

Establishing the Business Requirements

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Objectives

- The benefits of defining the business requirements
- Product vision vs project scope
- Using template for the vision and scope documents
- Scope representation techniques
- Quick notes about the assignment

The benefits of defining the business requirements

- Business requirements include the definition of the **main objectives** of the project (i.e., mission/vision statement).
- Defining the main objectives in a clear way can help BA **assess and prioritize** the new requirements.

The benefits of defining the business requirements

- When a new requirement appears, BA can go back to the main objectives and assesses whether the new requirements
 - a. fit within the project scope
 - b. what is the value of the new requirements to our main objectives.
- This process is called objective analysis.

The benefits of defining the business requirements



For the online purchase system, **buyers** need a system that speeds up the ordering process.

The **auditing team** needs to have access to the previous orders to assess the purchases.

Finally, the **sales team** needs to see the highly demanded items to facilitate such products at better prices.



YES

NO

The **auditing team** shall be able to see the orders of the last 12 months.

The benefits of defining the business requirements



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The **sales team** shall be able to print a summary of the purchased items in the last three months.

The benefits of defining the business requirements



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The **buyers** shall be able to receive notifications when the price of an item changes.

The benefits of defining the business requirements



“Requirements that don’t help the project achieve its business objectives shouldn’t be implemented.” [1]

Set measurable targets with business objectives
Define success metrics

So, we need to have a clear definition of the **main problem**, the **business opportunities**, **business objectives**, the **mission statement**, and finally, the **scope** and the **limitations** of the product.

Objectives

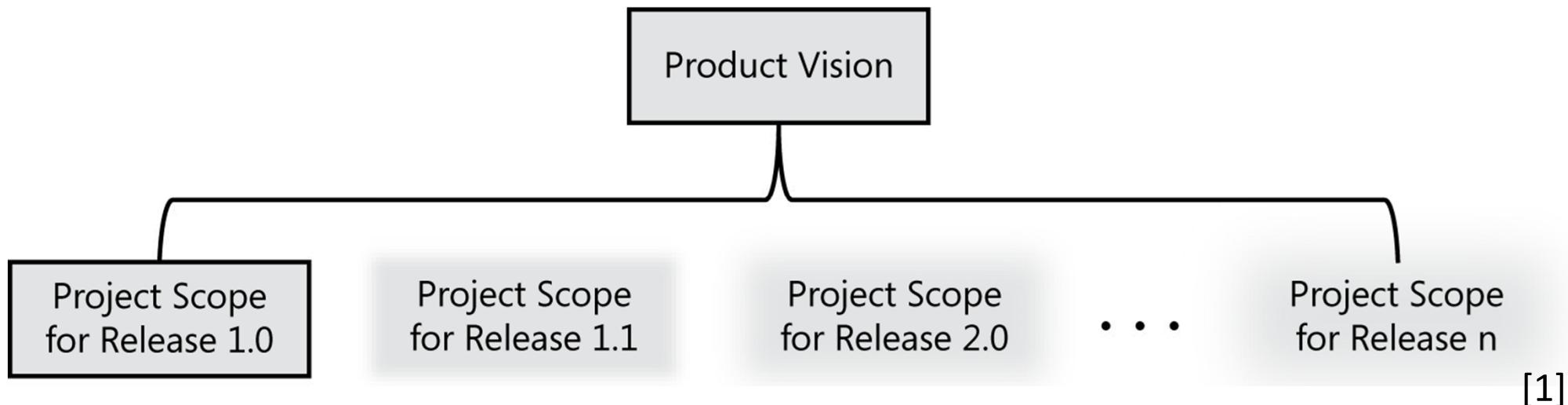
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Product vision vs project scope

- The product vision defines the **main outcome** and the **main objectives** of the product.
- The project scope defines the **delivered** features for the **next release** or the **next iteration**.
- The **vision statement** should be **stable** during the project. However, the project scope is defined and **adjusted** for every iteration/release.

Product vision vs project scope

- Scope is more dynamic than vision,
- Because the stakeholders adjust the contents of each release within its schedule, budget, resource, and quality constraints.



[1]

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Using template for the vision and scope documents

- Templates makes you think in filling all sections (even if certain sections are not applicable, you can write NA).
- Templates should be tailored based on the nature of your project.

Using template for the vision and scope documents

- Filling in the **template takes time**, but it assures that we have high-quality requirements, which eventually leads to **delivering projects on time**.
- Start **filling parts that you know**, then eventually, you will get the idea about all the template sections.
- The **owner** of the vision and scope document is the project's executive **sponsor**.

