SOFTWARE REQUIREMENT ENGINEERING

LECTURE NO: 7

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Finding the Voice of User

User classes

➢People often talk about "the user" for a software system as though all users belong to a monolithic group with similar characteristics and needs.

➢ In reality, most products of any size appeal to a diversity of users with different expectations and goals.

➢Rather than thinking of "the user" in singular, spend some time identifying the multiple user classes and their roles and privileges for your product.

➢

Classifying users

A user class is a subset of the product's users, which is a subset of the product's customers, which is a subset of its stakeholders.

An individual can belong to multiple user classes.

For example, an application's administrator might also interact with it as an ordinary user at times. A product's users might differ—among other ways—in the following respects, and you can 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 frequency with which they use the product
- ✓ Their application domain experience and computer systems expertise
- ✓ 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

A hierarchy of stakeholders, customers, users, and user classes
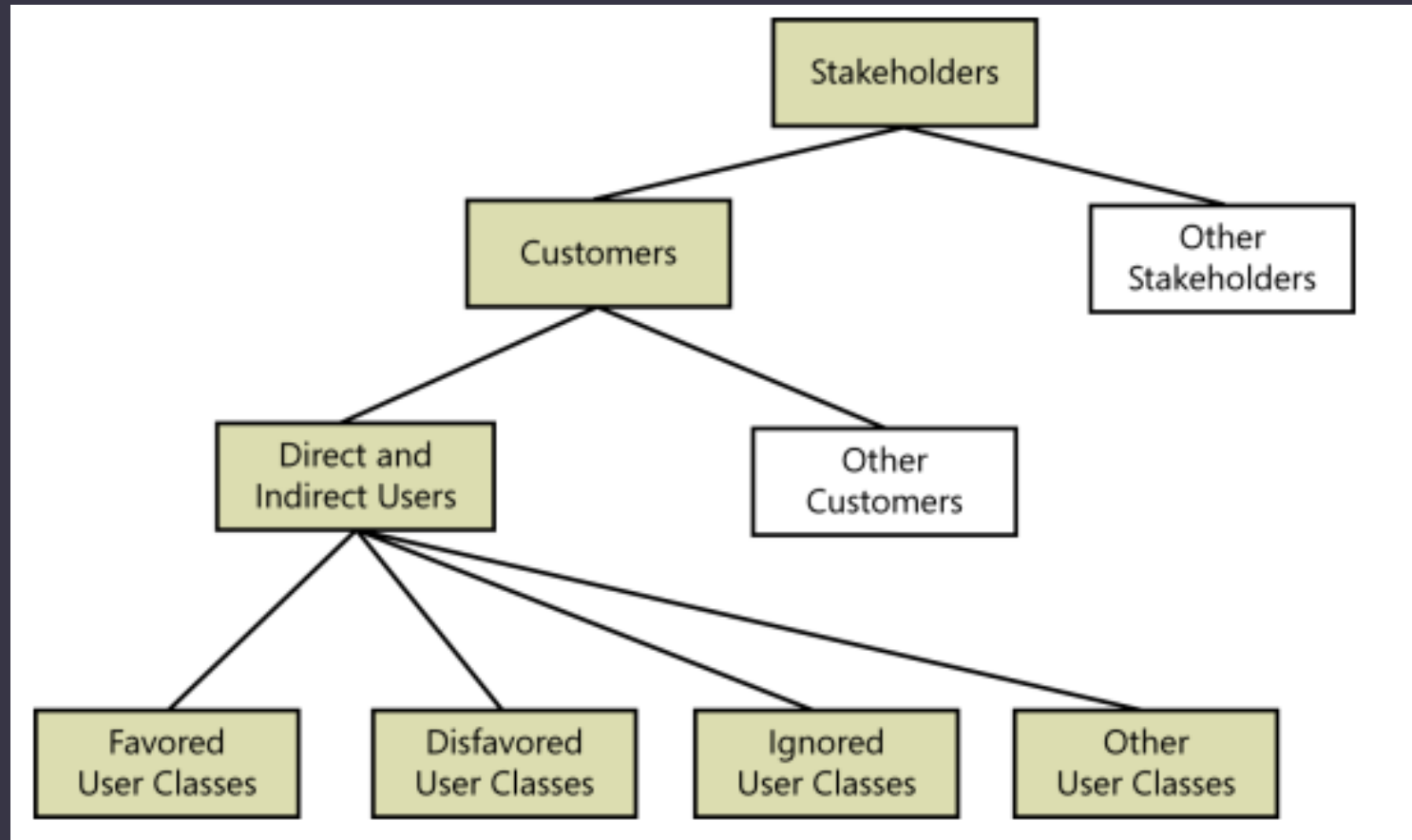
User Classes

