Operational Concept Description (OCD)

Spherical Modeling Tool

Team 13

Robert Lindstrom – Client

Lyle Franklin – Project Manager

Minsuk Heo – Prototyper

Oziel Carneiro – Feasibility Analyst

Sait Ilhaner – IV&V

Guoxiong Xie – Life Cycle Planner

Nikita Vlasenko – OCD

Mehmet Sezer – Requirements Engineer

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Version History

Date	Author	Version	Changes made	Rationale
9/23/13	NV	1.0	• Original for CSCI577; Tailored from ICSM OCD Template	• To fit CS577A, B course content
10/22/13	NV	2.0	• Original for CSCI577; Tailored from OCD 1.0	• To fit CS577A, B course content
12/02/13	NV	2.1	• Original for CSCI577; Tailored from OCD 2.0	• To fit CS577A, B course content

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1. Introduction

This document provides an explanation of the requirements and goals established in the meetings held between the stakeholders of the C60 Sphere Modeling Tool (SMT). It also shows current business workflow and how the system should be organized according to what was established by the communication of the development team with the client. The success-critical stakeholders of the project are Robert Lindstrom as the project owner; Lyle Franklin as the project manager; Minsuk Heo as the prototyper; Oziel Carneiro as the feasibility analyst; Sait Ilhaner as an independent verification and validation engineer IV&V; Guoxiong Xie as the life cycle planner (LCP); Nikita Vlasenko as the operational concept developer (OCD); Mehmet Sezer as the requirements engineer.

The status of the OCD is currently in the valuation phase. No previous OCD documents have yet been developed.

2. Shared Vision

2.1 Overview of the system

Table 1: The Program Model of the SMT

Assumptions **Spherical visualization is an effective tool for data visualization.** **There exists a need for spherical visualization**			
Stakeholders	**Initiatives**	**Value Propositions**	**Beneficiaries**
• Development Team • Sales manager	• Develop SMT • Validate usability • Marketing and sales • Provide training and support • Determine distribution model	• Increase comprehension of complex data • Reveal system efficiencies and deficiencies • Increase collaboration and communication on teams • Improves decision making • Revenue generation	• C60 clients • C60 itself