Using template for the vision and scope documents

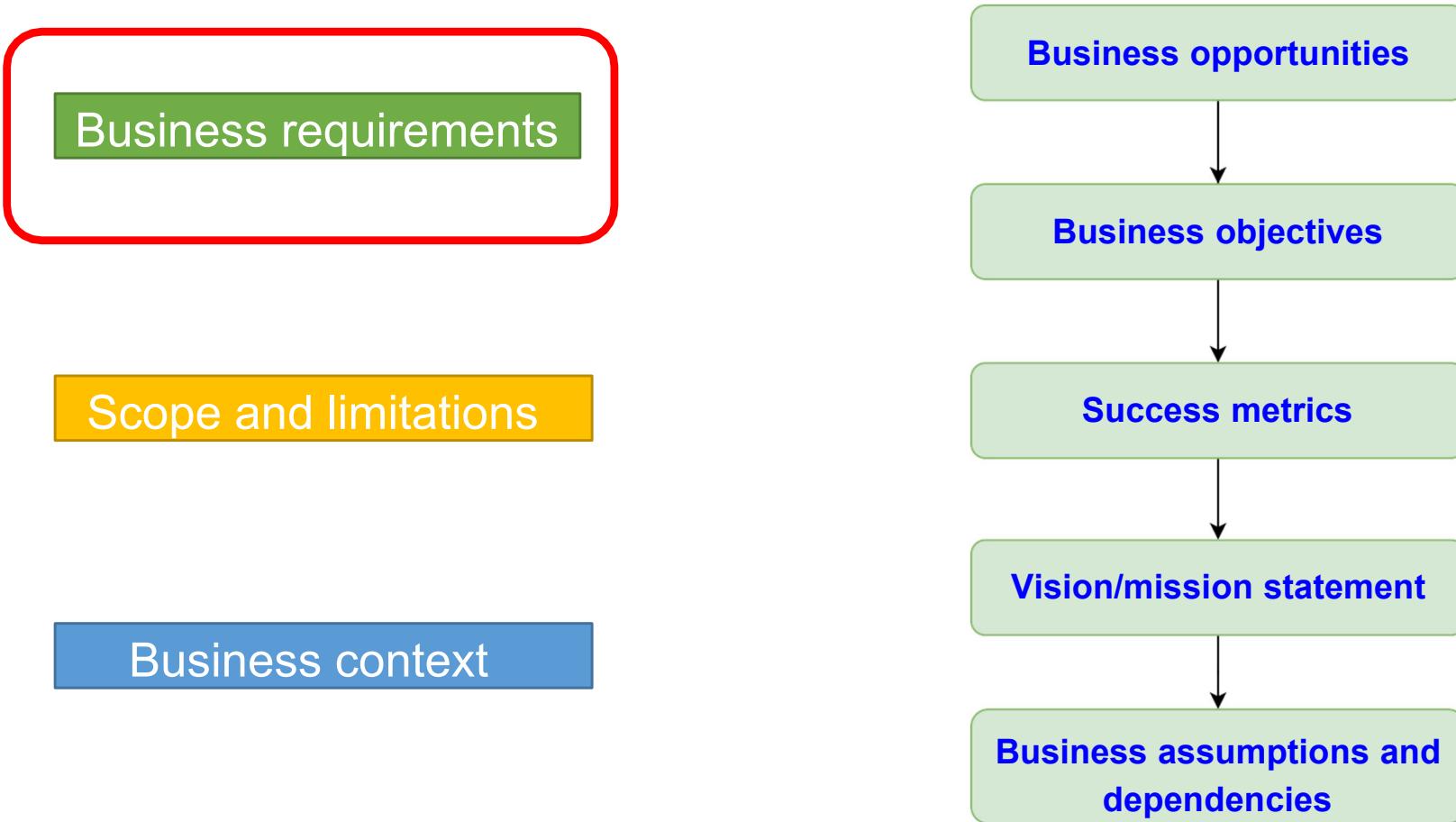
Generally, there are 3 main sections

Business requirements

Scope and limitations

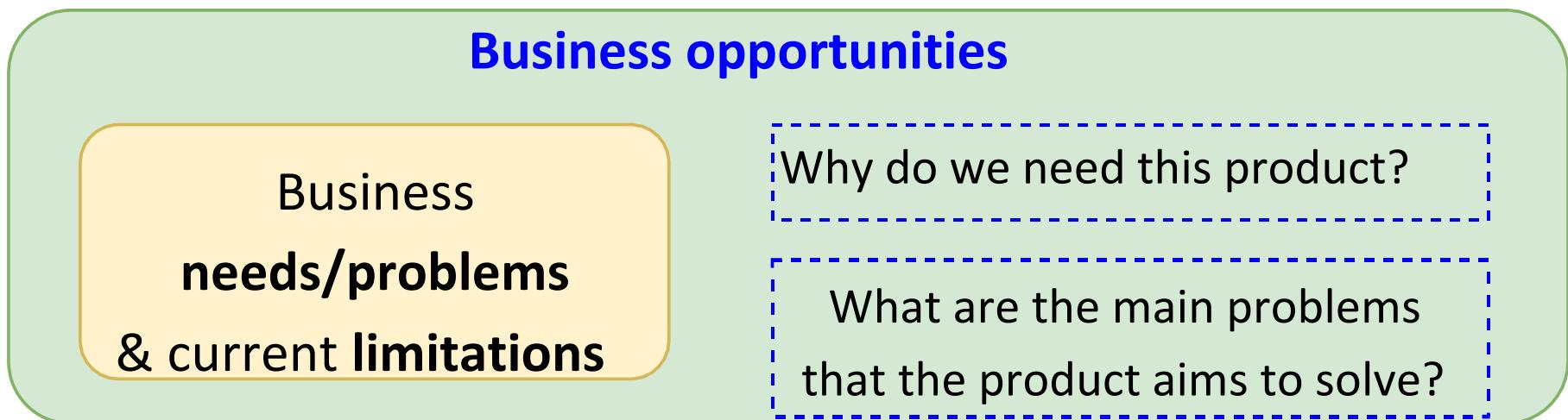
Business context

Using template for the vision and scope documents



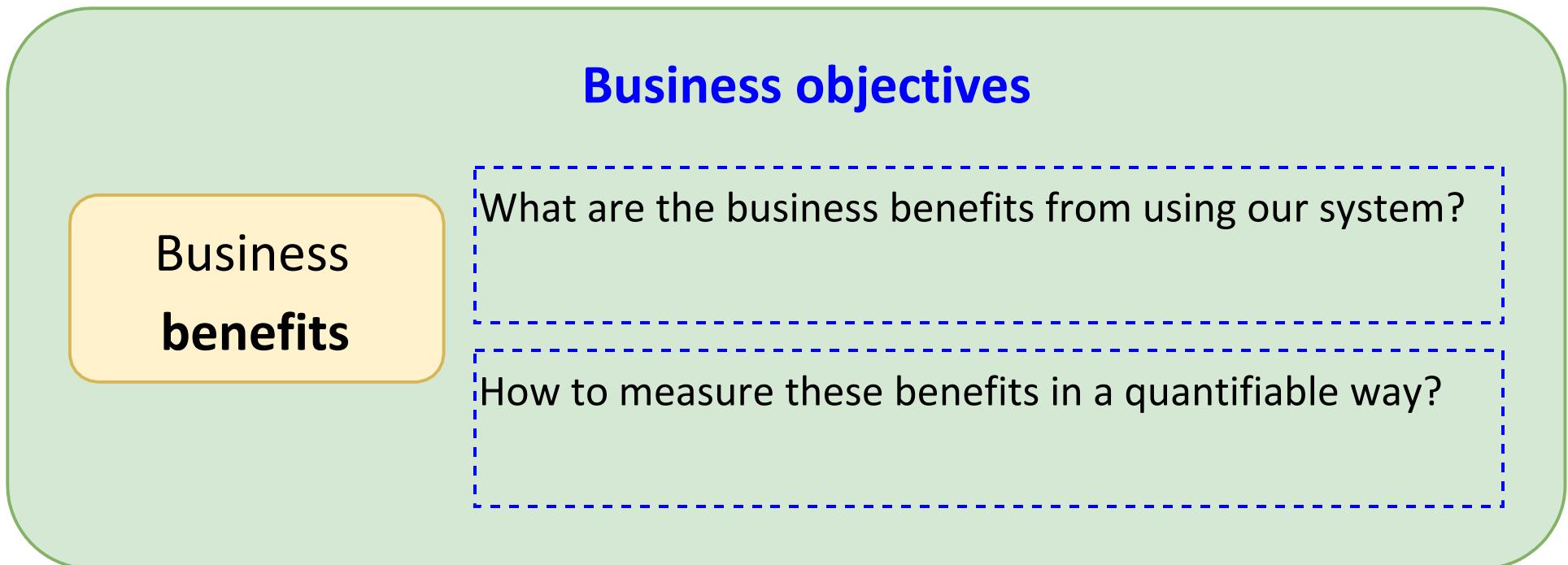
Step 1: Define business opportunities

- Think about the following points:
 - The current **limitations/problems** in the existing systems.
 - The current **needs** for a specific group of customers.



Step 2: Identify business objectives

- Think about the following points:
 - The current **business benefits** from applying the new system.



Step 2: Identify business objectives

- The benefits should be **valuable** to the main business owner or funding authority
 - Saving time
 - Increasing the number of customers
- Reflect the defined business opportunities into **measurable business objectives (BO)**.
- Define a “**measurable way**” to **progressively achieve the benefits** or **progressively satisfy the needs**.

An example of identifying the BOs

Problems and objectives are intertwined: understanding one can reveal the other.

Analyst Questions

