

# Do You Manage Technology and Innovation Projects?



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# Endeavor

# Do You Manage Technology and Innovation Projects?

## Do you run technology & innovation projects with the same discipline as construction projects?

### Overview

Most companies engaged in design and construction projects utilize a more or less conventional project management methodology of some sort. On the other hand, companies contemplating the development of new technology take a more ad hoc, seat of the pants approach to achieving their goals. Technology development can address a variety of objective, including

- New IT systems
- New manufacturing technologies
- New analytical methodologies
- New safety systems . . .
- Operations innovations – new security protocols, new work processes, new quality assurance procedures . . .
- Organizational innovations – new organizational designs, mergers & acquisitions, divestitures . . .
- Et al . . .

In today's world, where making sure every dollar counts, and where technology development may cost as much or more than the physical assets needed to implement it, it may be a useful exercise to compare management methods for technology development projects with "construction projects". (And keep in mind that the same thought process adds value when contemplating other types of innovation - in operations, in organization, in performance management, etc.)

### Self Assessment

Endeavor's cut at management methods that would likely be in play for the construction of a new crude unit are listed in the table that follows along with the corresponding questions that one might ask when initiating a technology development project. Read each bullet point and then answer the question on the right for your technology projects using the following instructions:

- In the column headed "Yes?" put an "x" in the box beside each question for which the answer is normally "yes."
- In the column headed "Often?," insert a number from the following scale:
  - 1 = Never
  - 2 = Seldom
  - 3 = Sometimes
  - 4 = Frequently
  - 5 = Always

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Project to Build a New Crude Unit	Project to Develop New Technology	Yes?	Often?
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(Frequency scale 1 = Never; 2 = Seldom; 3 = Sometimes; 4 = Frequently; 5 = Always)

## Project Initiation:

<ul style="list-style-type: none"> <li>You would expect to have a Sponsor to provide commercial guidance for project development</li> </ul>	<ul style="list-style-type: none"> <li>Do you know who in commercial management cares about this project?</li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>You would expect that a market analysis had provided evidence that the product could be sold for prices that justified the project</li> </ul>	<ul style="list-style-type: none"> <li>Do you know that you have a customer (user) who wants the technology you propose to develop?</li> </ul>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Do you have sufficient (multi-user) interest to justify the R&amp;D expenditure?</li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>You would expect to know the following –                             <ul style="list-style-type: none"> <li>Why you are doing it</li> <li>What long term commercial goal it supports</li> <li>How big it is supposed to be</li> <li>When it is needed</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Do you know why you are doing it? That is, what corporate goal and commercial objective would your project serve?</li> </ul>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Do you know what capabilities management expects the new technology to provide?</li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>You would also know (or be asked to recommend) –                             <ul style="list-style-type: none"> <li>Where it should be located</li> <li>What technology to use</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Do you know where the new technology is to be commercialized/utilized?</li> </ul>	<input type="checkbox"/>	_____
	<ul style="list-style-type: none"> <li>Do you know if management has a technology pathway preference?</li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>You would expect that your project would get prioritized with other proposals within the capital budget before it was granted funding.</li> </ul>	<ul style="list-style-type: none"> <li>Did your project go through a prioritization analysis to confirm that it deserves R&amp;D funding more than other candidates?</li> </ul>	<input type="checkbox"/>	_____

## Project Execution

<ul style="list-style-type: none"> <li>You would assign a Project Manager to lead the Project Team and have accountability for project success</li> </ul>	<ul style="list-style-type: none"> <li>Do you put someone in charge of the total project to coordinate all necessary activities and be accountable for all outcomes?</li> </ul>	<input type="checkbox"/>	_____
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<ul style="list-style-type: none"> <li>You would establish a multifunctional core Project Team that included representatives of all stakeholders – including the ultimate operations staff.</li> </ul>	– Do you identify people to provide user input, perform the various R&D activities, provide implementation support and confirm proper commercial operation?	<input type="checkbox"/>	_____
	– Do you identify these people as a team and ensure that they know they are to accept leadership from the project leader?	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The PM would utilize a gated work process to regulate the flow of work and provide checkpoints that could identify reasons (market, risk, cost, etc.) for cancelling the project.</li> </ul>	– Do you have a documented technology development work process with established gate criteria covering market, legal, technical and operational considerations?	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The PM would develop a project execution plan to guide the work of the Project Team members and keep them well coordinated</li> </ul>	– Are the people working on your technology development projects expected to have a work plan – and to follow it?	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The PM would establish a resourcing plan, identifying the personnel, equipment, contractors, etc. that would be needed to execute the project.</li> </ul>	– When initiating R&D projects do you look ahead to identify the people/skill sets you are going to need, the facilities you will need to develop and test the technology, and the outside help from suppliers, customers, or contractors that you might need?	<input type="checkbox"/>	_____

