensive workshop with representatives from both the business and the organization sides of Secura. This workshop is the main focus of this paper. We will describe what happened during the workshop in some detail and offer our observations on how such workshops can be conducted effectively. We will also discuss the strengths and weaknesses of mapping tools (in this case IDEF0) in this context.

The background for this workshop, then, was one in which a generally cost-driven organization faced no immediate crisis. However, it was facing increasing competition in a less-regulated insurance market, and the fundamental processes in the most important insurance business line had never been structured or understood as a whole and the results were sometimes unacceptable to the customer. Furthermore, the backbone information systems, while cost-effective and adequate for current needs, were aging and falling significantly behind the state of the art, resulting in technical problems and high staff turnover.

The immediate motivation for the workshop was to provide a basis for systems development over the next five to ten years. An important additional motivation was to create through a common experience a “process task force” that would share a common understanding of the current and proposed business processes, and would form the core of the business team that would carry the systems redesign forward.

More immediately, the goal of the workshop was simply to create a high-level process map for the most important auto insurance business processes. As stated previously, this map was to represent the ideal processes which would serve as the basis for long-term systems development. In addition to the
map itself, the workshop deliverables included a description of all objects in the map (inputs and outputs), as well as the documents and forms required to carry out all activities. Finally, the workshop was expected to produce a description of the roles that the new process would require employees to take on.

The plan for the workshop was quite simple. Three days were set aside to build process models of the auto insurance sales and policy change processes. At the beginning of the first day 45 minutes were allocated to introduce the participants to the agenda and the goals of the workshop. This included introductory remarks by both the senior participating member of Secura and the senior facilitator, a review of the project to date, a description of the goals of the workshop, and a short introduction to the IDEF0 mapping method. The remainder of the first two days were to be devoted to mapping the sales process; the final day was expected to be devoted to the policy change process. An IDEF0 map of the plan for the workshop was provided to the participants (see Figure 1), partly to begin to familiarize them with IDEF0. No details were provided for how the bulk of the time of the workshop was to be used; this was a deliberate choice in order to encourage the participants to be creative.

Participants were not expected to prepare in any special manner for the workshop. Each participant was sent a brief memo outlining the time and place for the workshop, the planned schedule (Figure 1), and a brief description of the IDEF0 mapping technique. The senior facilitator and the senior Secura

Figure 1.
IDEF0 plan for the workshop (extract)
representative met prior to the workshop to discuss their roles, and agreed that the Secura representative would stay somewhat in the background so that the Coopers & Lybrand consultant could maintain control of the flow of the workshop, and also so the participants would feel free to contribute their ideas.

**The players**
Seven individuals participated in the workshop: five from Secura and two from Coopers & Lybrand (the second author was a silent observer). Three groups were represented from Secura: sales, product management, and business organization. The first group is responsible for policy sales, the second for the back-office activities involved in underwriting and creating policies, and the third for mapping existing business processes and for quality assurance.

Mr. Felix Ribi and Ms. Ursula Kupferschmied, represented the business organization group. Mr. Ernst Stübi, was a senior sales representative. Mr. Markus Strasser, was head of the auto insurance back-office. Finally, Mr. Daniel Stüssi, the senior representative of Secura present at the workshop, was previously head of “Secura Direct”, one of the most successful business lines, and now reported to Hermann Blaser. Blaser, as head of logistics and information technology for Secura, was the supervisor of the entire systems architecture project, and reported to the CEO. Ultimate approval of new business processes rested with the board of directors of Secura.

Coopers & Lybrand was represented by two co-facilitators: Jan Fülscher, and Werner Schendl. Fülscher came to Coopers & Lybrand one-and-a-half years ago with nine years of experience as a software engineer. He has the equivalent of an MBA from the University of Zurich, and is head of the work management team at Coopers & Lybrand. He has extensive experience as a project manager and software engineer in the banking, insurance, manufacturing, and telecommunications industries.

Werner Schendl is a senior consultant in the workgroup/workflow practice at Coopers & Lybrand and a software engineer. His role would be to support Fülscher and to record (on a laptop computer using Visio, a drawing program) the IDEF0 maps that Fülscher would draw by hand for the group. Computer-generated versions of the previous day’s maps were presented to the group each morning.

**An introduction to IDEF0**
IDEF0 is one part of a comprehensive process definition and computer systems implementation methodology that was originally developed for the United States Air Force some 20 years ago. IDEF0 itself is the process mapping tool within the larger IDEF toolkit, which includes IDEF1 for capturing the information needs of a process, and IDEF2 for documenting the dynamic behavior of a process. It is widely used in process mapping, and is in fact the official standard of the US government for this purpose. A complete description of the IDEF0 method is available in Hill and Robinson (1995) and at a Web-site maintained by Knowledge Based Systems, Inc. (www.idef.com).
IDEF0 is a highly-structured and disciplined framework within which logical and consistent process maps can be drawn to any desired level of detail. IDEF0 describes a business process as a series of linked activities, each with inputs and outputs. External or internal factors control each activity, and each activity requires one or more mechanisms or resources. Inputs are data or objects that are consumed or transformed by an activity. Outputs are data or objects that are the direct result of an activity. Controls are data or objects that specify conditions which must exist for an activity to produce correct outputs. Finally, mechanisms (or resources) support the successful completion of an activity but are not changed in any way by it.

