

MOBILE PROJECT MANAGEMENT

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Abstract

Today many people work from many places at many different times. Mobile devices, such as mobile/cell phones, can now use the Internet to be part of a global network. The ability to communicate verbally and digitally with anyone, anywhere at any time is largely a reality.

The world has changed dramatically and opened up great opportunities for the broader application of project management principles. The challenge now is; “Can project management evolve fast enough and flexibly enough to provide the solution for people working together globally?”

Global connectivity makes it possible for all project stakeholders (clients, senior management, project managers, people doing project tasks, and people affected by project tasks) to contribute to and help sustain projects in close to real-time. It is also possible to concurrently manage other non project tasks (strategic, governance, operations) that directly or indirectly affect a project.

This paper explains how mobile project management can be achieved with some changes to existing project management techniques and the use of software that runs on web and mobile browsers. The techniques and tools make it relatively simple for all stakeholders to work together effectively on many projects concurrently and globally.

A case study will explain how a diverse organization with 16,000 personnel dispersed across Australia has used mobile project management to successfully manage projects, strategies, governance and operations concurrently.

Introduction

Today many people work from many places at many different times. Mobile devices, such as mobile/cell phones, now have the ability to use the Internet and telecommunication systems to be part of a global network. The ability to communicate verbally and digitally with anyone, anywhere at any time is a reality.

Traditionally project management has focused on the techniques and tools required for project managers to achieve excellence in project management. Recently there has been an upward focus towards portfolio and program management to manage multiple projects concurrently.

However there has been little downward focus on assisting the people doing the project work by:

- providing project information from the perspective of contributors,

- giving access to relevant information at the time and place it is needed,
- making it easier for contributors to work together,
- helping people efficiently manage their personal and team time and effort,
- providing project managers with real-time data on what is actually happening in the project, and
- managing the project in the context of other tasks around the project.

Unlike the upward focus where the data is aggregated and complexity is reduced, managing downward generates an exponential increase in data and complexity. However gaining greater control of the work people are doing directly for projects, and the work indirectly affecting projects, potentially offers one of the greatest advances in project management.

The term “mobile project management” is used to differentiate from traditional project management that is largely “project manager centric”. Mobile project management allows the project manager to operate traditionally, but also distributes and synchronizes project work between all stakeholders. The ability of stakeholders to manage their project work and automatically report progress from standard web browsers and mobile/cell phone browsers makes mobile project management easy to apply globally.

This paper explains how mobile project management can be achieved with some changes to existing project management techniques and the use of innovative web browser and mobile/cell phone web software. The techniques and tools make it relatively simple for all stakeholders to work together effectively on many projects concurrently and globally.

Mobile Operating Environment

A mobile operating environment is significantly more complex and dynamic than managing programs, portfolios and projects in relatively static locations. The greatest challenge is to provide relevant critical information to every stakeholder, not just project and selected managers.

Stakeholders need to be able to work together regardless of their physical location. Each stakeholder must have timely access to critical task and team information needed to operate independently and in a way that suits them. Information must already be sorted and presented in a concise, easy to understand form. Information input/edited on a mobile device needs to automatically keep other stakeholders informed and provide real-time data for continuous reporting.

A summary of the requirements of a mobile operating environment is:

- Task information needs to be disaggregated and synchronized at the action/ToDo level
- Stakeholders must be able to work together globally and across time zones
- Critical information needs to be available at a time and place of each stakeholder’s choosing on both mobile and standard web browsers.
- Each stakeholder must be able to see all tasks and projects that are relevant to them (without being overwhelmed by irrelevant tasks)

- Tasks must be arranged in a way that provides a dynamic and understandable context (the bigger picture)
- Each stakeholder must be able to see what they need to do in a simple To Do list that they can personally manage and action
- All stakeholder's tasks and ToDo lists must be automatically synchronized in real-time
- Feedback/notifications need to keep people informed of changes that affect them
- Reporting needs to be automatic and continuously available to relevant stakeholders

Traditional Project Management Techniques and Tools

Traditional project management approaches were designed for situations where the project management team was largely collocated and the people doing the project were applying reasonably well accepted processes, such as in the construction industry. Over the years, project management methods have been expanded to accommodate projects where the scope is difficult to define at the start of the project, such as in software development.

Project management software tools are specifically designed to help the project manager, and indirectly the people doing the project. Consequently interactions with most stakeholders are limited to viewing Gantt charts and other reports.

Where a person is a resource in a task, they can easily apply a filter to show tasks where they are a resource. However the context of each task is often excluded, because a person may not be a resource in the tasks around the filtered task.

