

Title	TickIT ^{plus} Process Outcomes		
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The TickITplus Core Scheme Requirements are being updated to clarify that “formal demonstration” the achievement of process “outcomes” defined in the BPL is only required at the Silver level and above.

Formal demonstration means that the organisation must have evidence to support the current level of process outcomes and in practice this will typically mean through the use of measures with associated trends. This clarification will also indicate that while at lower levels, formal demonstration of outcomes is not necessary, the outcome descriptions should still be used as a guiding principle and discussion point over the effectiveness of the processes that have been implemented.

The TickITplus scheme introduces the concept of process outcomes and places significantly more importance on these than on the more traditionally process outputs. Business processes do not work in isolation and therefore the effect of one process on another should be considered more important than purely the output from an individual process. Understanding and managing process outcomes will deliver more business benefit than concentrating on process outputs and will directly contribute to the achievement of business plans, goals and success.

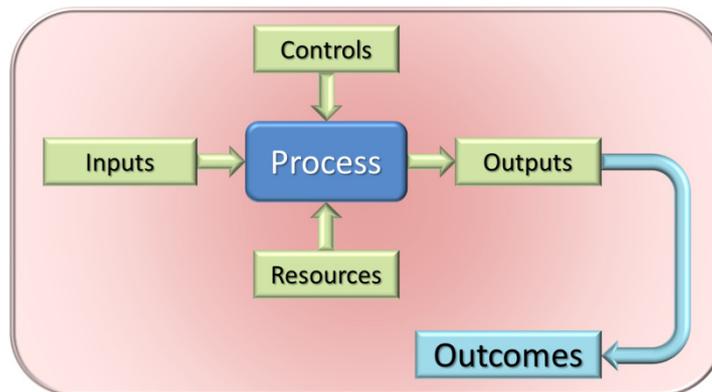


Figure 1: Enhanced process diagram

The traditional process model typically has four elements; the inputs, outputs, controls and resources. The controls and resources are often grouped under a single entity called constraints. Conventionally, audits have concentrated on checking outputs, i.e. looking for evidence that the process is operating, and using this evidence to judge process effectiveness. Outputs tend to provide the records, or objective evidence, that the process is being undertaken. Many, if not all, standards and improvement models require evidence of outputs. There is an implicit assumption that if the outputs are present, complete, compliant with requirements, etc., then the process must be working effectively. However, this isn't strictly true.

As mentioned above, processes interact, often significantly, and in practice the effectiveness of one process can only really be judged by understanding the effect on the other processes that interact with that process.

For example, the output of the training process could be 'trained' people (i.e. people who needed training), training records, measures, course feedback forms etc. The purpose of the training processes is actually to provide people with a new skill or increased competency to satisfy some identified shortfall or business need. However, this cannot really be judged, tested or indeed audited for effectiveness based purely on the outputs from the training process. The effectiveness of the training process can only be seen through the effect on other processes, and usually, at some future time. For example, if someone needed training, for whatever reason, in a programming language and went on a suitable training course, the results of the training would only be evident later when that person was actually involved in using the programming language.



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The same principle applies to all other processes, such as the:

- design review process: where the outputs would be a 'reviewed' design, design review records, improvements or changes, maybe measures, etc. But, the effectiveness of the design review process will only be seen later in the lifecycle when developers are trying to use the design to implement code, or testers are trying to test the design etc.
- risk management process: where the outputs would be 'risks', mitigating actions, probability and severity levels, review records, etc. However, the effectiveness of risk management is not seen through the process outputs, but rather later on in the project life, service provision or business cycle, by other indicators, such as the number of unexpected issues being identified.
- development implementation: where the outputs could be the 'software code', code inspection records, configuration status reports, etc. Again however, the real effectiveness of the development implementation process will only be seen later in the lifecycle when, for example, testing discovers coding errors.

One side effect of concentrating too much on outputs is the 'checklist' audit approach where a checklist is produced from the process outputs and the auditor simply checks for the existence of the outputs, ticks the checklist and ultimately judges the effectiveness of the process based the results. This is useful, but only as an indication of process compliance, not process effectiveness. Good audits have tried to encompass the concept of outcomes but in few cases have descriptions of what good outcomes look like been formally defined.

