

CS 255 Thinking Through Technical Requirements

What are technical requirements?

Technical requirements differ from one system to another. In general, you can group these requirements under the following categories:

1. Hardware
 - a. Computers
 - b. Peripherals
 - c. Networking
 - d. Graphic cards
 - e. Routers
2. Software
 - a. System software
 - b. Utility software
 - c. Application software
3. Geographic Information and Other
 - a. Location of the system
 - b. Surrounding (physical) environment

How do you determine technical requirements?

There are many other possible technical aspects than the samples listed above, but usually any other aspect would fall under the categories of hardware or software. For example, the font size of displayed text, font type, and so on would fall under the category of software.

When determining technical requirements for a system, it is very important to consider the following questions:

- *What environment will the system be running on?*
- *What does the client want? What hardware and software would be needed to support that functionality?*
- *What hardware or software limitations does the system have?*

Technical Requirements Example

Let's return to our example of an ATM. The following are some of the technical requirements you might identify:

- Hardware
 - A device that's 2 square feet of floor space (the "footprint") and around 4.5 feet tall
 - Card reader
 - Keypad
 - Speaker
 - Receipt printer
 - Cash dispenser
 - Surveillance/security cameras

- Software
 - Windows operating system, most up-to-date version
 - ATM software to read user input and print to monitor
 - Latest security software installed
- Geographic Information
 - ATM will be placed inside a room that's only accessed through an ATM card. Room door will be locked and will open only when a valid ATM card is used to open door.
 - Electric door that opens and closes using a magnetic strip (ATM card)
 - Alarm system
 - Security visits to ensure that system is intact and not broken

How do technical requirements impact your system design?

Finally, remember that technical requirements may impact other elements of your system design. After identifying the technical requirements of your system, think about how they might impact the nonfunctional requirements you already determined:

- Frequency of software updates
 - *How many times will the software be updated? What will this update cause? Interruption in service? If so, how long? What time of day would be best to make the updates?*
- Support
 - *What happens when things go wrong? What if someone placed an ATM card and it got stuck? Who should be contacted?*
- Languages
 - *Will the ATM only use English or will it offer the user a list of different languages to pick from before they start their transaction?*
- Accuracy
 - *How do you ensure that the exact amount is being dispensed? Is this a hardware or software issue?*
- Security
 - *What security measures would you place in the system to ensure users are safe? What about the safety of your hardware?*