The essence of IDEF0 is a hierarchical approach to process mapping, in which a basic, single-activity description of the process (for example, “sell insurance”) is decomposed step-by-step into its constituent activities to whatever level of detail is appropriate for the purposes at hand. Figure 2 illustrates generically how IDEF0 is used to depict activities, inputs, outputs, controls, and mechanisms. Figure 1, discussed previously, shows how IDEF0 uses hierarchical decomposition to depict the details of a process in successive levels of refinement. Note that the upper diagram represents the three-day workshop as a single activity (“build process model”). The lower diagram refines this view into three activities:

1. introduction;
2. define process new policy (two days); and
3. define process policy change (one day).

Participants were also given an additional IDEF0 diagram that showed the detail underlying the introduction activity, consisting of the four activities:

1. background on the project;
2. goal setting;
3. introduction of participants; and
4. introduction to IDEF0.

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**Figure 2.**
Generic IDEF0 activity
Why was IDEF0 chosen as the mapping tool around which to focus this workshop? A number of process mapping approaches are in common use, including process flowcharts, role activity diagrams, and action workflow diagrams (Bach, et al., 1996). A tailored version of IDEF0 has been adopted by Coopers & Lybrand as one of its standard approaches to mapping business processes at a conceptual level. It is occasionally supplemented by process flowcharts when a detailed description of the sequence of activities is needed. Coopers & Lybrand believes that IDEF0 has two major advantages over competing methods. First, because it uses a hierarchical, top-down approach, it focuses the discussion on the conceptual basis for a business process, rather than on the detailed sequence of specific micro-level activities required to deliver the end result. Traditional flowcharting, with its focus on details, has been found to divert the attention of modelers away from new process concepts and toward detailed documentation of the current process. Since the current process was not the focus of this workshop, it was felt that flowcharting would not be an appropriate tool to use. This caused some concern on the part of participants during the workshop, since most had experience with flowcharts but not with IDEF0. We will discuss this issue in more detail below.

The second advantage of IDEF0 is that while it is a structured and disciplined approach, it is also relatively easy for workshop participants to learn and use. An IDEF0-knowledgeable facilitator leads the process-mapping workshop, and teaches the rudiments of IDEF0 to the participants primarily by drawing maps for them that reflect their developing process understanding. No more than 30 minutes is devoted at the beginning of a workshop to formal training in IDEF0 methods. This aspect of the IDEF0 method contrasts with some other approaches (for example, Action Workflow diagrams), which represent more radical departures from a typical businessperson’s view of a process and are therefore more difficult to learn to use. One potential drawback of IDEF0, however, is that participants will confuse it with traditional flowcharting because at first glance it looks to be quite similar.

Day 1: Setting boundaries and developing initial process maps
The workshop began at 8.30 a.m. on Day 1 with an introduction from Mr. Daniel Stüssi. He presented data showing the sources of Secura business and stated with emphasis that the goal of the workshop would be to develop process maps for the auto insurance business that covered 80 per cent of individual cases. In other words, the purpose was not to develop a detailed description of how Secura would handle every aspect of every future case, but rather to develop a new business concept at a high level of generality. To further emphasize this point, he displayed several detailed flowcharts for systems development and stated that this was not the level of detail on which the workshop would focus.

Jan Fülscher then took the floor to introduce himself and Coopers & Lybrand to the participants and to explain the purpose and goals of the workshop within the context of the larger process and systems redesign project. The overall goal
of the project, he explained, was to develop a process-based information technology architecture for Secura for the next five to ten years. As a critical part of this effort, the present workshop was designed to produce a new process design for the core of the business. In designing this new process the participants were instructed to ignore the present process and the constraints imposed by current systems, although not to ignore important legal and regulatory constraints.

Fülscher then set out the specific goals of the workshop. Two processes were to be analyzed: the auto insurance sales process, and the process of making changes to existing customer’s policies and records. These processes will be referred to hereafter as the “sales” and “changes” processes. For each of these processes the goal of the workshop was to define an IDEF0 process map, to describe the important objects (documents, forms, and so on) that link activities in these processes, to describe the roles that individuals will play within the new processes, and finally to define performance measurements for these processes.

Fülscher’s introduction concluded with a brief tutorial on IDEF0 mapping. He defined the key terms (activities, inputs, outputs, controls, and mechanisms) and illustrated the idea of hierarchical decomposition using Figure 1. This introduction was quite short, and did not go into the reasons for using IDEF0 or its history. Essentially, the participants understood that this mapping technique was a tool the consultants would use to capture and document the ideas they came up with during the workshop. Some discussion did occur during coffee breaks on the reasons for using IDEF0 and comparisons with other tools.

Fülscher began the process mapping itself by drawing a single-activity IDEF0 map (called the A0 map in IDEF0 parlance) for the auto insurance process (see Figure 3). (Note that Figures 3-6 and 8-10 depict sketches drawn on a white board during the workshop, while the remaining figures are computer-generated using Visio.) He then asked the participants to describe the inputs, outputs, mechanisms and controls for this activity. Almost immediately a controversy arose over the appropriate boundaries for this process. (This controversy was actually anticipated by the facilitator as part of an effort to get a lively discussion going that would involve the participants.) One faction wanted to include the activities involved in creating new insurance products and in marketing existing products, while the majority wanted to limit the

Figure 3.
Initial process map
discussion to the operational activities involved in transforming a customer inquiry into a completed insurance policy. The facilitator helped decide the issue in favor of the latter position when he pointed out that most systems support would be directed toward the operational rather than the planning activities. Eventually the narrower focus prevailed, and the basic outlines of the first-level map took shape. The only input was a customer contact; the outputs were policies and policy cancellations. Controls included underwriting rules, laws, and previous examples or models. Mechanisms included the sales organization, the customer, and customer support.
The next step was to decompose this single-activity description of the sales process into a small number of constituent activities. This step proved difficult for the participants, perhaps because they were thinking in terms of flowcharts and trying to determine the sequence of steps required to sell insurance, rather than in the conceptual terms demanded by IDEF0. Eventually the suggestion was made (by Mr. Daniel Stüssi) that the sales activity could be broken into three activities:

1. customer acquisition;
2. contact customer; and
3. create policy.

