



Finding the voice of the user

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Objectives

- Why do we need to find the voice of the user?
- What are the user classes?
- Exploring user classes
 - Step 1: Identify user classes
 - Step 2: Create a profile of each user class
 - Step 3: Identify usage scenarios (use cases)
 - Step 4: Start interacting with users
- Resolving conflicting requirements

Conversation

Jeremy: “I’d like to talk with some of your chemists to understand their requirements for the system. Who might be some good people to start with?”

Ruth: “I did that same job for five years before I became the division director three years ago. You don’t really need to talk to any of my people; I can tell you everything you need to know about this project.”

Conversation (cont.)

Jeremy: “Okay,” agreed reluctantly. “Maybe I can start by doing some document analysis and bring questions I have to you. Can we set up a series of interviews for the next couple of weeks so I can understand the kinds of things you expect your scientists to be able to do with this new system?”

Ruth: “Sorry, I’m swamped right now. I can give you a couple of hours in about three weeks to clarify things you’re unsure about. Just go ahead and start writing the requirements. When we meet, then you can ask me any questions you still have. I hope that will let you get the ball rolling on this project.”

Why do we need to find the voice of the user?

- Users are people who will use the system and interact with it.

So it is essential to list their needs and expectations.

Why do we need to find the voice of the user?

- Users even differ in their way of interacting with the system.
- So, we cannot identify the different user classes without accurate user involvement
- and tailor the offered features for each user class.

Find the voice of the user

To find the voice of the user, take the following steps:

- Identify the different classes of users for your product.
- Select and work with individuals who represent each user class and other stakeholder groups.
- Agree on who the requirements decision makers are for your project.

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What are the user classes?

- User class represents a group of users with similar characteristics and needs.^[1]
- We can identify user classes by thinking about different perspectives of using the system.

Group users into user classes

Group users into a number of distinct user classes based on these sorts of differences:

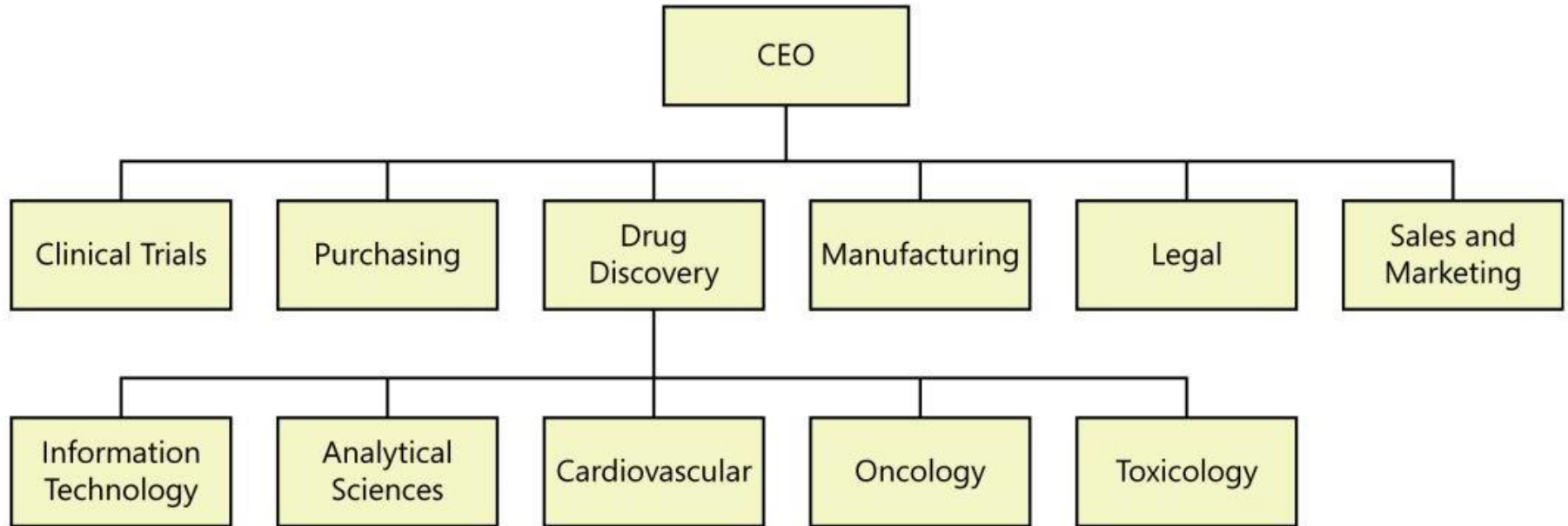
- Their **access privilege** or security levels (such as ordinary user, guest user, administrator)
- The **tasks** they perform during their business operations
- The **features** they use
- The **frequency** with which they use the product
- Their application domain **experience** and computer systems **expertise**

Group users into user classes (cont.)

