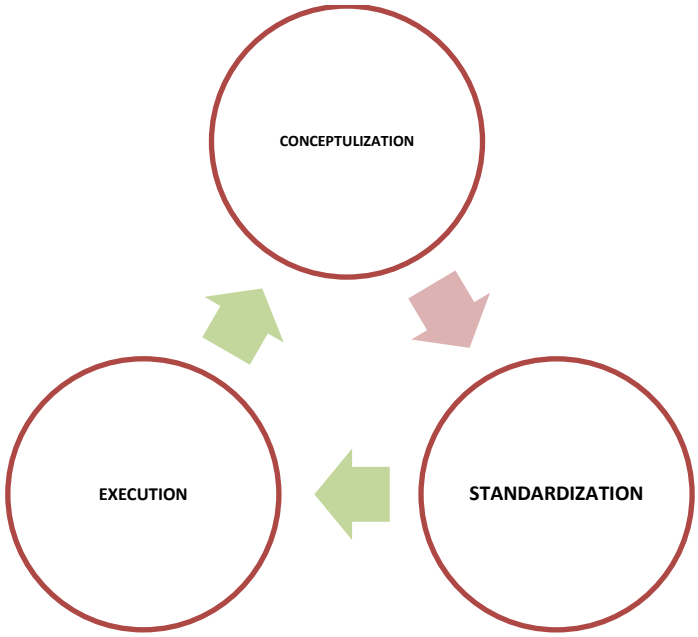
Conceptualization-Standardization-Execution Cycle

By Anil Seth

Advice is what we ask for when we already know the answer but wish we didn't.
~Erica Jong, *How to Save Your Own Life*, 1977

Project Engineering is a subject where advices are sought and given. The designers firm up the design and the project engineers sells these to client.

The Project Engineer follows the cycle boundaries of EXECUTE-CHANGE-EXECUTE (ECE) and the Project Engineering Manager follows the cycle boundaries of CONCEPTUALIZATION-STANDARDIZATION-EXECUTION (CSE).



The CSE Cycle

In general we observe that any engineering deliverable lifecycle follows the CSE cycle. To validate this theory further let us examine this for:
"Issuing Process Data Sheet (PDS) in a detail engineering project".

CONCEPTUALIZATION:

1. Validating the available datasheet.
2. Adding missed out values in the datasheet.
3. Issuing the datasheet for review

STANDARDIZATION

1. Client's reviewed datasheet is made part of Material Requisition.

2. Material Requisition issued to Purchase Managers.

EXECUTION

1. Vendor Offers are received
2. Offer review cycle is executed to conclude in Technical Bid Evaluation followed with Commercial Bid Evaluation.

This presents a simple straight chain case, i.e.

The CSE cycle realign this to circular approach. But is coming to CONCEPTUALIZATION from EXECUTION is a reality or theory?

Here in the case of process datasheet, the end confirmation of Process datasheet generally comes from hydraulics; agreed!
This cycle for process datasheet is mainly seen in Basic/FEED engineering and rarely observed during detail engineering.

Let me clarify this further, during detail engineering the civil and structural General Arrangement Drawings (GADs) are issued to site initially for work planning. The fabrication drawings are prepared on these GADs. Coming back to CSE cycle, we may a write as:

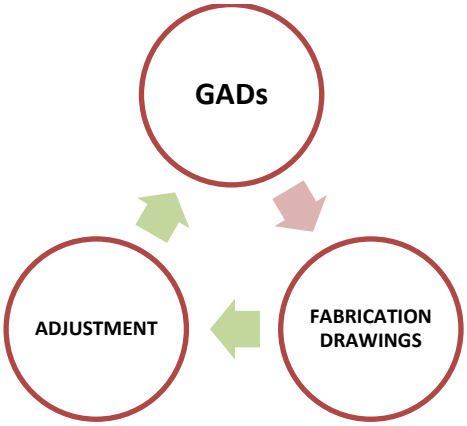
- GADs is step **C**
- Fabrication is step **S**

What happens if there are clashes in steel members?
Let us say there is a technical structure where in a distillation column assembly is to be adjusted.

General argument will be:

“The system is modeled and the clash check is also done with vendor’s column assembly arrangement drawings.”

Still there is a possibility that the engineered cutouts to adjust the assembly are not accurate and there comes the requirement of moving some secondary steel members. In this case the Adjustment is **E**, or



The general argument again will be:

"If it is adjusted why referring back to CONCEPTUALIZATION (i.e. GADs.)!"

Now, the site adjustments are local and it is difficult for site team to analyze the impact of change on design. WHY, simply because they are executors and not the designers. Hence the designers Re-examine the extent of change(**C**) and issues (or Re-issues) the Fabrication Drawings(**S**) and Site Team Rechecks the changes (**E**).

Similarly we observe lot of **CSE** related needs which we park for later assessment, one which was encountered in my last assignment was:

"The Sub-station drawings available are not accommodating the lighting transformers. The plot plan seems to be tight to adjust any building dimensional change. During detail engineering the advice of client will be taken and this requirement will be reexamined."

We PEMs see and sometimes register lot of CSE examples which helps us to learn and add value in next assignment. The best way of explain the **CSE** Cycle is-

A preoccupation with the future not only prevents us from seeing the present as it is but often prompts us to rearrange the past.

~Eric Hoffer

About the Author

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