

**CONCEPT** Ever conceived an invention or realized a transformational process that has the power to revolutionize an industry? When we talk about realizing and exploring concepts, we are talking about brainstorming and researching ideas centered around innovation or the re-imagining of improving a process to become more efficient and streamlined.

## BACKGROUND

Every company has their own version of the engineering life cycle. This can be for a product or a process. Usually there are between 4 – 6 steps. The following is an example:

**CONCEPT:** A need or opportunity is identified, and the project owner begins to develop a conceptual plan for their new product or service.

**FEASIBILITY:** Now that you have a concept, what are financial implications (revenue vs. costs). How feasible is it?

**PRELIMINARY PLANNING & ENGINEERING:** At this phase, you start engineering and pro-typing. After multiple iterations, normally, one design becomes the front runner. Funding has usually been secured and a final preliminary engineering report is produced.

**DETAILED DESIGN:** Once the design and engineering analyses have been performed, a set of drawings and technical specifications are produced.

**BUILD-OUT:** The scope of work finally is executed, and manufacturing begins. Engineers provide oversight during the build-out phase and are available as subject matter experts.

**TESTING AND COMMISSIONING:** Once the build-out phase is complete, final testing begins followed by the product's public release. All documentation including patents, designs and technical drawings along with financial studies are cataloged and archived.



The Post-It-Note is a perfect example. Spencer Silver was trying to create a high strength adhesive for the aerospace industry. For all his efforts, what Spencer created was an adhesive that was pressure sensitive and left no residue upon removal.