

Project “Solutions”: Who is accountable?

John R. Smyrk

Principal: Sigma Management Science Pty Limited, 9 Gilmore Avenue, Collaroy Plateau, NSW 2098 Australia.

Visiting Fellow: The National Graduate School of Management, Australian National University, Canberra.

This paper discusses application of the author’s Input-Transform-Outcome (ITO) model to the management of projects in general and to business projects in particular. It is proposed, as a theoretical framework, the ITO model:

- Provides a robust diagnostic to validate a project’s scope.
- Offers an explanatory mechanism for many of the accepted principles of good project management.
- Explains why you can’t buy “solutions” as project outputs.
- Suggests how project accountabilities should be assigned.

The history of business project failure – especially those involving IT – suggests that something is wrong with conventional methodologies and that there is a pressing need for a new approach.

1. The ITO model.

The ITO model seeks to explain how outcomes emerge from processes. Traditional discussion of outcomes is generally most unsatisfying because:

- Outputs and outcomes are poorly delineated.
- The mechanisms giving rise to outcomes are unclear.

This is a critical issue for business project management. If we can’t clearly separate outputs from outcomes it is difficult to articulate project objectives. If we can’t explain how outcomes occur, there is no way of reliably scoping a project.

2. A process.

At the centre of the ITO model is a process. A process is a “block of work” that:

- Consumes resources.
- Produces an output.

In business, a process can take on a variety of forms including:

- A transaction – such as registering a new car. Transactions are routine, completely predictable, low level activities whose execution is often fully described in procedures manuals.
- A task – such as preparing an itinerary for an interstate trip.
- A project – such as reengineering the car registration process. Much project work in business involves the enhancement of a transactions process.

Clearly these examples lie on a continuum with projects at one extreme. Projects involve a unique collection of activities and tasks. Because they are novel, we use a *plan* to guide their execution rather than a *procedures manual*.

In the following discussion the terms *process* and *project* are used interchangeably.

3. The IPO model.

We can represent a process diagrammatically as a traditional Input-Process-Output (IPO) model. See Figure 1.

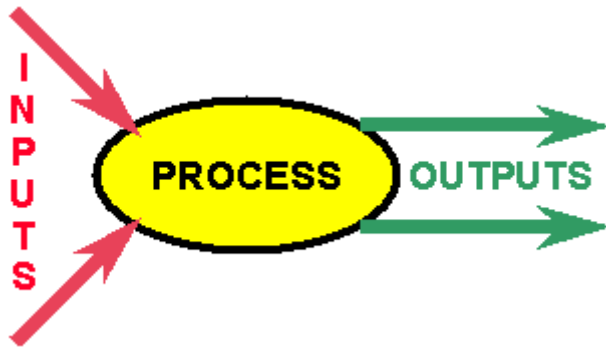


Figure 1. The IPO representation of a process.

In this discussion we confine our attention to those inputs which are *used up* in a process, and which, therefore must be managed. As far as projects are concerned the two major categories of resources are (internal) *labour* and *funds* (for external purchases).

4. Outputs and outcomes.

All projects have a set of *results*. Results are of two sorts: *outputs* and *outcomes*. Outputs are what we produce within a project, outcomes are the eventual consequences of delivering that output to someone. I propose a sharp distinction between outputs and outcomes based on the following rules:

- Outputs cannot appear unless the process is executed.
- Outputs appear automatically as the result of executing the process.

Expressed another way:

- If a result is not the automatic, immediate result of a process, it is not an output of that process.
- If a result can appear even without our process being executed, it is not an output of that process.

Consider, for example, a business project that includes as results: a new order handling process and faster deliveries. The former passes the outputs test, while the latter does not. We must conclude therefore that faster deliveries is an *outcome* of the project.

5. Extending the IPO model to account for outcomes.

The outputs described by the IPO model are clearly connected with outcomes - but how? This question is displayed pictorially in Figure #2.

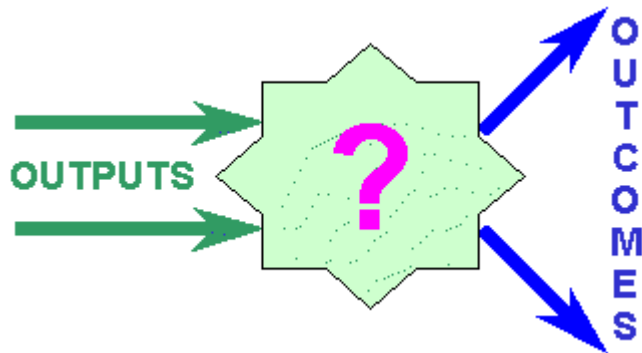


Figure 2. What connects outputs to outcomes?

The answer is startlingly simple. Viewed from the perspective of the process manager (as supplier of the outputs) - outcomes are generated when others (whom we do not control), *utilise* our outputs. This is shown in Figure 3.