- The **platforms** they will be using (desktop PCs, laptop PCs, tablets, smartphones, specialized devices)
- Their **native language**
- Whether they will **interact** with the system directly or indirectly

Trap - Don't overlook indirect user classes. They won't use your application themselves, instead accessing its data or services through other applications or through reports.

Use organization chart

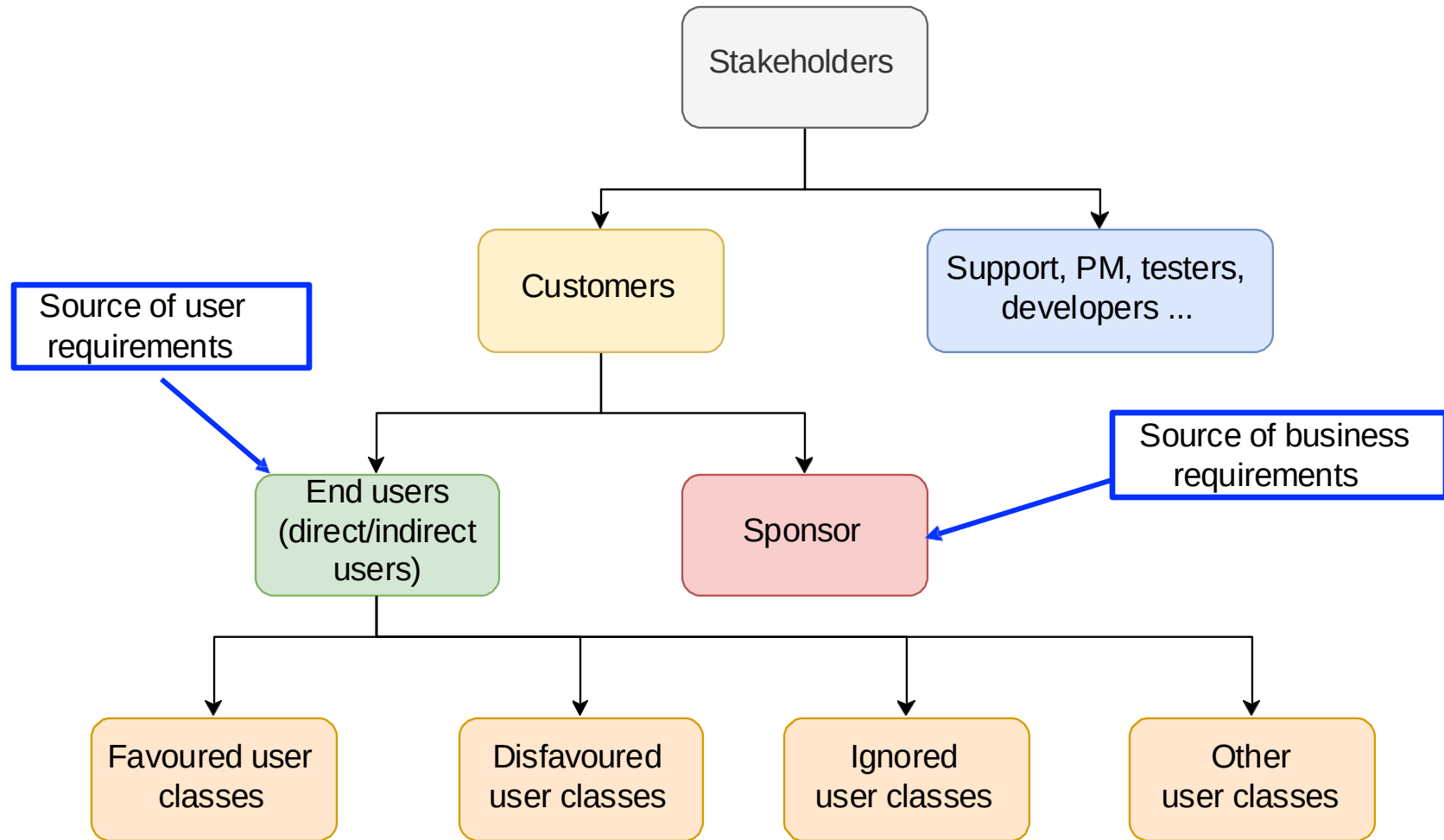


A portion of the organization chart for Contoso Pharmaceuticals. [1]

