Smartsheet Special

Smartsheet

A Cloud app

Smartsheet is a cloud application for collaborative work.
It is project centered.
The application allows "creators" to create sheets.
Sheets can be of many types, including spreadsheets. Best use of the Smartsheet sheets is when date columns are added: start date, finish date, due date.

A Scheduler

As soon as the sheet contains two date columns, a Gantt chart is available. The Smartsheet sheet then becomes a full fledged project scheduler, with tree structure, logics, etc.
Customized columns can be defined, templates can be set up.
In the context of the DPC method, Smartsheet can function in a 100% compatibility mode.

Feature completeness

Some features found in many schedulers are missing, although missing is not really appropriate, because these are not really "missed".
Tasks can be assigned to a responsible, but there is no resource usage computation.
You will not see a WBS code column, nor an Outline Level column. These objects are related to the project tree structure. While outlining tasks and summaries, one does construct the project tree. The information on the tree structure is available in the sheet data, and this can be extracted. We will expand on this further in the article.

Resources

The newest version of Smartsheet now provides for resources management. It is a very straight forward system, allowing to distribute resources over project and to monitor the total workloads.
The alternative route is of course also open: to extract data from the scheduler and handle it in another specialised system (which is often more efficient than what do-it-all systems offer).
And it is precisely here, the possibility to link with other apps, that Smartsheet comes in the picture as no other system can.

Sharing

First there are the sharing capabilities. These are really strong and well implemented. Communication with team members is done directly by sharing or indirectly by mailing selected items from the sheet. Discussions can be organised on a tasks basis. Attachments can be added also on a tasks basis.
In other words, the Gantt sheet, with its (complete) tasks list and timeline, becomes the

center, the forum, for all project related data and communications.
This is pretty much unique.

There is more: the API, the dark energy

But there is more. The Smartsheet people have developed an API that makes it possible to pull the complete data from a sheet into a third party application. It is direct. There is no export-zip-upload cycle. The data come in JSON format which is easily parsed.
It is here that the dark energy of Smartsheet lays hidden.

Smartsheet to DPC: the perfect match

The DPC - Dynamic Project Control - method is implemented through a set of tools that are cloud based.
In a nutshell: data are taken from a scheduler, uploaded in the DPC engine, which then generates a complete set of progress reports. For a brief introduction on DPC see this, and to see DPC & Smartsheet at work see this.

So, there is always this need to extract, say export, data from the scheduler and then upload it in the DPC engine. For all schedulers we are currently encountering, the technique is always: export data using some kind of macro, filter and data map, then zip the file, then upload the file. This can be a little cumbersome, and also error prone.
Not so with Smartsheet.
The only thing the user has to do is to tell the DPC engine which project sheet it should interact with. This is really the minimal information possible. The rest is automatic, and safe.

And there is more.

LA sheet and its problems

In the DPC environment, % complete values are often entered in a special interface called the Look Ahead sheet (LA sheet). This is a tabular representation of the list of tasks on hand, including those due to start between today and a chosen look-ahead period.
This idea stems from the time that not all team members had a copy of the scheduler software available. And, there was no other possibility to share the Gantt charts than to send emails back and forth, with all the confusion that such procedures implies.
On top of that, some kind of feedback mechanism is needed in order to bring the latest % values updates into the current scheduler file version. This again means file transfer and an import macro.

The Smartsheet simplicity

As the Gantt sheet can be shared with any number of team members, the above mentioned need for an LA sheet disappears. Everybody can enter his/hers % complete values directly into the Gantt sheet. Everything being supervised by the Project Manager, acting sheet creator.

Results with Smartsheet: less work, less delays, more accuracy, faster updates, more synchronisation between the team members, less confusion.

This is a perfect example of a **low-entropy system**: a system that preserves information integrity and prevents dissipation (which leads to confusion and eventually chaos).

Integration in the DPC method

In the DPC method we use some custom fields (columns):

flag	when set at "-p", task is not taken into account for computing the progress
wf	weight factor, or the importance of the task in the progress
attributes att1 through att5	can be anything: responsible, area, contractor, etc. The attributes are used to generate "transversal" reports, i.e. per contractor, responsible etc.

We developed a template sheet with all these objects included.
So, we can again confirm: Smartsheet can be used in a 100% compatibility mode with the DPC engine.

Cases

We handled a number of projects in the configuration Smartsheet / DPC. In some cases it was for testing purposes, in other case for real life project monitoring.

