Analyzing Requirements for Online Presence

Kids Help Phone Canada & University of Toronto

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Setting and context: Kids Help Phone is a not-for-profit organization that has provided phone counseling for Canadian youth since 1989. After gaining nation-wide recognition as for its services, Kids Help Phone made the transition to online counseling, starting in 2002. This transition brought with it critical considerations for the organization. Online counseling could be viewed by multiple individuals, and may provide a comforting distance which would encourage youth to ask for help. However, in providing counseling online, counselors lose cues involved in personal contact, such as body language or tone. Furthermore, there were concerns with confidentiality, protection from predators, public scrutiny over advice, and liability over misinterpreted guidance. How could such an organization explore and evaluate options for online counseling, balancing the needs of multiple parties?

Industry involvement: The collaborative research project between Kids Help Phone and investigators within the Bell University Labs at the University of Toronto was launched in 2004 to perform a strategic analysis of the information needs of Kids Help Phone, in light of their increased use of and dependence on technology, to facilitate and support their counseling process. The research goals of this project evolved throughout its lifetime to fit the needs of Kids Help Phone, by addressing those issues that were deemed prominent in interviews and meetings with Kids Help Phone staff.

Status: The strategic requirements management project ended in 2008 after several stages.

Language and variants: The project applied the i* Framework as described in (Yu, 1997).

Features used: The project made use of both SD and SR models, all types of intentions and links (goals, softgoals, tasks, resources, contributions, decompositions, and dependencies). The project made extensive use of the qualitative, interactive forward analysis procedure as described in (Horkoff & Yu, 2010).

Tools and methodologies: Modelers used Microsoft Visio with an i* template, applying analysis manually. The analysis procedure is now implemented in (OpenOME, 2010).

Project Stages: The first stage of the project tested the application of i* modeling to a large organization. Manual i* models were created to describe various aspects of the organization (the largest had 353 elements). These models were used along with a qualitative i* evaluation procedure (Horkoff & Yu, 2010) in order to analyze and compare the effectiveness of technology options for providing counseling over the internet. The results were presented to the organization using reports and presentation slides containing small excerpts of the model. The analysis was well-received by the organization, bringing to light several issues and provoking interesting discussion.

The next stage of the project focused on increasing the efficiency of the existing online counseling system. The evaluation procedure was used to analyze various configurations of a

moderated bulletin board system. In this stage, the models were again too large to validate with stakeholders, so instead each option was presented, listing the important goals positively or negatively affected by the option in tabular form. This helped us work with the stakeholders to prioritize and select features for an online counseling system. The final outcome was a requirements specification document provided to the organization.

A later stage of the project focused on applying i* to analyze the knowledge management needs of the organization. Models were created "on-the-fly", with one of the analysts making a model of the interview content during the process of the interview. Models were later expanded, edited and reorganized based on interview transcripts and scoping decisions. The evaluation procedure was applied in order to evaluate the situational effectiveness of a variety of technologies for storing and distributing knowledge, including wikis and discussions forums. We found the analysis procedure to be effective in facilitating a comparison between technologies, with the results reported back to the organization in reports and presentations, receiving positive stakeholder feedback. Results of the case study have been described in several studies (Easterbrook et al., 2005; Horkoff & Yu, 2009; 2010; Strohmaier, Horkoff, Yu, Aranda, & Easterbrook, 2008; Strohmaier, Yu, Horkoff, Aranda, & Easterbrook, 2007)

Lessons Learned: Although the process of modeling and analysis helped the analysts understand the organization and evaluate technology options, the initial stage models were large and difficult to modify. Our initial approach was to model everything, without a careful consideration of scoping decisions. In later stages, we were much more rigorous with scoping decisions. Each model focused on one specific issue at the core of the organization's Knowledge Management issues. As a result, the models were easier to understand, modify and evaluate.

Overall, we found that drawing and analyzing i* models demonstrated the ability of the approach to aid in domain understanding, analysis, decision-making, and communication. i* modeling and evaluation were helpful in describing opposing and complex viewpoints. The evaluation procedure especially helped to provoke changes in the model which improved the quality of the model and forced the modeler to learn more about the domain.

Efforts: As the project lasted over four years, it is difficult to estimate the hours spent.

