Process Action Teams are a popular approach for resourcing and implementing changes to working practices. PATs are teams that are set up, work to meet clear and agreed objectives, and then disband when their work is finished.

What they are for:	To make cost effective and widely acceptable changes to working practices and process infrastructure.
When to introduce:	Begin using PATS when an approach or strategy for process improvement is established and direction and coordination for process improvement is being provided by the organization.
When to use:	Set up a PAT whenever a well scoped process problem, requiring more than minor work to rectify, is identified.
When not to use:	Do not begin using PATs before process improvement activity can be co-ordinated, monitored and controlled by the organization.

A PAT is set up when a problem, issue or opportunity with software processes has been identified and it has been decided to address it. This may be as the result of PIR findings (See V – 1 and C – 4), an assessment or audit (V – 2) or a perceived need for changes in software development practices. The PAT begins by establishing and agreeing its terms of reference with the sponsors of the change, or owners of the working practices affected. A sponsor will usually be one of the organization's senior managers.

A PAT is dependent on the motivations and capabilities of its members. It sets about addressing the issue, or solving the problem within allocated timescales, preparing its own plans, selecting appropriate techniques and tools. Where the work is exploratory and risky it may select TCM (C- 3), or JAD (C- 5) where consensus and speed are desirable. If refinement of processes is required then Process Definition (C – 2) may be more appropriate. It then gets to work. With the work completed (successfully, or not) the PAT then formally reports its results and disbands.

There are many benefits from this simple approach to process improvements, surprising or obvious, depending on your point of view:

- the PAT's members are selected from the resource pool of all of the organization's software developers and managers; the PAT, potentially, has access to any of the required skills or know how of the organization. Because PAT activity is part time there is no fundamental reason why anyone should be excluded from participation in a PAT.

- With PAT membership potentially organization wide resourcing for process improvement using PATs becomes less constrained compared with, say, a full time process group that can only undertake a limited number of tasks. A PAT, or a number of PATs, can be set up as and when required, effectively on demand.

- A PAT is only set up to meet well scoped objectives in short timescales. This limits a PAT's ambitions and focuses its work to the task in hand. Blue sky research and over ambitious strategies are kept in check, and the focus remains on short to medium term action and delivery or results.

- The imposed scoping and timeboxing reduces risks. Should a PAT fail to deliver the failure is usually acceptable, in contrast to more ambitious process improvement work, say, an eighteen month plan to introduce a new development methodology. PATs are the process engineer's tool for 'incremental delivery'.

- As PATs work to deliver improvements to process and working practices those that have participated in the PATs develop ownership and understanding of them.

- PATs can, and should be, readily integrated into 'business as usual', as can their resourcing costs. PAT activity is part time. While PAT effort can be accounted for on timesheets it is rarely useful and can distort activity as timesheets or effort are manipulated for accounting purposes. It is strongly recommended that PAT activity is viewed as part of business as usual and *not* administered like a project or service function.

- Careful selection of PAT team members, balancing the experienced with those new to the issues being worked on provides useful learning, provides an opportunity for learning.

- Because, over time numbers of PATs are set up, work and disband their performance can be measured. The number of PATs set up, timescales, the number of successes,

number of failures can all be counted and evaluated. Patterns, in the behaviour of PATs and the aspects of the processes and working practices they address, can be investigated.

- Participating in a PAT can be interesting and good fun; something out of the normal routine.

Despite these benefits PATs can from time to time fail to perform as well as they should. This is usually manifested as a moribund PAT or routine, unproductive PAT meetings where reasons for work not being completed are discussed. This may be because of:

- Overlong timescales, leading to instances of the 'Peter Principle'.

- Overambitious objectives that can be demotivating, and increase the chances of a failure to deliver.

- Underambitious objectives can also demotivate. Trivial 'housekeeping' or excessively tedious work will undermine any interest.

- Unclear objectives can introduce uncertainty, which in turn leads to underperformance.

- No interests from the organization – a lack of sponsor for the PAT's work will signal that the work is not of value.

- From time to time a PAT will not function as a team. Personality clashes, a dominating individual or an unbalanced mix of individuals' capabilities can all undermine effective working.

The following guidelines for providing a context and for running PATs will help avoid the problems:

Using PATS:

1. *Organizational Context:* Before beginning to use PATs the host organization should establish ground rules or terms of reference for them. Without a shared understanding

of the purpose and authority of PATs, their mode of operation, and their limitations they rapidly become marginalized by projects and other work competing for resources. When considering the use of PATs things to consider should include:

- What is the scope of work to be undertaken by PATs?

- Who is authorized to establish a PAT?

- Has the senior management agreed on the way PATs will be resourced?

- How are individuals qualified and selected to participate in a PAT?

- What is the best number of PAT members?

