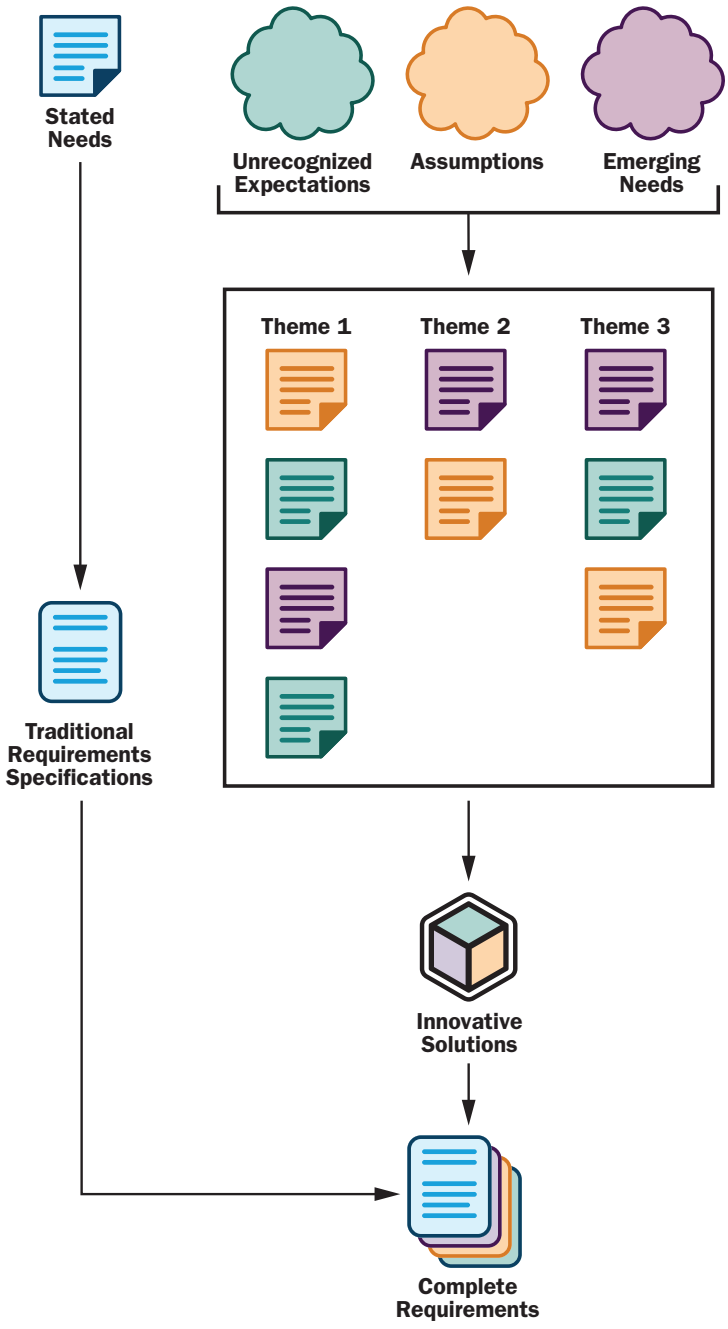
Software Engineering Institute
Carnegie Mellon University

The KJ+ Method: Eliciting Unstated Requirements at Scale

Software Solutions Division



The Requirements Problem

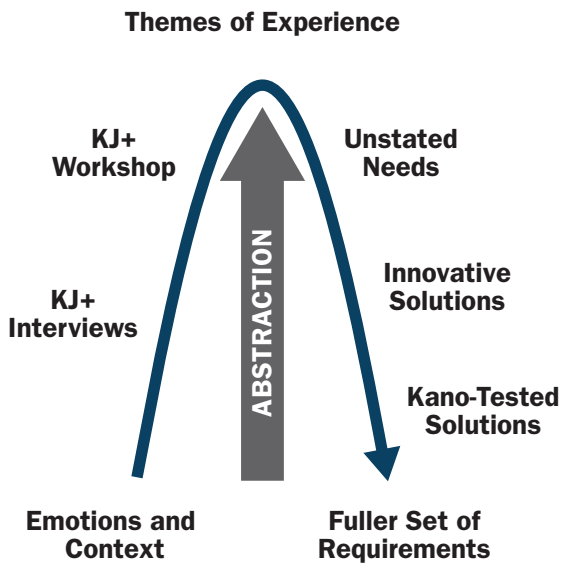
Traditionally, requirements are communicated through specifications. Yet stakeholders often have requirements that they are not aware of until their experiences with a product or service do not meet their expectations. Stakeholders cannot specify their unrealized requirements and might not specify their assumed requirements.