The first of these, customer acquisition, represents all the ways a customer can contact Secura with the intention of purchasing auto insurance: by mail, phone, Internet, and so on. The second activity, contact customer, represents all the negotiations that go on between the customer and the company during the process of deciding which type of insurance to offer. This includes sending the customer questionnaires, underwriting activities, sending an offer letter, and so on. Finally, create policy is the activity of actually creating the policy itself.

This three-activity IDEF0 map is shown in Figure 4. This map illustrates clearly the difference between an IDEF0 map and a flowchart. Although these three activities do follow each other more or less in time, the map makes no attempt to depict the sequential flow of activities on an individual case. Rather, it depicts the sales process at a conceptual level, showing that three general classes of activities have to occur to create the output of a finished policy. This diagram could equally well describe a process in which a computerized record is created for each customer at the first contact, or one in which all computer records are created after the negotiation phase is over. In a traditional flowchart, the exact sequence of activities in the process would have to be represented explicitly.
At this point in the workshop a lengthy discussion ensued about the proper role in the map of the *offer letter*, which is a semi-legal document sent from Secura to a customer offering a certain set of terms for a type of coverage. The participants had difficulties determining the importance of the offer letter in the business process, since it serves a dual role in the existing process. First, it is used to gather detailed information from a customer. Second, according to Swiss law, it is a legal document that guarantees the customer protection by the insurance.

Essentially the question was to what extent the participants should reflect the current process in their analysis. It appeared to the facilitator that the participants were so close to the current process that they could not readily ignore it, so he recommended that they attempt to understand and map the current process but question it and attempt to go beyond it at the same time. In this context, the offer letter becomes just the current way of making an offer to the customer. Other more timely, and perhaps more efficient, methods may be discovered in the future, so the new process map (and the information systems architecture built on it) should be flexible enough to accommodate these new approaches.

The next step in the mapping process was a refinement of the earlier map in which two levels of underwriting were distinguished. The first, or initial, level of underwriting involves soliciting information from the customer via questionnaire and performing an initial risk assessment and pricing analysis. The second level of underwriting involves a more detailed risk assessment and leads ultimately to policy approval. The facilitator drew this map (Figure 5) as a refinement of Figure 4.

At this point a lengthy discussion took place about the sequence in which the activities depicted in Figure 5 take place. Four issues occupied the group during this discussion, all of which had to do with how to represent the timing and sequencing of activities. First, some activities can occur in parallel. Second, there are multiple ways that a given case can flow through the process. Third, there are multiple ways of doing business. Finally, different cases and different processes take different amounts of time. In the observer’s opinion, this was a point in the workshop at which the participants began to lose their focus on the conceptual mapping task and started to try to depict the sequential flow of activities within the current process. Some tension between the facilitator and the participants was evident at this point, as the facilitator tried to refocus the group on conceptual issues. He did this by drawing multiple output arrows from the customer acquisition activity to the two underwriting activities to depict multiple routings, and by adding time as a control to each activity. Eventually, he redrew the original three-activity map (Figure 4), numbering the activities 1, 2, and 3, and decomposed Activity 2 (information and risk assessment) into two activities (2.1 and 2.2) for the two levels of underwriting. This action represented a compromise between the participant’s focus on the current process, and the facilitator’s focus on basic concepts.
After lunch on Day 1, the discussion centered again on Activity 2: Information and risk assessment. After some debate, a three-activity decomposition of this activity was created (Figure 6). Activity 2.1 involves getting the necessary information from the customer; Activity 2.2 involves analyzing this information and assessing the risk of insuring this customer; activity 2.3 includes making the underwriting decision, which involves choosing the terms and price (if any) under which Secura will offer a policy.

Once again an extended discussion followed the creation of this map. One question that arose was how to depict multiple requests to the customer for information. The facilitator drew an output arrow from Activity 2.2 back to Activity 2.1 as an input to show this possibility. However, some participants felt that it was very important in the new process to get all the necessary information from the customer on the first contact. As one participant put it, the insurance business is a pure information business, so it is critical to get accurate information early in the process. The workshop participants faced a dilemma here, however, because they could not agree on how feasible it was to get all the necessary information in one interaction with the customer.

Another question that arose out of this map involved how Secura would handle the underwriting process in the future. The traditional approach to underwriting was to gather all the necessary information on an individual customer and then make a decision based on all the details of the individual case. However, another approach was currently being tested in the home insurance market in which entire classes of risks were underwritten in advance. Under this approach, if a customer gave a certain set of answers to a pre-defined set of questions, he or she was automatically offered a certain policy, with no explicit consideration of the individual case. The debate at this point was on whether these business rules should be included in the process map, and if so how.