Aggregation of project tasks and projects for portfolio and program management works well because no further data is required. However the disaggregation required to make mobile project management a reality is largely impractical.

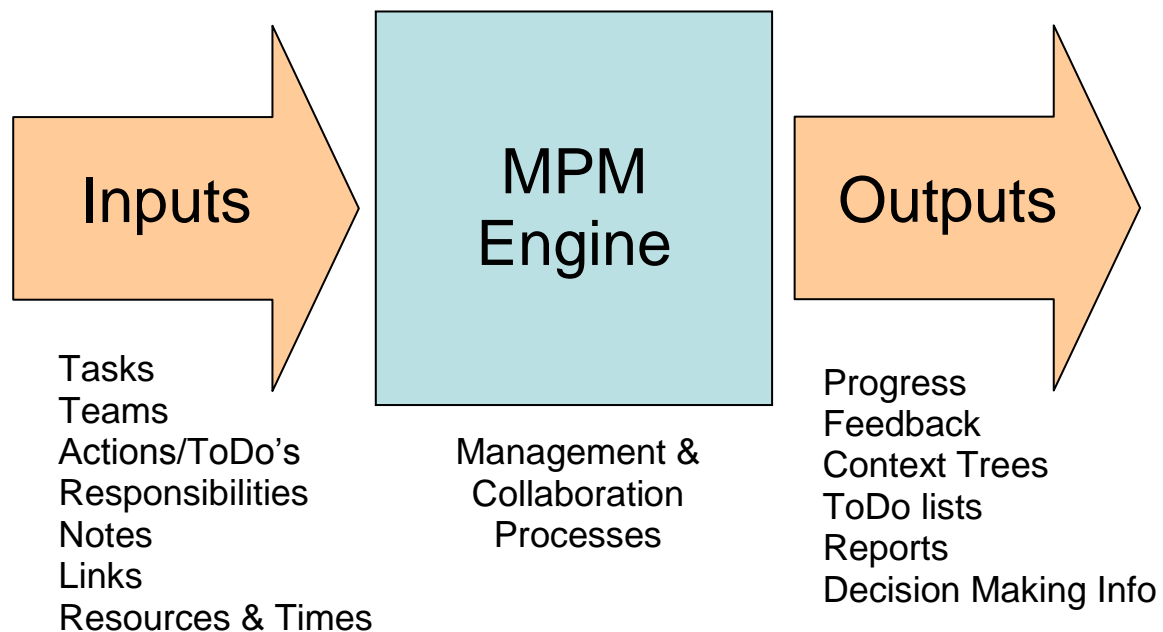
Larger project management software vendors' solutions show the evolution of solutions to try to disaggregate project tasks into smaller and smaller tasks. On the surface this seems logical, but in practice creating meaningful, understandable ToDo lists for every stakeholder is not possible.

Mobile Project Management (MPM) Engine

The techniques (processes) required for mobile project management are relatively simple for each task. However applying the processes manually to many tasks is largely unworkable due to; changing task detail, many stakeholders, the dispersion of stakeholders, and different working times. Mobile project management software that runs on web and mobile browsers to apply and keep the many processes synchronized is a viable way to make mobile project management a reality.

The core of this software is an "engine" that takes in manageable inputs and provides outputs in a form that works for each stakeholder. The graphic below highlights the type

of inputs that each stakeholder can manage and the outputs that each stakeholder needs to do and manage their work. The MPM Engine works in the background 7x24 to provide the outputs stakeholders need.



The MPM Engine automates many of the management and collaboration processes needed for many people to work together to complete many tasks. Processes include key parts of aligning, planning, organizing, tracking, coordinating, monitoring, reporting and meeting management.

