

Project H.O.P.E.

Obiwan Consulting

Agenda

1. Problem, Solution, & Process
2. Progress Report
3. Prototype Demonstration
4. Conclusions

Problem & Solution

The Problem:

- Disabled peoples have difficulty communicating
 - Disabilities arise from old age
 - Vision
 - Hearing
 - Memory

Our Solution:

- Software-Based Solution
- Mobile Application
 - Android
- Utilizes Touch-Screen

The Process

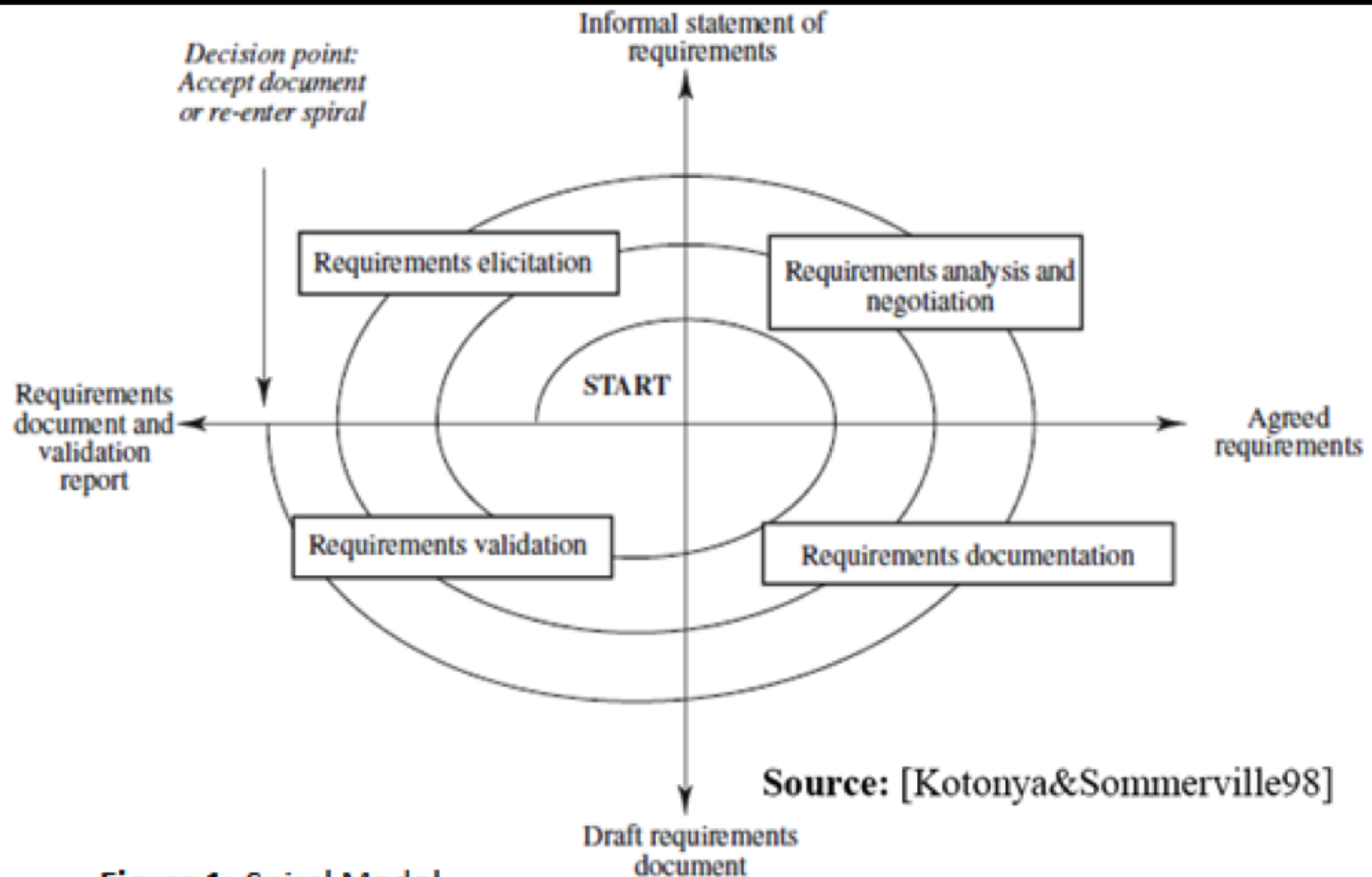


Figure 1: Spiral Model

Progress Report

Requirements Engineering

Progress Report - Overview

Agenda:

1. Added Features
2. New Requirements
3. Conflict Resolution
4. Change Cost

Added Features

- Breadcrumbs
- Drug Reminders
- Scheduler

Requirement #1

"The vocabulary should also include sign language icons for people who may not have speech capability at all and may be well versed in American Sign Language (ASL) symbols."