The final topic of discussion on Day 1 was how to depict the different classes of customers, some of whom could receive a policy after minimal manual work, and others of whom required complete underwriting. The final outcome of this discussion is captured in Figure 7, which is the IDEF0 map prepared electronically by the consultants and distributed to the participants at the start of Day 2. This map represents Activity 2 from Figure 6 in terms of five sub-activities: Acquire policy; Compose questionnaire; assign, verify, and assess; Prepare policy; and Manual preparation. The critical information added in this map is that the flow of customers branches after the first activity, with 10 per cent going through a traditional underwriting process and 90 per cent going through an expedited underwriting process.

Looking back on the first day of the workshop, it is probably fair to say that the participants were not very happy with the results so far. The process maps that had been developed appeared to be overly complex and somehow did not feel right to them. The facilitators, on the other hand, thought the workshop
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Figure 7. Map completed at the end of day 1
was going very well. Remember that the workshop had the dual goals of producing high-quality process maps and building an effective process task force. Progress on the second goal outstripped that on the first.

The group formation process was advancing quickly. The group collaborated exceptionally well, partly because of the disciplined way participants resolved conflicts and partly because of their strong focus on goals, which is a part of the Secura organizational culture and which caused all participants to concentrate on common goals rather than individual ones.

Admittedly, the quality of the process maps developed at this point was far from perfect. Participants had not yet developed a process point of view; that is, they continued to view processes in terms of vertical organizational units rather than horizontally across such units. The results produced so far were an assembly of process parts viewed from different perspectives and brought awkwardly together in one map. No common vision or nomenclature had developed. Participants were also not yet comfortable with IDEF0 and felt that they could not express their ideas easily in this new format.

**Day 2: Process complexity and the dispatch center concept**

Day 2 began with a brief review of the overall goals and timing of the workshop. The consultants also distributed computer-generated process maps based on the work of the previous day. Figure 7 is one of these.

Almost immediately, Mr. Daniel Stüssi took the floor to offer a new point of view on how to think about the sales process at the highest level of generality. He pointed out that the critical factor throughout the sales process was the quality of information Secura has about the customer. Typically, the quality of customer information changes gradually during the process, as more specific and relevant information is solicited by phone or questionnaire. The particular information needed is generally dictated by the underwriting process itself. His proposal for decomposing the top-level map was to create two sub-activities (Figure 8): assess customer needs and create contract. In this map the sales process becomes very simple: first, identify what it is the customer needs, and

![Figure 8.](image)

**Figure 8.**

Day 2: New process concept
second, create a policy to meet that need (and the requirements of the company itself). This map abstracts entirely from the details of underwriting that occupied much of Day 1, and thus represents a radical change in approach.

Mr. Stüssi added two detailed diagrams to this high-level map. Both were more like flowcharts than IDEF0 maps. One showed a sequential process of contacting the customer a number of times; the other showed that customers come in a variety of risk types and that the subsequent activities depend on the type of risk. These diagrams served to reintroduce into the debate the questions of sequential flow and customer type, which had been troublesome on the previous day.

The facilitator now faced a critical decision: how to accommodate this new suggestion while moving the workshop forward and not undermining the work done on the previous day. Given the quality of the new ideas, as well as the power and authority held by their originator, it was not desirable to dismiss these ideas in favor of the previous approach. However, the facilitator felt he had to regain control of the workshop process and impose some of the discipline of the IDEF0 paradigm on the mapping process. His solution was to begin a new high-level IDEF0 map incorporating the two activities suggested by Mr. Stüssi, and the concepts of multiple contacts with the customer and multiple customer classes.

The group accepted this new map without dissent and began to add details. It first focused on developing a detailed map for the needs assessment activity. Figure 9 shows a sketch of this map after an hour or so of discussion. The single activity of assessing the needs of the customer has been decomposed into an initial qualification activity, followed by a customer contact activity and a risk assessment activity. The possibility of multiple contacts with a single customer is depicted by an output returning to the customer qualification.

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**Figure 9.**
Decomposition of needs assessment activity
activity. During the process that led to this map at least five distinct levels of customer contact were defined. Contact quality A indicates that enough information is available to issue a policy immediately. Letters B, C, and so on indicate decreasing contact quality, up to the point where Secura has only a name or telephone number.

An important conceptual breakthrough occurred during the discussion about this map. Several participants observed that one of the critical problems in dealing with customers is that it is difficult to determine what the appropriate response is because it is difficult to determine where in the process their individual case lies. For example, if a customer calls up to provide an answer to a question, the process must somehow determine that this is a case in progress, find the relevant records and the relevant contact person, and connect this person with the caller. To deal with this problem, the group created the concept of a dispatch center, which would carry out the task of determining where each customer was in the process and route his or her call, letter, or other interaction appropriately. The dispatch center concept was, at least in part, a reaction to the difficulty of mapping the complex process of dealing with customer interactions.

The group next moved on to mapping the risk assessment activity, which has as its single input a completed application and its output a completed policy. Figure 10 shows a sketch of the resulting map. Here the group was challenged by the existence of several different risk classes of customer. From lowest risk to highest, 80 per cent generally are AAA, 10 per cent AA and 10 per cent A. The AAA class can go right from initial risk assessment to policy creation, as shown in the sketch. The AA customers require some policy specialization and repeated contacts. Finally, the A customers require extensive negotiation and the presentation via an offer letter of alternative terms.

