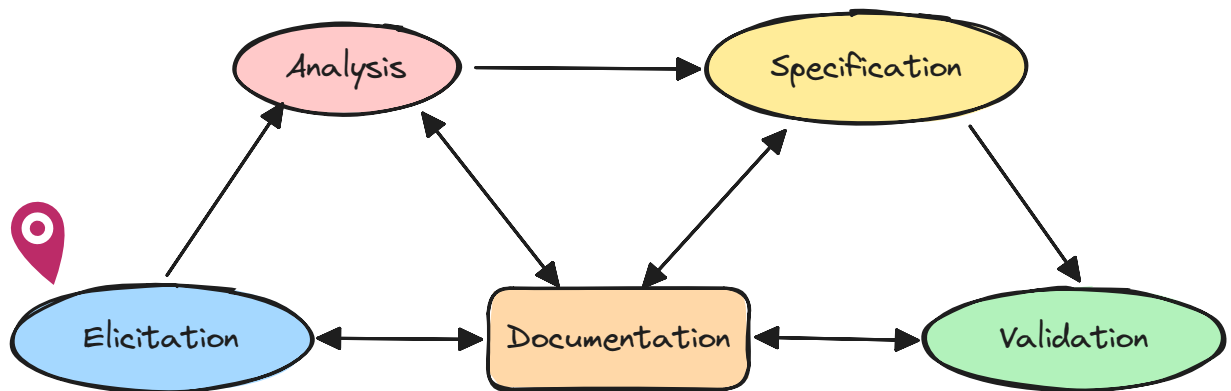


Where are we?



1 The ATCO Eats Case Study

2 Single Statement of Need


3 Documenting an SSON

The ATCO Eats Case Study
A mobile app for the Firebird restaurant on campus

1

BRIGHTER WORLD | Sébastien Mosser, Computing and Software (CAS), Faculty of Engineering

24 August 2024 | 4

McMaster University 

You've got mail! What the Firebird wants

Dear ACME sales team,

We hope this email finds you well. The Firebird Management Team is reaching out to explore the possibility of collaborating with your esteemed team for the development of our upcoming food ordering app, "ATCO Eats." We are impressed by your expertise in software development, particularly in the food industry, and believe your skills align perfectly with our project requirements.

The primary objective of "ATCO Eats" is to offer a **user-friendly** and **feature-rich** platform that **enhances our customers' food ordering experience**. Key functionalities include **seamless order placement**, **real-time tracking**, **secure payment processing**, and a **comprehensive loyalty program**. We are confident that **your contributions will play a vital role in transforming this vision into a practical and successful application**.

Should you be interested in pursuing this collaboration, we kindly request your availability for an initial meeting to delve deeper into the project scope and discuss potential collaboration terms. Your professionalism and expertise will undoubtedly be an asset in the development of "ATCO Eats." We eagerly await your response and the opportunity to work together.

Best regards,
The Firebird Management Team

I'm lazy. Let's ChatGPT-ify it



- (1) Real-time Order Tracking:** *The Firebird emphasized the importance of offering customers real-time order tracking to enable them to monitor their food delivery status accurately.*
- (2) Personalized Recommendations:** *The management expressed interest in incorporating personalized menu recommendations based on customers' previous orders and preferences.*
- (3) User Interface and Navigation:** *The Firebird emphasized the significance of an intuitive and visually appealing user interface that simplifies navigation and enhances the overall app experience.*
- (4) Loyalty Program Integration:** *The management desires to implement a loyalty program in the app, providing customers with rewards, discounts, and exclusive offers to foster customer retention.*
- (5) Menu Customization:** *The Firebird wishes to enable users to customize their orders, allowing them to tailor menu items according to their taste and dietary requirements.*
- (6) Notification System:** *The management intends to implement a notification system to inform users of special deals, limited-time offers, and new menu additions.*
- (7) Payment Methods:** *The Firebird aims to offer various payment methods, including credit cards, debit cards, mobile wallets, and cash on delivery, to accommodate user preferences.*
- (8) Additional Features:** *The management expressed openness to additional features that enhance user engagement and app functionality, such as feedback submission and in-app help.*

And we're done.



ENGINEERING
Computing & Software

- At the end of the day, **Requirements Engineering** in 2024 is all about **prompting Large Language Models**.
- `./generate_handbook_srs.py \`
`-input firebird_3ra3.txt -output atco-GPT`
- Generates a **beautiful 45 pages PDF**
 - I only had to tweak manually **2 syntax bugs** in PlantUML diagrams
 - Took **23 minutes** to generate (slow API), and **costed \$6.47** in API usage during summer 23.