What motivates your interest in a chemical tracking system?

Executive Responses

Managing chemical inventories manually costs too much and is inefficient.

How much would you like to reduce your chemical expenses?

By 25% within one year.

What is keeping you from cutting by 25% today?
What is causing the high cost and inefficiency?

We buy unnecessary chemicals because we don't know what we have in inventory. We discard too much unused material that has expired.

Anything else I should know?

Placing orders is complicated; it takes users a long time. The government reports we create are manually generated, which takes far too much time.

Opportunity

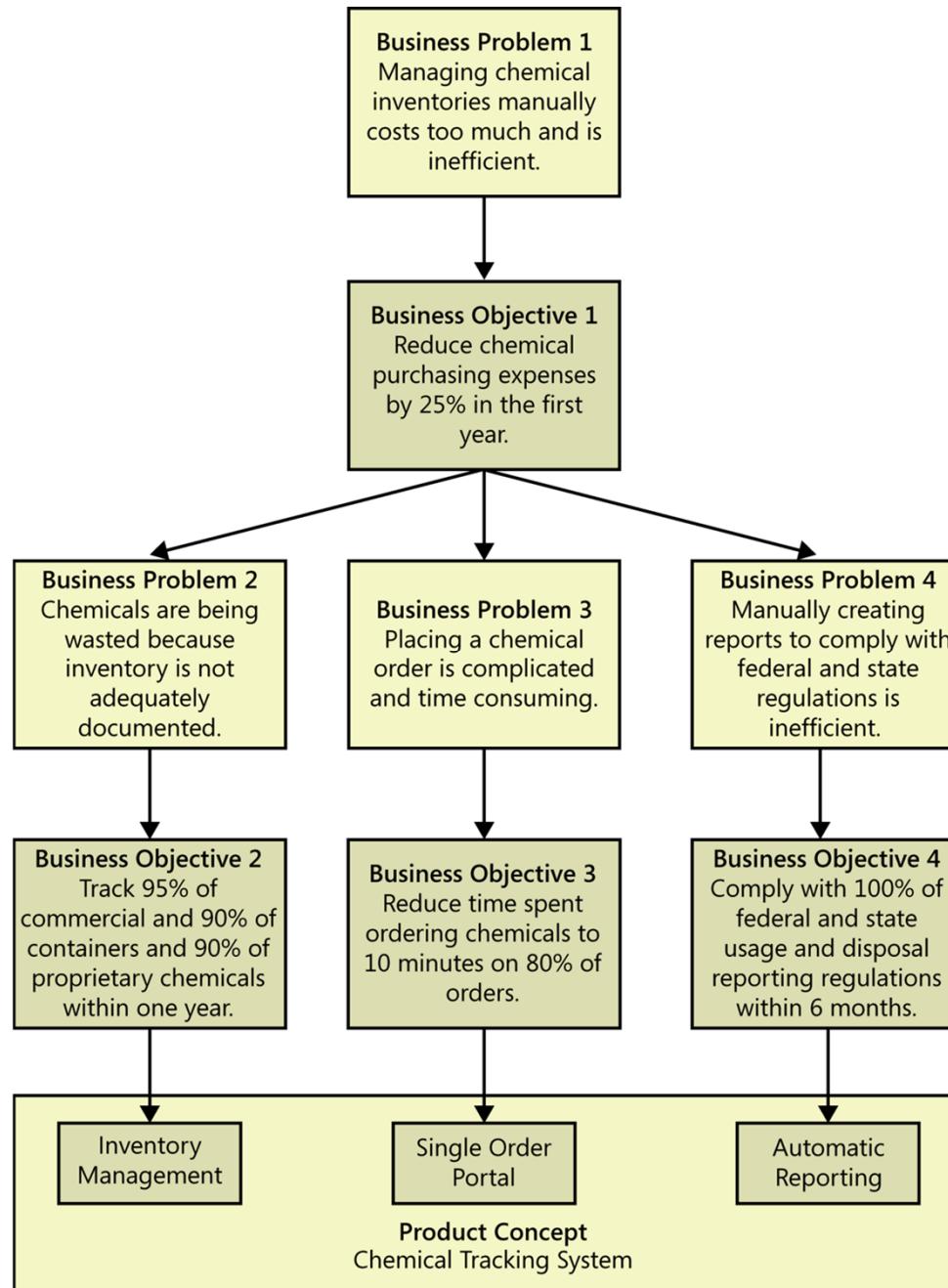
Objective

Opportunity

Opportunity

[1]

An example of identifying the BOs



[1]

Identify the BOs of the “Online Purchase System”



Currently, the purchase process takes 3-4 weeks. The process is prolonged, and the purchasing administrator needs a system that speeds up the ordering process with 20%. Besides, the buyers do not know the best available offers, so they need automatic notifications if certain products have discounts. Ordering items at the lowest price can save the purchasing department loses around \$10M per year.