![Figure 10. Decomposition of risk assessment activity](image-url)
At this point on Day 2 the workshop broke for lunch. During the lunch break the consultants redrew the basic maps for needs assessment and policy creation. These new versions were presented to the participants after lunch. The discussion that followed did little to fundamentally alter the nature of these maps, although many details were added.

Late in the day the facilitator decided to break the participants up into two groups to develop these two process maps (Figures 9 and 10) to the next level of detail. This plan was motivated partly by the desire to change the nature of the work and also to allow more members to participate actively. The results, however, were somewhat disappointing. After an hour’s work the needs assessment group had simply added more categories to the original map, and the risk assessment group had concluded that there were so many details at the next level that further decomposition was not worthwhile. In the final hour of the day the facilitator turned the attention of the group to the changes process, which was to be the subject of the third day of the workshop.

Although the process of forming an effective process task force was almost complete by the end of the second day, neither the participants nor the facilitators thought the actual results produced so far were very good. During discussions late in the day, one of the facilitators suggested a different paradigm as a way to break through the problems experienced so far. The idea was to look at the process from a systems perspective, i.e. how it would be implemented. From that point of view, a process would always start in the “dispatch center”, would go through a triage step and would end when something is sent to the customer. Thus, a “process” would be defined as the activities between two customer interactions. Both the participants and the facilitators had mixed feelings about the results achieved so far, but no one could yet identify the source of their discontent (which was that the two views were mixed: business view and systems view).

**Day 3: A dilemma and a resolution**

The final day of the workshop held more surprises. The original plan had been to devote the day to mapping the changes process. However, from the start it became clear that the participants were uncomfortable with what had been accomplished to this point. In order to surface their concerns, the facilitator asked each of them to place a colored dot on a graph whose horizontal axis measured the quality of the results to this point, and whose vertical axis represented the quality of the workshop itself. Most of the responses were toward the low (poor) end of both scales, with the lowest ratings coming from the most senior member of the group (perhaps because he had ultimate responsibility for the results). One concern expressed was that the map did not show how all cases were to be handled, which could later prove to be a problem during systems implementation. Another concern was that the existing maps seemed to be too tied to existing products and communication channels to provide the needed conceptual basis for a long-lived systems architecture.
After extended discussion, something of a breakthrough occurred when one participant observed that at a conceptual level one could consider needs assessment and policy creation as distinct activities, but at a detailed operational level the two were intertwined because the routing of a contact depends on the entire history of the interaction and on the precise nature of the customer. In effect, one could look at the sales process in two ways: from a macro point of view, in which the two-activity map developed on Day 2 was adequate, or from a micro point of view, for which that approach was entirely inadequate.

An important related discovery was that the sales process really consists of many short processes embedded in one long process. The long process involves dealing with a single customer from his or her initial contact through to the final disposition of the case, either a signed policy or no business. But within this long process are a number of short processes: each time a customer contacts Secura (or Secura contacts the customer) a new short process is initiated. One reason this is important is that it is difficult (and costly) to determine when a short process begins whether it is in fact part of a long process, and if so which one? In effect, each time a customer initiates a contact Secura must undertake a “What to do” activity, followed by a short process that is properly embedded in a long process. Further compounding the difficulties at this point, it was not clear how one could depict short processes embedded in long processes using the IDEF0 paradigm.

At this point it is fair to say that the workshop process itself was somewhat bogged down. Three issues were of particular concern:

1. how to depict the insurance process in an appropriately generic, but still useful, manner;
2. how to integrate both long and short processes within one map; and
3. how to choose an appropriate level of detail.

Eventually, a true breakthrough occurred. The idea of a dispatch center for routing incoming customer contacts had surfaced on Day 2, but now on Day 3 it was realized that every customer contact could be met with a triage activity, to evaluate it and to select the appropriate process to follow. Furthermore, implementing this triage activity at the beginning of the process makes it possible to describe the core of the business process independently of the particular communication channels used and even of the particular products involved. Also, this approach makes it possible to integrate short processes into long processes. A long process is simply a sequence of short processes. With the first customer contact, a long process begins. The long process may contain several interactions with the customer; whenever this happens a short process is started. So a number of short processes together form the long process.

During the afternoon on Day 3 these breakthrough ideas were tested out and it was found that with an initial triage activity, nearly all the activities within auto insurance could be described by the appropriate selection of suitable short
processes in the right order. Further testing after the workshop has only confirmed these results and the view of the participants that this was a true conceptual breakthrough.

The final results of this day’s work can best be described in terms of the process maps generated by the group. Figures 11 through 15 show a sequence of IDEF0 maps, starting with a general view of the insurance business and decomposing the sales process into successive levels of detail.

Figure 11 shows that the general insurance activity consists of four activities following a customer contact:

1. Find or enter customer data (1.1).
2. Decide: new policy or policy change? (1.2).
3. Choose product or process (1.3).
4. Start policy or other insurance process (1.4).

Activity 1.4 is broken down into its components in Figure 12. This figure shows that carrying out the policy creation/change activity itself consists of a first activity in which the objectives (1.4.1) of the process are determined, followed by activities in which the policy is created or deleted.

Activity 1.4.1 is further decomposed in Figure 13. This map shows that the first activity within needs assessment is to understand the customer’s needs and qualify him or her into one of five classes labeled A through E. Each of these customer types is treated in its own way, as show by the activities 1.4.1.2 through 1.4.1.5. Type A customers proceed directly through to the policy creation process; other types require more handling as shown in this map.