Two Issues:

- How to represent ASL?
- How to add ASL to the multidimensional vocabulary?

Issues with Requirement #1

How to represent ASL?

Options:

1. Video short of person performing sign.
2. Static image of person performing sign.
3. Static drawing of the sign.

Resolution:

#3 - Static drawings of ASL are commonly used in ASL training guides, making them sufficient to express the idea. In addition, images are easier to store and many are available in the public domain.

Issues With Requirement #1

How to add ASL to the multidimensional vocabulary?

Options:

1. Add the ASL sign representations as another dimension.
2. Replace the existing icons with ASL signs.
3. Replace English text with the ASL signs.
4. Allow the user to choose whether to use ASL signs or icons from the "icon glossary" for all displays
5. Add the ASL signs as icons within a category.
6. Ignore ASL signs; require that icons include English text.

Resolution: #4 - Greatest value for least cost

Requirement #2

"The system should also save and present at least the last 5 phrases/words constructed by the user through the system, conveniently from the main screen."

Two Issues:

1. From the main screen?
2. Relationship to "10 most frequently used phrases" requirement.

Issues with Requirement #2

Where must the icons be?

Options:

1. On the main screen.
2. In a menu that is on the main screen.

Resolution:

#2 - Minimal extra effort is required by the user & the data stays organized.

Issues with Requirement #2

How should the last 5 phrases interact with the 10 most frequently used (MFU) phrases?

Options:

1. Replace the MFU list with the last used list.
2. Put the MFU list & the last used list on the main screen.
3. Allow the user to select whether to create a list based on the most frequently used or based on the last used.

Resolution: #1 - The MFU list was developed simply to assist navigation. The last 5 used phrases perform this function - making the MFU obsolete.

Requirement #3 -- Issue

"To allow personalization, the users/assistive persons should be able to associate their own text/name to an icon/image in the system and also be able to set the size of the icons on the screen."

How are sizes defined?

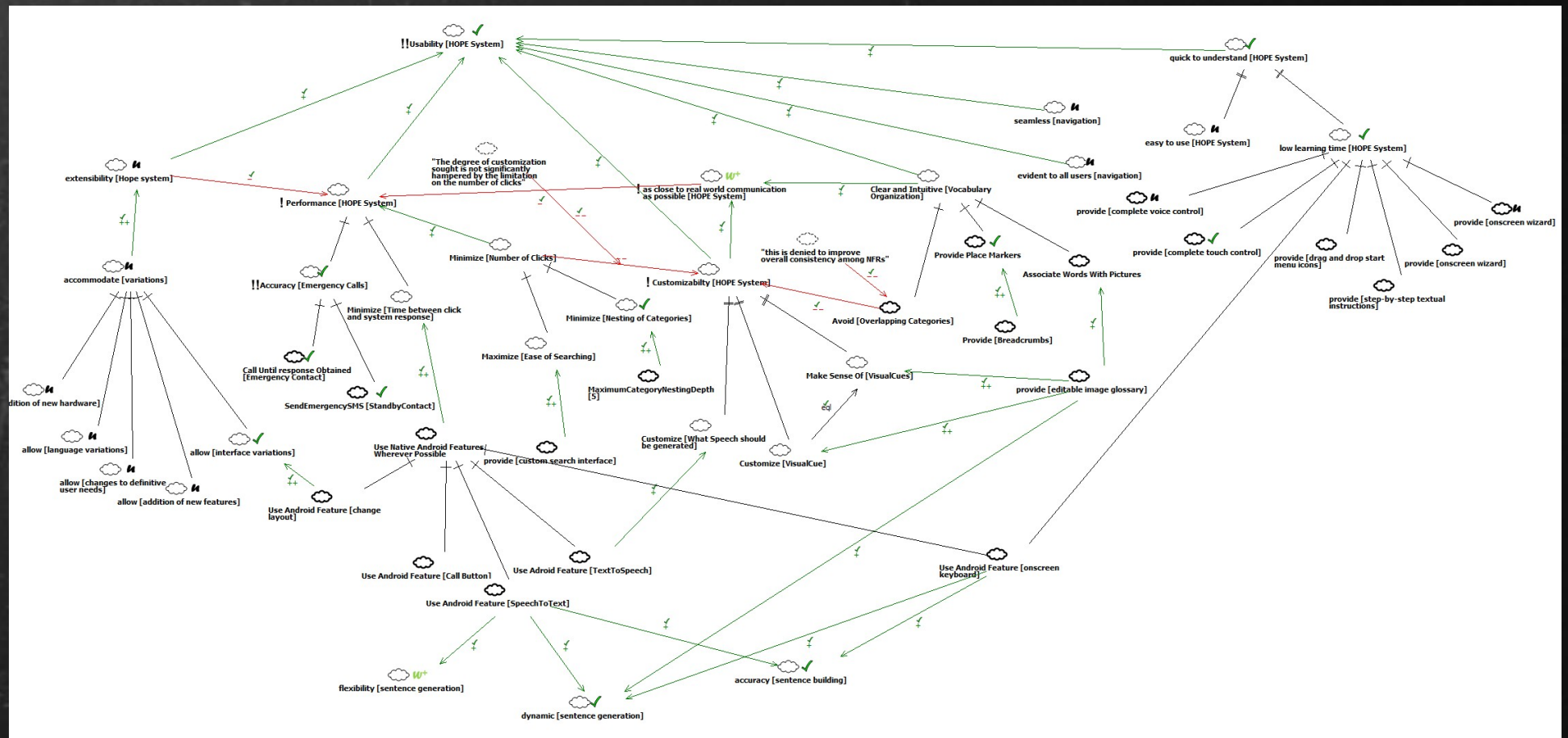
Options:

1. Size \propto icon count
2. Pixel size of image
3. % of screen size

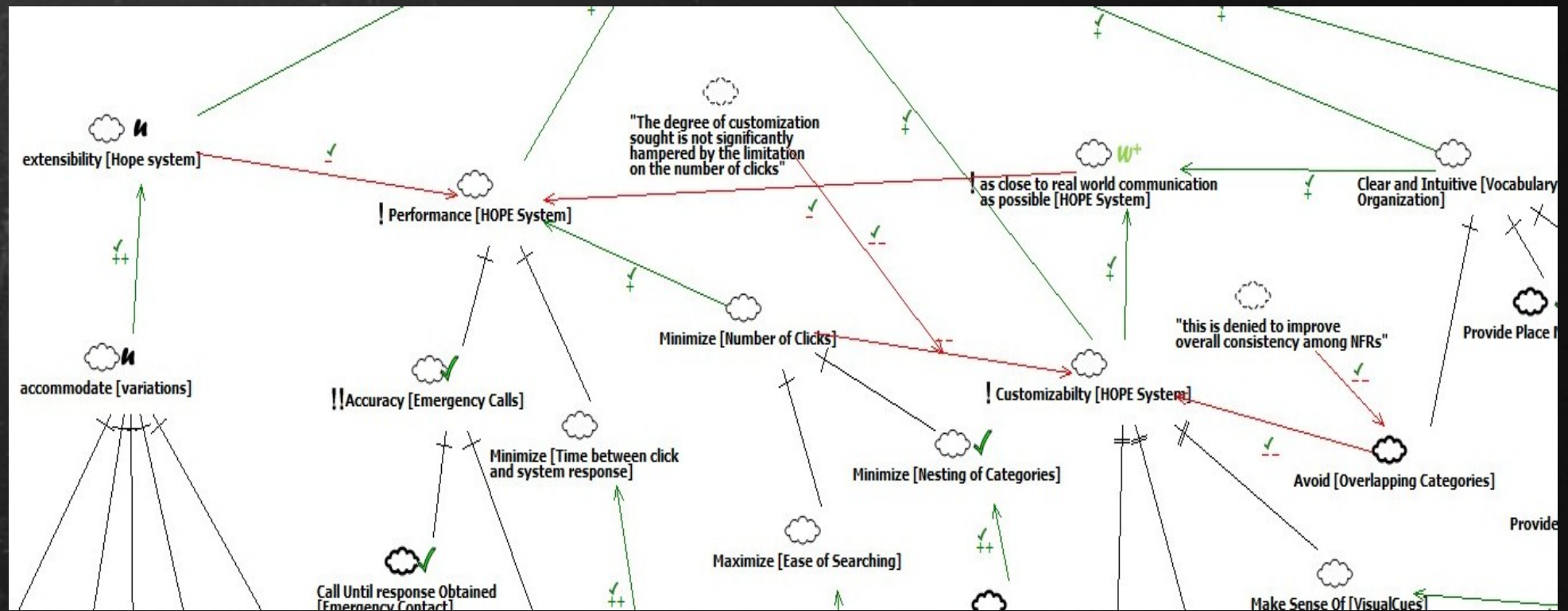
Resolution:

#1 - Easiest to implement and provides efficient use of screen space.

