Peer Review:

## Quality Management:

The computer scientist [Ian Sommerville](https://en.wikipedia.org/wiki/Ian_Sommerville_%28academic%29)[[1]](https://en.wikipedia.org/wiki/Software_quality_management#cite_note-1) uses SQM as an umbrella-term that includes the following quality layers:

Software Quality Assurance (SQA) layer

An Organizational quality guide of

* Standards, regulations, and procedures to produce, verify, evaluate and confirm work products during the software development lifecycle
* Incorporated knowledge base of best practices
* Off-the-shelf software tools selected to apply the above

Software Quality Plan (SQP) layer

A project level quality plan written by each project for declaring project commitment to follow an applicable set of standards, regulations, procedures and tools during the development lifecycle. In addition, SQP should contain quality goals to be achieved, expected risks and risk management. SQP sources are derived from

* SQA components that are adopted as is or customized to the project's needs
* New procedures, standards and tools complementing missing or not-applicable SQA components that have been written in particular for the project, or imported from outside the organization.

Any deviation of an SQP from SQA should be justified by the project manager and be confirmed by the company management.

Software Quality Control (SQC) layer

Ensures in-process that both SQA and SQP are being followed by the development teams.

SQC activities include

* Mentoring how to produce artifacts, such as well-defined engineering documents using standard templates
* Mentoring how to conduct standard processes, such as quality reviews
* Perform in-process quality reviews to verify, evaluate and confirm artifacts
* Verify and evaluate to improve the use of methods, procedures and adopted software tools

<https://en.wikipedia.org/wiki/Software_quality_management>

Advantages of peer review:

* There is no doubt that the process is not perfect, but it does allow the reader to make some judgment about the relative quality and merit of the [research](https://explorable.com/what-is-research).
* Peer reviewing allows a diversity of opinions to be brought to the table, theoretically removing any personal [biases](https://explorable.com/research-bias) and [pre-set ideas](https://explorable.com/verification-error) from the equation.
* The [peer review process](https://explorable.com/peer-review-process) stops a lot of substandard and poor science from reaching publication. In addition, the reviewers are generally experts in their field, well acquainted with the latest developments. They can, therefore, reject duplicate research and [plagiarized papers](https://explorable.com/academic-plagiarism).
* Because editors can use the process to remove poor quality work, it saves a lot of wasted time and money, especially if the work is plagiarized. Without referees, a journal would have to employ a team of editors with expertise in every field, and this would make the cost of the production prohibitive.
* Traditionally, the [journals](https://explorable.com/academic-journals) that use [peer review](https://explorable.com/peer-review-process) enjoy an excellent reputation and are trusted by experts in the field. This also helps them to attract the best researchers and scientists to submit papers.
* The reviewers are experts in their field, and [peer reviewing](https://explorable.com/peer-review-process) often brings innovative research to their attention, where it may be buried amongst a flurry of papers.
* Peer reviewing is not only used for journals but for grant applications and University standard textbooks. This helps to ensure that money is diverted only towards viable research proposals. The peer review of textbooks ensures that students are taught correctly and are provided with excellent information.

<https://explorable.com/advantages-of-peer-reviews>

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