by Dan Power

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Describing and explaining a specific decision process is often difficult because of problems in defining the boundary of the process. What is included as part of the process? A decision process refers to the steps, tasks, methods, procedures, events and/or analyses that lead to a result, a decision. Also, decision processes are often part of larger business or organization processes. A further complication occurs because a decision process may be explained by informational inputs, transformations or changes during the process, and the resulting decision.

If one examines an individual's decisions, one notes decisions to buy a new house or car, have a child or accept a job offer. Although some people use systematic decision processes and even decision support systems for these decisions, many do not. Describing or specifying an individual's decision process related to a specific decision is often unobservable and hence makes a poor example of a decision process. Decision processes may be mental processes occuring in the mind of an individual.

At the level of analysis associated with groups or organizations, one finds many examples of structured, explicit decision processes. At the senior management level, processes often exist to develop annual and long-range plans, to allocate resources, and to prepare capital budgets. Managers also often participate in annual budgeting processes and some companies have elaborate performance appraisal systems. Most companies have staff who make purchasing decisions. One can mention portfolio management decisions and scheduling decisions.

A "favorite" example of a decision process is in Hammer and Champy (1993). They describe a process at IBM Credit that is a classic case of a poorly designed decision process. A request for financing is logged on "a piece of paper" in step one. After moving that paper around in four more steps, a decision to approve or not is finally made. The entire process "consumed six days on average, although it sometimes took as long as two weeks (p. 37)". The description is colorful, the agony for the frustrated senior managers seems plausible. The example also illustrates that reengineering can improve decision processes. The structure of the process was changed, improved decision support was developed and the turnaround on a request for financing was reduced to just "four hours." Productivity improved dramatically.

Another good example is the college admission decision process. The variety of activities, criteria and participants associated with this decision process is extensive. Some colleges use simple rules in their processes. For example, some public universities admit all students who graduated from a state high school in the top 50% of their graduating class and had an ACT test composite score of 20. Such rules are cheap to execute and easy to understand, but they are not very interesting. The decision processes at the "highly selective" colleges and universities are much more elaborate and more interesting.

Princeton's decision process is a good example. In The Daily Princetonian, Emma Soichet wrote an article called "Admitting the process" (12/11/2000). The article notes "30 admission staff members work, assembling each applicant's personal file while combing it for details that could lead to an eventual acceptance or rejection." The Early Decision admission process is described in some detail as a 2 step process.

Initially, the support staff consolidates "the critical academic and extracurricular information about each prospective student onto a two-sided, thick, canary-yellow form. And from that small card, the process continues." The front of the card "lists all the necessary biographical and academic information - name, address, classes taken, unweighted GPA recalculated by the office and SAT and AP test scores, among other things." On the back of the card, "admission deans remark on and evaluate the less rigid elements of the application. At the top of the page, one box lists extracurricular activities, another notes legacy status. Further down, each of the four essay questions has a line for deans' reactions. There is also a space at the bottom reserved for readers to jot down their general impressions of the candidate."

According to Soichet, "The actual application reading process resembles a relay race, as each applicant's folder is passed to subsequent readers like a baton. One of the four associate deans leads off the process by skimming the application to assign the student two numerical grades. Using a rating scale ranging from one to five - one representing the best - the associate dean evaluates the applicant for both academic and non-academic achievement. A junior officer, another associate dean and the dean of admission run subsequent legs of the race, reading the applications and jotting down impressions on the yellow card."

At the time of the article, the Acting Dean of Admission estimated that the three readers combined spent "about one hour reading and evaluating each 12-page application." With about 1,850 early decision candidates in Fall 2000, Princeton's 13 admission officers spent approximately 2,000 hours preparing the "yellow cards."

The Princeton Admissions decision process "occurs entirely on paper, with associate deans voicing their opinions in a few paragraphs of writing ..." The Dean of Admission then uses the "yellow cards" to make the final decision. The article notes the Acting Dean of Admission Steven LeMenager believes that having one person responsible for all the decisions "provides a degree of accountability in the admission process".

One finds similar yet different processes at other highly selective colleges. At Harvard, decisions about each applicant are made by a majority vote of admission officers. The Harvard Dean of Admissions noted in an interview "No one person makes any decision . . . ever."

At Dartmouth, according to a 1995 article by Allison Brugg in *The Dartmouth Online*, Dean of Admissions and Financial Aid Karl Furstenberg said "each application is read at least three times. The first time, someone from the Admissions Office reads and comments on the applicant. Then the application is read again. The second reader makes his or her own comments, having never seen what the first reader wrote. Both the comment sheets and the application itself are then read by Furstenberg, who either makes a decision or passes the application on to a committee."

The website HowStuffWorks.COM, describes a somewhat different process based on an interview with Duke University director of undergraduate admissions Christoph Guttentag. At Duke, once the applications are complete, each "complete application is then evaluated by one of 15 to 20 'first readers' -- temporary professional staff (former admissions officers, faculty spouses, alumni, graduate students). These applications are randomly distributed. Applications then receive a second full evaluation by the staff member responsible for the region of the country in which the applicant lives. So each application is evaluated at least twice. The strongest 5 percent to 7 percent of the pool (as defined by all parts of the application, not just the academic and quantifiable parts) then comes directly to the director of undergraduate admissions -- Guttentag -- for review. Most of the time, if both the first and second readers recommend an admit, the student will be admitted. But not always. Guttentag reserves the right to have a student discussed in selection committee."

The weakest 25% to 33% of the applicant pool go to an associate director for review. If both readers "recommend a 'deny' then the associate director can 'sign off' on a deny." All other applicants to Duke are "reviewed by a selection committee where at least three staff members and the chairperson -- either the director of admissions or the senior associate director -- discuss the case."

Guttentag is quoted "So we literally sit around a table and talk about -- often in great detail -- all students in the large middle of the pool, and anyone, regardless of qualifications, who an admissions officer thinks ought to be discussed." The committee asks questions like "How much impact has a student had in their school or community? What sort of impact do we think they'll have at Duke?" The goal of the process is "to create a class that is talented and interesting, where the students are inclined to take advantage of what Duke has to offer, and where they will learn from each other."

Finally, at Duke once decisions are made on all applicants, Guttentag reviews "the group as a whole and sees if any decisions should be changed." Then decision letters are printed, reviewed for accuracy, stuffed and sent to applicants. The process is complete.

In general, in the highly selective college admissions processes a manual, labor intensive, subjective decision process is used. Data-driven and communications-driven DSS are not used. Criteria often seem vague and hard to measure. In some processes one individual has primary decision authority and in others a group shares authority and responsibility.

DSS designers can create institutional DSS to assist in recurring, semi-structured decision processes like the College Admissions decision process. BUT we have to ask: Will using a DSS result in better outcomes? will decisions be fairer? or more systematic? What, if any thing, should be automated? When should DSS be developed and used in this type of decision process?

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