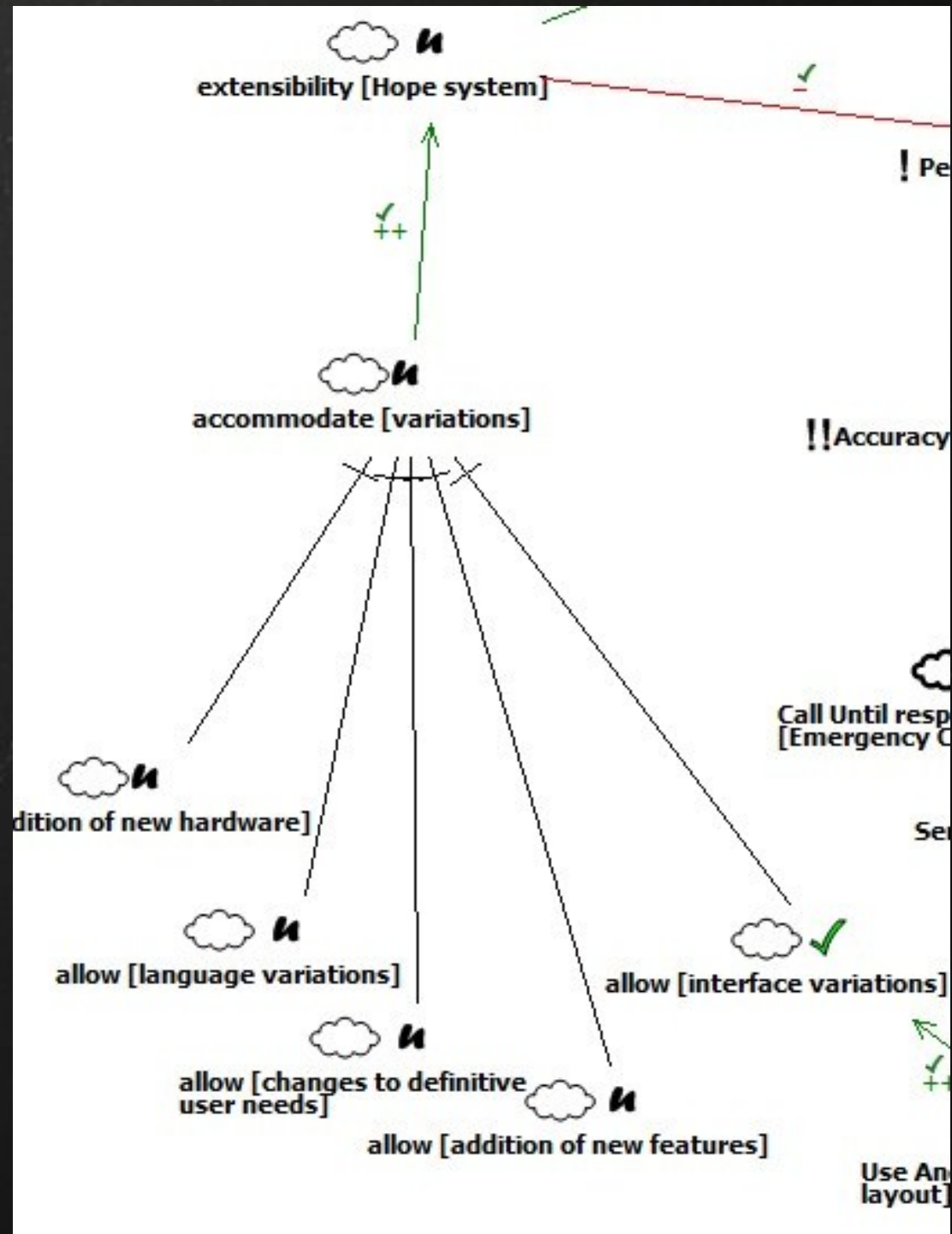
Conflict Resolution



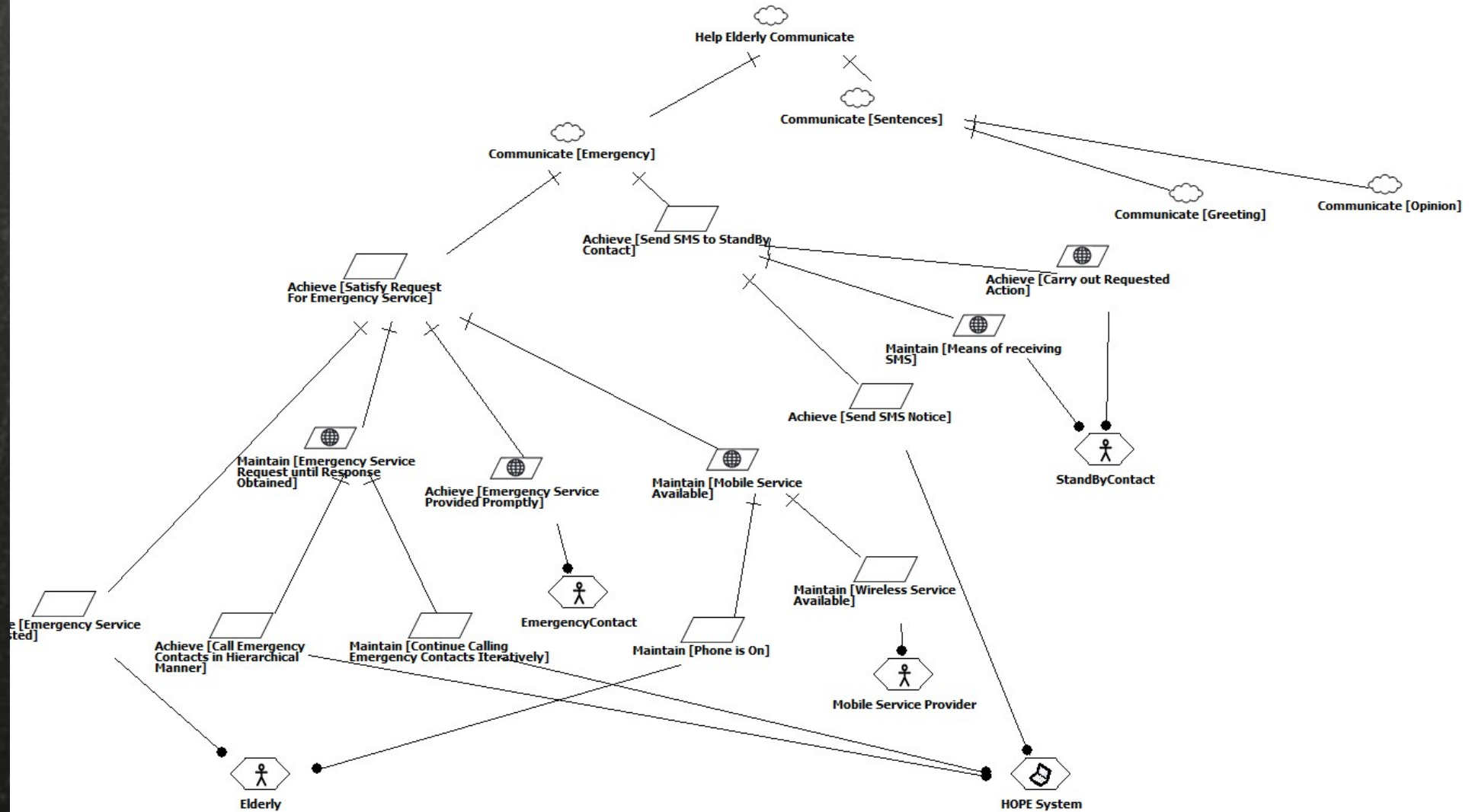
SIG 1



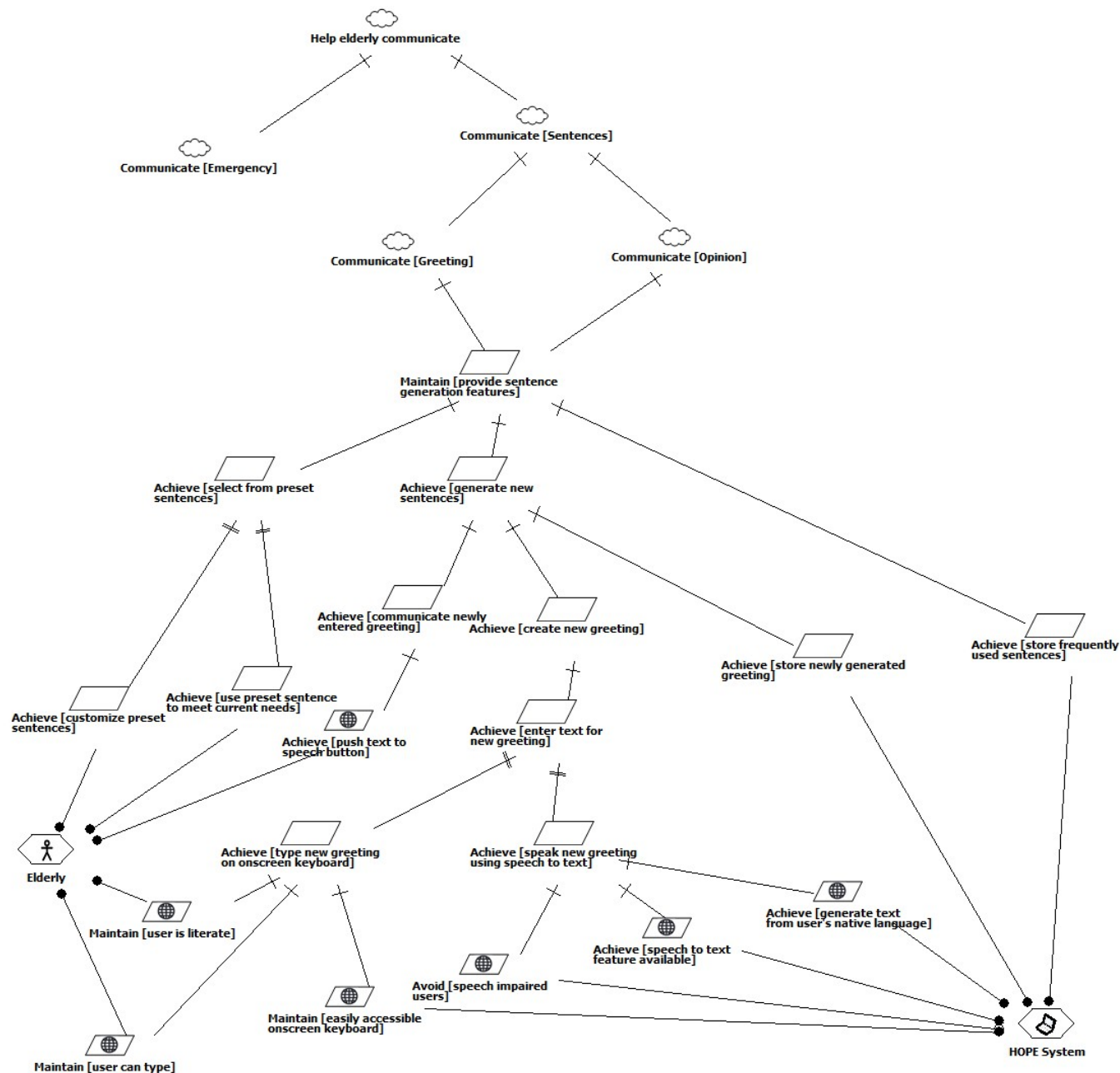
SIG 2



KAOS Modeling



KAOS Modeling Squared



The Prototype

Implementation Progress

Prototype Status

- ~60% of features
- ~30% of content
- Android 2.0

Prototype Status

Completed Features:

- Text-to-Speech
- Sentence Generation
- Predefined Greetings/Opinions
- Custom Sentence Creation
- Custom Layout
 - Icon Resizing
- Most Recently Used Menu
- Emergency Menus
- Menu-Creation Infrastructure

Prototype Status

Remaining Features:

- Speech-to-Text
- Menu/Vocabulary Search
- Breadcrumbs
- Drug Reminders
- Emergency SMS
- Emergency Contact Hierarchy
- Tutorial System

Demonstrations

- Common Greeting/Opinion
- Sentence Creation
- Sentence Storage & Retrieval
- Screen Customization

Conclusion

Change Cost

- Requirements
 - 4 added
 - 3 changed
- Burden
 - Updated WRS
 - Minor Conflict Resolution
 - 20-man hours

Review

- Completed Requirements Elicitation
 - Conflict Resolution
 - Added Features
 - Maintained Traceability
- Developed Application Core
 - Key Features
 - Easy to Add Content

Why Choose Us?

- Unique perspective for different cultures/ages
- Focus on emergencies (more useful in general)
- Customizable application interface and function
- Flexible definition of "Elderly"
- Placed focus on Early Stage Requirements Engineering
 - Emphasis on Conflict Resolution

Questions?