Small projects at the university of Tsinghua - Beijing.

Two projects are currently ran using the Smartsheet/DPC configuration.
The task count is in the range of 300 tasks.

These are high-stress, high-intensity projects, for which the progress and progress reporting is done on a daily basis.
The stability of the system is 100% ok, and the reporting takes exactly 45 sec. per project. Which figure is very low.

Imported MSP projects.

We ran some tests on industrial projects originally set up in MSP. We used the *xml* format for importing the project into Smartsheet.
The task counts were in the range 1500-2000 task.

We noticed that if the original schedule was set up with "unfortunate" choices in the MSP options (like non-default hrs per day, etc) there were some problems with aligning the dates.

But this is always the case, with all the platform, even within MSP, where different files cannot be merged without problems if the same "unfortunate" options have been chosen.

Once this problem was corrected, the system ran in stable mode.
The reporting was done in the simplest possible way: % complete values were entered into the Smartsheet Gantt, the DPC engine was operated.
It took less than 1 min to geerate the full progress report.

On the workload for tracking the project progress.
We all agree that tracking the project's physical progress, is of **paramount** importance.
But we also agree, that this essential task in project management should not cause substancial workloads.
As far as we have experienced with the Smartsheet / DPC combination, *we cannot think of a system that would generate less workload*.
Bar maybe telepathy, although we think that data transfer would be slower and probably more confused.

Smartsheet and Mathematica
Now we really go ballistic.
Mathematica is many things. It is a language, it is a fourth generation language, it is a symbolic language, it is an integrated system for manipulating mathematical expressions. It is a platform for creating and deploying CDF (Computable Document Format) documents. Above all, and that is our main experience over the past 25 years (O M G !), it is THE platform for rapid prototyping, development and deployment of sophisticated applications. See for yourself at www.wolfram.com.

The DPC engine has been developed on the Mathematica platform. This choice has been made long time ago, and we are still happy with it.

With Mathematica it is very simple to call the Smartsheet API, fetch the sheet data and parse the JSON file. Just for the fun of it: this is the code line:

```
ImportString[
    URLFetch[
    StringJoin["https://api.smartsheet.com/1.1/sheet/",sheetId],
    "Method"->"GET",
    "Headers"->{"Authorization"->StringJoin["Bearer ",accesscode]}
    ],
    "JSON"
    ];
```

Two parameters must be provided: the sheetId and the accesscode.
From here on it is really a piece of cake to handle the data. An article on that topic is due for the Wolfram community any time soon.

We use this API mechanism for the sole purpose of pulling data from the Gantt sheet.

But the same mechanism can be used to pull data from any sheet and then do whatever we want to do with it.
The most obvious is statistical analysis, but with Mathematica anything goes as well: semantic analysis, image manipulation, engineering computations, network analysis, and much more.

*Imagine***:** a team of engineers - located all over the world - enter data on a shared sheet. Then, when data are ready, one of them hits a button and within seconds a complete analysis, design, whatever, is generated in an interactive CDF document, eventually distributed over the web…

There is no limit on the possibilities of pulling data out of a Smartsheet sheet.
And with Mathematica it is really very easy to pull the data, parse and analyse them.
A simple example is the management of the **project matrix.**

The project matrix is the matrix that maps the permissions of of the team members on the projects. This is an important item, because it sets the privileges of every team member for every project.

Given a simple template, the matrix can be updated by the team leader. The data can be updated on the DPC server just by pulling the data from the Smartsheet sheet.
We keep in mind that this project matrix is shared and can be updated by anyone (with the right permissions) anywhere in the world at any time.

Conclusions:Celebration!

Man having discovered Smartsheet & DPC

- Smartsheet offers a unique platform for information sharing and synchronisation that perfectly suits the needs of the bulk of the projects. Even rather complex industrial projects can be ran on this platform.

- The scheduler - the Gantt chart type of sheet - offers a minimum set of functions that fulfills the needs of again the bulk of the projects. Therefor it also has a short learning curve. The user is not bothered or impaired by tons of options, formatting stuff and the like.

- The integration with the DPC engine is automatic and needs only a minimal action by the user: just tell the name of the project you want to get reported.

- More than on any other platform, the project manager can focus on the essentials of his activity: coordinating, analysing, making decisions. No zillion buttons, frills, things, stuff, are there to distract him from his core tasks.

- If Smartsheet wasn't there, it should be invented right away.

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