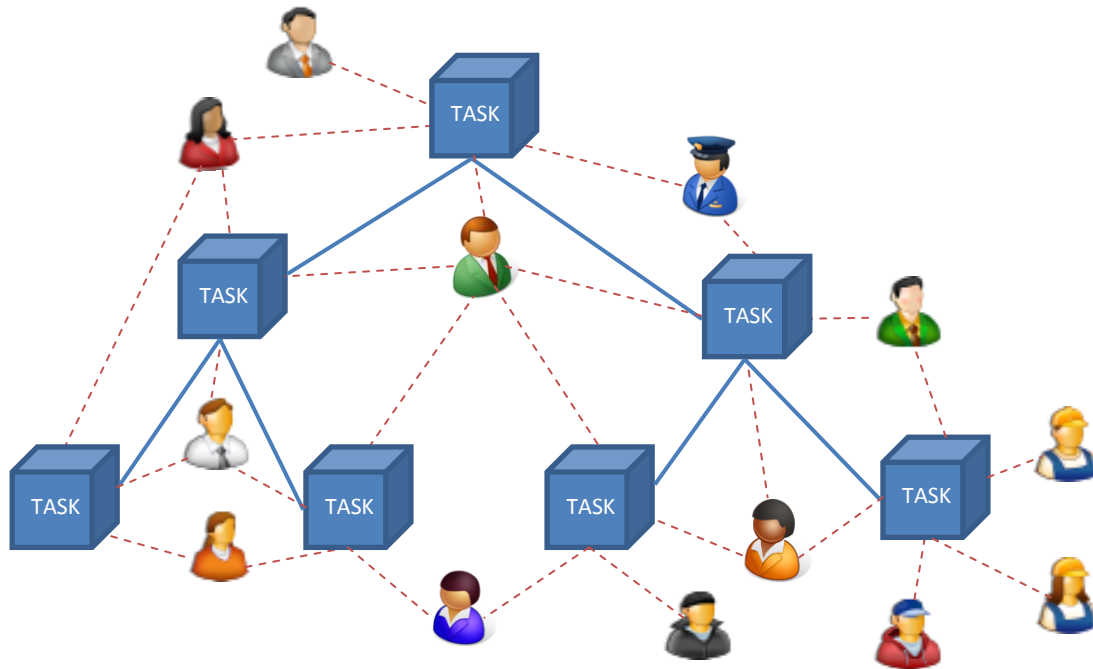
Some of the unique techniques that are facilitated by the MPM Engine will now be discussed.

PPPM will also benefit from the presentation of critical information from the perspective of each stakeholder; however the scope of this paper is limited to a solution for mobile project management.

The Missing Link - Teams

Traditional project management misses the team data required to present critical information from every stakeholder's perspective. There is only a limited concept of a team, but people naturally work together in teams. Team relationships help people sort out what tasks and actions are relevant to each stakeholder.

The graphic on the next page highlights that each person is not involved in all tasks. Some tasks are relevant, others are not. By seeing all tasks a person would quickly be overwhelmed with irrelevant detail. The challenge is sorting out what is relevant. This takes a lot of time and effort when everyone is collocated, but it is virtually impossible to do in a mobile project management scenario.



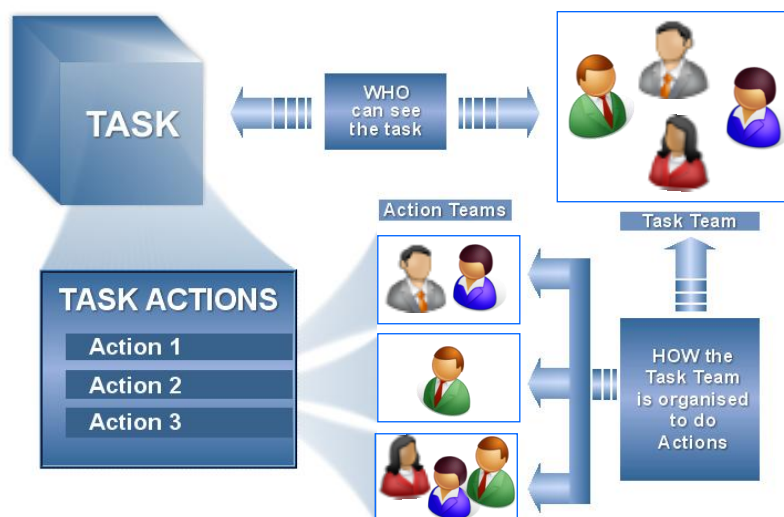
This graphic shows the complexity of sorting out relevant tasks for each stakeholder.

Next a basic task-team module that makes it easier to sort out tasks and teams is discussed.

A Basic Task-Team Module

The work breakdown structure (WBS) that is at the core of project management is an excellent way to break down and sustain the relationships between tasks. However for mobile project management to become a reality, team relationships need to be included.

Over the past 12 years, Dr Neil Miller has led a team at TASKey to develop and validate software that uses a simple Task-Team module that fits into the WBS structure. The module includes the data required for the meaningful disaggregation of tasks and the designation of critical team relationships. The module is shown below:



The first part of the module is the task (top left) that acts as a container and fits into the WBS. Moving the task module in the WBS also moves all other data in the module.