ATCO Eats
Requirements Standard Plan

Dr. Sébastien Mosser, ChatGPT

Version 1, 2023-08-16

<https://github.com/3RA3-F23/atco-GPT/releases/tag/fall2023>



Plot Twist

This is crap.

What the client wants ≠ what the client needs



These initial requirements are an “average” of Uber Eats-like applications

The “Spice Girls” challenge: “**Tell me what you want, what you really really want**”

What the client really needs

- **Integration into Campus:** ATCO Eats must leverage that The Firebird is located at the heart of McMaster’s historic campus. They are envisioning an **integration between ATCO Eats and system like Mosaic to allow McMaster’s staff to order food for events** directly through their internal information system and automatically support billing (instead of staff paying with their credit card and then submitting an expense report).
- **Integration with Campus life:** ATCO Eats needs to reflect the campus life, i.e., **support students when they need it the most** (e.g., exam periods) or during their daily routine (e.g., short lunch break). The Firebird envisions a **pick-up mechanism** where students can order meal boxes in advance and pick them up quickly at the restaurant.
- **Attracting new customers:** ATCO Eats is also a way to expand their patron’s pool. A loyalty card can **bring people on campus** and enjoy the patio, **especially during summer times**. The Firebird envisions a loyalty card with points that can be accumulated and used to get some appetizers.

Single Statement of Need

Aka Kennedy Statement, aka Elevator Pitch

2

The Purpose of Requirements

- Can **act as a form of contract** between the **provider** and their **stakeholders**.
- Describes
 - **what people want from their systems**
 - as well as **what the systems have to do for them**.
- Description of **how to fulfill a need** of some kind **that is currently missing**.
 - In some organizations, this is called a '**capability**'

Definition: Single Statement of Need (SSON)

- A **clear, concise** statement about the **system's overall goal** and **how it will accomplish** those goals.
- Usually **determined by the client**/sponsor early on.
 - Although it is **often poorly done**.
- Describes what **capability the system** being developed **will provide**.
- Provides a **broad understanding of what the final outcome** of the endeavour is going to be.
- Can act as a **long-term measuring stick** regarding how well the requirements process has been completed.
 - If you as a **requirements engineer cannot look back at the SSON** and **decide** whether your requirements describe a system that meets this need **you have failed your stakeholders**.

Wrath of the Lich King (2007)



The **guiding principle** behind this kind of "starter" dungeon is that you and your party can have a **solid, memorable experience** with plenty of **story payoffs** and some **nice rewards** to boot -- **all in a single run**.

What should make the experience of playing through Utgarde Keep **even more engaging** is a **sense of purpose** for the players, and even **greater connection to the story** than before.

This is **one of the key goals** of Wrath of the Lich King's **dungeon design**.

<https://web.archive.org/web/20071103085732/http://www.worldofwarcraft.com:80/wrath/features/dungeons/utgarde.xml>

Wrath of the Lich King (2007)



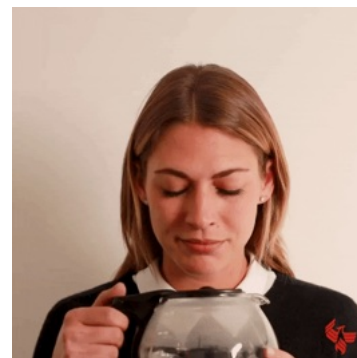
One of the most important lessons of dungeon design is **to establish easily identifiable goals**. When you feel like **you're there for a clear reason**, that **sense of purpose** makes a **dungeon far more engaging**.

To help facilitate this **goal-oriented philosophy**, one technique we're using in Wrath of the Lich King is to **build more mission-based instances** along the lines of **Old Hillsbrad** and **Black Morass**

(It eventually backfired, as it led to the creation of a simpler "point and click" gameplay that attracted a new generation of players who did not mix well with the old guard)

Example: Coffee app

- I am an **angel investor** with **more money than sense**
- I like **coffee**.
- **I want an app** that has **something to do with coffee**
- **I hate Timmy's, Starbucks** and **chain coffee**
- Give me an **SSON**, and **I will drown you in \$\$\$\$\$**



The NoTimmys App



The **NoTimmy** app will allow users to **find nearby local coffee** and espresso bars that **provide a non-chain experience** while **giving a way to review bars** and **provide feedback**.

- Is it a good SSON?
- How can we improve it?

An iconic SSON



Before this decade is out to **land a man on the Moon** and **return him safely** to the Earth.