Favoured user classes	Their satisfaction is most closely aligned with achieving the project's business objectives. $\Rightarrow$ Preferential treatment!
Disfavoured user classes	They are not supposed to use the product for legal/security/safety reasons. $\Rightarrow$ Build in features to deliberative make that hard!
Ignored user classes	They will use the product, but you don't specifically build it to suit them.
Other user classes	Others other than favoured, disfavoured or ignored.

User Classes

❑It's tempting to group users into classes based on their **geographical location** or the **kind of company they work in.**

❑ One company that creates software used in the banking industry initial considered distinguishing users based on whether they worked in a large commercial bank, a small commercial bank, a savings and loan institution, or a credit union.

❑A better way to identify user classes is to think about the tasks that various users will perform with the system

Identifying your user classes

➢Identify and characterize the different user classes for your product early in the project so to elicit requirements from representatives of each important class

➢A corporate organization chart can also help you discover potential users and other stakeholders. Study the chart to look for:

- ▪ Departments that participate in the business process.

- ▪ Departments that are affected by the business process

- ▪ Departments or role names in which either direct or indirect users might be found.

- ▪ User classes that span multiple departments.

- ▪ Departments that might have an interface to external stakeholders outside the company

Name	Number	Description
Chemists (favored)	Approximately 1,000 located in 6 buildings	Chemists will request chemicals from vendors and from the chemical stockroom. Each chemist will use the system several times per day, mainly for requesting chemicals and tracking chemical containers into and out of the laboratory. The chemists need to search vendor catalogs for specific chemical structures imported from the tools they use for drawing structures.
Buyers	5	Buyers in the purchasing department process chemical requests. They place and track orders with external vendors. They know little about chemistry and need simple query facilities to search vendor catalogs. 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 more than 500,000 chemical containers. They will supply containers from three stockrooms, request new chemicals from vendors, and track the movement of all containers into and out of the stockrooms. They are the only users of the inventory-reporting feature. Because of their high transaction volume, features that are used only by the chemical stockroom staff must be automated and efficient.
Health and Safety Department staff (favored)	1 manager	The Health and Safety Department staff will use the system only to generate predefined quarterly reports that comply with federal and state chemical usage and disposal reporting regulations. The Health and Safety Department manager will request changes in the reports periodically as government regulations change. These report changes are of the highest priority, and implementation will be time critical.

User personas

To help bring your user classes to life, consider creating a *persona* for each one, a description of a representative member of the user class.

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.

You can use personas to help you understand the requirements and to design the user experience to best meet the needs of specific user communities

An example of a persona for one user class on the Chemical Tracking System:

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 frst 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.

Connecting with user representatives

Every kind of project—corporate information systems, commercial applications, embedded systems, websites, contracted software—needs **suitable representatives** to provide the voice of the user. These users should be involved throughout the development life cycle, not just in an isolated requirements phase at the beginning of the project. Each user class needs someone to speak for it.