The auditing team needs to access the previous orders to assess the purchases and extracting reports that comply with the standard auditing criteria. Finally, the sales team needs to see the highly demanded items to facilitate such products at better prices (e.g., buying a large stock of items).

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2

Define the **business opportunities**

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3

Define the **business objectives**

Identify the BOs of the “Online Purchase System”



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3

Define the **business objectives**

Step 3: Derive the success metrics

- Define the potential **indicators** used by the stakeholders to measure the success of the product.
- You can **use the defined business objectives** to measure the success metrics of the system.
- You can generate daily reports that show **the key performance indicator (KPI)** of the system.

Step 4: Summarize the gained knowledge into a vision statement

- Summarize the identified objectives & opportunities into (1) a **concise** and (2) **clear** vision statement.

Step 4: Summarize the gained knowledge into a vision statement

For scientists who need to request containers of chemicals, the Chemical Tracking System is an information system that will provide a single point of access to the chemical stockroom and to vendors. The system will store the location of every chemical container within the company, the quantity of material remaining in it, and the complete history of each container locations and usage. This system will save the company 25 percent on chemical costs in the first year of use by allowing the company to fully exploit chemicals that are already available within the company, dispose of fewer partially used or expired containers, and use a standard chemical purchasing process. Unlike the current manual ordering processes, our product will generate all reports required to comply with federal and state government regulations that require the reporting of chemical usage, storage, and disposal.

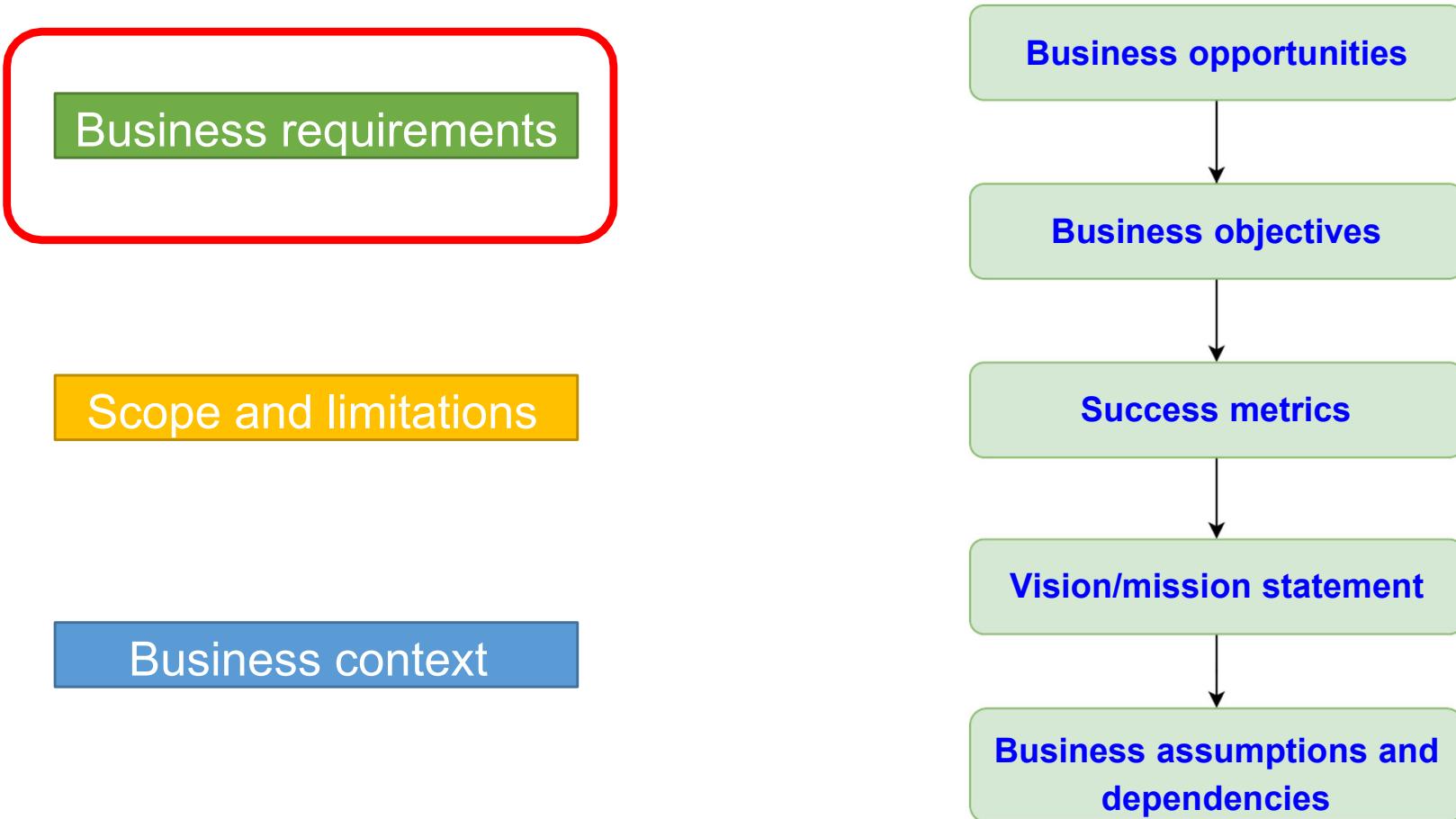
Step 5: Identify the business risks, assumptions, and dependencies

- Business risks includes:
 - Your competitors. For example, knowing that your competitors are developing similar products adds a business risk that can be mitigated by
 - 1) adding unique features to our product and
 - 2) reducing the product scope of the initial release so that we can hit the market very quickly.
 - Dependencies on other systems. For example, our product depends on importing or developing other systems—failure to get such depending product systems risks.