— JFK, May 25, 1961



- You might hear “**Kennedy Statement**” as a **synonym for SSON**
 - In industry, a “**moon shot**” refers to **monumental effort** and **lofty goal**
- You might also hear “**elevator pitch**” in business ecosystems
 - Despite being more “sales oriented”, the **objective is similar**

Documenting an SSON

How to make it concrete



Back to your project template

The four books of requirements	
Project (P) <ul style="list-style-type: none">P.1 Roles and personnelP.2 Imposed technical choicesP.3 Schedule and milestonesP.4 Tasks and deliverablesP.5 Required technology elementsP.6 Risk and mitigation analysisP.7 Requirements process and report	Goals (G) <ul style="list-style-type: none">G.1 Context and overall objectiveG.2 Current situationG.3 Expected benefitsG.4 Functionality overviewG.5 High-level usage scenariosG.6 Limitations and exclusionsG.7 Stakeholders and requirements sources
Environment (E) <ul style="list-style-type: none">E.1 GlossaryE.2 ComponentsE.3 ConstraintsE.4 AssumptionsE.5 EffectsE.6 Invariants	System (S) <ul style="list-style-type: none">S.1 ComponentsS.2 FunctionalityS.3 InterfacesS.4 Detailed usage scenariosS.5 PrioritizationS.6 Verification and acceptance criteria

(G.1) Context and Overall Objective



High-level view of the project: organizational context and reason for building a system. It explains why the project is needed, recalls the business context, and presents the general business objectives. [1]

The COVID-19 crisis hit the food and hospitality industry really hard, and restaurants are still recovering from it. By investing in the deployment of a new app, **The Firebird Pub & Grill aims to integrate their food offer into McMaster's community in a seamless way**, by **interacting with internal information systems for event caterings**, as well as providing an **ideal support for students' life on campus with mealboxes**. Launching this new system will also targets the **expansion of the patrons' pool**, by focusing on McMaster as part of the Hamiltonian community.

(G.2) Current Situation



Current state of processes to be addressed by the project and the resulting system. It describes the current situation, upon which the system is expected to improve [1]

The Firebird **operates as a classical restaurant** on campus. **Events are organized** to attract graduate students, and a patio was added for outdoor seating in the 90's to **increase seat capacity during summer months**. Often described as Hamilton's hidden jewel, its **location does not help to attract external patrons** (e.g., no parking). Local patrons would consider it as any restaurant in the area: for example, **staff cannot order catering for events through Mosaic**, and have to consider it as any other invoice.

(E.5) Effects



Elements and properties of the environment that the system will affect. It defines effects of the system's operations on properties of the environment. Where the previous two categories (E.3, E.4) defined influences of the environment on the system, effects are influences in the reverse direction. [1]

- Increase in **student happiness, health, and morale**. [...]
- Increase in **on-campus student population**. [...]
- Increase in **events on campus**. [...]

(E.6) Invariants

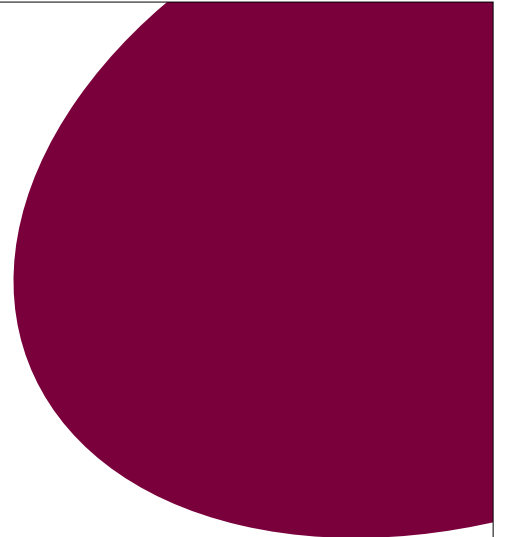


Properties of the environment that the system's operation must preserve, i.e., properties of the environment that operations of the system may assume to hold when they start, and must maintain [1]

- The Firebird will **operate specifically within the McMaster University Campus**, on land owned by McMaster
- The Firebird can assume that **McMaster will be responsible for their own systems**, outside of the application being developed for The Firebird
- The Firebird can assume that **there will always be patrons under the legal drinking age** based on the legal drinking age set by the Ontario Government

Conclusions

TL;DR: Takeaway Messages



Takeaway Message

- Requirements Engineering elicitation is a **tailored** effort
 - **Fixing an error** at the SSON elicitation stage **will save you (tr|b|m)illions**
 - *First sentence French kids learn in English is "**My tailor is rich**".*
- **An SSON** is:
 - A **clear, concise** statement about the **system's overall goal** and **how it will accomplish** those goals
 - **Reflected at different places** in the requirement template we are using
 - The **long-term measuring stick** for your project: "**Are we there yet?**"



ENGINEERING

Computing
& Software

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