Generally speaking, each customer interaction starts a short process and goes through the triage phase. During triage, all information concerning the customer is collected and assembled and the related long process is either identified (if it exists) or created (if it does not yet exist).

Figure 14 further decomposes activity 1.4.1.1 to show how each possible form of customer contact is dealt with. Finally, Figure 15 shows how the three types of risk class (AAA, AA, and A) are dealt with by decomposing the policy creation activity from Figure 12 into its components.

These final process maps show how the new ideas discovered on Day 3 and many of the concepts uncovered during the previous days have been brought together. The triage idea is prominent (Figure 11): each customer contact requires Secura to determine what to do, and early, accurate determination of the customer’s needs is critical. Figure 13 shows how the notion of the quality of the application, first mentioned on Day 2, has been incorporated. Finally, Figure 15 shows how the important concept of underwriting risk class has been brought into the overall understanding of the process.

The breakthrough achieved on Day 3 helped to finalize the formation of an effective process task force. Participants felt they had shared a difficult but ultimately successful experience. Of course, the effectiveness of the group will have to be verified during the subsequent detailed phases of the work.
Figure 11. Final map of general insurance activity

The diagram is a first draft of a generic insurance process, it must be validated and refined with all affected parties.
Figure 12. Decomposition of policy creation/change
Figure 13.
Decomposition of needs assessment
Both participants and facilitators viewed the final process maps as highly satisfying. They contained many of the complexities discussed during the previous three days, but were still rather simple and generic. The general feeling was that the group had successfully solved the thorny problems of depicting what is a highly complex process at a micro level in a small set of simple, high-level diagrams.
Figure 15. Risk class assessment

- Application
  - Tariffs
  - Underwriting Rules
  - Laws
  - High Risk Indiv.
  - Special Rules
  - (Market, Back Office)
  - E1

- Assess Risk and Validate Application
  - Quality "A"
  - Sales Agents (informal risk assessment)
  - Underwriters

- Add to High Risk Individuals List
  - 1.4.2.2
  - Rejection
    - (Police Notification)

- External Sources
  - Collect Intelligence, Question Prev.
    - Insurance, Decide
    - 1.4.2.3

- Underwriting Rules
  - Special Tariffs
  - Procedures

- Compose Counterproposal
  - Quality "A"
  - Underwriter
  - 1.4.2.4
  - Counterproposal (Contact)

- Compose Policy
  - Policy
    - Police Notification
    - Insurance Proof
  - 1.4.2.5

- 0 (0.01%)
  - Reject Application

- A (1%)
  - Counterproposal

- AA (9%)
  - Risk Assessment

- AAA (90%)
  - Acceptance / Contract
Analysis of the workshop process
In the final hour of Day 3 the facilitator again asked the participants to rate the quality of the results and the quality of the workshop. This time the results were uniformly positive on both dimensions. Apparently, the breakthroughs that occurred during Day 3 led the participants to change their earlier negative assessments. In fact, in later evaluations both the consultants and the representatives of Secura reported that the workshop substantially met its overall goal of providing a conceptual foundation for new business processes and a new systems architecture.

The essential findings of the workshop were summarized by the consultants soon after its close. Their summary was divided into two parts: the first described the key findings of the group related to processes, the second summarized the implications of these findings for the new process architecture.

Six points describe the findings relevant to business processes:

1. All processes begin with a customer contact, usually initiated by the customer.

2. The sales process consists of a multitude of microprocesses that neither can nor should be described in a high-level process map.

3. It is possible to model insurance processes using a sequence of modular sub-processes. This radically reduces the complexity of the processes. (For example, the sub-process “risk classification” exists in both the “new contract” and the “change contract” processes.)

4. A business process (we call it a “long process”) generally consists of a sequence of microprocesses. Microprocesses start and end with customer contact.

5. All processes have two faces: one for the long process that takes a customer from initial contact through to completion, and one for the short processes that are embedded in the long process. An implication of this observation is that it is critical to make a quick and accurate determination of the customer and process type soon after initial contact.

6. A significant part of a “long process” is devoted to improving the quality of information about a customer or policy. The actual value-generating part of the process is often a rather simple microprocess (e.g. risk classification). Therefore, it is sensible to make classifications as early as possible and to build processes that take information quality into account.

A similar summary of the implications for new systems includes these four points:

1. Each customer contact creates a case of the process “satisfy customer need”. This process is not related to specific products or distribution channels.
(2) The assessment of the customer need is the first step in this process. The assessed customer need triggers a process that is designed to satisfy this need. This process is related to specific insurance products or administrative processes.

(3) The product-specific process consists of two phases. In the first phase, all information that is required to finish the process is collected. In the second phase, the actual value-generating activities are performed (e.g. issuing a policy).

(4) All data concerning customer cases must be collected. If a process has been started which is not suitable to satisfying the customer need (because the assessment phase of the triage process failed), the process is aborted and all information collected so far is fed back to the assessment and triage processes for rework. Thus breakdowns in processes can be detected and prevented. This activity ultimately leads to an improved process.

What factors contributed to the perceived success of this workshop? In our view, two key factors stand out: the quality of the participants, and the ability of the group as a whole to maintain focus on the task while preserving the flexibility to adapt to new ideas. The degree of collaboration among the participant group was exceptionally high. All were highly motivated, at least in part because the workshop had the explicit backing of their superiors and because being chosen to participate was a clear recognition that their ideas and experience were valued. Some of the participants had experience in related workshops, which also contributed to the ease with which the group worked together. The facilitators also had considerable authority, since they had been chosen to advise on the design of the new process architecture.