Uncovering these unstated requirements can be challenging, and existing requirements methods do not address unstated needs except through approaches such as human-interface prototyping or simulation. Without gathering all requirements, both stated and unstated, stakeholder needs can go unrecognized until it is more costly to address them, and opportunities to innovate can be overlooked.

Our Solution

The Software Engineering Institute (SEI) developed the KJ+ method to help organizations determine the unstated requirements of the varied stakeholders typical of today's large, diverse programs. The KJ+ method

- can be scaled to address the needs of multiple categories of stakeholders
- is usable by a diverse, non-collocated team of requirements analysts
- results in a more complete set of requirements as the basis for system design, implementation, deployment, operation, and sustainment



What Is KJ+?

KJ+ is a requirements engineering method for determining the unstated needs of stakeholders. It builds on an ethnographic research method created by and named after Japanese anthropologist Jiro Kawakita, who developed a systematic way to identify and analyze themes in complex qualitative data.

The KJ+ method is conducted by SEI technical staff, who first evaluate a program's existing knowledge of the stated needs and requirements for a product, service, or system. Next, they determine probing questions to use in KJ+ interviews. The SEI KJ experts then interview representative stakeholders and collect all the context information they can elicit from participants, including extreme experiences with similar products, services, or systems.

In the analysis phase of the KJ+ method, SEI technical staff analyze the raw output from the interviews to form contextual need and activity statements. They then conduct KJ+ affinitization to identify themes of experience. Using these themes of experience, they formulate unstated requirements and brainstorm candidate innovative solutions. With stakeholder participation, SEI technical staff then conduct a Kano analysis to classify stakeholders' preferences into *must be's, satisfiers,* and *delighters* (innovation).

The output of the KJ+ method is a set of innovative requirements for the product, service, or system. A variety of techniques are then applied to determine both priorities and performance measures for the requirements uncovered by the KJ+ method.

KJ+ provides a transparent, systematic, fact-based approach to identify and test unstated requirements. It can be used with large numbers of stakeholders in a distributed environment. And it works well in combination with other requirements engineering methods; for example, KJ+ can be combined with the SQUARE method to address security requirements.

KJ+ Experience

The KJ method has been applied by several U.S. corporations to help them develop innovative products and services and obtain leading positions in their industry. More recently, the SEI KJ+ team has worked with a requirements engineering team from the U.S. Department of Veterans Affairs to successfully apply KJ+ in developing the requirements for a new mission-critical system.

KJ+ Job Aids

In addition to consulting with and training organizations in the KJ+ method, the SEI has developed job aids for implementing KJ+ that an organization can customize to fit its goals, capabilities, and environment:

- a default set of process scripts, including planning for and conducting KJ+ interviews, taking notes during interviews, and performing KJ+ affinitization and Kano analysis
- briefing templates for executives, interviewees, and result reports
- tools and template support for Kano survey and analysis

Who Should Use KJ+?

KJ+ can help your organization if

- your project involves complex issues, lots of information, and many potential interpretations of requirements
- your team would benefit from developing a common understanding and focus of these issues based on facts
- communication and reuse of the information is important

Benefits of KJ+

- KJ+ supplements sound requirements engineering processes to help ensure that important requirements are not overlooked.
- KJ+ identifies innovative requirements that anticipate end-users' unstated requirements and increase end-users' satisfaction.
- KJ+ mitigates requirements volatility and reduces operational and sustainment costs by identifying unstated requirements.

Engage with Us

If your organization would like to use the KJ+ method to investigate unstated requirements in your domain, please contact SEI Customer Relations.

Contact Us

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