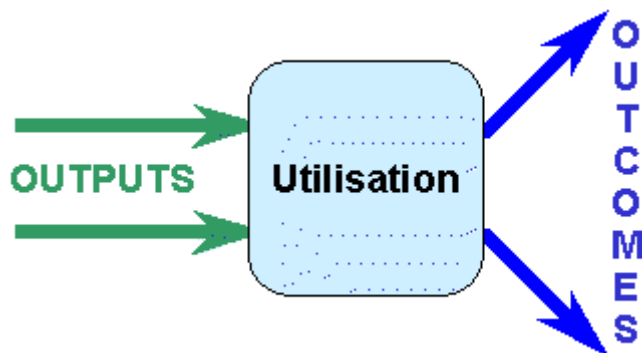


Figure 3. Generating outcomes from outputs.

Although there can be unintended outcomes, we (as process managers) are interested in desired or *target* outcomes.

6. A project's customer.

Figure 3 gives us an unambiguous definition of customer – “The customer is the person who, in utilising our outputs, will generate our desired outcomes”. This definition allows for multiple customers.

7. Target outcomes for a project.

There are normally many candidates for outcomes which can be scaled according to their attractiveness. Let's look at the case of a manufacturing company that has decided to improve its procurement practices. The "block of work" involved here takes the form of *changing the way procurement is done*. The output will be *a new procurement process*. The customer is, presumably, the *purchasing office*. But what would be sensible candidates as *outcomes*?

There is often a tendency to set "increased profit" as the outcome from all business endeavour because it is a highly attractive result. Because profit is impacted by so many other factors, the linkage with any one initiative is usually weak, and so it is usually not a very useful target outcome.

Better candidates for the procurement example would include: *lowered transactions costs, improved volume discounts, reduced working capital* and so on. The point here is that we have much more influence over these outcomes and, if they are achieved, the profit outcome will follow.

Outcomes form a natural hierarchy - such as that shown in Figure 4. The trick is to get an appropriate trade-off between attractiveness and influence.

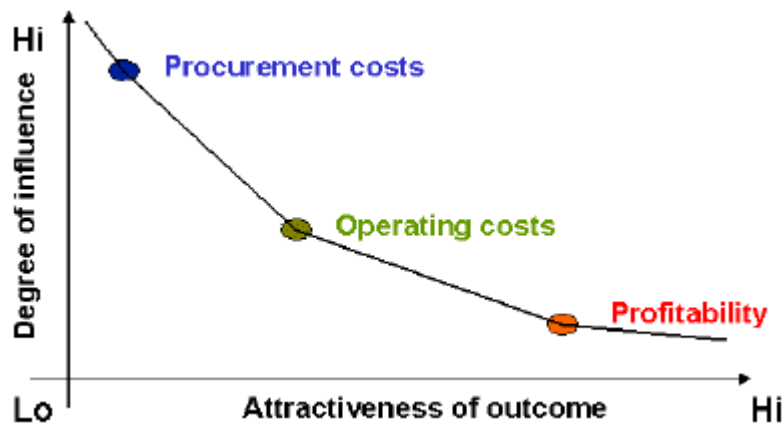


Figure 4. A hierarchy of outcomes.

8. Putting it all together - the ITO model.

Figure 5 shows the ITO (Input-Transform-Outcome) Model. It is obtained by combining Figure 1 and Figure 3.

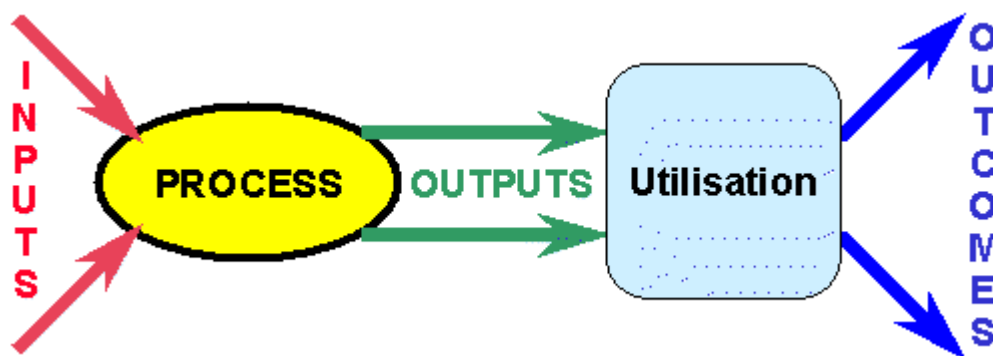


Figure 5. The ITO model.

The ITO model shows how a single process is linked to outcomes by *customer utilisation*. The model gives us, amongst other things, a precise meaning for the concept of "fitness-for-purpose". Fitness-for-purpose is *the set of critical requirements of an output that allows it to be utilised successfully by a customer so that our target outcomes can be generated*.

Table 1

A summary of the differences between outputs and outcomes:

Characteristic.	Outputs	Outcomes
Intention.	What we produce.	What we seek as goals.
Guarantees.	Production can be guaranteed.	Generation cannot be guaranteed.
Predictability.	Production can be controlled.	Generation can only be influenced.
Involvement.	Our efforts alone required for production.	The involvement of others required for realisation.
Emergence.	Immediately after process is executed.	Delayed after execution of the process.
Appearance.	Impossible without execution of process.	In certain cases possible - even if process is not executed.

