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| **Assignment # 2**  Software Requirement Engineering | |
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| Assignment | Review of Article “Requirements Elicitation: A Survey of Techniques, Approaches and Tools” |

**Introduction**

The objectives of this chapter are to present a comprehensive survey of important aspects of the techniques, approaches, and tools for requirements elicitation, and examine the current issues, trends, and challenges faced by researchers and practitioners in this field. Goal, scenario, and agent-based modeling techniques as detailed in the chapter are also used for requirements elicitation. In reality there are numerous techniques and approaches from a variety of sources that can and have been employed for requirements elicitation. Because of the communication rich nature of requirements elicitation activities, many of the effective techniques do not originate from the traditional areas of software engineering or computer science research. Recently the development of much needed support for this process has once again been focused on creating tools, but this time for the implementation of those newly developed manual approaches, in addition to adapting generic applications to requirements elicitation such as template-driven documentation generation and assistive groupware applications.

The requirements elicitation process involves a set of activities that must allow for communication, prioritization, negotiation, and collaboration with all the relevant stakeholders. Requirements elicitation itself is a very complex process involving many activities, with multiple techniques available to perform these activities. Techniques for requirements elicitation are derived mostly from the social sciences, organizational theory, group dynamics, knowledge engineering, and very often from practical experience. Analyzing the Stakeholders – Stakeholders are people who have an interest in the system or are affected in some way by the development and implementation of the system and hence must be consulted during requirements elicitation.

**Key points discussed in topic**

1. **Understanding the Application Domain**

It is significant when starting the procedure of prerequisites elicitation to explore and look at in detail the circumstance or "genuine world" in which the framework will at last live (here and there called the application space. Existing work forms and the related issues to be tackled by the framework should be portrayed as for the key business objectives and issues.

1. **Identifying the Sources of Requirements**

Requirements may be spreadacross many sources and exist in a variety of formats. In all software development projects a number of possible sources for requirements may be identified. Stakeholders represent the most obvious source of requirements for the system. Users and subject matter experts are used to supply detailed information about the problems and user needs.

1. **Analyzing the Stakeholders**

Stakeholders are people who have an interest inthe system or are affected in some way by the development and implementation of the system and hence must be consulted during requirements elicitation. Typically stakeholders include groups and individuals internal and external to the organization. The customer, and more specifically the project sponsor, is usually the most apparent stakeholder of the system.

1. **Selecting the Techniques, Approaches, and Tools to Use**

Although somemay advocate that just one elicitation technique or a single methodology is sufficient and may be applied to all cases, it is generally accepted that an individual requirements elicitation technique or approach cannot possibly be suitable for all projects. The choice of techniques to be employed is dependent on the specific context of the project and is often a critical factor in the success of the elicitation process. Hickey and Davis have investigated the elicitation technique selection and state that a particular elicitation technique may be selected for a variety of reasons.

1. **Eliciting the Requirements from Stakeholders and Other Sources**

Oncethe sources of requirements and the specific stakeholders have been identified, the actual elicitation of the core requirements then begins using the selected elicitation techniques, approaches, and tools. During this activity it is important to establish the level of scope for the system and investigate in detail the needs and wants of the stakeholders, especially the users. It is also essential to deter-mine the future processes the system will perform with respect to the business operations, and examine the ways in which the system may support them in or-der to satisfy the major objectives and address the key problems of the business.

1. **Domain Analysis**

Inspecting the current and related documentation and applications is a valuable method for social event early prerequisites just as understanding and catching area information, and ID of reusable ideas and segments. These kinds of examinations are especially significant when the undertaking includes the substitution or upgrade of a current heritage framework. Kinds of documentation that might be helpful for inspiring necessities incorporate structure records and guidance manuals for existing frameworks, and printed version structures and records utilized in the present business forms.

1. **Introspection**

The procedure of thoughtfulness requires the expert to create prerequisites dependent on what the individual accepts the clients and different partners need and need from the framework. Regardless of being utilized somewhat by most experts, this strategy is basically utilized distinctly as a beginning stage for different necessities elicitation endeavors. Thoughtfulness is just extremely viable when the investigator isn't without a doubt, acquainted with the area and objectives of the framework, yet additionally master in the business forms performed by the clients. In situations where the examiner is compelled to utilize this procedure more, for instance when the clients have practically zero past involvement in programming frameworks in their workplace, a sort of help reflection should occur by means of other elicitation methods, for example, meetings and convention examination.

1. **Repertory Grids**

Repertory matrices include requesting that partners create credits and allot qualities to a lot of area elements. Subsequently the framework is demonstrated as a grid by classifying the components of the framework, enumerating the occurrences of those classifications, and appointing factors with relating esteems to every one. The point is to recognize and speak to the likenesses and contrasts between the distinctive area substances.

1. **Card Sorting**

Card arranging requires the partners to sort a progression of cards containing the names of space elements into bunches as per their very own comprehension. Moreover, the partner is required to clarify the reason for the manner by which the cards are arranged. It is significant for viable card arranging that all substances are remembered for the procedure.

1. **Laddering**

When utilizing laddering partners are posed a progression of short provoking inquiries, known as tests, and required to mastermind the resultant answers into a sorted-out structure. An essential supposition when utilizing laddering is that the information to be inspired can really be organized in a various leveled style. For this system to be powerful, the partners must have the option to express their under-remaining of the area and afterward orchestrate it in a sensible manner. This information, which is frequently shown utilizing tree charts, is assessed and adjusted progressively as more is included. Like card arranging, laddering is for the most part utilized as an approach to explain prerequisites and sort space substances.

1. **Group Work**

Group work such as collaborative meetings is a very common and often default technique for requirements elicitation. Groups are particularly effective because they involve and commit the stakeholders directly and promote cooperation. These types of sessions can be difficult to organize due to the number of different stake-holders that may be involved in the project. Managing these sessions effectively requires both expertise and experience to ensure that individual personalities do not dominate the discussions. Key factors in the success of group work are the makeup of participants and the cohesion within the group. Stakeholders must feel comfortable and confident in speaking openly and honestly, and therefore group work is less effective in highly political situations.

1. **Brainstorming**

Conceptualizing is where members from various partner bunches participate in casual dialog to quickly create whatever number thoughts as could reasonably be expected without concentrating on any one specifically. It is significant when directing this kind of gathering work to abstain from investigating or studying thoughts in extraordinary detail. It isn't normally the proposed reason for meetings to generate new ideas to determine significant issues or settle on key choices. This method is frequently used to build up the primer statement of purpose for the extend and target framework. One of the favorable circumstances in utilizing conceptualizing is that it advances freethinking and articulation, and permits the disclosure of new and creative answers for existing issues.

**Conclusion**

The elicitation of requirements can be performed in a variety of settings including the development of web based information systems and market driven product lines, the implementation of large enterprise systems, the selection of commercial off the shelf products (COTS), and the maintenance of existing and legacy systems. Several tools have been developed with cognitive support for the requirements elicitation analyst in mind such as The Requirements Apprentice, ACME/PRIME, and Abst Finder Enhanced multimedia support for this process and distributed stakeholders was also identified and addressed by several tools including AMORE. In order to develop this description, stakeholders and other sources of requirements are identified and used for elicitation. In most cases the process of requirements elicitation is performed incrementally over multiple sessions, iteratively to increasing levels of detail, and at least partially in parallel with other system development activities.