

CASE STUDY

Robust Decisions provides Hewlett Packard InkJet with decision confidence and time-savings.

BACKGROUND

Hewlett Packard's InkJet Division has a long history of producing successful products. This is due in part to constant improvement of a winning product development process. This case study describes HP InkJet's recent experience with a new decision management solution.

When the InkJet Division develops a new color ink delivery system, the product development team designs the ink delivery components and selects the inks. The ink selection process is revisited several times as the delivery system matures—a 2-3 year cycle. The goal: Produce the best quality print and graphics at the lowest possible cost.

THE CHALLENGE

Ink delivery system design requires optimization of numerous interacting and evolving properties of the ink and delivery components. The nature, meaning, and relative importance of these interactions is not well understood or represented.

In this uncertain environment, it is important to choose the best ink early. A poor decision might result in costly, additional project cycles, or in sub-optimal product performance.

“We’ve used other decision-making software and methods, and none have provided the same level of understanding of the issues, and confidence in the outcomes, as *Accord* and the Robust Decisions process. The program enabled us to be more rigorous, quickly brought our team members to a common plane, and better quantified the inputs and results.”

Hewlett-Packard Senior Technical Manager

CURRENT DECISION-MAKING METHOD

Typically, the ink selection process involves a series of meetings among the different groups. Sometimes these meetings are ad hoc, and sometimes structured, depending on who is leading them.

A NEW APPROACH

In the fall of 2001, the InkJet Division started using Robust Decisions' methods and companion software, *Accord*[™]. *Accord* is user-friendly software that helps manage the decision-making process, and is uniquely suited for teams managing uncertain, incomplete, and conflicting information.

Accord helps:

- Manage uncertainty
- Build consensus
- Manage risk
- Improve decision buy-in
- Record the process
- Decide what to do next

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Making the best decision at HP InkJet

TEAM

The team was composed of 18 people representing several functional areas, including ink chemistry, manufacturing, and image quality. A manager facilitated the process.

PROCESS

The team used *Accord* software and a process from the book “*12 Steps to Robust Decisions*.”

Team develops alternatives and criteria

A champion for each alternative presents it to the team, with supporting information. The team works to refine a consistent set of criteria—many criteria are qualitative and uncertain, and conflict among functional area representatives.

Individuals evaluate alternatives

Team members independently rate their knowledge and estimate of the ability of each alternative to meet each criterion—independent evaluation helps avoid groupthink and potential personality conflicts. In *Accord*, evaluation is accomplished by placing a point on a simple decision matrix.

Manager and team analyze results

The manager merges the data and arranges discussions to resolve issues among relevant participants. The team then meets to resolve team issues, and to discuss the results. *Accord* displays the following results:

- Levels of satisfaction from multiple viewpoints
- Team analysis of combined evaluations
- Probability of any alternative being the “best”
- Sensitivity analysis
- Guidance on what to do next

Next steps

Using *Accord*'s output for guidance, the team decides whether to choose a specific ink or to commit resources to more testing and analysis.

ENVIRONMENT

An existing training room served as a team “decision lab.” Managers believed a face-to-face format kept the teams focused, encouraged better discussions, and enabled faster decisions.

RESULTS

HP managers report the following using *Accord* and the Robust Decisions method:

- Potential elimination of an ink testing iteration later in the project. Time savings: as much as five months (all projects are still in progress).
- An estimated 30-50% increase in decision confidence (based on a qualitative impression).

Teams also reported:

- Increased participant accountability, and process buy-in
- Quick identification of important issues and areas of disagreement
- Consensus, with more certainty and rapidity
- Decisions based on shared knowledge, rather than decisions made by a few “experts.”
- Better team visualization of individual and group thought processes
- Improved alternative and criteria development

INVESTMENT

Each team member invests approximately one day in methods and software training. For each ink selection problem, the team invests an additional half-day in alternatives and criteria refinement — a process the team normally undertakes, with less discipline.