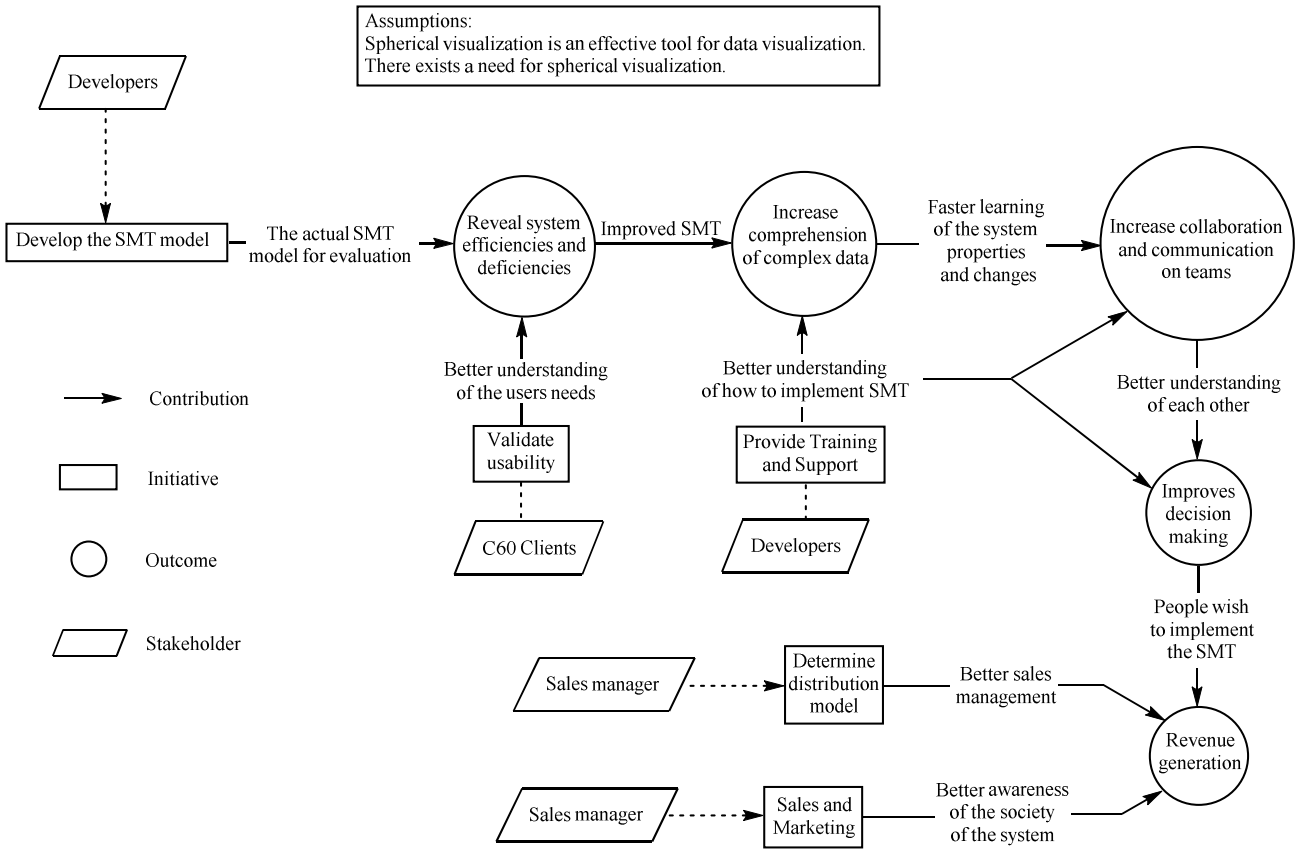

Figure 1: Benefits chain diagram

2.2 System Boundary and Environment

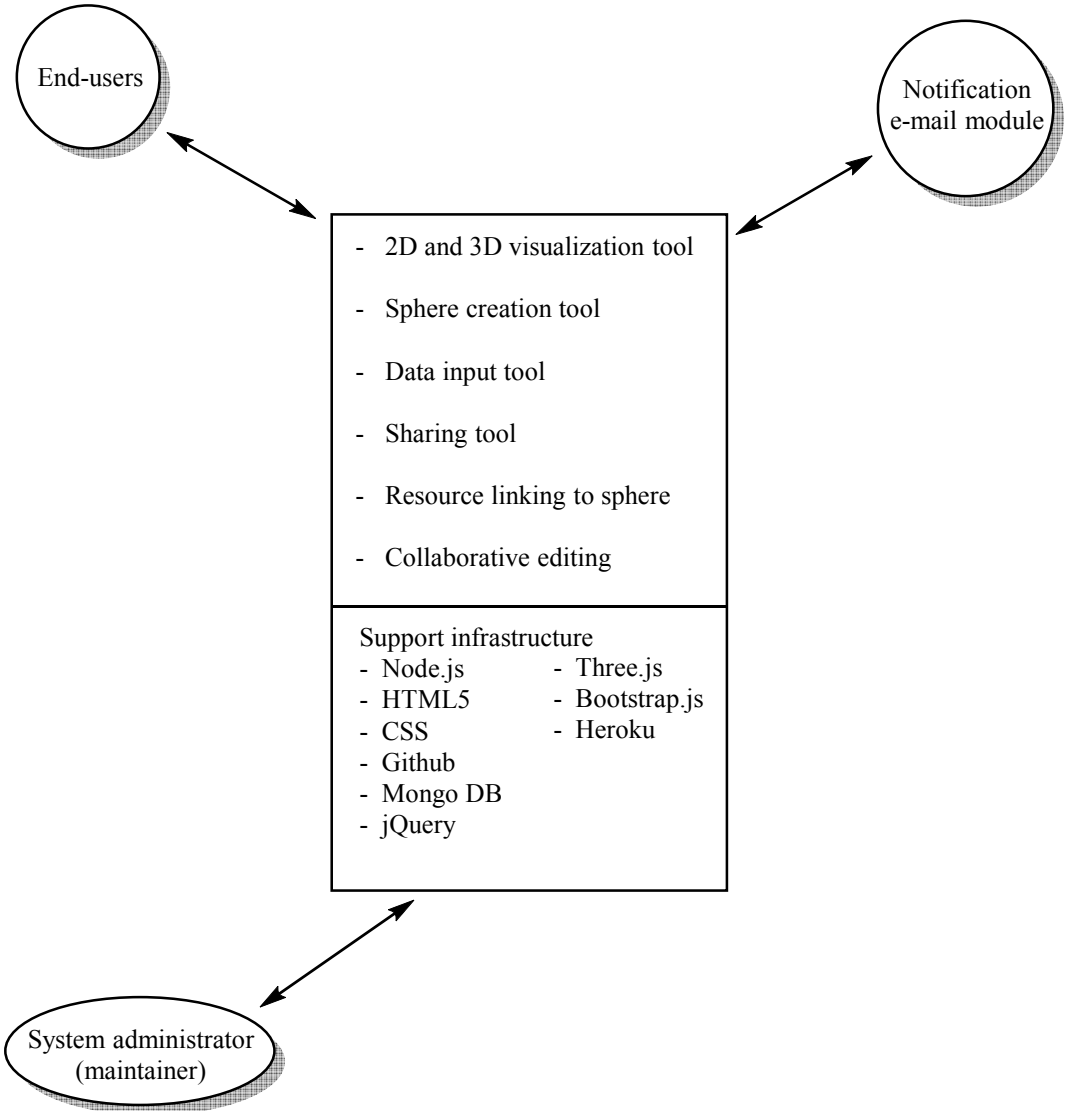

Figure 2: System Boundary and Environment Diagram

3. System Transformation

3.1 Information on Current System

3.1.1 Infrastructure

For the development of the system currently the following is used:

- HTML5
- Java for server-side components
- Javascript with Backbone.js framework for client-side components
- Bootstrap.css and bootstrap.js for design
- Highcharts for chart creation
- Three.js – 3D graphic rendering
- jQuery1.9 for easy coding
- Mongo DB for database part
- Github for version control
- Heroku for hosting services
- Node.js for Creating server-side REST API

It is supposed that the developed system will be usable on web browsers on both desktops and mobile devices

3.1.2 Artifacts

- OCD document. Explains how the system operates, business workflow.
- Prototype. Implements the presumable requirements established during the communication between the team and the client. Helps to clarify what the team needs to do further, clarifies the requirements.
- FED document. Assesses the feasibility of the project, possible obstacles.
- LCP document. Schedule and budget planning
- 2D circle and 3D sphere models. Shows the 2D and respective 3D representations of the system.
- Data input survey, manageable questionnaire. Allows for the modification of the amount of data we need to put in and the data input itself. One of the interface parts.

3.1.3 Current Business Workflow