It was found that disaggregation of tasks using only a WBS quickly led to a tree of unmanageable complexity. A better way was required. After analysis of how teams work naturally, the solution was obvious.

Create a simple list of task actions (bottom left) for each task (no matter where it sits in the WBS). This method traps what team members are actually doing to complete a task. A simple list is very flexible and can be used to detail the key actions in a plan or process. In addition, keeping actions/ToDo's out of the WBS significantly reduces complexity and the WBS can provide understandable context.

Now to the use of teams to determine what each person needs to see. The task team (top right) includes all stakeholders, so task team membership can be used for macro filtering to create context. The action team (bottom right) are the people (sub-set of task stakeholders) who are actually doing the action. Action team membership is used to create personalized ToDo lists.

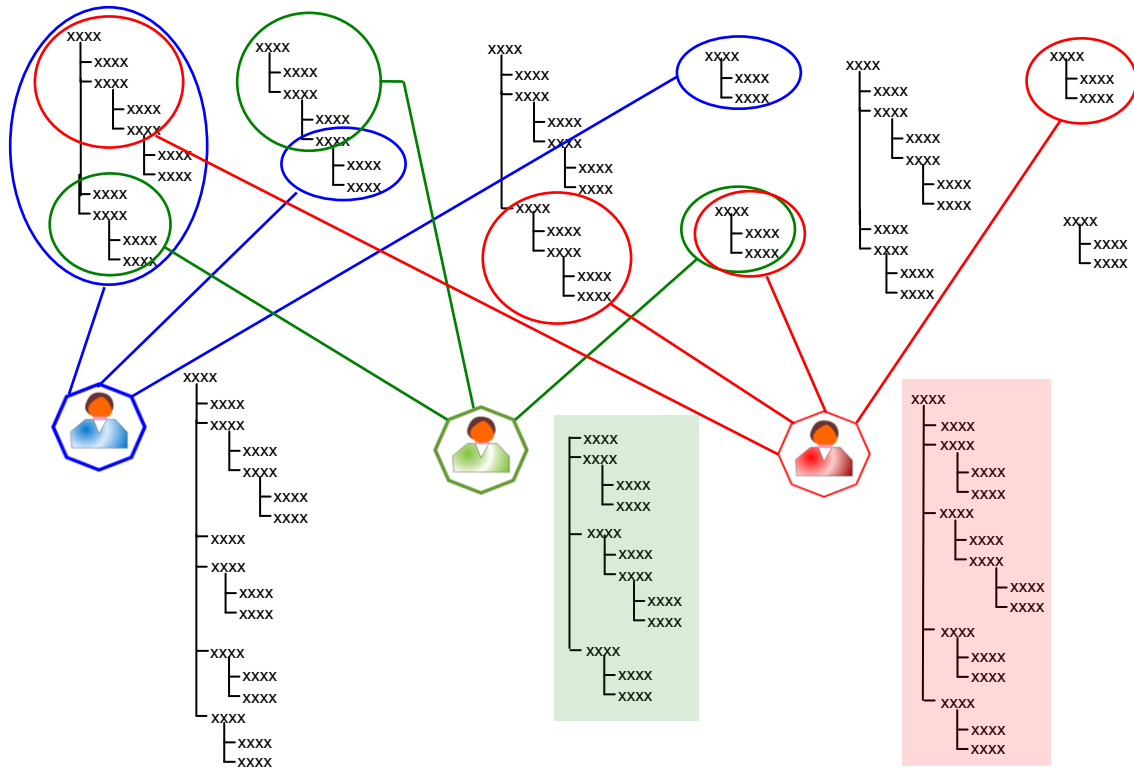
Note: Tasks and actions can both have associated resources and time sheeting. So activity based costing can be broken down to an action level that makes more sense to users and facilitates mobile inputs (without the need for further attribution).

Visibility, Security and Privacy

Traditionally visibility, security and privacy of tasks has been managed by permissions set by Administrators. Keeping permissions up to date is usually a clumsy, inflexible process that lags behind the stakeholder's requirements and often causes unhelpful stresses between project members and administrators.

By allowing the person responsible for a task (or their delegate(s)) to determine who can see the task, it is relatively easy to determine who the stakeholders are. If a person is not a stakeholder they cannot see the task. This ability to determine relevance and apply security and privacy on every task is very flexible and easy to control by the person responsible for the task (or their delegate(s)).

The graphic below shows how a personal WBS tree of relevant tasks can be constructed for each stakeholder. Consequently each stakeholder only sees what they need to know in a context that makes sense to them. This sorting process keeps stakeholders focused and stops them being overwhelmed with extraneous information.