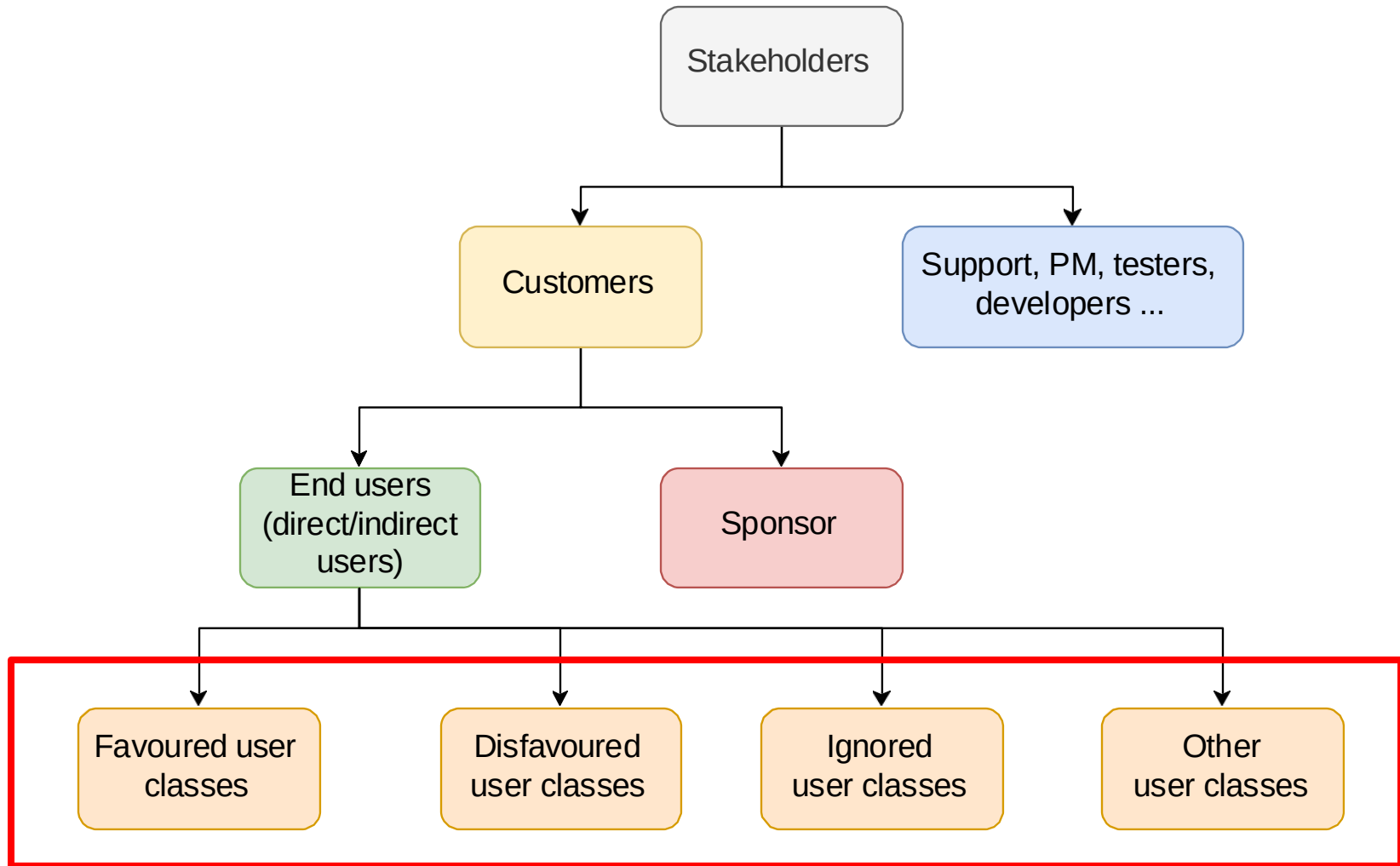
What are the user classes?

