

# Why ReMa

Research indicates that more than 50% of all projects fail because they do not meet customer requirements. Outlining requirements is a crucial phase in any project/product development. The leading causes of project failure due to poor requirements are incomplete, missing or ambiguous requirements and poorly managed requirement changes.

In present times there is no doubt in the industry that the Requirements management tools help in managing the requirements effectively. ReMa (Requirements Manager) is one of the requirements management tools available and this paper discusses the benefits of using ReMa.

## **Incomplete, missing or ambiguous requirements**

The main cause of incomplete, missing or ambiguous requirements is poor documentation and analysis of the requirements. Following are some of the symptoms through which you can decide that a requirement is ambiguous.

1. If the requirements contain words like minimize, maximize, optimize, rapid, user-friendly, easy, simple, often, normal, usual, large, intuitive, robust, state-of-the-art, improved, efficient, and flexible
2. If the requirements contain the terms like “and/or”, “etc.”

These ambiguous requirements allow different people to interpret the requirements in different ways. The requirement analyst will mean something and the designer may design it differently because the requirement is ambiguous. Hence final product will not be the one the requirements analyst had envisioned.

Through proper review of requirements by domain experts, incomplete, missing or ambiguous requirements can be caught early in the life cycle when the cost of fixing these problems is low.

ReMa helps the reviewers tremendously with its built in features like giving comments to individual requirements. The added benefit in ReMa is these comments can have various configurable statuses. Through these statuses of the comments the reviewers can track whether the author has addressed their comments or not. Once the author of the requirement addresses the comment, the comment status will be changed to closed status automatically.



Figure 1 : Comment Dialog in ReMa showing the status information of the comment

Reviewers can also be given guidelines on how the requirements have to be reviewed. The guidelines feature of ReMa helps in giving guidelines to the reviewers of the requirement.



Figure 2 : Attribute Guideline in ReMa

### Poorly managed requirement changes

Change is the only constant in life and requirements in the project are not an exception. Scope creep mainly occurs due to the poor change management of requirements. Whenever a change is anticipated for the requirement, it is important to know the ripple effects of this change to the other components of the project like architecture, design, code, tests and deployment. What looks like a minor change initially, can indeed be very costly. Through ReMa the impact of change to any requirement can be found by the click of a mouse button and the impact of this change to the other artifacts of the project can be found very easily.

<b>SES-GPSB (Systems Engineering Specification)</b>	<b>HDD-GPSB (Hardware Design Document)</b>	<b>HRS-GPS (Hardware Requirements Specification)</b>	<b>SRS-GPSB (Software Requirements Specification)</b>
Sub frame Synchronization	0.79% (4/509)	2.65% (3/113)	0.00% (0/466)
Decoding of Navigation data bits	0.79% (4/509)	3.54% (4/113)	0.00% (0/466)

**Figure 3: Partial Impact Analysis Report For The Document : SES-GPSB**

The above figure shows an impact analysis report generated by ReMa. It shows the percentage of change in other documents for a possible change in each of the requirements of SES-GPSB. If the first requirement (in the above table) in SES-GPSB changes, then 4 out of 509 requirements in HDD-GPSB will change, that is around 0.79% change. This report can be generated for the entire document or for the selected requirements.

ReMa also has a change proposal system through which managing the changes become very easy. When there is a request to add a new feature to the product or to enhance an existing specification due to a defect or failure, a change proposal can be created in ReMa. Multiple reviewers can review this change proposal. These reviewers can analyze how many requirements (and, if necessary, system components) are affected by the change and roughly how much it would cost, in both time and money, to make the change. Considering all these factors reviewers can either approve the change or reject the change by giving their reasons as comments in ReMa. If all the reviewers approve the change, then the project manager will be able to commit these changes to the requirements and produce new version of the requirements document.