Initially it was found that WBS filtering on team membership provided a significant improvement on WBS resource filtering. However discontinuities between some tasks were still occurring for some stakeholders.

Business rules were developed and tested that automatically added people responsible and delegates to other tasks around the task in the WBS structure. Now the task context provided makes sense to users with no effort on their part.

Without this dynamic capability to ensure that every stakeholder sees relevant tasks in an understandable form on a need-to-know basis, mobile project management would be unworkable.

ToDo Lists

ToDo lists have long been a primary tool in personal time management.

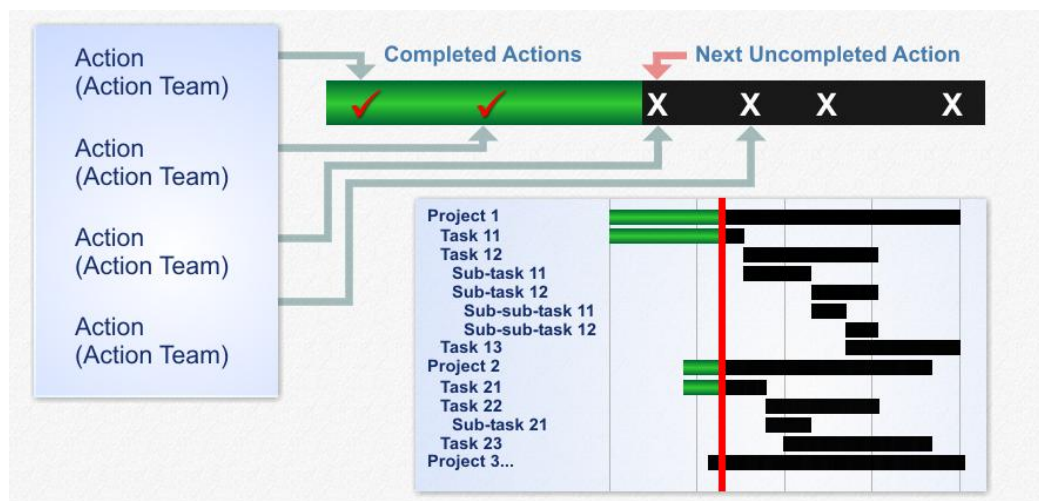
A viable mobile project management solution needs to not only provide an understandable task context, but it also needs to show each stakeholder what they need to do for the many projects and tasks they are involved in.

The task actions and action teams (in the Task-Team Module above) make it easy to dynamically generate ToDo lists for each stakeholder. And most importantly, everyone's ToDo list is automatically synchronized with the people they are working with. Plus each ToDo can be shown in the context of other task actions and other tasks in the WBS.

Automatically Updating Gantt Views

An area that can generate heated discussions in traditionally managed projects is what does the % complete of a task actually mean. In mobile projects, estimating % complete is even more difficult, because personal discussions are likely to be more difficult than in static projects.

The disaggregation of tasks into a list of actions provides an ideal means to automate progress reporting and significantly reduce discussion about what the reported progress actually means. The diagram below shows how Gantt progress bars can be moved on the basis of actions complete.



When an action is complete, the task progress bar is automatically moved to the day the next action is due to start. Then movement of progress bars further up the WBS occurs in the same way as traditional project management (i.e. sub-task progress affects higher level task progress).

Experience has shown that people complete actions in a more timely manner, because of the direct linkage of actions to progress. The perceived consequences of holding up the progress bar of more senior managers' tasks are often the motivating factor.

Training

The effective application of project management requires a sound understanding of project management principles and techniques, and the knowledge and skills to apply them. Full-time project managers have the time and motivation to learn and apply these techniques.

However, people who are expected to manage projects as well as other work usually have minimal time for training and just want to get the project completed with a minimum of time and effort. They usually want project work distributed to all stakeholders, so they are not overloaded. The techniques and tools discussed in this paper automatically align, track, coordinate and report project progress based on inputs from all stakeholders, so there is less training and time required.

