

The process of capital investment at U.S. public ports

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It is virtually impossible for a US public port authority to be totally *proactive* in its behaviour since there are too many major factors that affect its future that cannot be controlled or even anticipated by the port staff. Conversely, it is also virtually impossible for a public port authority to be totally *reactive* since the time window between decision and implementation often exceeds the time window of opportunity. For a public port authority to maintain long-term viability, it must constantly review the facilities it owns, the services it offers, and the source of the revenues it generates. This on-going review should determine how well the Port is adhering to its mission and accomplishing its goals and objectives as set out in the Port's strategic plan. Today, a major management challenge for any viable Port is prioritizing goals and maintaining a policy that ensures clear focus on the highest priority goals. Determining priorities amongst capital projects should be high on the list of any public port authority. This paper provides an overview of the decision-making processes used by American public port authorities in evaluating new capital projects and, we hope, an insight into processes for determining the desirability of expanding, contracting, or terminating present facilities and services.

1. The process

For a Port the biggest capital investment nightmare is the rogue project. This is a project that was approved without sufficient review and has seemingly taken on a life of its own, a self-fulfilling prophecy that gobbles up resources at an alarming rate and, when finally completed, generates little or no appreciable net income. These rogue port projects can be avoided!

Often the most important Port decisions involve the authorization of capital projects. Authorization of a capital project poses a number of challenges for both the Port Commission (or Board) and the staff. The various 'go/no go' project decisions should be addressed in a logical decision-making context. Quite often, however, because of a dissimilarity between the appropriate steps and the analytical tools available, or the presence of some significant non-economic motivation for the project, a logical analysis does not occur.

There is a process for determining these 'go/no go' capital project decisions. By following this process, a public port authority will improve its chances that only capital projects that enhance Port viability will eventually be approved. It should at least differentiate the solid opportunities from the latent disasters.

The capital project decision-making process is made up of three phases: the acceptance phase, the capital budgeting phase, and the implementation phase.

1.1. *Acceptance phase*

The initial step in the acceptance phase is to define the project itself and determine that it is consistent with the Port's mission. A Port's mission statement is a product of the strategic planning process. It identifies the underlying design, aim, or thrust of an organization. In effect, the mission statement identifies the core businesses that the Port will undertake.

If a proposed project is not consistent with the mission statement, then it may be necessary to re-evaluate the mission statement as well as the Port's goals and objectives that determine the accomplishment of the mission statement. Clearly, such changes should be made by the Port Commission only after significant reflection and study.

The second, and related, step in this phase is risk evaluation and the determination of a target return on investment for the proposed project. This is necessary since it is unrealistic to require the same rate of return on all projects.

Proposed projects should also be analysed to determine and quantify the risks associated with them. This analysis requires that there be a clear understanding of the project, its functions, and the potential for its profitable operation. To accomplish this step, it is necessary to look at project feasibility.

If the proposed project expands an existing facility or service, there is a very limited risk undertaken since the Port is already familiar with the facility function or service. If the project requires the Port to take on a new facility or service associated with, or complementary to, an existing one (e.g. adding an intermodal transfer area to an existing container terminal or a computerized system to facilitate customs clearance and/or cargo tracking), there is an assumption of

some additional risk, but the risk is tempered by the Port experience with the basic activity. However, when the proposed project requires the Port to take on a new facility or service that is totally unrelated to any current Port function, there can be a significant assumption of risk, the level of which might be so extensive that it could create a financial burden for the Port—even a burden that might affect the financial stability of the Port itself. Thus, in those situations in which a Port departs from its current core businesses, it is absolutely necessary to quantify the risks that are being undertaken.

It is important to recognize that a very substantial risk may be undertaken by committing to projects that are peripheral to current core businesses (e.g. a container port building a grain terminal).

If the proposed project involves additional risk, the Port must determine the level of risk and recognize that the return on investment (ROI) must reflect the level of risk undertaken. Thus, a project that is an expansion of a current facility or service would be acceptable if it produces the ROI set out in the Port's financial policy for new projects. Conversely, a proposed project that is outside of the current core businesses of the Port and is determined to carry a substantial risk must generate a higher ROI.

The target ROI as set by the Port Commission must reflect the risk level of the project, or the Port will have created a potential financial time-bomb. Public port authorities are economic engines for their regional economies, but Ports that ignore risk in determining project ROI targets tend to destabilize their regional economies rather than provide stability for them.

Thus the acceptance phase of the capital project decision process is used to:

- (a) define the proposed project;
- (b) determine that it is consistent with the Port's mission and goals;
- (c) determine the level of risk associated with the project, and
- (d) set a target ROI for the project.

1.2. Capital budgeting phase After successful completion of the acceptance phase of the capital project decision process, the proposed project now enters the capital budgeting phase. The capital budget is a document that lists the capital projects that have been approved by the Commission. Before any proposed project can be placed into the Port's capital budget, the project must be subjected to a multitude of additional decision steps.

Overseeing the capital budgeting phase of the process is usually the responsibility of a high level management committee or the executive director of the Port. The activities within the process are supervised and coordinated by a single individual for each major project or for a package of related projects.