- Users who work in large/small corporations represent different **market segments**.
- Users in different market segments belong to the **same user class** if they **use the same features** and require the system's same tasks.
- If users of different market segments use **various features of the system**; you can differentiate these users into **separate user classes**.

Mapping stakeholders to the requirements



What are the user classes?



Favored user classes

- Favored user classes represent the group of users with the following characteristics
 - The primary targeted users of our product
 - Their satisfaction makes our product successful, and consequently, they will satisfy the business objectives.



Favored user classes do not set the business requirements (unless they are the users and the sponsors). However, favored user classes define the user requirements that eventually will satisfy the business objectives.

Disfavored user classes

- Disfavored user classes are groups who aren't supposed to use the product for legal, security, or safety reasons
- The BA needs to write the requirements that will prevent such users from accessing the system.
 - Showing an image and asking users to recognize the objects in the displayed image is an approach to prevent bots (not actual human)
 - Asking for the national ID number is a way to prevent users from a certain age.

Ignored user classes

- Ignored user classes represent the group of users who will use the system, but they are not our primary targeted/focused users.

Users are a subset stakeholders

Remember, **users** are a subset of **customers**, which are a subset of **stakeholders**.

You'll need to consider a much **broader range** of potential sources of requirements than just direct and indirect user classes.

For instance, even though the **development team** members **aren't end users** of the system they're building, you need their input on internal quality attributes such as **efficiency**, **modifiability**, **portability**, and **reusability**

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Step 1: Identify user classes

- First, ask yourself **who will use** the system?
- Initially think about **as many user classes as possible**. Then, combine the identified user classes into smaller groups (group the similar user classes into a single user class)

Who will use the Chemical Tracking System?

Main features

Name	Number	Description
Chemists (favored)	Approximately 1,000 located in 6 buildings	Chemists <u>will request chemicals from vendors and from the chemical stockroom</u> . Each chemist will use the system several times per day, mainly for <u>requesting chemicals</u> and <u>tracking chemical containers</u> into and out of the laboratory. The chemists need to <u>search vendor catalogs</u> for specific chemical structures imported from the tools they use for drawing structures.
Buyers	5	Buyers in the purchasing department <u>process chemical requests</u> . They place and track orders with external vendors. They know little about chemistry and need simple query facilities <u>to search vendor catalogs</u> . Buyers will not use the system's container-tracking features. Each buyer will use the system an average of 25 times per day.
Chemical stockroom staff	6 technicians, 1 supervisor	The chemical stockroom staff manages an inventory of <u>more than 500,000 chemical containers</u> . They will supply containers from three stockrooms, <u>request new chemicals</u> from vendors, and <u>track the movement of all</u> containers into and out of the stockrooms. They are the only users of the <u>inventory-reporting feature</u> . Because of their high transaction volume, features that are used only by the chemical stockroom staff must be <u>automated and efficient</u> .
Health and Safety Department staff (favored)	1 manager	The Health and Safety Department staff will use the system <u>only to generate predefined quarterly reports</u> that comply with federal and state chemical usage and disposal reporting regulations. The Health and Safety Department manager <u>will request changes in the reports periodically</u> as government regulations change. <u>These report changes are of the highest priority, and implementation will be time-critical.</u>

Who will use the Chemical Tracking System?

The frequency of using the system

Name	Number	Description
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Who will use the Online Book Purchasing System?

TRU student

Marketing
analytics
person

Audit team
member

TRU stuff

Books
supplier

Try to group these users

Purchase
admin

Purchase
analytics bot

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Step 2: Create a profile of each user class

- To help bring your user classes to life, consider creating a **persona** for each one
- A **persona** is a description of a hypothetical, generic person who serves as a stand-in for a group of users having similar characteristics and needs.
- Use personas to **understand the requirements** and to **design the user experience** to best meet the needs of specific user communities.