Some possible communication pathways between the user and the developer
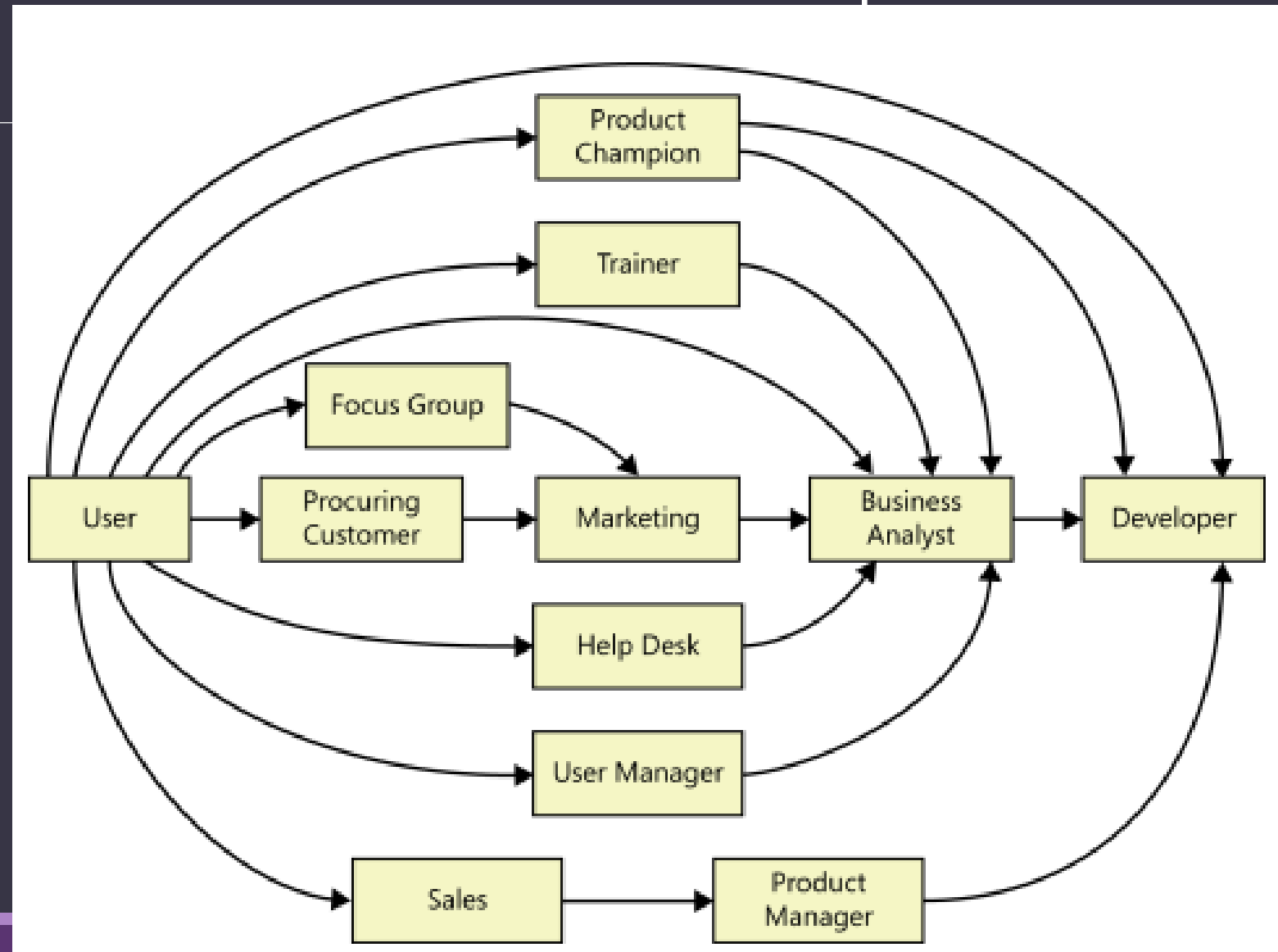
The product champion

The Product champion serves as the primary interface between members of a single user class and the project's business analyst.

❑ **Ideally, the champions will be actual users, not surrogates such as funding sponsors, marketing staff, user managers, or software developers imagining themselves to be users.**

❑ **Product champions gather requirements from other members of the user classes they represent and reconcile inconsistencies.**

❑ **Requirements development is thus a shared responsibility of the BA and selected users.**

The product champion

➢The best product champions have a clear vision of the new system.

➢They're enthusiastic because they see how it will benefit them and their peers.

➢Champions should be effective communicators who are respected by their colleagues.

➢They need a thorough understanding of the application domain and the solution's operating environment.

Expectations from Product champion

Category	Activities
Planning	■ 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.
Requirements	■ 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.