## Scope Development

<ul style="list-style-type: none"> <li>The Project Team would identify all components of the new crude unit</li> </ul>	– Do you know how big the R&D project is before you initiate it?	<input type="checkbox"/>	_____
	– Do you ensure that all the required attributes of the technology have been identified up front?	<input type="checkbox"/>	_____
	– Are you sure that enabling technologies are truly available?	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The Project Team would identify the technologies needed and determine whether they need to be outsourced</li> </ul>	– Do you check to be sure you can't buy an equivalent technology – to avoid re-inventing a wheel?	<input type="checkbox"/>	_____
	– If an equivalent technology is	<input type="checkbox"/>	_____

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	commercially available, is there a firm justification for proceeding with your own development efforts?		
<ul style="list-style-type: none"> <li>The Project Team would identify all infrastructure/support requirements</li> </ul>	<ul style="list-style-type: none"> <li>Do you check to make sure that the circumstances of the targeted user(s) are consistent with the technology you propose to develop? (e.g., Are the support systems in place and will the new technology be compatible with existing facilities and interacting systems?)</li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The Project Team would estimate the total installed cost</li> </ul>	<ul style="list-style-type: none"> <li>Do you establish boundary conditions for what it will take to develop and implement the new technology, including costs for                             <ul style="list-style-type: none"> <li>&gt; Purchasing commercially available enabling technology products?</li> <li>&gt; Revising the targeted users' existing hardware or software (as needed)?</li> <li>&gt; Interrupting normal operations to test the developing technology?</li> <li>&gt; Obtaining personnel from the targeted user to participate on the Project Team?</li> </ul> </li> </ul>	<input type="checkbox"/>	_____
<ul style="list-style-type: none"> <li>The Project Team would establish a project schedule</li> </ul>	<ul style="list-style-type: none"> <li>Do you establish boundary conditions for the project schedule?</li> <li>Do the personnel working on your development projects create and follow a schedule – including the use of facilities for development and/or testing?</li> </ul>	<input type="checkbox"/>	_____
		<input type="checkbox"/>	_____

## Design & Construction

<ul style="list-style-type: none"> <li>The PM, Project Team and contractors (if any) would proceed to design and build the unit, incorporating the following best practices:                             <ul style="list-style-type: none"> <li>Follow the work process, submitting to gate reviews following establishment of performance requirements, completion of detail design and completion of construction</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Do you have gates at milestones such as the completion of                             <ul style="list-style-type: none"> <li>&gt; Establishing performance requirements</li> <li>&gt; Preliminary development</li> <li>&gt; Proof of Concept</li> <li>&gt; Development of the details</li> </ul> </li> </ul>	<input type="checkbox"/>	_____
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<ul style="list-style-type: none"> <li>– Conduct several multifunctional reviews to assess quality, operability, maintainability, safety, etc.</li> <li>– Monitor and control the work to keep the project on budget and on schedule</li> <li>– Expand the Project Execution Plan to add details regarding commissioning, start-up and performance testing.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Piloting</li> <li>&gt; Commercial testing</li> <li>– Do you make sure you get input from SME's from R&amp;D, Engineering, Operations, etc.?</li> <li>– Do you provide good documentation for hand-offs from R&amp;D to Design to implementation to Operations?</li> <li>– Does your project leader truly keep track of all activities and all personnel who should be contributing to the project?</li> <li>– Do you develop detailed implementation plans with user buy-in?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

## Commissioning, Start-up and Performance Testing

<ul style="list-style-type: none"> <li>• The Project Team would test components of the new unit individually to ensure that they worked properly and then they would test sub-systems of the new unit to make sure the components performed together as intended</li> </ul>	<ul style="list-style-type: none"> <li>– Do your new technologies get thoroughly tested before you expect a user to implement them?</li> <li>– Is this testing performed in a logical, discipline manner?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• The Project Team would start-up the total unit carefully and proceed to debug it as required</li> </ul>	<ul style="list-style-type: none"> <li>– Are the personnel involved in developing new technology expected to stay engaged during implementation and testing?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> <li>• The Project Team would perform tests to ensure the following:                             <ul style="list-style-type: none"> <li>– The various components and subsystems perform as intended.</li> <li>– The unit as a whole meets the Sponsor's objectives</li> <li>– Purchased equipment and/or technology perform as warranted</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>– Does your new technology get tested in use after implementation to confirm that it performs as intended and to take care of any bugs that arise?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>