The system is being developed for the first time and has never been utilized, so no business workflow of the current system exists for today.

Figure 3: Business workflow diagram

3.2 System Objectives, Constraints and Priorities

3.2.1 Capability Goals

Capability Goals	Priority Level
OC-1 Sphere Generation	Must have
OC-2 Collaborative editing	Should have
OC-3 Data visualization	Want to have

3.2.2 Level of Service Goals

Table 2: Level of Service Goals

Level of Service Goals	Desired Level	Acceptance level	Referred WinWin Agreements
2D/3D toggling time	1 s	5 s	WC_2496
Response time upon addition of the next sphere and upon editing the existing picture of an assembly of different spheres	0.1 s	5 s	WC_2482; WC_2483; WC_2493; WC_2494
Response time upon sphere rotation, editing	0.02 s	2 s	WC_2493
Uptime (Heroku)	99	90	WC_2780

3.2.3 Organizational Goals

OG-1: Increase comprehension of complex data via 3D visualization
OG-2: Reveal system efficiencies and deficiencies through the end-users interaction with the system
OG-3: Increase collaboration and communication on teams via 3D rendering and data sharing
OG-3: Improves decision making via 3D rendering and easy data sharing
OG-4: Increase revenue via increased demand of the system (or widespread need for the system)

3.2.4 Constraints

CO-1: Monetary budget: The customer is willing to pay for NDI/NCS but no more than $35 per month for hosting and $9 per month for database.
CO-2: Schedule: Need to deliver the system by the end of the second semester

3.2.5 Relation to Current System

The system is being developed for the first time: no current system yet exists, so no comparisons can be made.