Step 5: Identify the business risks, assumptions, and dependencies

- “*Assumption* is a statement that is believed to be true in the absence of proof or definitive knowledge.”^[1]
- Try to handle the business assumptions with the following actions:
 - Mention clearly in the requirements document the business assumptions.
 - Support the business assumptions with concrete statistics/facts that justify each assumption. For example, the customer manager may assume that the product will get 3M users in the first year based on similar market trends.

Using template for the vision and scope documents



Using template for the vision and scope documents

Business requirements

Scope and limitations

Business context

Define scope and limitation

- Scope definition includes the definition of the following points:
 - Scope of the **initial release**.



The business owner may need to hit the market quickly while **maintaining positive impressions with the user-base**. Hence, the initial release scope will include basic features with simple UI (**not that fancy UI**). However, the product is **very reliable and very secure**. Such Quality attributes can build and maintain a positive relationship with new customers.

Define scope and limitation

- Scope definition includes the definition of the following points:
 - Scope of the **initial release**.
 - Scope of the **next releases**.



The business owner can benefit from user reviews to proactively spot the required features and the raised issues. However, popular product has thousands of daily reviews. Manually analyzing such reviews is a tedious and time-consuming process. Hence, researchers provide techniques to summarize user reviews and prioritize the requested features automatically.

Define scope and limitation

■ Scope definition includes the definition of the following points:

- Scope of the **initial release**.
- Scope of the **next releases**.
- The **limitations and exclusions**.

For example, describe the scenarios that are not managed by our product (**exclusions**).

Also, describe the **limitations** in the proposed product such as the **daily processing capacity**.

Using template for the vision and scope documents

Business requirements

Scope and limitations

Business context

Define business context

- Define user groups (stakeholder profiles).
 - Define the potential sponsors and the different user classes of the product.
 - For every stakeholder profile, describe the *business values and benefits* from using the system.

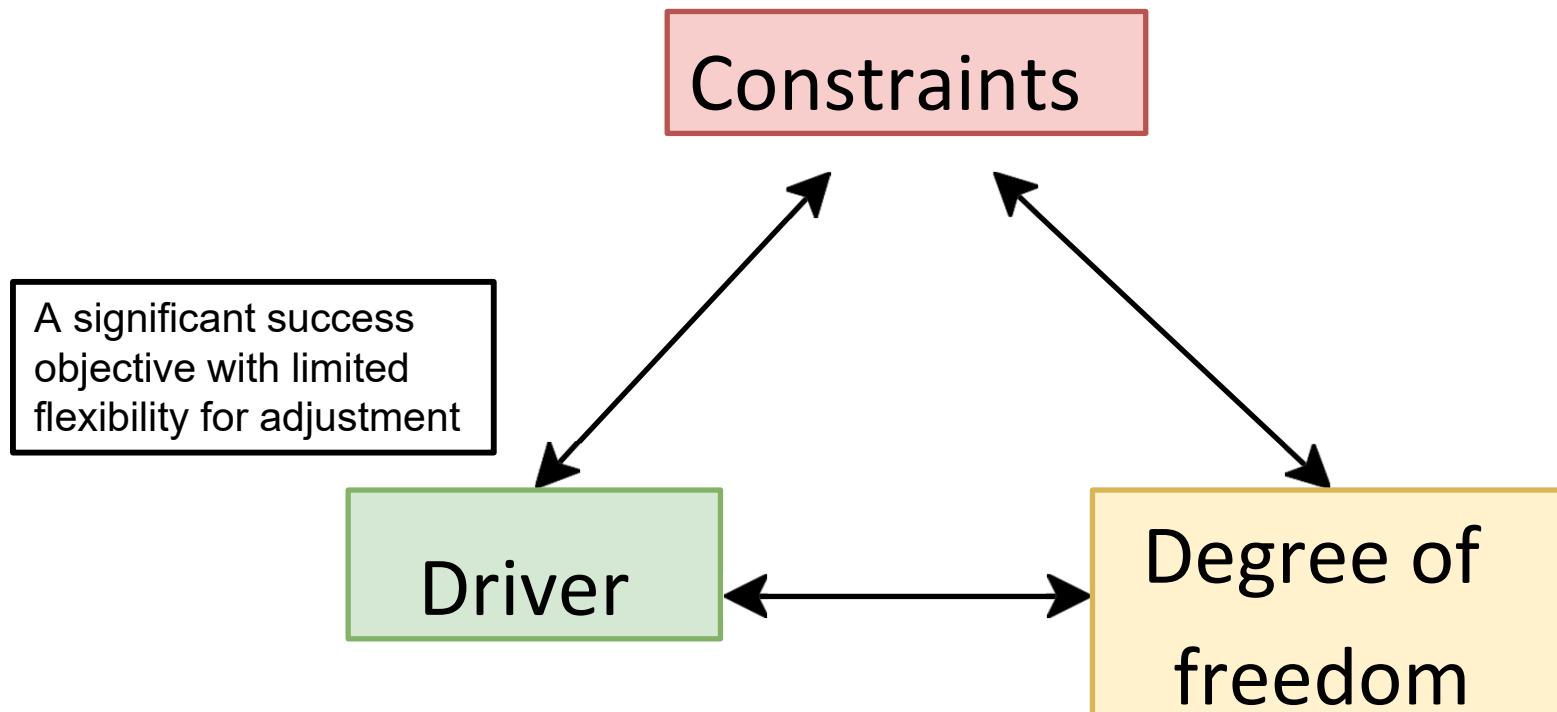


Think about stakeholders who impact the system. Then, ask yourself, what are the main benefits (the significant values) of using the system?

Define business context

- Define user groups (stakeholder profiles).
- Optimize the derived solution.

