

General Comments: The CI Component of your CDE

Introduction: How to use your CI comments

The purpose of the CI comments on your CDE is to prepare you to write an excellent **next** document: your team-written Challenge Design Document. You will not revise your CDE, so I have tried to give you higher-level comments that you can carry forward.

The overarching comment is this: learn to craft your writing to serve both your engineering and your reader. Great engineering, poorly described, will be more difficult to produce.

Don't think of technical writing simply as writing about technical information: think of it as writing for a technical audience. Make it easy for that audience to get what they need:

- quickly
- accurately
- without confusion

I have suggested to some of that you meet with me about your writing and/or that you make appointments with MIT's Writing Center: <http://cmsw.mit.edu/writing-and-communication-center/appointments> Each of you is welcome to do either or both of these things.

If a comment isn't clear, or if it isn't helpful, please ask.

Common writing issues in the CDEs

A few issues cropped up frequently in the CDEs, so I have written up key suggestions here, at a level of detail that I hope will be helpful to you going forward.

1. Professional, technical tone

a. Use precise language.

Write crisply, clearly, succinctly. Quantify and specify.

Include only what forwards the purpose of the document.

Avoid assertive terms ("all," "always," "every," "never").

Avoid vague terms ("some," "very," "approximately," "frequently").

Omit words, especially modifiers, that do not add value.

b. Use professional diction.

Elegant writing can be wonderful; engineering can be softened, and cloaked in sophisticated phrasing and vivid expression. But engineering readers don't want elegance. Don't lose your elegance, though; yoke it to crisp clarity.

Don't be chatty. Be clear, and err on the formal side. (No contractions, no slang.)

Avoid “I” and “we” unless you need them. Refer to “I” if and when it serves the purpose of your document to speak about yourself; similarly, refer to “we” when there is some compelling reason to speak about yourself and others.

2. Help your reader read efficiently.

Most people will skim; design your document so that readers who skim still get the essential information.

a. Cut to the chase. Omit fluff.

Start each section and paragraph with the key point, the essential point that a reader must grasp. (A “topic sentence,” in contrast, is often a generality or overview, rather than the key, essential point, and thus is not as useful to a reader.)

b. A document is a visual, as well as a verbal, object.

Use lists and bullets to make individual points easy to see.

Use headings, subheadings, title, graphics, captions to carry key information.

“Introduction” tells a reader nothing; “Introduction: an xxxxx robot” has meaning.

Break up large blocks of text; use white space and lists.

Help a reader look at Figures intelligently. Figures should be largely self-contained; captions should include: Figure #. Title. Caption telling the reader what to look at in the Figure; what’s important about it; how to interpret it; what distinguishes it; why it’s included.

c. Purposeful redundancy emphasizes the essential points.

Visual elements of a document can work with verbal elements to ensure that a reader will not overlook anything crucial.

When something is crucial to take away from a technical document, simply stating it once, however clearly, is generally insufficient. Use all the elements of a document—visual and verbal—to make the essential points impossible for a reader to miss.

Consider this the rubric for your next document. In summary:

Write effectively for readers who skim.

Use visual as well as verbal aspects of a document to achieve its purpose.

Give your readers what you want them to have: an easy experience of understanding the essence of your good work. You produce excellent thinking, writing, engineering, and designing. The assertions herein can help you deliver your work effectively to your audience.