Expectations from Product champion

Category	Activities
Validation and verification	- 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.
User aids	- Write portions of user documentation and help text. - Contribute to training materials or tutorials. - Demonstrate the system to peers.
Change management	- 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.

Multiple product champions
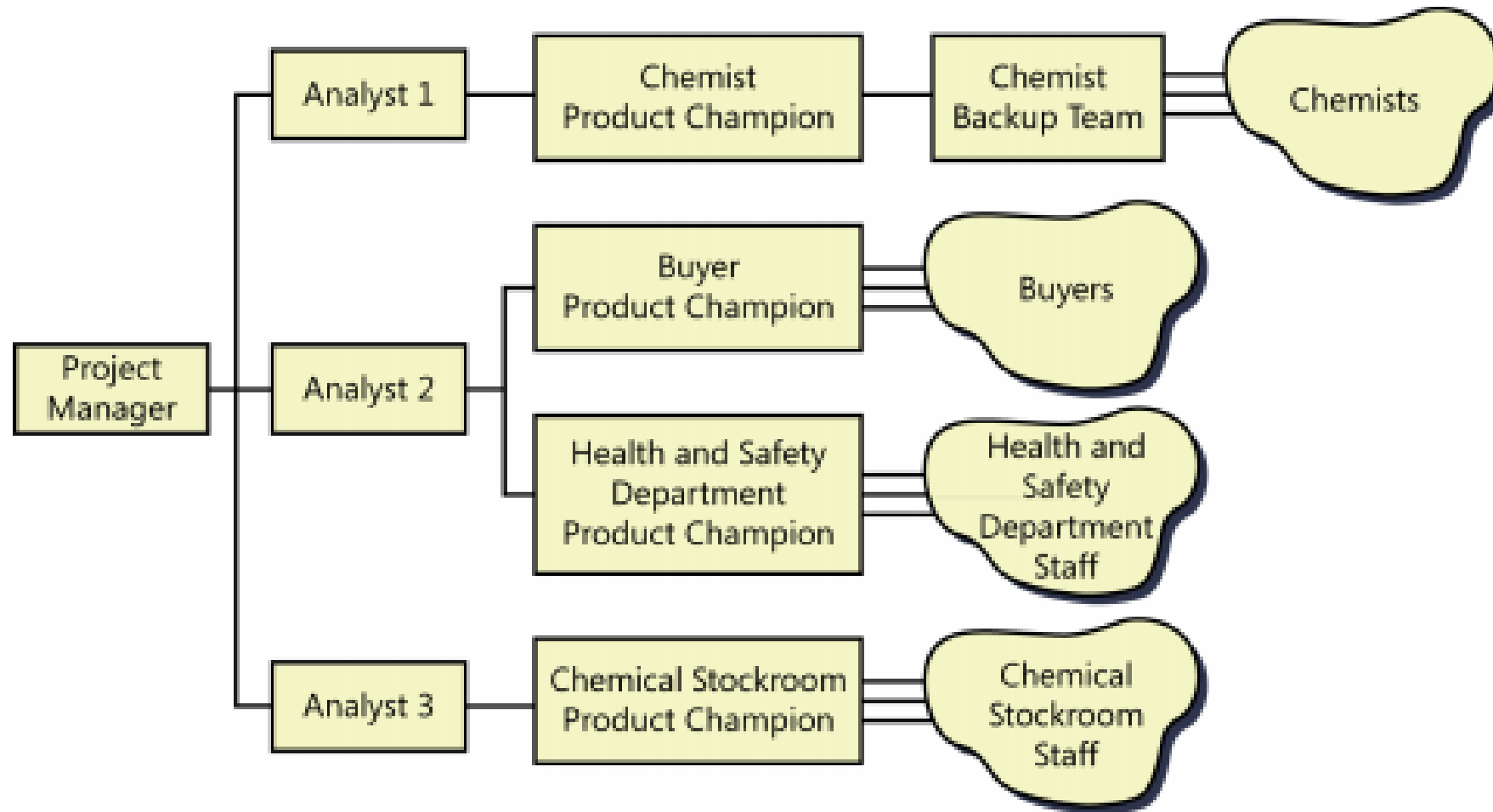
Resolving conflicting requirements

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

Suggestions for resolving requirements disputes