KISS principle

KISS, a backronym for "**keep it simple, stupid**", is a design principle noted by the U.S. Navy in 1960.[1][2] The KISS principle states that most systems work best if they are kept simple rather than made complicated; therefore simplicity should be a key goal in design, and that unnecessary complexity should be avoided. The phrase has been associated with aircraft engineer Kelly Johnson.[3] The term "KISS principle" was in popular use by 1970.[4] Variations on the phrase include: "Keep it simple, silly", "keep it short and simple", "keep it simple and straightforward",[5] "keep it small and simple" and "keep it stupid simple".[6]

Contents

Origin

The acronym was reportedly coined by Kelly Johnson, lead engineer at the Lockheed Skunk Works (creators of the Lockheed U-2 and SR-71 Blackbird spy planes, among many others).[3]

While popular usage has transcribed it for decades as "Keep it simple, stupid", Johnson transcribed it as "Keep it simple stupid" (no comma), and this reading is still used by many authors.[7] There was no implicit meaning that an engineer was stupid; just the opposite.[3]

The principle is best exemplified by the story of Johnson handing a team of design engineers a handful of tools, with the challenge that the jet aircraft they were designing must be repairable by an average mechanic in the field under combat conditions with only these tools. Hence, the "stupid" refers to the relationship between the way things break and the sophistication available to repair them.

The acronym has been used by many in the U.S. military, especially the U.S. Navy and United States Air Force, and in the field of software development

Variants

The principle most likely finds its origins in similar minimalist concepts, such as Occam's razor, Leonardo da Vinci's "Simplicity is the ultimate sophistication", Mies Van Der Rohe's "Less is more", Bjarne Stroustrup's "Make Simple Tasks Simple!", or Antoine de Saint Exupéry's "It seems that perfection is reached not when there is nothing left to add, but when there is nothing left to take away". Colin Chapman, the founder of Lotus Cars, urged his designers to "Simplify, then add lightness". Heath Robinson machines and Rube Goldberg's machines, intentionally overly-complex solutions to simple tasks or problems, are humorous examples of "non-KISS" solutions. Also Shakespeare's "Brevity is the soul of wit".

A variant — "Make everything as simple as possible, but not simpler" — is attributed to Albert Einstein, although this may be an editor's paraphrase of a lecture he gave.[8]

In film animation

Master animator Richard Williams explains the KISS principle in his book *The Animator's Survival Kit,* and Disney's Nine Old Men write about it in *Disney Animation: The Illusion of Life*, a considerable work of the genre. The problem faced is that inexperienced animators may "over-animate" in their works, that is, a character may move too much and do too much. Williams urges animators to "KISS".

In software development

- Don't repeat yourself (DRY)
- Minimalism (computing)
- Unix philosophy
- Arch Linux
- Chartjunk
- List of software development philosophies
- Reduced instruction set computing
- Rule of least power
- There's more than one way to do it
- Worse is better (Less is more)
- You aren't gonna need it (YAGNI)

See also

- Concision
- Occam's razor
- Less is more
- Simplicity
- Elegance
- Muntzing
- Simple living
- It's the economy, stupid
- Perfect is the enemy of good
- The Fox and the Cat (fable)
- Mini survival kit – a minimal "bug-out bag" or survival kit
- Ultralight backpacking

References

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2. *The Concise New Partridge Dictionary of Slang,* Eric Partridge, Tom Dalzell, Terry Victor, Psychology Press, 2007, p.384.
3. *Clarence Leonard (Kelly) Johnson 1910—1990: A Biographical Memoir* (http://www.nasonline.org/publications/biographical-memoirs/memoir-pdfs/johnson-clarence.pdf) (PDF), by Ben R. Rich, 1995, National Academies Press, Washington, DC, p. 13.
4. *Pit & Quarry,* Vol. 63, July 1970, p.172, quote: "as in every other step of the development process, follow the KISS principle — Keep It Simple, Stupid."
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7. Ram B. Misra (2004), "Global IT Outsourcing: Metrics for Success of All Parties", *Journal of Information Technology Cases and Applications*, volume 6 issue 3, page 21. Online version (http://web.njit.edu/~jerry/Outsourcing/out-JITCA-6-3-2004-2.pdf). Retrieved 2009-12-19.

8. "Everything Should Be Made as Simple as Possible, But Not Simpler" (http://quoteinvestigator.com/2011/05/13/einstein-simple/#more-2363) Quote Investigator

External links

- Kiss Principle
- The KISS Principles for ORM Products

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