



Data to Wisdom – Creating and Managing Knowledge



PMI is placing an increased emphasis on the effective management of knowledge in the 6th Edition of the PMBOK (published Sept. 2017) that builds onto the foundations laid in the 5th Edition. While there are many aspects to effective knowledge management this post looks at the foundations – transforming data into wisdom from a project controls perspective¹.

The quote by astronomer Clifford Stoll ‘*Data is not information, information is not knowledge, knowledge is not understanding, understanding is not wisdom*’, is a good starting point. Information changes in character as it is processed:

- Work performance data is the raw observations and measurements made during the execution of the project work; for example ***an activity is 25% complete***. Data on its own has little direct value, but knowing the accuracy of the data underpins everything else is it exactly 25% or approximately 25% complete?
- Basic information is created when the data is analysed and assessed; for example ***the activity should be 75% complete and as a consequence is running 3 days late***.
- This becomes useful information when it is placed in context and integrated with other relevant bits of information; for example ***the activity is on the critical path and the delay has a direct effect on the predicted date for project completion***.
- Converting useful information into knowledge needs the information to be communicated to someone who takes notice of the communication (for example, the person reads the report) and as a consequence becomes aware of the fact the activity is running late².
- Understanding requires the person to interpret and appreciate the consequences of the delay. The interpretation of one piece of information to create understanding can happen in many different people’s minds (lots of people may read the report) and different people will derive very different insights from the same set of facts – one person may see the delay as relatively minor, another as critically important. Understanding is based on the frame through which each person views the ‘fact’.
- Finally using the person’s understanding of the situation wisely to inform decisions and actions is completely dependent on the capabilities, attitude and experience of the individual who has acquired and understood the knowledge³.

¹ For more on the ***function of project controls*** see:

http://www.mosaicprojects.com.au/WhitePapers/WP1093_Project_Controls.pdf

² For more on ***communication*** see:

http://www.mosaicprojects.com.au/WhitePapers/WP1066_Communication_Theory.pdf

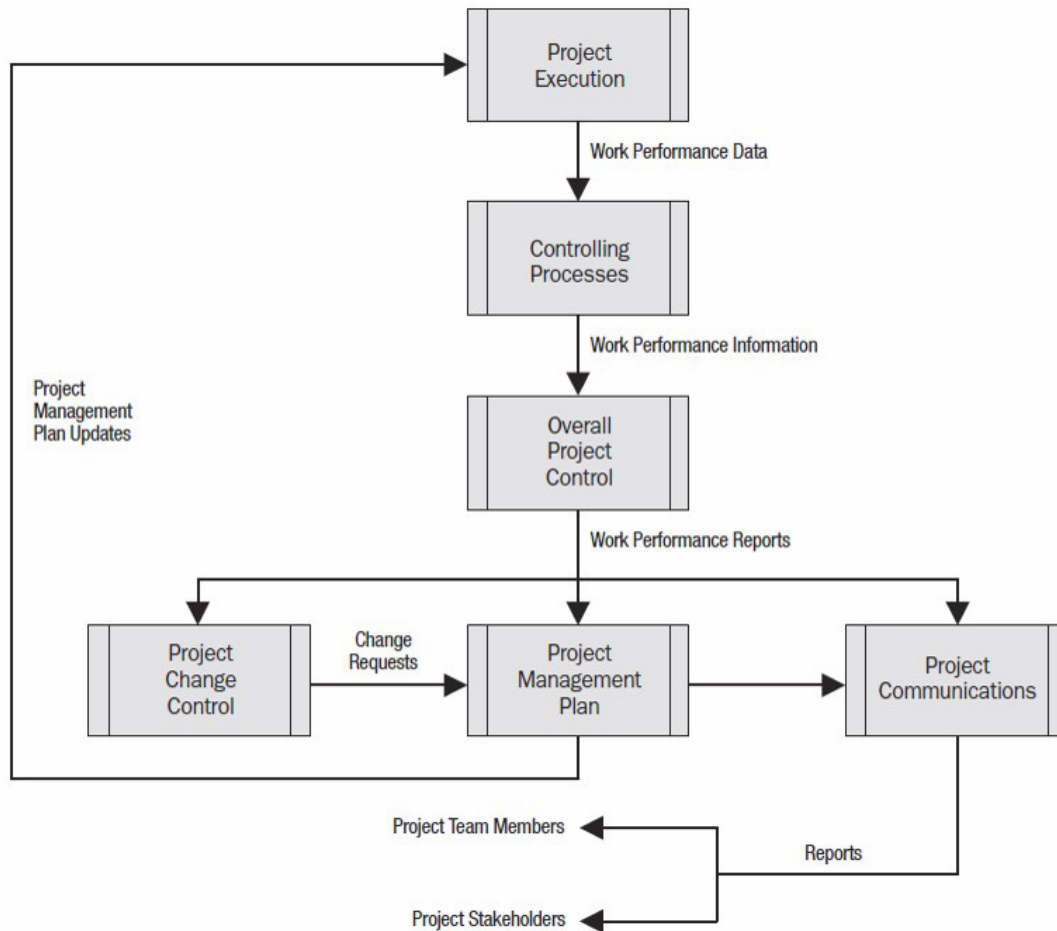
³ For more on ***practical wisdom*** see:

<https://mosaicprojects.wordpress.com/2017/05/21/phronesis-a-key-attribute-for-project-managers/>





Project controls professionals drive the conversion of data into useful information, as is shown in this extract from the **PMBOK® Guide** Fifth Edition. Once created, this information forms the basis of project reports which are the primary means of communication.



Work performance reports are the physical or electronic representation of work performance information compiled in project documents and used for project decision making. These reports are also distributed or made available to other stakeholders through the project communication processes with the intention of influencing and informing the actions of stakeholders (both internal and external).

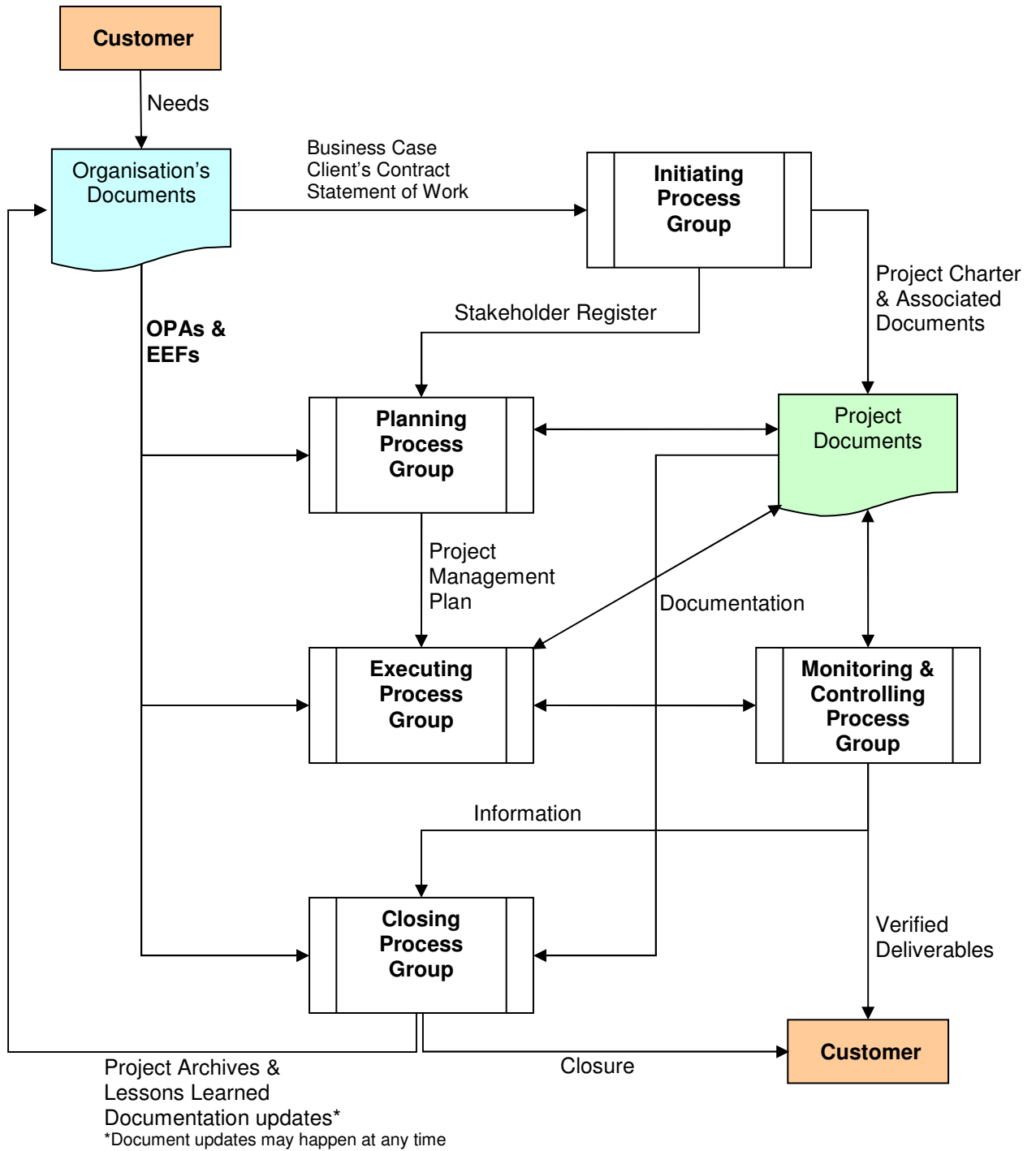
Project controls professionals have complete control over the conversion of performance data into information, they can create valuable information that assists decision making, or they can create msses or obtuse information that is little better than raw data. Then, by communicating effectively⁴, they can actively encourage the transition of information into knowledge in key people’s minds and by providing context and advice can positively influence the development of that person’s understanding to assist wise decision making. But achieving this this requires more than simply collecting and processing data!