In addition to these human factors, we believe that an essential characteristic of this workshop was the dynamic flow between refinement of current ideas and the periodic creation of radically new ones. The process of innovation in engineering and science has been described as a series of overlapping s-shaped curves (Foster, 1988). An initial paradigm is articulated and improved and the resulting system or theory performs much better at first. Improvements, however, eventually come with diminishing returns. At some point a new concept is developed, and system performance drops discontinuously as people adjust to the new ideas. Eventually a new s-curve is traced out and performance peaks above the previous high before the next breakthrough. This cycle of refinement, diminishing returns, and discontinuity or breakthrough is clearly evident in this workshop. Breakthroughs occurred at least three times: when the first three-activity map was proposed (Figure 4), when the two-activity map was proposed (Figure 8), and when the idea of triage was uncovered on Day 3. The ability of the participants (and the facilitator) to work within this process of refinement and breakthrough without losing their focus or enthusiasm was critical.
Several aspects of the level of the discussion should also be mentioned. The discussion generally was conducted at an abstract level, but the group managed to never lose sight of the actual business. This is exceptional, as many workshops of this type focus either too narrowly on specific business problems or else attempt to map the entire corporation. The participants were highly focused on the goals of the workshop and rarely digressed into irrelevant topics or challenged the approach being taken by the facilitators. In fact, the tone of the entire workshop was highly constructive. In part this was owing to the discipline of the senior Secura representative, who was often impatient with the slow progress being made but successfully controlled his temper so as not to influence the group unduly.

Finally, it is probably an advantage that IDEF0 was new to all the participants. Thus everyone was in an equal situation and no one had an opportunity to sabotage the process by challenging the method. In situations where some or all of the participants have experience with the methods being used, it is common to see those in the know use their knowledge to gain advantage or to undercut the process itself. That this did not happen in this instance is a tribute to the participants and to the newness of the approach.

**Strengths and weaknesses of IDEF0**

Before we provide our assessment of the usefulness of IDEF0 in this workshop, we should offer the following caveat: we certainly do not believe that the experience of a single workshop is sufficient evidence on which to base any final judgements as to the merits of a tool such as IDEF0. In fact, it is probably impossible to ever provide a final and objective assessment, since the success of a tool depends on the specifics of the situation and the skills and backgrounds of the people using it. Nonetheless, we believe it is important to report on how such tools are used and on the strengths and weaknesses ordinary users encounter. Such information will be of use to other potential users, both in helping them choose which tool to use for which purpose and in possibly avoiding some of the pitfalls encountered here. It should also be of use to tool developers, as it provides unbiased evidence from the field as to what works and what does not.

Our overall assessment is that IDEF0 was critical to the perceived success of this workshop. Admittedly, sometimes the participants were skeptical of its use and on occasion resisted its use. Nor do we claim that the tool did not introduce difficulties of its own at several points. We will describe what we feel are its shortcomings later. Two aspects of IDEF0 were particularly powerful in its use here: abstraction, and hierarchical decomposition.

We believe that the participants in this workshop, if left to their own devices, would have mapped the insurance sales process from the bottom up, focusing on the detailed sequence of micro activities as they are currently being carried out. In our experience, this is the typical view of processes taken by business people, including (perhaps especially) information systems people. This “flowchart” view of processes, while widespread and useful in some contexts, is
a clear impediment to developing a conceptual breakthrough to a new business process. Use of IDEF0 helps to counter this view because IDEF0 insists on a highly abstract initial view of the process. (Recall that the initial process description, Figure 2, consisted of a single activity.) By starting the description at the most abstract level, IDEF0 ensures that the analysis will proceed on an appropriately abstract plane. Of course, as our narrative points out, participants may want to revert to the more comfortable “flowchart” view, if that is the view they are most familiar with. This is where an effective facilitator is critical to redirect and translate the participants’ ideas into the IDEF0 format.

The second characteristic of IDEF0 that we feel is critical is its use of hierarchical decomposition. It is not the detailed numbering scheme used in formal approaches to IDEF0 that is critical; rather, it is the idea of beginning with the simplest possible description of the process and refining it in an orderly series of steps to a level of detail that meets our needs. The final process maps, Figures 11-15, show how this process of decomposition works. These figures contain a great deal of detailed information on the proposed process, although each map is itself quite easy to comprehend. A single detailed process flowchart containing the same information would be incomprehensible. Decomposition not only makes the final results comprehensible, it also helps to structure the process of developing the maps itself. In fact, our narrative shows that just as the mapping process itself proceeded along a series of overlapping s-curves, it also followed a path of successively refining a given IDEF0 map until a new concept was introduced, which required returning to the highest level map and starting over.

What do we see as the deficiencies of IDEF0 in this context? First, IDEF0 is deliberately vague about just what it is that flows along input and output arrows. This is to support its use in all situations. However, we found during this workshop that the participants were sometimes confused by this lack of specificity. Their expectation, we believe, was that arrows depicted the flow of an individual case, here the flow of an individual auto insurance customer. But, in fact, arrows were used to depict many things other than the individual case, in particular information and decisions. For example, in some cases an activity would generate an output that flowed back into a previous activity as an input. This represented the act of sending a questionnaire or making a call to get additional information from the client. The actual case was moving forward along one arrow while information related to it flowed along another. In another example, an arrow represented a decision or categorization having been made, so that both the case and information relevant to it flowed along the same arrow. This difficulty in depicting the flows of different classes of objects is not unique to IDEF0, of course. In fact, all mapping techniques we know suffer from this problem. We simply point this out as one of the difficulties participants had in this workshop.

