**DOD Approach: Managing A Project**

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Managing a business is sometimes a collection of managing a group of projects. All these projects must be coordinated (which is what the whole chapter is about), and this means that each individual project must be managed successfully. For me, I managed individual projects using the Department of Defense (DOD) model for management structure. The DOD developed a “ways and means” approach over the past several decades to define the requirements and the eventual procurement of new weapons systems. While the DOD acquisition system is the same for all services that procure weapons systems, the implementation of that system is different in each military branch as each service implements them as they see fit. It is the implementation that is the key to success. The Air Force is by far the best at this job and I have worked with each branch so my opinion here is based upon seeing the results of how each service branch performs.

*The key to the Air Force’s success was the delegation of responsibility and authority and accountability for results*. In your company, someone needs to be in charge for implementation of your company’s vision. One person (with suitable assistance for executing the several tasks) with the full vision of the program and sufficient skills and experience to move it forward is vested with the authority to approve plans and obligate funds for the entire company. In a startup, this will be the President or CEO. As you obligate funds, you will be responsible back to your investors and they become very upset when their vision isn’t realized. But, it is unusual when things all go according to plan. So, with this inevitable conflict, how do you maintain the confidence of your investors and maintain your capability to move quickly forward with the company’s implementation plans?

First, it must be agreed how funds are to be spent (budget). All parties involved must be kept fully informed at all times of the relevant aspects of the effort. Go easy on the good news, fully disclose the bad news right away, and the plan to compensate. Bad news never gets better with age. Now going back to our earlier example, how did the DOD manage this process? They divided the total program into portions, with go and no-go decision points at the end of each portion. In your startup, this might be sales targets, or outputs from a production unit.

Second, define the objective. This often may be several objectives. The objective should be as precise as necessary to enable detailed planning to occur. For example, “Let’s make money” is not a plannable objective. “Let’s get into the tilapia farming business” would be a plannable objective. For the tilapia farm project, several objectives would become clear:

* Buy land
* Establish a marketing and distribution system
* Build your expanded production capacity
* Establish and build “satellite" production capabilities.

Be careful to keep the objectives autonomous, clear, and separate. If you end up with what you think are two objectives but one turns out to be an implementation step of the other, everything will get very confusing.

Third, prioritize the objectives. Be sure to examine if success of one is a prerequisite for beginning another (review Chapter 13 on CPM and Pert Charts). Implement your program toward objectives in stages or phases. The model the DOD uses is made up of four phases:

1. concept,
2. prototype,
3. full-scale development, and
4. production or go phase.

***Concept Phase***

What is to be done, what are the criteria for success, what is the evidence of success, and what are the plans for implementing the next phase. Products generated are pretty much what you expect: program plans, schedules, and budgets. Sensitivity and risk analysis studies. Trade off studies to help select among alternatives. Initial designs of hardware and facilities. This phase is all paper and analysis. No hardware is built. This phase is no more important than the other phases, but it is first and must be completed. The end of the concept phase is when the Authority in Charge presents his/her findings and recommendations to the Pursers. We could call this the “Get Ready” phase. The pursers will consider the results and either approve implementation of the next phase and provide/agree to the obligation of the funding, or ask for certain specific additional information, or disapprove the project completely at this point. If they kill the project at this point, the premise was flawed or the objective was not clearly understood by someone.

***Prototype Phase***

This phase is the initial implementation of the top-level designs. In DOD programs, which will end up with a many-item procurement (e.g., 1,200 aircraft) of what is developed, this phase is where the initial prototype is built and subsystem alternatives are explored and tested and optimization decisions are made. In addition to evaluation of the “primary” item, it is at this time that the universe of supporting items and facilities are considered and planning for these “programs within programs” begins. Application of this phase of the acquisition cycle to the needs of your start up company (startup) is difficult to envision, as the startup’s activities don’t have the production of dozens or hundreds of identical like items that all meet performance and manufacturing specifications as a criteria. We would suggest that your startup should use this phase of the program as a review and refinement of the products of the concept phase, and the development of business strategies, fully detailed offers (as in purchasing of an overseas farm to increase available product for marketing efforts), facility and outfitting equipment specifications, surveys of equipment availabilities, site selections, etc. We could call this the “Get Set” phase. The products of this phase would be executable documents—proposals ready to be release and contracts ready to be signed.

***Full Scale Development Phase***

The DOD uses this phase to “re-prototype” the production version based on the information gained by testing of the original prototype and learning what needed improvement. If two end items had been built and tested in the prototype phase, then six or eight items might be built for Full Scale Development (FSD). The configuration of this item represents what the developer thinks will meet all performance, material, and manufacturing specifications for the production item. It is this FSD item that is used for qualification testing, sometimes to the point of failure. Several items are usually built so that all aspects of the performance of the item can be tested and evaluated simultaneously. For example, you can’t test for top speed at the same time you are testing for turning radius unless you have two items to test. What do you do if one of your two identical articles fails a certain test that the other one was not subjected to? Do you redesign to eliminate the failure cause and then retrofit one of the two test articles, or do you retrofit both of them?

Usually, financial and schedule considerations dictate you make physical modifications to only one article. What, then, do you do if the second article failed a different test? As you can forecast, pretty soon, the two originally identical test articles will no longer be identical, and unless very careful records are kept, the testing that has been performed will not be considered valid. Meanwhile, while all this testing is going on, the support structure and implementation plans for actually deploying the production article are being created and refined and implemented.

The end product of the FSD phase is a set of production drawings that represent the tested and qualified end item, and a bunch of contracts/requests for proposals to implement the supporting infrastructure (facilities, spare parts, test equipment, special training, factory repair support, etc.). You are now ready for what is called the “Go” phase.

***Production or Go Phase***

The DOD has a production phase, wherein the qualified item is built, tested, accepted, and deployed in whatever quantities the contract calls for. This is a pretty big effort when you are talking about B-2 bombers, but there may be no directly comparable phase for your startup. For a production-oriented company, your startup’s conclusion of the first three of the above phases will result in a mature operational phase that will always be the “Go” phase. There will be constant updates and adds to the basic approved activities, but these will be handled on a case by case basis, as a matter of good technical and business management.