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iror#z lqj#kuhh#edwhjrulhv#rq#dq | # lyhq#surmhfw=



Define business context

- Define user groups (stakeholder profiles).
- Optimize the derived solution.
- Define the deployment considerations.



For example, the new proposed “online purchase system” requires better infrastructure, such as a **faster network**, **massive data storage** to store the last 12 months’ orders. Also, if we are replacing an old “online purchase system”, the deployment includes the **old system’s migration** to obtain the new infrastructure (e.g., storage).

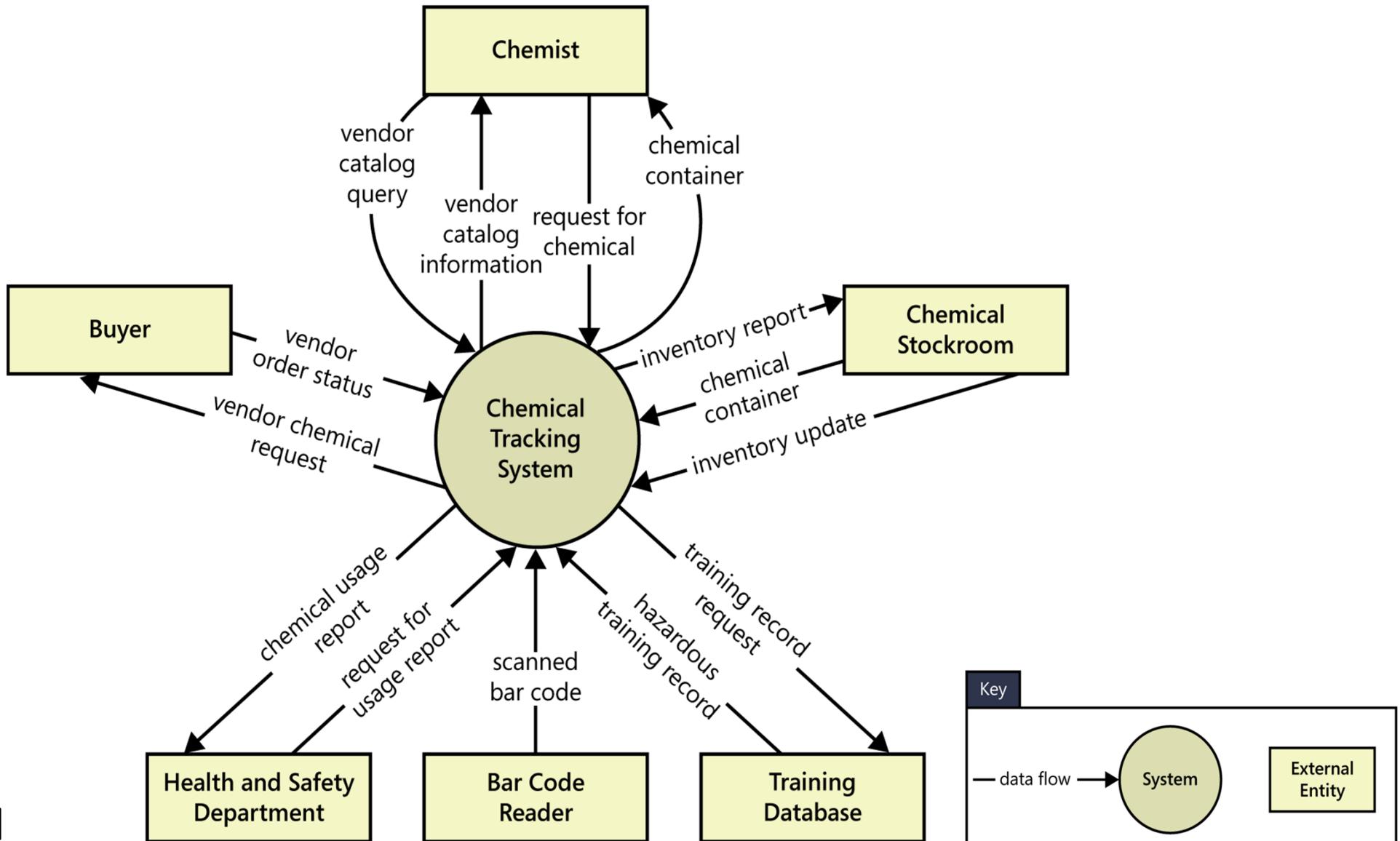
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Using context diagrams

- The context diagram focuses on the **external systems** (e.g., departments and software/hardware system), **people** (e.g., user groups), and **physical entities** (e.g., storage) that **interact directly** with our product. [1]