Step 2: Create a profile of each user class

Fred, 41, has been a chemist at Contoso Pharmaceuticals since he received his Ph.D. 14 years ago. He doesn't have much patience with computers. Fred usually works on two projects at a time in related chemical areas. His lab contains approximately 300 bottles of chemicals and gas cylinders. On an average day, he'll need four new chemicals from the stockroom. Two of these will be commercial chemicals in stock, one will need to be ordered, and one will come from the supply of proprietary Contoso chemical samples. On occasion, Fred will need a hazardous chemical that requires special training for safe handling. When he buys a chemical for the first time, Fred wants the material safety data sheet emailed to him automatically. Each year, Fred will synthesize about 20 new proprietary chemicals to go into the stockroom. Fred wants a report of his chemical usage for the previous month to be generated automatically and sent to him by email so that he can monitor his chemical exposure.

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Step 3: Identify usage scenarios (use cases)

- Ask yourself, what would each user class need to do?



TRU student

The diagram consists of two main green-outlined boxes. The left box contains two light blue rounded rectangles with blue text: 'TRU student' and 'TRU stuff'. The right box contains a list of three actions, each preceded by a black square bullet point: 'Order items', 'Change the order data', and 'Check the order status'.

TRU stuff

- Order items
- Change the order data
- Check the order status

Step 3: Identify usage scenarios (use cases)

- Ask yourself, what would each user class need to do?

Purchase Admin

- **Approve orders**

- Order items
- Change the order data
- Check the order status

Step 3: Identify usage scenarios (use cases)

- Ask yourself, what would each user class need to do?

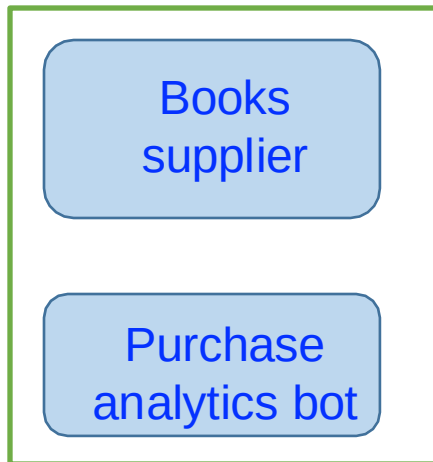
Marketing
analytics person

Audit team
member

- See all orders in the system
- Get statistics about the orders

Step 3: Identify usage scenarios (use cases)

- Ask yourself, what would each user class need to do?



- Provide feeds about the new products
- Update the product prices

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Step 4: Start interacting with users

- Identify the representative people for every user class (called **product champion**).
- Product champion can make business decisions that are related to the **user requirements** of the product.
- Following the product champions will make users happy, making our product achieve the business requirements (**business objectives**).