The function of this process activity supervisor is a key factor in ensuring that the proposed project is guided through the capital budgeting process. In effect, this supervisor is responsible for the review and analysis effort, including the coordination of staff and/or consultant studies relating to the proposed project. He/she acts as a catalyst ensuring that the necessary steps in the process are completed and as a conduit for the findings of the project analysis and other information that concerns the proposed project.

It is important to recognize the essential role of this process activity supervisor who controls the proposed project's analysis and who has a broad knowledge of the entire project. In effect, the absence of the process activity supervisor significantly increases the potential for creation of a rogue Port capital project.

Empirical evidence strongly suggests that the person who acts as the process supervisor be a Port staff member rather than a consultant.

The capital budgeting phase of the process has three steps. The first step is an in-depth analysis of the proposed project and its justification. The second step is the investment decision analysis, and the third step is the financing decision analysis. The 'justification' step includes at least a project feasibility study, environmental and community impact analyses, and engineering studies. A verification of all data on the proposed project that was used as a basis for decisions in the acceptance phase should also be undertaken.

A key document in the justification phase is the feasibility study. This study looks at the profitability of the proposed project once it has been constructed. It provides an opportunity to look at various income and expense factors that affect the proposed project. Often capital investment decisions are based solely on the proposed project's construction cost without any concern for the operating profit or loss that will be generated once it is up and running. The feasibility study looks at the income and expenses (operation and maintenance expenses), debt service, etc., of the proposed project. In effect, the feasibility study provides vital information on how the proposed project might affect the Port's financial well-being once it is constructed.

Concern for the feasibility of a proposed project's operation is especially necessary with projects that receive construction grants. Capital investment decisions are quite often influenced by the fact that a portion of the construction costs will be paid by a federal or state grant or by funds provided by private industry partners. It is imperative to remember that this is a construction grant and that once the project is constructed the Port is fully responsible for its profit or loss.

This 'justification' step in the capital budgeting phase will provide a data base for use in the next two steps.

The 'investment decision' step provides initial identification of capital requirements and sets out some initial procurement and development options. The results of the investment decision step indicate whether the project is a sound business decision, taking into account the future cash flows and risks as well as the initial capital investment required. This step requires a financial analysis of the proposed project. This step provides data for alternative option selection (size, scope, functions, etc.) as well as input into the third or financing decision step.

It is during the investment decision step that significant analysis of project ROI (return on investment), NPV (net present value) and IRR (internal rate of return) is made. Each of these analytical techniques provides information that can help select development alternatives. In this step a re-evaluation of the risk level of the project and the project feasibility is made.

It is important that the analyses in this investment decision step be controlled vigorously, reviewed continuously and challenged, since they form the basis upon which the ultimate decision is made to include a project in the capital budget. Assuming the project has passed the investment decision step, the project is ready to be placed before the Port Commission for formal approval and inclusion in the capital budget.

The third or 'financing decision' step of the capital budgeting phase involves the preparation of the Capital Project Evaluation Recap (see Appendix A), which will be presented to the Commission prior to any formal action to commit resources to the proposed project. Formal Commission approval and inclusion of the project in the capital budget allows the Port to proceed with detailed design, materials and property acquisition, and construction.

Projects should be placed on the capital budget only after undergoing a comprehensive review process with executive staff and Commission level consensus on project need, timing, and cost. Economic, market, engineering, environmental as well as financial information provides the basis for this ultimate decision.

1.3. Implementation phase

The project implementation phase may occur right after the proposed project gains a place in the Port's capital budget or months (even years) after that time. The implementation phase is the product of the final 'go/no go' decisions for the project.

As soon as a project is placed in the capital budget, it must essentially compete for its place or priority within the capital budget. From the moment a project is placed in the capital budget it is given a priority among the other projects. A list of positive project attributes for use in project prioritization is found in the Capital Budget Priority Criteria Checklist (see Appendix B). These priorities are constantly being adjusted to reflect the Port's current needs. Eventually this project may be the number I priority project.

As the initial step of this phase, a review of the project's justification may be appropriate. The depth of such a review is normally determined by the length of time between its being placed in the capital budget and the time it reaches number I priority status. This review is designed to uncover any major changes in the data that originally justified the project's being placed in the capital budget.

Following a positive review, the project is placed in the current year's budget and eventually put out for bids.

The second step in this phase is a final 'go/no go' project decision and the acceptance of construction bids. With construction bids in hand, a final determination of the project and its financing feasibility is made based on a construction cost as bid. If the results of this final determination are positive, the winning construction bid is then accepted.

The third step in the implementation phase is monitoring construction change orders and/or cost overruns to ensure that the project is constructed within the cost parameters established in the feasibility study. This step is essential because the construction bid price is often just a part of the project's actual construction cost.

The fourth and final step in the implementation phase, the post-audit, occurs after the project is up and running for a period of time. This step analyses the validity of the assumptions and findings of the study effort in the capital budgeting phase. It addresses such questions as: was the projected project cash flow on target and if not why not? The results of this step will allow the Port to sharpen its decision-making process for future projects.

