PDD to BCM Turtle Diagram

The ten sections of a Process Development Diagram (PDD) in each process performed by Structure Construction (SC) conforms with the requirements of ISO 9001, *Quality Management Systems*. Five of the ten sections of a PDD are published in the Bridge Construction Memo (BCM) to communicate the scope, input, procedure, outputs, and attachments for each SC process. The remaining five sections are not published, and are used by:

- The SC Technical Team (TT) to develop each process.

- SC Top Management to review, evaluate, measure, and improve each SC process.

This PDD to BCM Turtle Diagram shown below illustrates the importance of the 5 non-published sections and their relationship to the BCM.
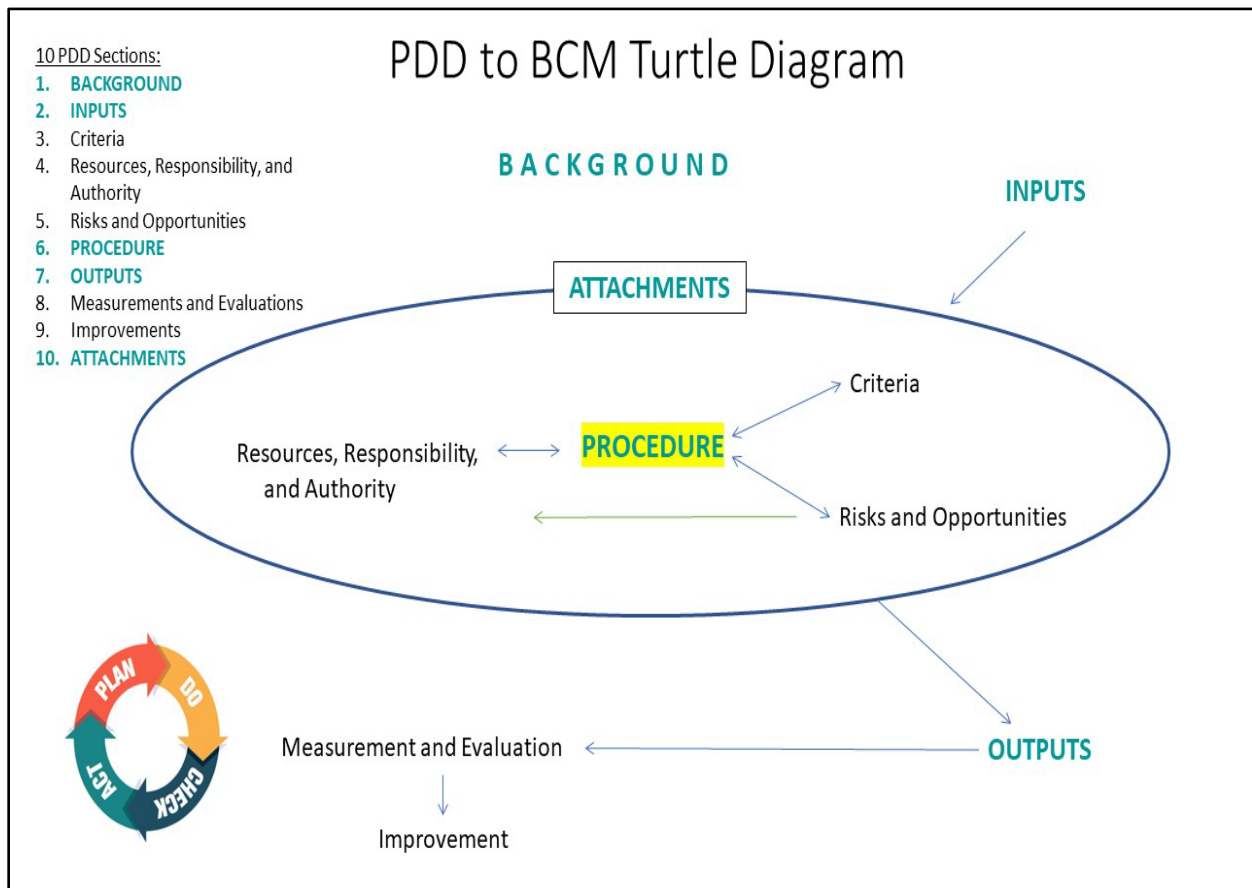

Figure 1. PDD to Turtle Diagram

Within the turtle are the 5 sections of a BCM, which are described below.

1. **Procedure** is the "heart of the turtle." It is where the end-user will likely spend the most time. As such, development of the PDD Procedure section should be where

the author focuses the most effort. In fact, many experienced (and inexperienced) authors typically start building the PDD by first developing the procedural steps that are needed to perform the process.

2. **Inputs** is analogous to food for the turtle. Make it as specific as reasonable, without limiting the published value of the PDD. (Another analogy - keys for a car. You want the key to start this specific car.)

3. **Outputs** is the end product; any deliverables, or necessary documentation and paperwork that must be generated by persons performing the process.

4. **Background** describes the scope of Procedure. Does each content of the PDD fall within the Background scope? Or is it out of scope?

5. **Attachments** includes technical details or additional information that do not fit into the Procedure section. The Procedure section is intended to be "lean," short and to the point. The Procedure tells you "what to do." "How to do" information belongs in the BCM Attachments section, or SC's organizational technical manuals.

Revolving outside of the turtle is the five sections of a PDD which are not published in a BCM. Each of these five sections are used by the SC TT to develop each process, are geared for management (towards SC Top Management), and their relationship to the BCM are as follows:

1. **Criteria** – This section includes requirements or guidelines the process must adhere to or is judged by to ensure the process is compliant.

2. **Resources, Responsibility and Authority** – The required resources that are unique to each process are listed in this section. This section is used by SC Top Management to secure the required resources to perform the process. Similarly, the Procedure must advise SC field staff to obtain the necessary resources for performing the process. The Responsibility and Authority describes the responsibility and authority of persons performing the BCM process and holds such persons accountable.

3. **Risks and Opportunities** – This section is often developed in tandem with the Procedure. Identify common risks to avoid, minimize, or mitigate. Likewise, identify opportunities that can be capitalized. Discuss management of these risks and opportunities in the Procedure section since SC field staff is our front line of defense with respect to risk management.

4. **Measurement and Evaluation** – SC Top Management measures and evaluates the PDD Outputs to determine if the process is satisfactory or improvements made to the process are required.

5. **Improvements** – Any improvements to the process are noted and incorporated into the process. This completes the Plan-Do-Check-Act Cycle (PDCA Cycle).

Use this Attachment 4.2, *PDD to BCM Matrix*, as a turtle diagram test to verify no information is lost when converting a PDD to a BCM, and each content incorporated into the PDD is useful, lean (unique to the process), and clear.