Using context diagrams

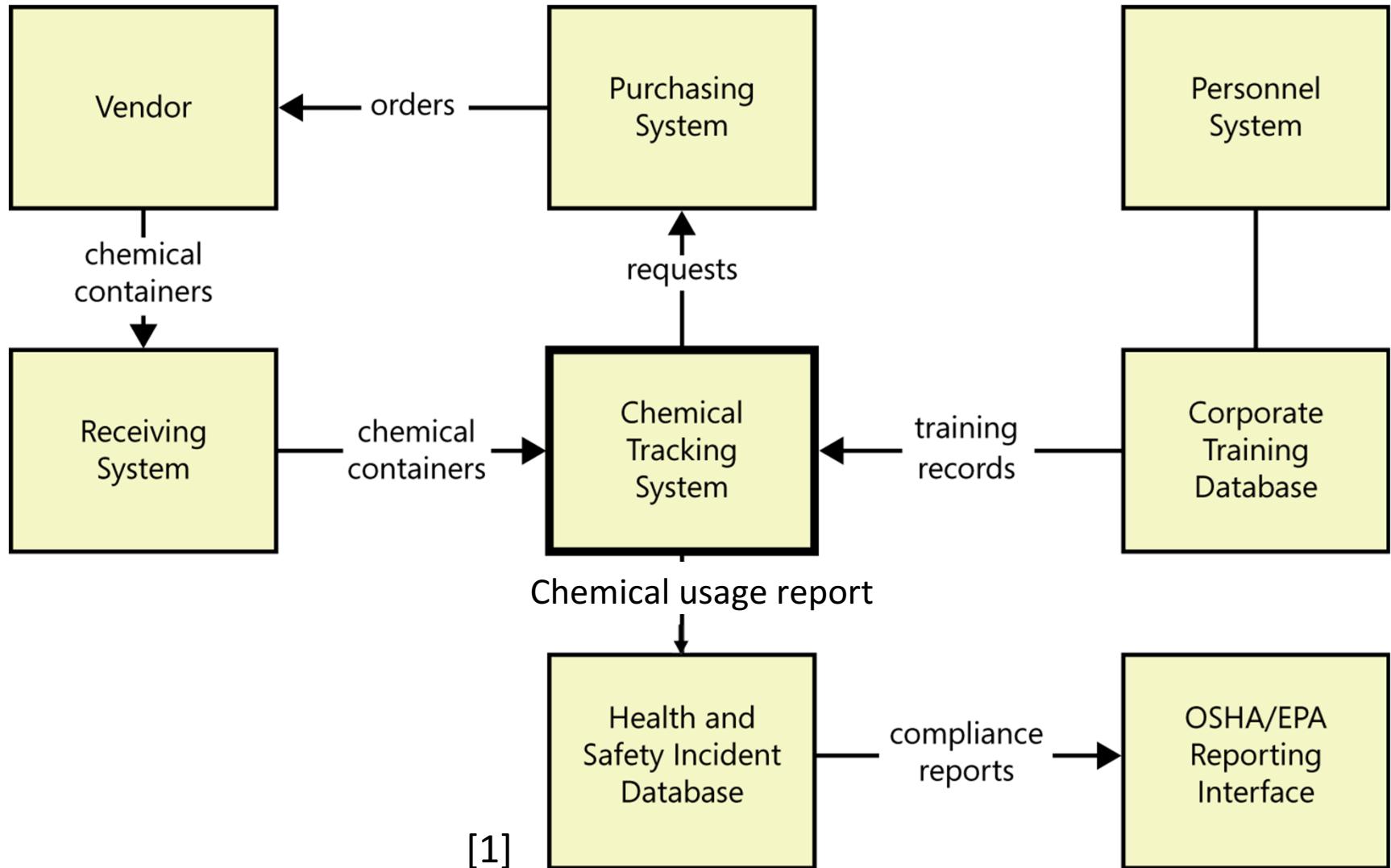


[1]

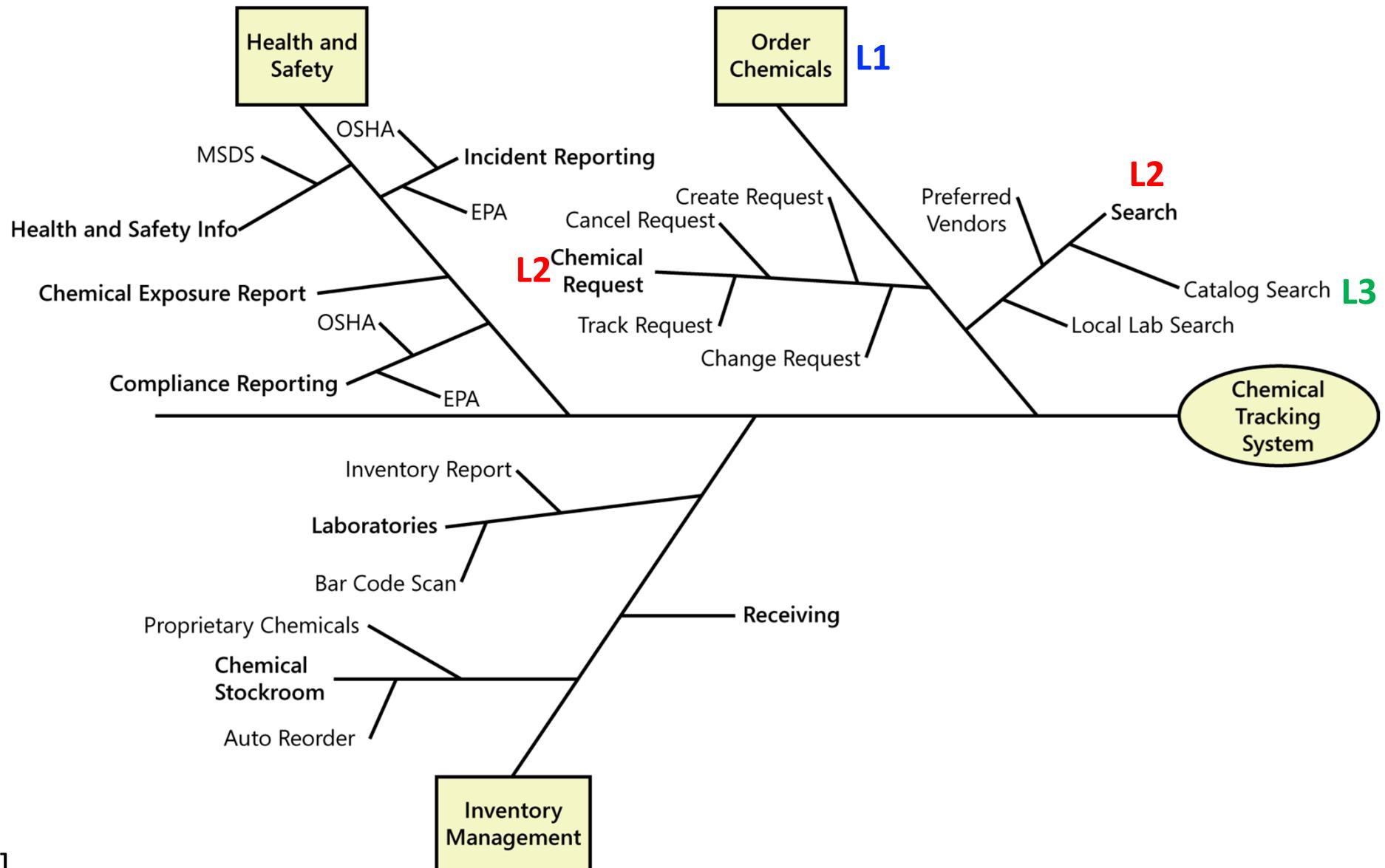
Using ecosystem map

- The ecosystem map shows all external systems that are directly/indirectly related to our product.