Summary of Differences

A summary of the key differences between traditional project management and mobile project management is:

Function	Traditional	Mobile
Information presented from the personal perspective of:	Project manager	Customized for each stakeholder including the project manager
Teams	Adhoc	Complementary task & team management
Visibility of tasks & Context	All, or only where a person is a resource.	Only tasks where a person is a team member. For a traditional project view, the project manager must be a member of all project tasks.
Actions/ToDo's	Can be achieved with multiple level WBS	Explicitly identified in simple plan or process lists for desired tasks
ToDo List	Confusing mix of tasks and actions	Automated comprehensive list of the relevant actions for all projects and tasks.
Progress Reporting	Based on manual estimates of % complete	Automated based on actions/ToDo's completed
Use on mobile devices	Extremely difficult	Easy
Templates	Copies of tasks in WBS	Copies of tasks and actions with the ability to modify the teams and individuals involved. Distributed in seconds to mobile devices.
Training	Need to understand project management method, so significant training is required	Relevant parts of project management are automated, so minimal training is required.

Case Study

Australian Army Cadets is an organization of 16,000 personnel spread across the Australian continent in every state and territory. Staff is a mix of full-time, part-time and volunteers drawn from the military, public service, and civilian volunteers.

TASKey TEAM was initially employed to manage projects where project team members were distributed across Australia with some operating in different time zones. They had limited ability to work together at the same time, so there was a lot of independent activity that needed to be coordinated.

Based on the initial success in managing dispersed projects, TASKey TEAM was used to manage Occupational Health and Safety tracking, coordination and administration. It was then used for managing the process of preparing replies to questions asked by external parties. It was also used for ensuring that actions agreed to by senior managers were implemented within agreed timeframes.

An organizational change required the Corporate Plan to be revisited and implementation strategies to be clearly defined and executed. It was decided to use TASKey TEAM to manage the implementation of the corporate plan across the organization.

An initial planning session was used to identify core goals and strategies. Agreed strategies were entered into TASKey TEAM to create a high level framework. High level supporting plans were developed to enable core strategies to be implemented.

Supporting plans were entered into TASKey TEAM. Key staff then broke down high level tasks into trees of sub-tasks required to implement the strategy. Further sub-tasks were added by relevant people from many locations around Australia. There was no problem with adding sub-tasks at the same time, so it didn't take long for a cohesive framework of tasks to be developed.

Some sub-tasks required to implement key parts of strategies were best managed as projects, and some were best managed in the normal staff matrix as initiatives, changes or parts of operations. The important point to note is that TASKey TEAM allowed projects, initiatives, changes and operations to be managed together.

The connecting element in strategies, projects, initiatives, changes and operations is the people doing the work. Using task level dependencies between strategies, projects, initiatives, changes and operations would be extremely complex and difficult to maintain. However connecting tasks through actions on personal ToDo lists is how people work naturally. Therefore, dependencies between an action someone is doing and an action someone else is doing is easier to understand than dependencies between tasks.

Consequently all tasks (strategies, projects, initiatives, changes and operations) were broken down to the actions required to do each task and sub-task. Then a team of people were identified for each action (a team of one is permitted). Then TASKey TEAM automatically created personal ToDo lists for each person.

TASKey TEAM presents each person with a customized work breakdown of relevant tasks (to provide context) and a personal ToDo list that shows what they need to do when and with whom. Ticking off ToDo's updates progress bars on the Gantt chart.

Mobile project management was achieved, because the detail managed related directly to what each stakeholder needs to know. Most detail managed by project management was integrated with detail required for personal time management. TASKey TEAM was doing a lot of the sorting, coordinating and communicating normally done manually by a project manager.

The first time a process is done, time and effort is largely saved by a smooth workflow where important actions are not missed. However the next time a process is done, a template can be taken of a previous process to save a lot of planning time and effort and provide a basis for continuous improvement.

Templates of standard operating procedures were created as organizational templates, so every team member can save time and effort and the organization can facilitate repeatable optimized processes. This ability to be able to paste templates (including contingency and business continuity plans) and populate stakeholder's ToDo list in seconds from anywhere at any time gave AAC managers greater control and consistency.

Mobile project management continues to filter through the organization. Even people at the coalface can see the benefits of knowing what is happening and what they need to do, and having more time to do work, because a lot of reporting is automated.

Conclusion

By enabling all stakeholders to apply project management principles, mobile project management provides a significant advance in managing projects. The ability to connect and synchronize project tasks with the work people are actually doing anywhere at any time is unique.

A lot of detail that is normally handled in traditional project management by face to face meetings is automatically handled by TASKey TEAM. This allows many people to gain the benefits of project management with less time and effort and minimal training.

The answer to the question "Can project management evolve fast enough and flexibly enough to provide the solution for people working together globally?" is "Yes". Mobile project management meets the needs of all stakeholders (not just the project manager) to work together effectively on many projects concurrently and globally.