⁴ For more on **effective communication** see: http://www.mosaicprojects.com.au/Mag_Articles/SA1020_Three_types_stakeholder_communication.pdf





Project Document flows



Project documents are the primary way information is collected, compiled, communicated and transitioned into corporate knowledge⁵. Almost every process in the **PMBOK® Guide** draws from the 'project documentation' as an input and adds to or updates the project documentation as an output.

⁵ For more on **knowledge management** see: http://www.mosaicprojects.com.au/Mag_Articles/SA1045_KM_and_learning_lessons.pdf





This information flow is emphasised in the new 6th Edition. The diagram above shows some of the key document flows.

Key Project Documents

- **Project Charter:** authorises the project
- **Project Requirements:** What is needed – from Sponsor (or client), generally:
 - The project scope includes or references the product scope⁶;
 - The product scope includes or references the specification(s) for the work;
 - The statement of work (SOW) is a contract document that briefly and concisely defines the deliverable to be provided. Typically included by the buyer in its contract or purchase order, especially where the buyer expects the seller to develop the detailed scope statement.
- **Stakeholder register:** information on stakeholders including prioritisation, requirements (to and from) and expectations.
- **Project Management Plan:** incorporates and integrates all of the project planning documents, including updates. The project management plan is a key document (made by compiling other documents) but not all planning documents form part of the project management plan. As a general rule if the sub-document's name ends in 'plan' or 'baseline' it forms part of the project management plan and is therefore subject to formal change control processes.
- **Performance reports:** information on all aspects of work and contract performance including time, cost, scope, quality, safety, etc. Planned and actual performance is compared to identify variances, plan corrective actions and project trends.
- **Change log:** all requested, approved and rejected changes.
- **Risk Register:** all identified risks with assessments, current status, risk manager and agreed actions⁷.
- **Issue log:** all open and closed issues⁸.

