: What kind of DSS does Mr. X need?

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There are many "kinds" of decision support for diverse decision making situations. Both IS/DSS software designers and managers should ask about appropriate decision support for a situation. Decision support analysts and designers should know enough to answer the question given the facts about the decision making situation. The "kind of DSS" needed is a generic question. If we analyze a business decision as a situation, abstractly we can define elements like a decision maker, impacted parties, the decision setting, and the business environment. We can also analyze a specific decision at a specific time and identify the specific decision maker, the impacted parties with specific characteristics, the specific setting, the decision content, and the interpersonal dynamics that were occurring. We can view the situation from the point of view of the specific decision maker, a specific stakeholder, an interest group, or an outside observer. Let's explore a specific scenario and review questions or criteria to evaluate an array of situations. A number of years ago, "Jimmy" posted a decision support scenario and asked this question.

Decision support scenario: "Emmy’s husband, Buddy, is retiring from his position as a district manager for a chain of hardware stores. For several years, he has been doing market research for the stores. He is systematic in the way he approaches problems and has long used mathematical formulas to project sales and so on. Although her business has been doing well in the last year and a half, Emmy is getting too bogged down in backlogged orders to use the decision support system built for her. Buddy has agreed to take over the management aspects of her shop so that she can concentrate on artistic aspects." Please answer the following questions:

(i) How would you characterize Buddy as a decision maker? Explain in a paragraph.

(ii) What features could you include in a DSS to support Buddy’s decision-making style? List five of them and explain in detail.

(iii) Does Mr. X need a different DSS than Ms. Y? Justify your conclusion.

This scenario sounds like it is part of a "take home" exam question so I can't respond to Jimmy on the specific issues raised. The generic question is however interesting and seems appropriate for an Ask Dan! column. Also, some readers may want to reflect upon how they would answer such an examination question.

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First, we should ask if Mr. X (Buddy) has a need for a DSS? And what factors impact the need for a DSS? The business in the scenario is doing well and the company appears to be a small, family business. The current decision support system is not being used. We have no information about what type of computerized support was built and implemented but more than likely in a small business computerized decision support focused upon applications built in Microsoft Access and Excel. Perhaps a DSS was built for sales tracking and forecasting or for budgeting and cash flow analysis.

A number of situational factors can impact the need for a specific computerized decision support system including the size of an organization and its financial health, the type of organization (health care, state tax agency, or private manufacturing firm), and the organization design and structure of tasks and jobs. In general, whether a given individual needs a specific DSS should be a function of organizational factors and of the person's role in the organization and position in the organization hierarchy. Also, a given individual may need to use more than one specific DSS.

Do we have evidence about the impact of these factors on DSS adoption and use? Some. It seems that large, financially successful organizations are more likely to adopt and use a wide range of DSS. Government mandated reporting encourages use of specific DSS. Organizations with bureaucratic structures and clearly defined job descriptions are more likely to have specific computerized decision support systems. Decision makers at the operational performance level (Anthony, 1965) are more likely to benefit from real-time, data-driven DSS than managers at the strategic planning level. Senior managers at the strategic planning level are more likely to benefit from visual interactive model-driven DSS than any other managers. In general, increased complexity, uncertainty, information load and rapid change in information increases the need for computerized decision support.

Second, why is it important to "characterize" the targeted user as a decision maker? Is there something about a decision maker's personality, decision-making style, past experiences, etc. that predisposes that person to request or want a specific kind of DSS or encourages them to use a computerized decision support system.

We should understand our targeted user(s). When only one person is targeted for a proposed DSS it becomes more important to "characterize" the user so that any DSS that is built will be accepted and used. When we focus on the infamous Mr. X or Ms. Y in our analysis of a DSS request we are "personalizing" the evaluation of the situation. Often this approach is unwise and inappropriate. Should we ever consider personality and preferences when we assess the need for a specific DSS?

Charles Stabell (in Bennett, 1983) proposed a decision-oriented design approach for evaluating the

need for a DSS. I agree with him and many others that it is preferable to assess needs and requirements linked to job and situational factors rather than focusing on the job incumbent. We should try to depersonalize the adoption and development of a specific DSS, but when possible we should let a decision maker customize the user interface to suit his or her information processing preferences.

In some situations, the decision maker who requests a specific DSS is "powerful and influential" (like a CEO or CFO), in that situation Information Systems staff should comply even when they perceive the DSS is not needed. The "perception of need" by a powerful decision maker creates a "need". When the person holding the influential position changes however the need for the specific DSS may cease. Then the specific DSS won't be used. It is not uncommon for a particular CEO to prescribe specific analysis and reporting requirements to meet his/her decision making needs. That will be reflected in DSS design. So for example, a data-driven DSS for performance management and executive information should accommodate a user's requests in terms of specifying key performance indicators (KPIs), charts, drill down and tables. The user interface of a specific model-driven DSS should be flexible to accommodate "What if?" and sensitivity analysis.

Third, what is decision-making style and how does this "personality" factor impact the design of a specific DSS? Does "Buddy’s decision-making style" matter? What are common features of a DSS that could or should be impacted by an individual's preferences or personal desires?

We sometimes stereotype decision makers as analytical and systematic or as intuitive. Many years ago some researchers argued about "cognitive style" as a factor that should influence Information System design. Today we generally consider individual differences as important but associated more with the user interface than the functionality of the DSS. If a situation can be better supported by a "real time" data-driven DSS than by a document-driven DSS, then we try to provide an acceptable user interface for an "intuitive" decision maker.

In general, a DSS user interface should be customizable. We may want to adjust information displays as various chart types, tables and/or text. We may change how input values are elicited. We may want to change how drill down, analysis and help are provided. Also, we may change the amount of direction and guidance provided users.

So we can develop and discuss some broad generalizations about situations where decision-makers need specific kinds of computerized decision support, but pre-design diagnosis remains the key to building appropriate and successful DSS.

References

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