- How long should PATs run for? It is strongly recommended that PATs operate for no more than three to four months. The likelihood of a PAT succeeding will diminish with longer time periods. This constraint requires that PAT objectives are scaled to be achievable in these time periods. It may be necessary for more ambitious pieces of work to be distributed over several PATs, or alternative means used.

- What resources can PATs themselves call upon, and how will they interact with other groups; i.e what authority do they have? It is advisable to allow PATs to call on reasonable resources from within the organization - access to knowledge or skills, but not to expect significant effort (in the order of a day's effort) from anyone not directly involved.

With these ground rules and expectations of performance agreed PATs will have the same legitimacy within the organization as other entities and can begin their work.

2. *Objectives Identified and Approved:* Every PAT should have clear achievable objectives. This usually means that a PAT will work to resolve a well scoped problem rather than embark on open ended research or feasibility studies. As the name implies the focus is on collective action to deliver a result, not producing reports or discussion papers. The objectives can originate from any source but authority for the PAT to act to meet the objectives must be unambiguously derived from the organization's senior management. The selection of objectives for PATs should be undertaken by those able to assess their value and feasibility. Candidates are the software process group, if

this exists, or those with a particular interest in the issue to be addressed – and likely to be involved in the PAT itself.

3.   *PAT Initiated:* With candidate objectives identified and agreed a PAT can be requested by the senior managers - or a software process group[1], or equivalent function, if they are authorized to do so. It is highly desirable for the PAT to have a senior management sponsor who has a particular interest in the resolution of the problem. When a PAT is initiated, the initiators should take pains to identify a sponsor or be prepared to sponsor the PAT themselves. If this is problematic reconsider the value of the PAT and the work it is to undertake. The PAT should be assigned an identity and a leader. The leader – who may be a member of the group or function initiating the PAT - is responsible for the performance of the PAT and should, wherever possible, also have a particular interest in the objectives to be met by the PAT. (A leader is necessary to provide accountability for the PAT's performance, but the style of leadership can vary widely, influenced by the style of leadership within the organization, or even on the composition of the PAT members. However leadership is manifested the leader is the PAT's point of contact.)

4.   *Team Selection:* The PAT leader selects members to participate in the PAT in accordance with the organizations resourcing model. This can range from self selection of those offered places, to assignment of those with the required skills. It is of course preferable for participation to be valued and sought out by the organization's staff, but if a degree of co-opting is required this should be used to ensure that the right skills are made available, that PAT participation is not limited to a certain group, and that process improvement is seen to be everybody's business.

5.   *Start Up:* With a team in place the work begins with a review of the PAT objectives. The review should ensure that the team has a shared view of the objectives. This shared view is the basis for the succeeding work so it is essential that the objectives really are well understood. If the review reveals uncertainties about the objectives these concerns should be taken to the PAT sponsor for resolution. With objectives understood and agreed the PAT can consider how it will work.

6.   *Tools and Tactics:* The manner in which a PAT chooses to work is determined by the PAT itself. The leader and participants have been selected on the basis of their

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[1] A software process group is useful for coordination the work of PATs but should ensure that PATs are fully endorsed and supported by the organization's senior management.

knowledge and skills and would be expected to be capable of planning and executing the work, including the selection of appropriate process improvement methods and tools. 'Micromanagement' of PATs is usually counterproductive; good objectives, good people and the right methods and tools is all that should be needed to get the best results. PAT work is characterized by the achievement of results, not the consumption of resource. Plans should focus on delivery, but not on the effort required to deliver. This is in contrast to normal project management practice where planning and recording of resource consumption is routine. PATs work with relatively small amounts of effort, both in absolute terms and as a proportion of total PAT members effort during the lifetime of the PAT. Members should not expect to devote more that about 10 to 15% of their time to a PAT, and not be required to formally record this effort consumption, simply do what is needed to meet the objective.

7.   *Closedown:* As the work of the PAT moves to its conclusion the PAT prepares to close down; revised practices in place, assets signed off and baselined, outcomes documented; and the work reported to the sponsor as a management review. This review summarizes the work and outcomes, documenting the PATs work; then the PAT formally disbands. The response of the sponsor at the closedown, to success or failure, is critical to the ongoing effectiveness of PATs. The value of PATs, as perceived by the organization, and regardless of their intrinsic value, will rapidly become apparent in these management reviews. It is the responsibility of senior management and PAT sponsors to be demonstrably interested in PAT outcomes and to show that their process improvement work is genuinely valued.

Over time as PATs undertake their work a track record of process improvements undertaken by PATs will develop as part of the process improvement record. Patterns of PAT working may emerge; optimal timescales, and team compositions, problematic matters not dealt with well by PATs, the best tools for PATs etc. This knowledge can be used to refine the operation of PATs.