2. Conclusions

There is no single 'go/no go' project decision; it is ongoing. The capital investment decision process has three phases and each phase has several steps. Failure to pass any analyses, review, or decision points along the way can mean rejection of the proposed project.

A key to authorizing projects that will enhance Port viability is the willingness of the Port Commission, executive director, and staff to follow the capital investment decision-making process faithfully.

In an ideal world, there is unlimited time available to gather data, conduct studies, and weigh options. However, in the real world, there are time constraints that preclude the Port from addressing adequately or in sufficient detail each step in this process. Thus, it is important to recognize that if adequate time is not available, the reliability of the project decisions decreases and project risk increases.

By following the process outlined, a Port should be able to differentiate between the solid opportunities and the latent disasters. Nothing can guarantee 100% success!

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Appendix A: Capital project evaluation recap.

Project description

Give a brief description of the proposed project in general terms. Summarize all phases of the project, including feasibility and environmental studies, design and engineering and construction, and the work done to date.

Business justification

Describe the need that will be filled by carrying out the project. Discuss the reasons for undertaking the project, which might include increasing market share, maintaining a customer base, improving the Port's competitive position, and enhancing the ability to handle future business activity, etc. For customer facility and business development projects, identify whether new demand is met or generated by the improvement, and whether the improvement is for a specific customer. If the project is tied to a lease, include lease information. In each case, demonstrate how the project supports business planning decisions and existing facilities planning strategies.

Consistency with mission and goals

Identify the project's compatibility with the adopted Port mission and goals statement.

Need for port involvement

Explain the reason for the Port to undertake the project. Specifically address whether the activity is outside the domain of, or is not being adequately provided by, other entities in the region including the private sector. Discuss whether these entities could undertake the project and advantages or disadvantages of their doing so. If relevant, identify the impact of the project on regional capacity.

Environmental/community issues

Discuss both the environmental effects of the project and the impacts of environmental work required to implement the project. In addition, address the community issues related to the project, including which local government entities or community groups have been involved and whether there were concerns expressed. If there were concerns, identify them and provide information as to whether they have been addressed.

Economic impact

Identify jobs, employee earnings, business revenues and taxes associated with the capital improvement. Include temporary construction jobs as a separate category.

Financial analysis

This analysis should identify the scope of capital improvements associated with the project.

Capital resource requirements.

Itemize all of the capital costs associated with the project, including: preliminary and final design; engineering services; other soft costs (environmental, legal, permits, etc.); construction; contingency; port staff time. The sum of the categories should represent the total project cost. Provide separately all capital costs already incurred on the project.

Operating resource requirements.

Provide an itemization of all on-going Port costs associated with the project (operations and maintenance, allocated overhead, depreciation, property taxes).

Financial performance.

Determine the net present value and internal rate of return. In addition to a summary of investment and returns, attach cash flows and list key assumptions. Market studies or business analyses that support key business assumptions should also be forwarded for review. Identify any risks that could potentially make cash flows vary significantly from those projected. For example, if there is a significant probability that costs may be higher or lower due to environmental clean-up cost changes or that revenues may be higher or lower due to changes in cargo or passenger volumes, these should be identified as 'key variables'. Using the recommended alternative as a base, provide sensitivity analysis on these key variables.

Implementation Plan

Present a project schedule with milestones for completing major phases (i.e. design, contract bidding, construction, installation). Also, note Port staff member responsible for project management.

Other issues

Include other issues (labour issues, recommendations from other studies, etc.) that are relevant to decision-making.

Recommendation

Based upon the criteria contained in this recap, summarize the rationale for recommending this project and/or any alternative project(s).

Appendix B: Capital budget priority criteria checklist Prioritization of projects in the capital budget is a complex process. This list of positive attributes will assist in prioritizing projects.

- Project would preserve an existing capital facility, avoiding greater expense in future years.
- Project would result in significant savings in operating costs.
- Project would result in the purchase of land for future projects at favourable prices.
- Project would generate sufficient revenue to be essentially self-supporting in its operations.
- Project would make an existing facility more efficient or increase its use with minimal or no operating cost increase.
- Project would not duplicate other public and/or private services.
- Project would significantly reduce current and future operating and maintenance costs.
- Project would link other existing or planned improvements that will mutually benefit from the linkage and will improve port efficiency and ability to deliver service to customers.
- Project will make a significantly positive impact on the local economy and/or tax base.
- Project is required as a result of lease terms.
- Project results in enhanced productivity at same or lower operating costs.
- Project timing is critical; if the project is not acted upon at once, the opportunity will be irrevocably lost, or other major alternative actions would have to be initiated.
- Project is required to correct a building code violation and/or meet a federal or state standard.
- Project is required by an existing agreement with another agency. Project will correct a condition that currently results in a poor image for the Port or an undesirable work environment for Port employees or tenants.
- Project has a very high degree of citizen support.
- Project has few negative environmental impacts associated with its construction or subsequent use.
- Project is essential to provide for public or employee health or safety. Project is required to eliminate a hazard to

personal health or safety.