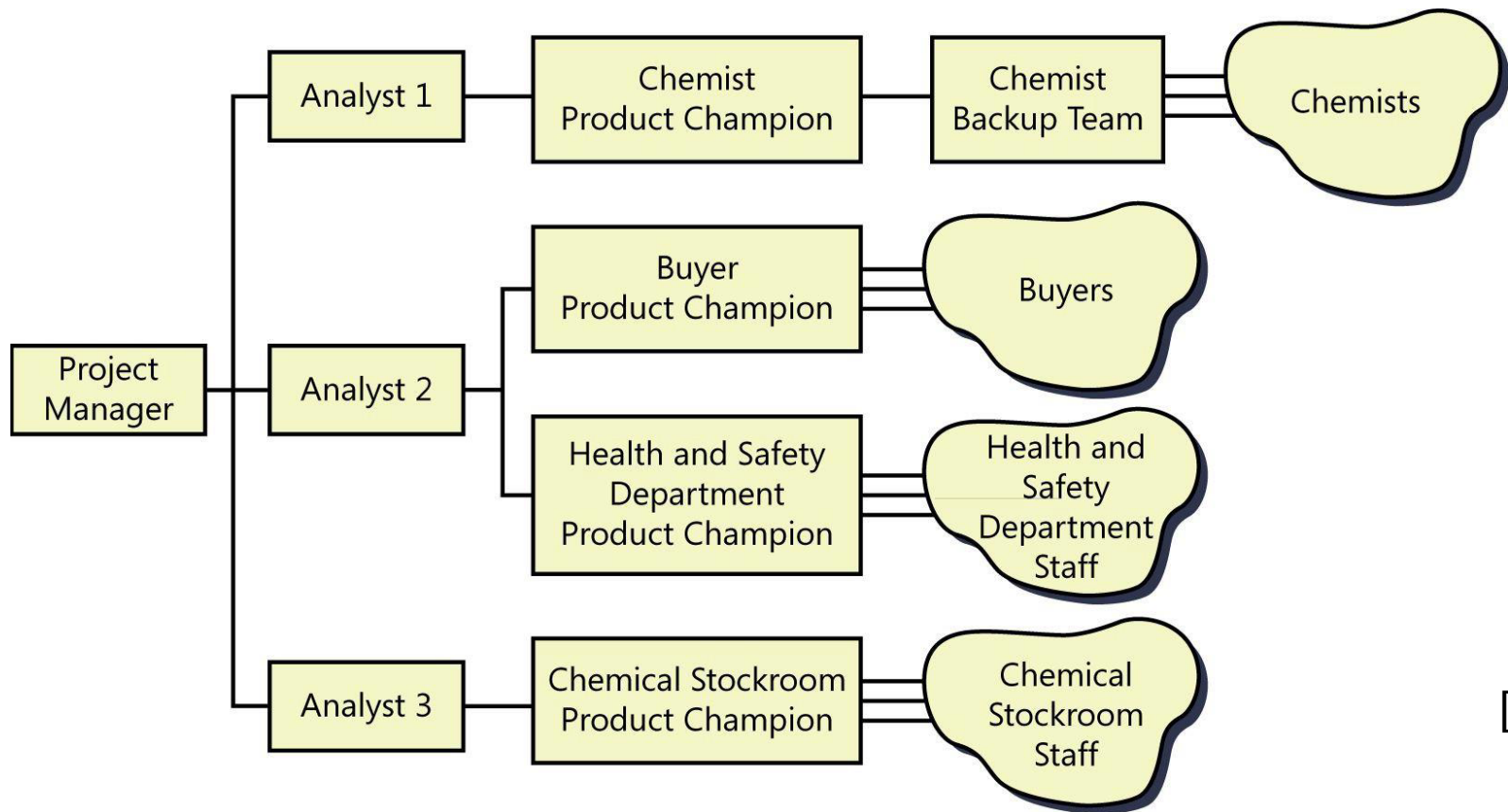
Responsibilities of product champions

- Product champion should be **an actual user** of the system.
- Product champions should have a **holistic view** of the overall usage of the product.
- Product champions should **talk about all users** in their user class.
- Product champions **defend us** when customers wonder why the development/requirements engineering takes a long time.

Rewarding product champions

- There are multiple ways to acknowledge the product champions:
 1. **Acknowledging** them on the main product web page
 2. Offering them **discounts**. For example, **beta users** can use the new version (early released versions) for free or with a certain discount.
 3. **Hiring** the product champion if BA needs to communicate with the champion frequently