Documents developed to create information (by phase)

Project documentation on its own won't make your project successful, but not having the necessary documentation will almost guarantee failure! Some of the key management documents for most projects include:

Initiation (primarily done by the business / client)

Feasibility Study: to determine whether your project is actually doable. If the assumptions are false your project is in trouble⁹.

⁶ For more on *scoping documentation* see:

http://www.mosaicprojects.com.au/WhitePapers/WP1070_SoW.pdf

⁷ For a useful *risk register* see: http://www.mosaicprojects.com.au/Practical_Risk_Management.html

⁸ For more on *issues management* see:

http://www.mosaicprojects.com.au/WhitePapers/WP1089_Issues_Management.pdf



Business Case: To justify the financial investment in your project. It identifies the problem or opportunity your project has been created to solve/exploit. It defines the estimated costs and identifies the benefits (not all benefits are financial) of resolving the problem or exploiting the opportunity¹⁰.

Project Charter: Documents the objectives, scope and deliverables of the project. Plus a high level overview of the team, timeframes (milestones) and risks involved in the work¹¹.

Planning – the project plan should include all of the other plans.

Key components are:

The Schedule: lists all of the tasks required to complete the project. Every task must be dynamically linked, so you know what needs to be done and when.

The Resource Plan: the people, equipment and materials needed for your project (how many/much, where and when). Provides the data for EV and cash flow forecasting.

Quality Plan: defines the quality targets and how they will be achieved, so that the project deliverables meet the expectations of the customer.

Risk Management Plan: Defines the risk management processes for the project. All of the risks need to be documented and their likelihood and impact on the project identified. From this base risk management / treatment is planned and incorporated into the project, risk owners nominated and contingencies established for the residual risks.

Communication Plan: so that you send the right messages to the right people, at the right time.



⁹ For more on *feasibility studies* see:

http://www.mosaicprojects.com.au/WhitePapers/WP1027_Feasibility_Studies.pdf

¹⁰ For more on *business cases* see: http://www.mosaicprojects.com.au/WhitePapers/WP1018_Business_Case.pdf

¹¹ For more on the *Project Charter* see: http://www.mosaicprojects.com.au/WhitePapers/WP1019_Charter.pdf



Execution

Work authorisations: You need processes to authorise the performance of work, track the performance and validate completion.

Time Management: You need to use Timesheets to track time spent on your project. Then update your Project Plan with your Timesheet data to see whether your project is still within schedule.

Cost Management: Track your costs using Expense Forms. Every expense is formally logged and approved, so that you can confirm at any time that you are currently under budget.

Change Management: Document each change to the project scope, using Change Forms. You can then control change to ensure your project is always on track.

Risk Management: Use Risk Forms to document each risk to the project. You can then manage project risk carefully to ensure that nothing happens that will affect the project schedule or budget.

Issue Management: As each issue occurs on the project, you need to investigate its impact on the project and then write it up on an Issue Form. You can then kick off the tasks needed to resolve it quickly.

Lessons learned documentation: Information and analysis to assist the on-going work of the project and to enhance the organisation's knowledge management systems¹². This should be an ongoing process.

Closure

Project Closure Report: When your project is complete, document all of the actions needed to close the project properly. This includes releasing teams and suppliers, equipment and materials.

Post Project Review: And after your project has been closed, you can review its success and document the results for your sponsor. That way, you can show that all of the objectives were met and that the project was delivered on time and within budget.

This article is part of Mosaic's **Project Knowledge Index** to view and download a wide range of published papers and articles see: http://www.mosaicprojects.com.au/PM-Knowledge_Index.html

For more on the **Stakeholder Circle**® including White Papers, Published Papers, Books and reviews, see: <http://www.stakeholdermapping.com/>

¹² For more on **lessons learned and knowledge management** see:

http://www.mosaicprojects.com.au/WhitePapers/WP1004_Lessons_Learned.pdf

http://www.mosaicprojects.com.au/Mag_Articles/SA1045_KM_and_learning_lessons.pdf