TickITplus looks at process implementation, management monitoring, internal auditing and external assessment from the concept of "outcomes", while still recognising the need to check "outputs". Without outputs, it's pointless to go further and to look for the outcomes, or to try to judge the effectiveness of the process. A lot of time was spent proposing, discussing, reviewing, revising and agreeing the actual wording of outcomes during the development of the Base Process Library. Initially, the description of an outcome was being considered against each use, or instantiation, of a process, e.g. at project level, but it soon became apparent that this was not ideal and indeed not practicable. In the end it was agreed that a process outcome should be worded at the organisational level and aim to suggest what the process would be achieving for the organisation if it was working perfectly and thus potentially proving an aspiration for process improvement.

Using the verification process by way of an example, its finally agreed outcome says "*Work products are shown to meet their specifications following verification without rework*" which was judged to be an indication of the process working perfectly, i.e. when verification activities are undertaken there is no subsequent rework necessary as a result of poor verification.

The process does recognise that rework is actually part of the verification activity and this therefore is not considered as 'subsequent' rework as per the outcome definition. Initially the BPL working group considered this outcome at the process use level, e.g. the verification process being used for project peer reviews. It was felt that this 'strong' definition would never happen in practice and that there was a potential for an assessment to declare that the process had failed because there was actually 'some' rework due to slightly less effective peer reviews. The wording was then changed to include ".....some rework...." but this was considered ambiguous, open to interpretation and wouldn't really drive improvements, i.e. "Well we've had a little bit of subsequent rework because the peer review process didn't catch the problems but that is ok because that is allowed".

Therefore the outcome descriptions were left describing the effect at the organisational level with the aim of indicating the results of a perfect process, but accepting that wording didn't mean that in using the process, exceptions couldn't exist in practice.

The organisation should be aiming to improve their processes to deliver these organisational outcomes and this means that formally checking outcomes at the "process level" is not appropriate.

Using the outcome descriptions at the use level for judgement and discussion in seeing the organisational processes



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improve through data from their use at the work level is good and is to be encouraged.

Process Attribute PA1.1 in ISO 15505-2¹ provides a measure of the extent to which the process purpose is achieved. It has one generic practice which states that at this level the process achieves its defined outcomes. This is at odds with the discussion above. The description of this generic practice states that to do this the process should:

- have a significant change of state,
- generate an artefact, and
- work within constraints.

These relate very closely to the current approach to TickIT auditing and don't really infer any checks on the process outcome, as discussed above. Also, PA 1.1 does mention achieving the process outcome as a generic practice, the description of PA 3.1 (at the Silver level) explicitly states that the process is now implemented using a defined process that is capable of achieving its process outcomes. However, achievement of outcomes isn't mentioned at the Bronze level Process Attributes, thus it is ambiguous in ISO 15504-2 as to when outcomes are expected to be fully achieved.

The Foundation level in the TickITplus scheme was not in the original technical specification, but after some consideration it was introduced to allow a forward path for existing TickIT organisations to easily transition to the TickITplus scheme. The TickITplus Foundation level was therefore designed to be more or less equivalent to the existing TickIT scheme. The formal checking of process outcomes was never required to be demonstrated under TickIT.

With TickITplus process effectiveness is considered, but it would be incompatible with the TickIT to TickITplus Foundation level mapping to start asking for outcomes to be formally demonstrated at this stage. Also, the outcome descriptions have been set at the organisation level for the processes and not at the use level, as discussed above. It implies that an organisational set of standard processes exist, but this only really happens at the Silver level and above.

At the Silver level, one of the key factors is that there will exist an organisational set of standard processes supported by well-defined tailoring rules or guidelines. These organisational standard processes aim to provide organisational metrics on the use of the processes and as such the metrics related to the achievement of outcomes would be considered very appropriate.

¹ ISO 15504-2:2003 provides the basis of the TickITplus capability assessment scheme and while the TickITplus scheme aims at being compliant there are a number of areas that were felt not appropriate for the purposes of TickITplus's domain, in particular those related to formal accredited certificate assessments.