Product champions of the Chemical Tracking System

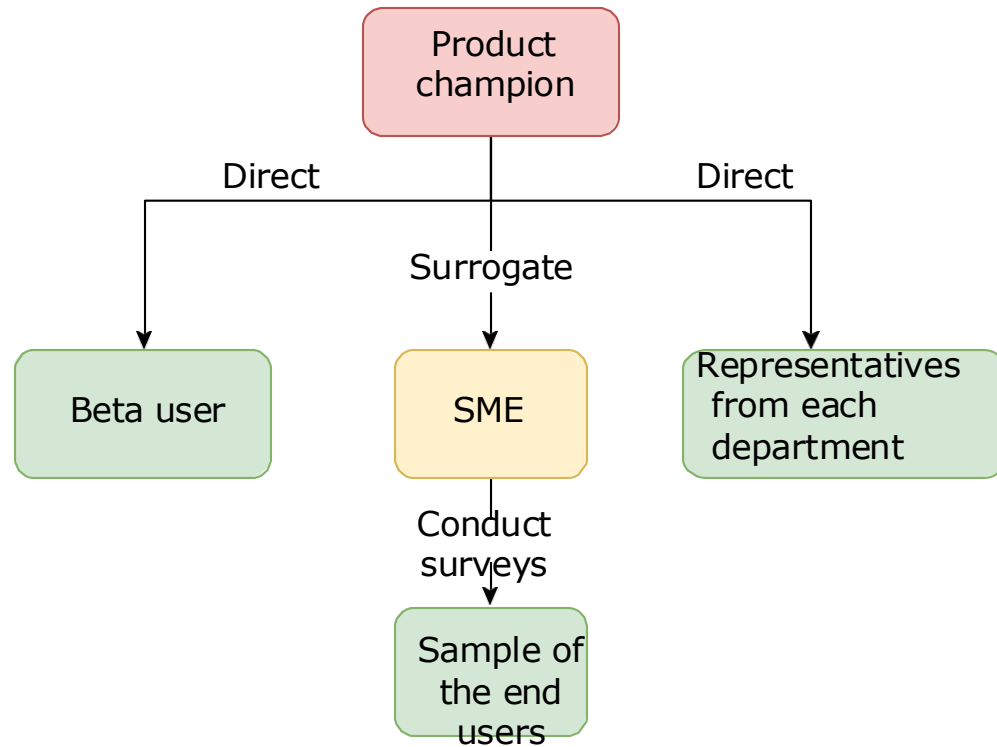


[1]

External product champions

- When we cannot directly connect to users, we can contact an external **subject matter expert (SME)**.
- SME can act as a surrogate of the actual users.