9. “We sell solutions” – one of the worlds’ great lies.

It has become common for suppliers (especially in the IT industry) claim that they sell solutions – not products or services. The ITO model quickly reveals the falseness of this claim. A solution to a business problem can be established as the target outcome of an initiative. Realising that solution involves utilising a set of outputs – including products and services that will, presumably, be bought from a vendor.

10. Why outcomes are uncertain - and what to do about it.

An important issue now arises. We execute the process in order to generate outcomes, but those outcomes are not guaranteed. This raises two important questions:

- What determines the extent to which we can generate outcomes?
- How can we influence outcome generation?

There are three determinants of the extent to which we get our target outcomes:

- The fitness-for-purpose of the outputs we produce.
- The "predisposition" of the utilising customer.
- External environmental factors.

We now discuss the management of these three factors in the context of the procurement process reengineering project discussed above.

11. Managing fitness-for-purpose.

If we produce outputs that are not fit-for-purpose, our customers will not be able to utilise them effectively and outcome generation will be inhibited. If our new procurement process is badly designed, for example, purchasing staff will not be able to use it effectively. We could even find that volume discounts reduce as a result! We have complete control over the fitness-for-purpose problem through the quality element of our project management framework.

12. Managing customer predisposition.

We might produce a superb process, but find that, due to the parlous state of morale, staff resist its introduction. The problem here lies not with the output but with the customer. We can influence (but not control) the customer for any output with an appropriate “marketing” program. In this instance a very special form of “marketing” is required in the form of a management of change program . (As it happens, a management of change program is another process with its own ITO model).

13. Managing external factors.

We could find that the new procurement process is world class and that the staff actively support its introduction, but changes in discount policies by our major suppliers deny us the volume discounts we sought from the exercise. Such external factors are all bundled up into the "bad luck" category. To deal with this area, we must employ risk management techniques.

Table 2

A summary of the three factors deciding outcomes and how to address them.

Factor.	Controllability	Management
Fitness-for-purpose of outputs.	Completely controllable.	Through quality management techniques.
Capability of customer.	Can be influenced to varying degrees.	Through programs of influence such as marketing and education.
External environmental factors.	Can be mitigated to varying degrees.	Through techniques of threat analysis and risk mitigation.

14. Using the ITO model to scope a project.

We can rigorously scope (or validate the scope of) a project by moving through an ITO model of the proposed exercise right-to-left and successively defining:

- Outcomes in terms of: measures, targets, timeframes and accountability (the last issue is discussed below).
- Customers in terms of: who utilises what outputs to generate which outcomes, and how utilisation is effected.
- Outputs in terms of fitness-for-purpose characteristics. These will form the basis for subsequently *specifying* those outputs.
- Work in terms of the structure of broad phases that will be used to produce each output. This will be used later as the basis for development of a work breakdown structure.
- Resources in terms of skills and acquired inputs.

This approach goes beyond conventional scoping which begins with outputs.

Scoping involves the ITO model right-to-left, while executing the resulting project involves the ITO model left-to-right.

15. Implications of the ITO model for project accountabilities.

Outputs are produced from within the project and we can treat their production (and quality) as guaranteed. The project manager is clearly fully accountable for the delivery of outputs that are fit-for-purpose. What about outcomes? As pointed out above, outcomes are unlike outputs in at least two respects:

- They cannot be guaranteed.
- Those who generate them lie outside the control processes of the project.

The concept of outcome accountability must, therefore, be treated differently to output accountability. The ITO model suggests that the project manager (as supplier) delivers outputs to his/her customers through someone who:

- Represents those customers.
- Is internal to the organisation that is sponsoring the project.
- Can be held accountable by the organisation for realising target outcomes (despite the fact that outcomes cannot be guaranteed).

Holding individuals accountable for outcomes is a well-established practice in a modern capitalist democracy. The difference is that when outcomes are not realised, one would want to analyse which of the three determinants of failure was at work before firing anyone.

I call the person who is made accountable for outcomes in this way the project “owner”.

As project size increases, so does the desirability of separating accountabilities for outputs and outcomes. In large projects the project manager should not be held accountable for target outcomes.

16. What does the ITO model say about the goals of a project.

The ITO model makes it clear that the objective of a project is to realise target outcomes. Completing a project “on time” and within budget” can never be meaningful objectives – they are in fact nothing more than constraints on the objective.

17. Conclusion.

The ITO model suggests a mechanism for the realisation of project outcomes. The outputs from a project are utilised by customers and our target outcomes are generated as a byproduct of that activity. While outputs from a project can be guaranteed, outcomes cannot because they are influenced by factors that lie outside our sphere of control. A project manager, as supplier, is accountable for delivering of output and a project owner, as surrogate customer, is accountable for realising target outcomes. The two forms of accountability are, however, subtly different. Analysis of “solutions” using the model reveals that they are outcomes, not outputs and hence become the responsibility of the project owner – not the project manager.

The model appears to provide a promising theoretical foundation for much of accepted good project management practice.