## Release for Normal Operation

<ul style="list-style-type: none"> <li>• The PM would turn over the unit to the normal operating staff</li> </ul>	<ul style="list-style-type: none"> <li>– Do you have a formal hand-off from project personnel to the users' operating organization?</li> </ul>	<input type="checkbox"/>	<input type="checkbox"/>
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• You would close project accounts	– Do you close project accounts so they do not continue to attract costs that don't belong in those accounts	<input type="checkbox"/>	_____
• You would conduct a lessons learned review to assess how well the project was executed and to make suggestions for improving the work process.	– Do you conduct post-mortems on technology development projects?	<input type="checkbox"/>	_____
• You would issue a final project report to document final cost & schedule data and to document performance test results	– Do you keep track of R&D project performance so that you have a data base that will help you evaluate risk, cost & schedule for future projects?	<input type="checkbox"/>	_____
• You would disband the Project Team	– Do you formally disband your development team (and have a celebration, if appropriate)?	<input type="checkbox"/>	_____
Total number of "Yes" answers (out of 37)		<input type="checkbox"/>	<input type="checkbox"/>
Average Frequency (sum of all the frequency values divided by 37)		<input type="checkbox"/>	<input type="checkbox"/>
(Frequency scale 1 = Never; 2 = Seldom; 3 = Sometimes; 4 = Frequently; 5 = Always)			

## So What?

This self assessment does not provide a scientific diagnosis. However, it does provide food for thought. This thought process might take the following form:

1. Look at the total number of "Yes" answers. If it is above 30 there is still room for improvement, but at least most of the systems are in place and improvement efforts can focus on disciplined use of those systems. If it is less than 30, too many pieces are missing and some remediation is needed.
2. Now look at the product of the number of "Yes" answers multiplied times the average frequency. If the answer is over 150, things are really looking good; the system is relatively healthy. If the answer is less than 100, though, a broader improvement effort is clearly needed.
3. Now do the a similar analysis for each of the five categories of questions (corresponding to the stages in a typical project work process). This will point to particular areas that need improvement.
4. Finally, look at each item on the list. If it has a no or if it has a frequency less than 4, it may need attention.

Of course, this particular list of questions may not fit every kind of innovation project perfectly, and it does not cover everything that good project management entails. So feel free to eliminate questions that do not pertain, tweak the choice of words to relate to the circumstances more directly and/or add questions that have meaning for the particular situation. The point is to think about it and come to some conclusions regarding the health of the system being used.

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## What Now?

Once the weaknesses have been identified, they must be prioritized. The prioritization criteria will be different in different environments and in different situations, but they should endeavor to address value to the company. This usually means attempting to put a dollar value on the benefit to be obtained from improving any particular element of the system, but it may also involve non-monetary value such as safety or community relations. It is almost always the case, though, that not everything is equally important.

At this point a prioritized action list is at hand. Taking action involves the application of knowledge and skill. It is often the case that the organization's knowledge base already includes everything needed to define solutions. This may also be true about the skills needed to proceed effectively, but here involving outside help can provide at least two benefits:

1. Objective facilitation that helps keep things moving, maintain focus, and avoid parochial biases and blind spots.
2. A previously developed improvement methodology plus knowledge already organized for systematic application.

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## About Endeavor

Endeavor Management, is an international management consulting firm that collaboratively works with their clients to achieve greater value from their transformational business initiatives. Endeavor serves as a catalyst by providing pragmatic methodologies and industry expertise in Transformational Strategies, Operational Excellence, Organizational Effectiveness, and Transformational Leadership.

Our clients include those responsible for:

- Business Strategy
- Marketing and Brand Strategy
- Operations
- Technology Deployment
- Strategic Human Capital
- Corporate Finance

The firm's 40 year heritage has produced a substantial portfolio of proven methodologies, deep operational insight and broad industry experience. This experience enables our team to quickly understand the dynamics of client companies and markets. Endeavor's clients span the globe and are typically leaders in their industry.

Gelb Consulting Group, a wholly owned subsidiary, monitors organizational performance and designs winning marketing strategies. Gelb helps organizations focus their marketing initiatives by fully understanding customer needs through proven strategic frameworks to guide marketing strategies, build trusted brands, deliver exceptional experiences and launch new products.

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