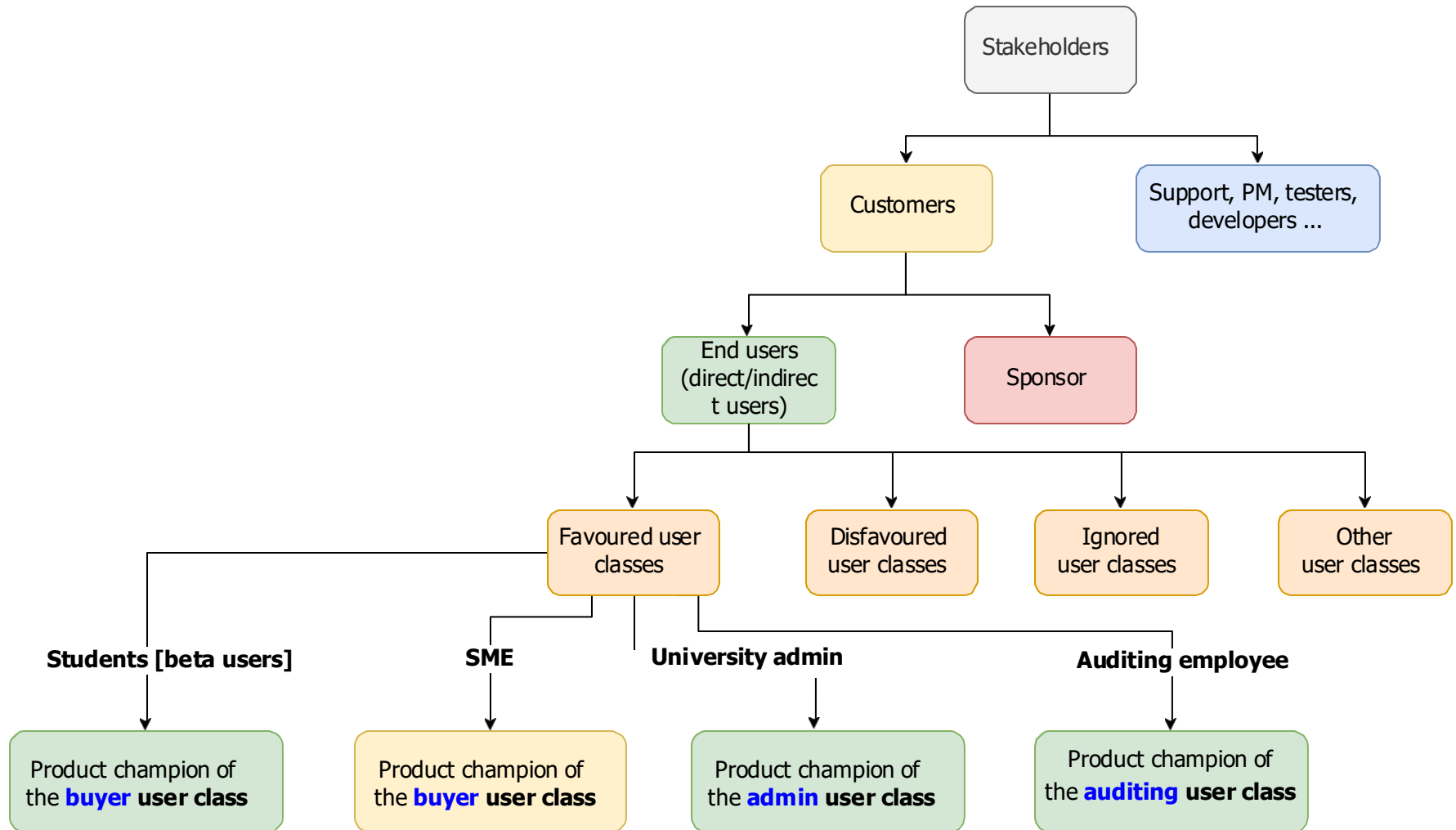
External product champions



External product champions

- The external product champions need to be sure that the sampled users **represent the overall user-base** characteristics.
 - We select a **statistically representative random sample**.
 - The sample should reflect the **same statistical characteristics** (e.g., age, gender, and attitude) of the overall user-base.

Using multiple product champions



Activities of product champions

Category	Planning
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Activities

- Refine the scope and limitations of the product.
- Identify other systems with which to interact.
- Evaluate the impact of the new system on business operations.
- Define a transition path from current applications or manual operations.
- Identify relevant standards and certification requirements.

[1]

Activities of product champions

Category	Requirements
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Activities

- Collect input on requirements from other users.
- Develop usage scenarios, use cases, and user stories.
- Resolve conflicts between proposed requirements within the user class.
- Define implementation priorities.
- Provide input regarding performance and other quality requirements.
- Evaluate prototypes.
- Work with other decision makers to resolve conflicts among requirements from different stakeholders.
- Provide specialized algorithms.

Activities of product champions

Category	Validation and verification
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Activities

- Review requirements specifications.
- Define acceptance criteria.
- Develop user acceptance tests from usage scenarios.
- Provide test data sets from the business.
- Perform beta testing or user acceptance testing.

Activities of product champions

Category	User aids
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Activities

- Write portions of user documentation and help text.
- Contribute to training materials or tutorials.
- Demonstrate the system to peers.

Activities of product champions

Category	Change management
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Activities

- Evaluate and prioritize defect corrections and enhancement requests.
- Dynamically adjust the scope of future releases or iterations.
- Evaluate the impact of proposed changes on users and business processes.
- Participate in making change decisions.

Selling the product champion idea

“The users are too busy.”

“Management wants to make the decisions.”

“They’ll slow us down.”

“We can’t afford it.”

“They’ll run amok and scope will explode.”

“I don’t know what I’m supposed to do as a product champion.”

Expect to encounter resistance when you propose the idea of having product champions on your projects.

Selling the product champion idea

- Separate **business requirements** from **user requirements**
 - The **product champion** makes decisions at the **user requirements level** within the scope boundaries imposed by the business requirements.
 - The management **sponsor retains the authority** to make decisions that affect the product vision, project scope, business-related priorities, schedule, or budget.
- Documenting and negotiating each product champion's role and responsibilities
- Remind management that a product champion is a key contributor who can help the project achieve its business objectives.

If you encounter resistance, point out that **insufficient user involvement** is a leading cause of software project **failure**.

Successful product champion scenarios

The product champion model has succeeded in many environments.

It works only when

- the product champions **understand** and sign up for their **responsibilities**
- have the **authority** to make decisions at the user requirements level
- have **time** available to do the job.

Product owner

- In agile development, a customer representative (called **product owner**) stays beside the product's developers.
- Staying with the development team **closes the expectations gap** and makes the product owners represent the development team to the other users.

Product owner

- Different from product champion, the product owners are responsible for **user and business requirements**.
- In some cases (with vast and complex projects), it is **not practical to find a single product owner** representing all the product users.

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Resolving conflicting requirements

Disagreement between	How to resolve
Individual users	Product champion or product owner decides
User classes	Favored user class gets preference
Market segments	Segment with greatest impact on business success gets preference
Corporate customers	Business objectives dictate direction
Users and user managers	Product owner or product champion for the user class decides
Development and customers	Customers get preference, but in alignment with business objectives
Development and marketing	Marketing gets preference

[1]

References

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