3.3 Proposed New Operational Concept

3.3.1 Element Relationship Diagram

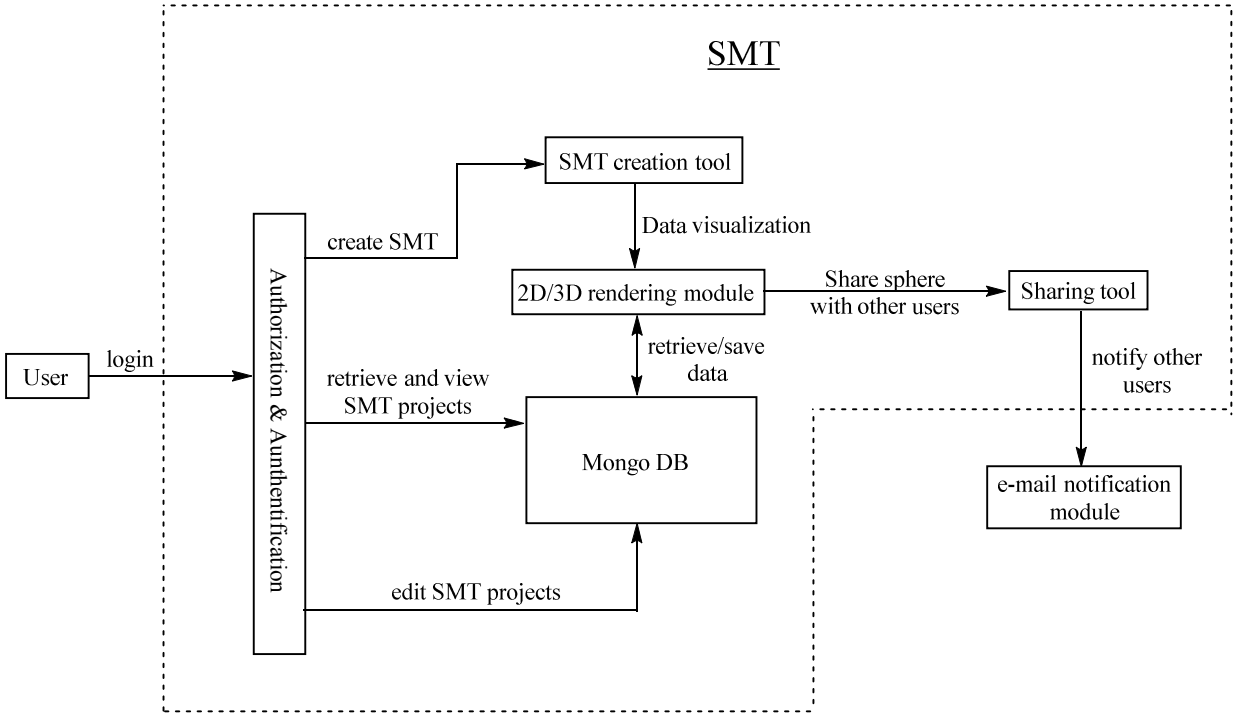

Figure 3: Element Relationship Diagram of Spherical Modeling Tool (SMT)

3.3.2 Business Workflows

Since the system is being developed for the first time, no business workflow yet exists.

3.4 Organizational and Operational Implications

3.4.1 Organizational Transformations

No organizational transformation have yet been needed

3.4.2 Operational Transformations

No changes in the workflows can be identified right now, since no workflows exist for the current system which is under the development.