Two Approaches to Estimating Project Level of Effort

Top-Down Estimation Approach:
1. Estimate the total size of the final deliverable(s) using a formalized methodology (e.g., function points, use cases, etc.).
2. If your agency has experience with this type of project, use historical data to assign a relative size and appropriate productivity level to each software function point, or use case.
3. Calculate the overall effort estimate using information from Step 2.
4. If your agency has little experience with this type of project, it may be necessary to incorporate industry average data for the first high-level estimate and / or hire a consultant with appropriate expertise in estimating effort for a project of this nature.
5. Refine the estimate at appropriate points in time as additional information becomes available over the life of the project.

Bottom-Up Estimation Approach:
1. Identify each function to be provided by the final system and classify as simple, moderate, or complex to produce.
2. Estimate the total size and complexity of each function using a robust methodology.
3. If your agency has experience with this type of project, use historical data to determine the average time and level of effort required to produce simple, moderate, and complex functions for similarly projects and use this information to assign time and level of effort estimates to each function.
4. If similar project experience does not exist within your agency, it may be necessary to analyze and incorporate industry average data for producing this type of system, or, to hire a consultant with appropriate expertise in estimating effort for a project of this nature.
5. Utilize appropriate project-specific factors, assumptions, and constraints to refine the level of effort estimate.
6. Calculate the total effort required to produce the final hardware or software product(s) based upon the individual function estimates.
7. Estimate the effort required for other project related tasks and add to estimate calculated in step 5.
8. Refine the estimate at appropriate points in time as additional information becomes available over the life of the project.