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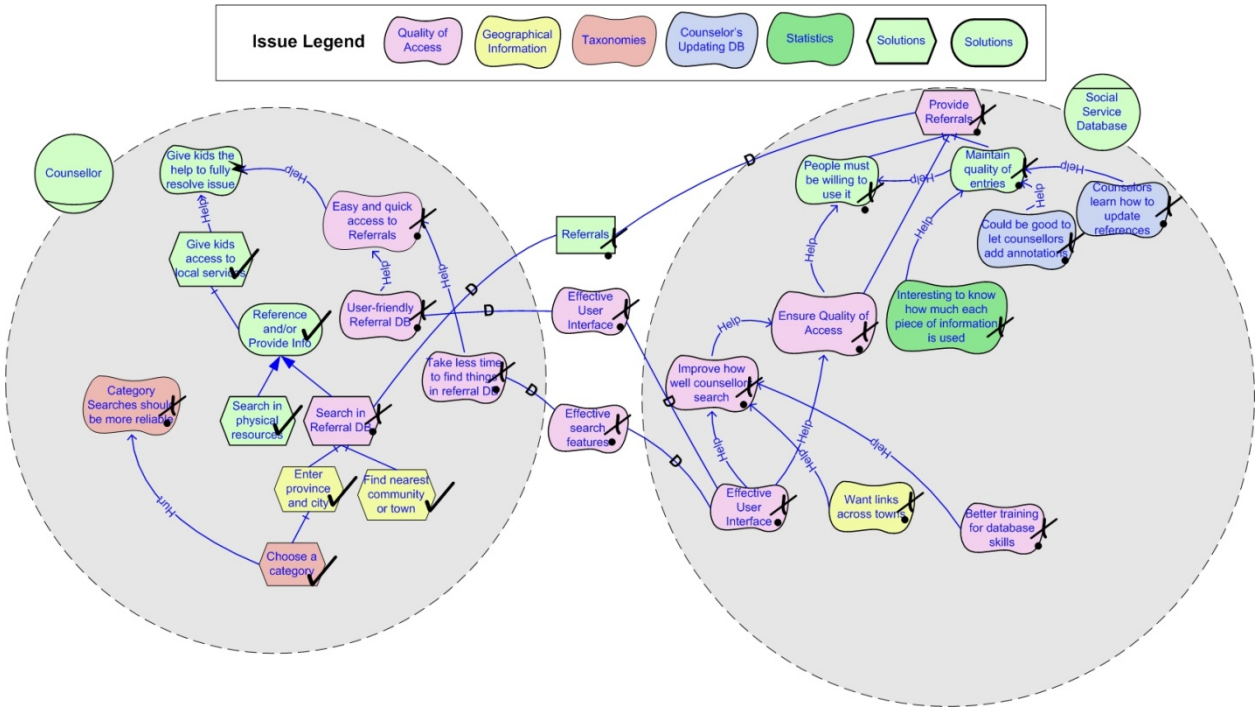

Figure 1: Referral Database As-is Model Showing Analysis Results

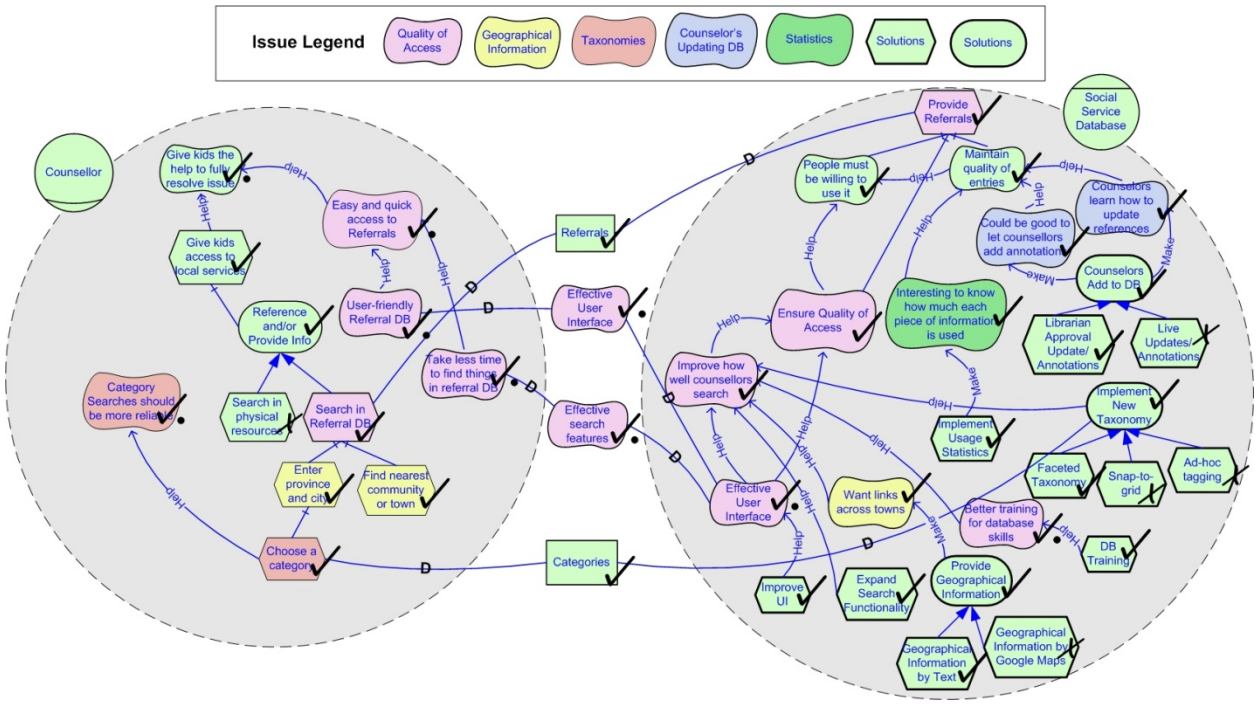

Figure 2: Referral Database To-Be Model Showing Analysis Results