

# : *What influences acceptance of decision support technologies?*

by Dan Power

Editor, DSSResources.COM

Acceptance is an important issue when implementing decision support capabilities especially those that are expensive, novel and/or innovative. Developers and managers want users to have a favorable reaction to a new capability. Sadly acceptance is not always the response. Expensive software is sometimes hostilely received, little used or "worked around." Acceptance of change can be grudging and even coerced or at the other extreme enthusiastically received and welcomed. Developers should seek cooperation and approval rather than compliance and acquiescence. How can positive acceptance be achieved? In a worst case, how can grudging acceptance be achieved?

One framework that helps understand technology acceptance is Davis's (1989) Technology Acceptance Model (TAM). TAM describes immediate factors that influence how people accept and use a new technology. The model suggests two factors:

- 1) perceived usefulness - "the degree to which a person believes that using a particular system would enhance his or her job performance"; and
- 2) perceived ease of use - "the degree to which a person believes that using a particular system would be free from effort" (Davis, 1989).

In the Clinical decision support (CDS) literature "Research has shown that CDS that fits into the workflow is more likely to be used. However, integrating CDS into the workflow often requires unique customization to local processes, and sometimes to changes in processes ... (Berner, 2009)." In her review Berner also notes "Whatever the features of CDS delivery of information, the quality of the information and the evidence underlying it are the major determinants of the impact of CDS on patient safety and quality improvement. The description by Osheroff (2009) of the "five rights" of CDS summarizes what is needed for effective delivery: "CDS should be designed to provide the right information to the right person in the right format through the right channel at the right time (i.e., when the information is needed)."

Berner concludes "Researchers need to address the cognitive, informatics, structural, and workflow issues that lead to less than optimal CDS design or implementation and, therefore, limited use and effectiveness."

The change management literature explores some factors that may also influence adoption and system use. For example, participation, communicating about the change, incentives to change and training may all influence adoption and usage of a new decision support capability.

## : *What influences acceptance of decision support technologies?*

A number of researchers have replicated Davis's original study to substantiate relationships between usefulness, ease of use and system use. Some researchers and practitioners have questioned the practical value of TAM, the research studies and the ambiguous concept of "technology". The model and explanatory factors related to system use strongly suggest developers should consider the perceptions of potential users when building and evaluating a new decision support capability. Involving the user is an important message for Information Systems staff to internalize and adopt as best practice. We need to make it easy for managers, staff, physicians, etc. to use computerized decision support. Berner states "the appropriate decision is not whether to design and implement CDS, but how to design and implement it so that, as the Institute of Medicine report (Kohn et al., 1999) says, we 'make it easy to do the right thing.'"

The following rules (cf., Power, 2006) may increase the chances of acceptance and project success:

- Novel, innovative decision support projects should be initiated by the managers who would use them.
- Decision support projects must meet a need and provide benefits that justify the ongoing cost of operating, maintaining and upgrading the system as well as the cost of building the system.
- Understand the proposed project and keep it simple.
- DSS should be built by teams that include potential users and technical specialists.

My observation is that many people hesitate to and even resist using computerized decision support. Why? Perhaps because the system challenges their expertise or self image. After all, who wants to admit they "need" a computerized system to help make better decisions. So developers must get the design and implementation right to overcome innate doubts.

## : *What influences acceptance of decision support technologies?*

### References

Berner, E., "Clinical Decision Support Systems: State of the Art," AHRQ Publication No. 09-0069-EF, Rockville, MD: Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, June 2009 at URL [http://healthit.ahrq.gov/images/jun09cdsreview/09\\_0069\\_ef.html](http://healthit.ahrq.gov/images/jun09cdsreview/09_0069_ef.html)

Davis, F. D., "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly* 13(3), 1989, pp. 319–340.

Kohn, L., Corrigan, J.M., Donaldson, M, eds. *To err is human: building a safer health system*. Washington, DC: National Academy Press, 1999.

Osheroff, J.A., *Improving medication use and outcomes with clinical decision support: a step-by-step guide*. Chicago, IL: The Healthcare Information and Management Systems Society, 2009.

Power, D. "What are the rules for building a successful model-driven DSS?" *DSS News*, Vol. 7, No. 9, April 23, 2006 at URL <http://dssresources.com/newsletters/160.php> .

Power, D. *Decision Support Systems: Concepts and Resources for Managers*, Westport, CT: Quorum/Greenwood, 2002.

Author: Daniel Power

Last update: 2012-05-13 04:57