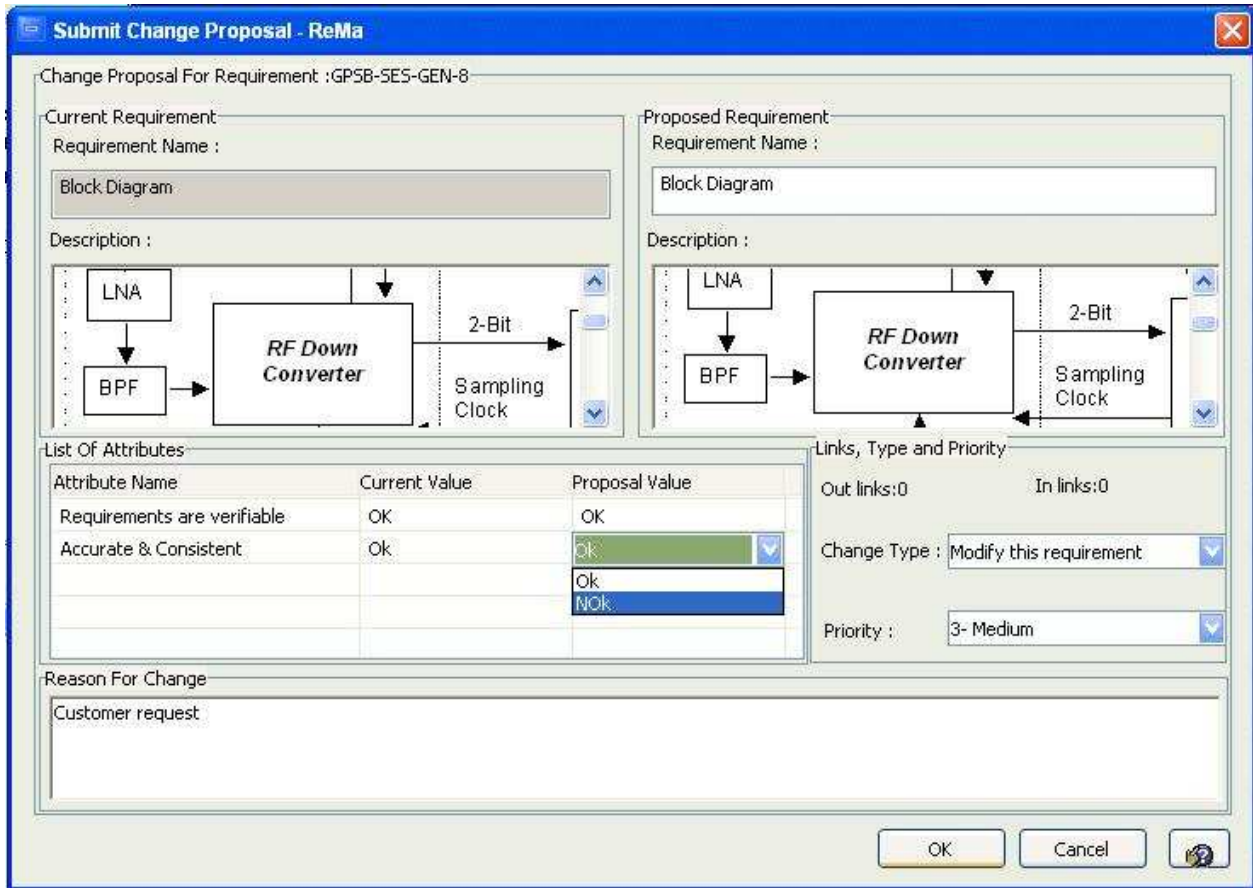


Figure 4 : Change proposal dialog in ReMa

Apart from these advantages ReMa has many other advantages like it gives you the best ROI on all your requirements management needs and it can interoperate with the other existing industry standard tools.

### It gives you the best ROI

The paper by Richard Denney discusses that the usage of requirements management tools increases your ROI. In his paper he discusses that the expenses you have to do on a requirements management tool is a one-time expenditure. Once the tool is bought, it can be used in other projects also where the investment for the tool will be only the annual maintenance cost of the tool. But the cost savings from the requirements management tool are multifold like:

- Cost Savings from Staff Working More Efficiently
- Avoiding the Cost of Lost Requirements
- Avoiding Cost of Unnecessary Development
- Reducing the Cost of Requirements Related Defects

For more details you can refer the paper [“Calculating ROI On Your Investment In Requirements Management Tools”](#)

As ReMa is priced significantly lesser than the requirement management tools with similar capabilities, the cost to benefit ratio in case of ReMa is appreciably higher.

### Interoperability of ReMa with other tools

ReMa can import/export its database to/from various other tools databases like DOORS® from Telelogic®. It can also exchange data between Microsoft® Word® and excel® formats. This helps the users as their already existing legacy systems can be imported by ReMa and the data can be exported back to their original formats for sharing among the customers and other stake holders of the project.



Figure 5 : Export to DOORS® dialog in ReMa

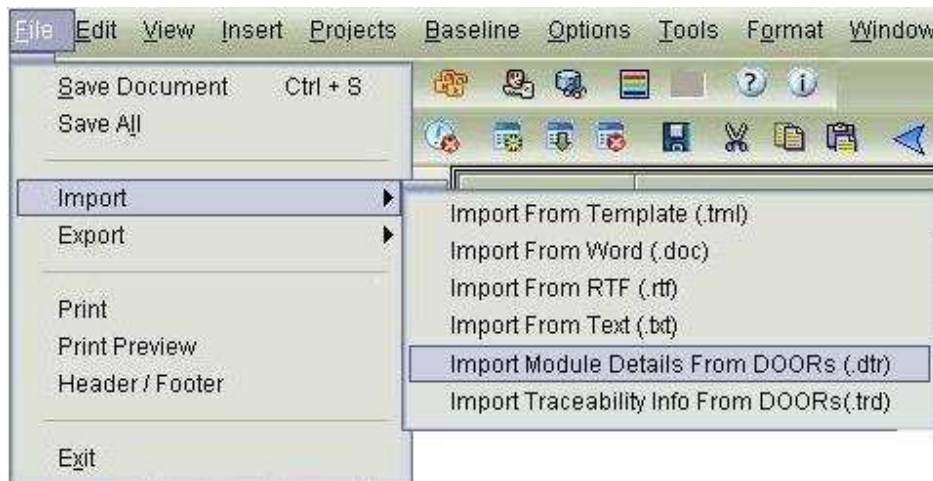


Figure 6 : Import options in ReMa

## **ReMa used in mission critical system development like [NexNav](#)**

ReMa has been used in the development of FAA TSO-C145C certified GPS-SBAS receiver [NexNav](#). ReMa provided an ideal framework to capture/manage requirements and also ensured that all the necessary compliances to DO-178B and DO-254 Level B objectives were built into it. ReMa has a very elegant interface to the configuration repository that helped the FAA DER's to establish baselines within the framework of the tool.

The FAA DER involved in this program, Mrs. Tammy Reeve, Patmos Engineering Services, INC had a preview of this software and she had the following words to say about this software: ""Traceability is a very important part of demonstrating compliance with objectives found in Do-178B. ReMa looks like a very promising requirements management and traceability tool for DO-178B life cycle projects and I look forward to exploring all its features in the coming days"

In conclusion ReMa is an excellent requirement management tool and can be the right choice for any kind of product/project development.

**Pankaja P K**

Manager - Software

She heads the SmartWorks and ReMa teams at Accord. She also manages DO178B verification projects.

Write to her at [feedback at ReMa](#)