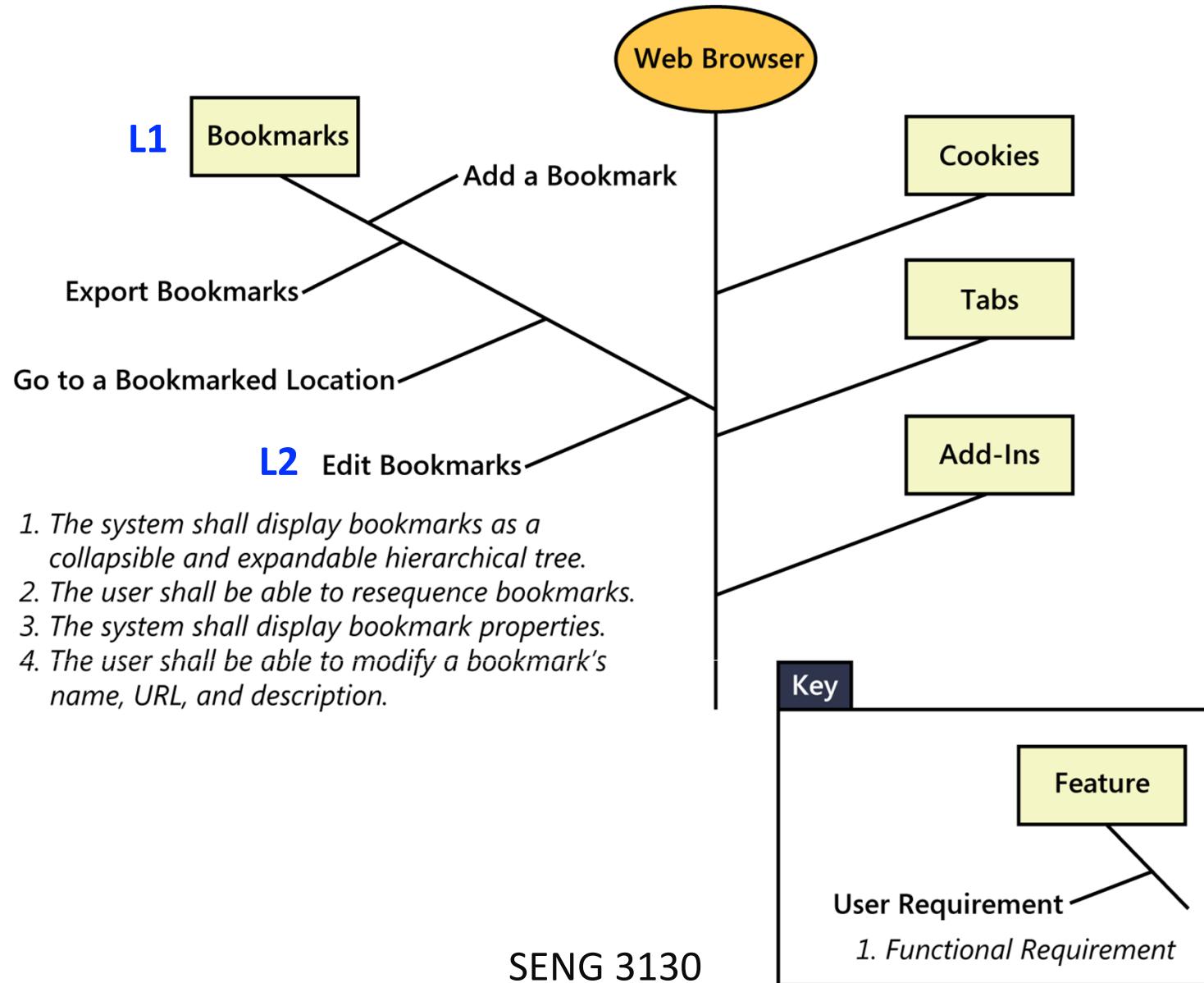
Using ecosystem map



Using feature tree



Web Browser's Feature Tree (Lecture 1)



Using event list

■ Identify system events and responses

- List the possible events that could trigger behavior in the System.
- There are three classes of external events:
 - (1) signal events
 - (2) temporal, or time-based events
 - (3) business events.

[1]

Using event list

- **Signal Events**
 - These are events triggered by a **signal** or **input** from an external source.
 - For example, a button click or a sensor-detecting motion can be considered signal events.
- **Temporal, or Time-Based Events:**
 - These are events that occur based on a specific time or **time interval**.
 - For instance, an alarm going off at a certain time or a system performing a task every hour would be temporal events.
- **Business Events**
 - These are events related to the **operations** or **activities** of the **business**.
 - For example, a customer placing an order, an employee logging in, or a payment being processed are all examples of business events.

[1]

Using event list

External Events for Chemical Tracking System

- Chemist places a chemical request.
- Chemical container bar code is scanned.
- Time to generate OSHA compliance report arrives.
- Vendor issues new chemical catalog.
- New proprietary chemical is accessioned into system.
- Vendor indicates chemical is backordered.
- Chemist asks to generate his chemical exposure report.
- Updated material safety datasheet is received from EPA.
- New vendor is added to preferred vendor list.
- Chemical container is received from vendor.

[1]

Scanning the item upon receipt.

Using event list

Temporal event

External Events for Chemical Tracking System

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Using event list

Business event

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Using event list

Signal event

External Events for Chemical Tracking System

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Quick notes about the assignment

- Start analyzing the dialogue between the BA and the customer and apply what we learned about the requirement engineering process.
- Use the Business Objective template
- Submit a PDF file (keep your doc(x) file for later)
- Group Submission
- For this assignment, one team member should submit the team report. The submitted report must contain the full list of the team members.

Things to do

- Read chapter 5 of the textbook
- Start working on assignment 1 of the course project

References

1. Software Requirements (Developer Best Practices) Karl Wiegers, Joy Beatty, 3rd Edition, Microsoft Press, 2013, ISBN-10: 0735679665