Another practical difficulty with IDEF0 encountered here was a consequence of the use of hierarchical decomposition. Although decomposition
is useful in maintaining focus on the desired level of detail, it causes difficulties when major changes are needed, as happened frequently here. In these instances, activities must be moved among levels, which requires substantially reworking the existing maps. Again, most mapping techniques suffer from this problem, which essentially is a consequence of the creativity of the participants and the unstructured nature of the problem. It would be possible to speed up the process of changing process maps by using a computerized mapping tool (such as Visio) and projecting the results for the participants to see. However, this would tend to reduce the creativity of the group, since it would make the maps look like polished final products when they are in reality only rough sketches of concepts.

Another difficulty we encountered with IDEF0 was in depicting the sequence of activities and the timing of events. While the strength of IDEF0 is that it abstracts from many of the details shown in flowcharts, when participants want to depict the sequence of activities, IDEF0 presents difficulties. Again there is an inherent ambiguity: on the one hand, IDEF0 is explicitly designed to show the logical flow of activity, not the sequence of events; on the other, most IDEF0 maps (including those developed in this workshop) do show activities in roughly the sequence they occur in time. It is inevitable that participants who do not have extensive experience with IDEF0 will interpret the activities as occurring in time. This further leads them to want to show when activities occur, and to explicitly represent activities that occur in parallel (such as underwriting and requesting further information from the customer).

Case refinement presented difficulties as well. As Figure 13 shows, it is natural in the insurance context to classify customers into different classes. The map then must show how each class is treated. But this is not easy within IDEF0. In fact, Hill and Robinson (1995, pp. 7-85), admit that “One of the deficiencies of the IDEF0 standard is its lack of descriptiveness when there are multiple paths that can be taken to complete an activity cycle that results in correct output”. They propose using a different type of arrowhead to depict the flow of multiple classes. While this is a useful idea, it opens the door to making IDEF0 maps much more complex than they are, which would detract from their transparency and ease of use.

The IDEF0 standard makes much of the importance of controls and mechanisms, but it was our observation that little benefit was derived during this workshop from the considerable work needed to add this information to our maps. In no instance can we recall a substantive discussion over controls or mechanisms. Rather, all of the important discussion focused on activities and their inputs and outputs.

Finally, no attempt was made during this workshop to define roles for participants in the new process, or measurements for its performance, nor was an attempt made to analyze the dynamics of this process over time (for example, to determine the human and other resources that would be required to operate it effectively without unacceptable delays). Some of these activities
were beyond the scope of this workshop and others were planned but set aside as the workshop progressed. They will be required at some point before the new processes are implemented. IDEF0 may provide useful insight into these issues, but other tools will be required as well.

As we have stated, we feel IDEF0 was a key ingredient in the success of this workshop. Nonetheless, it has weaknesses that potential process mapping facilitators would do well to keep in mind. Most important is the conflict between a “flowchart” view of the world and the IDEF0 view. Participants are likely to come to a workshop with a “flowchart” view. During a workshop it is likely that participants will (rightly or wrongly) want to depict “flowchart” concepts such as sequential activities. The facilitator must be prepared for this and must be flexible in his or her use of IDEF0 to accommodate the legitimate needs of the participants.

Concluding remarks
As we have said, one mapping workshop does not provide sufficient evidence to support definitive evaluations either of mapping tools or facilitation approaches. Our goal here was not to evaluate these methods but to provide a realistic and detailed account of how one intense three-day workshop progressed toward a new understanding of fundamental business processes. Our observations support the idea that the most basic requirement for success in such an undertaking is to stimulate the creativity of the participants. IDEF0 helped to focus the work of the group, but also helped to keep the discussion from focusing too narrowly on process details or on the existing ways of doing business. As in other kinds of workshops, a skilled facilitator and willing and able participants are both necessary. The facilitator’s primary job is to constantly encourage the group and to steer it between the shoals of overly divergent, creative activity and overly convergent, output-centered activity. Willing participants must know their business but also possess the creativity to see beyond the current norms. Finally, everyone involved must be patient with the predictable ebb and flow of the creative process, in which existing paradigms are slowly and painstakingly improved only to be overthrown by the unexpected emergence of breakthrough ideas.

Afterward
After the initial workshop, the business organization representatives received more IDEF0 training in order to facilitate detailed process mapping workshops involving business line operations staff.

Since the new facilitators felt that the initial workshop structure was adequate for their purpose, they applied the same scheme: After an introduction by a high-level manager and a very short introduction to IDEF0, participants started to model their own processes.

The first task was to review and refine the process map that resulted from the initial workshop. The Coopers & Lybrand facilitators were invited to review the results after the second day. Not entirely to their surprise, they
found a completely different-looking process that nevertheless contains the most prominent ideas from the previous workshop (efficiency, triage, and dispatching) but was more efficient and had a high degree of focus on the customer.

This result supports the conclusion that business process re-engineering is an activity where planning and structuring in advance is of limited use. A process team needs to go through several iterations until the results look so simple and natural that they appear to be “just right” or “elegant” – and they cannot explain why it took so long to end up with something so simple.

References

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