

Safety Culture Conference

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UK CHAMBER
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SMS Simplification

Risk and process of simplifying
on-board procedures.



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Risk and process of simplifying on-board procedures

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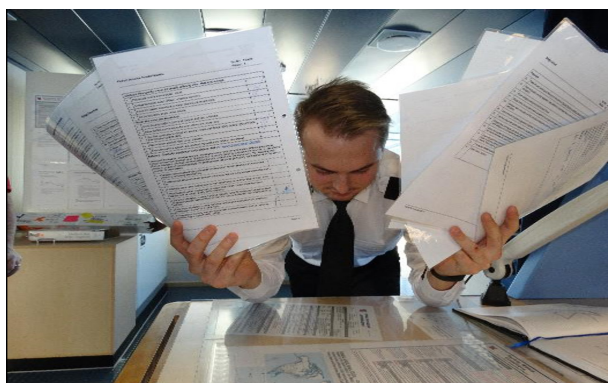
About the Author:

Terje Lovoy is a former Airline Captain, Boeing Instructor and Vice President of SAS Scandinavian Airlines Flight Operations. Since 2009, he researched and developed methods used to simplify and improve Safety Management Systems in many shipping companies.

Introduction

A key feature of an effective safety culture is the recognition that accidents are preventable and usually occur following unsafe actions or a failure to follow procedures. 12 years ago, I started giving presentations about Safety Management Systems (SMSs) growing so complex that they lost sight of the seafarer. My vision was that if something was user-friendly, then we will use it more. And, if something is understandable, we make less mistakes.

Today, most companies know that an overly complex SMS is a problem but also a potential for improvement. A user-friendly SMS is good for safety and efficiency. It is easier to use on-board. It is easier to use for management in the office. It is easier to keep it up to date and prepare for audits. The big question is how to simplify without removing valuable information. This paper discusses how to use your own people to improve your SMS. We will talk about the process, its benefits and risks.



What Makes SMSs Too Complex?

There is usually a link between how well we understand problems we are trying to improve and the results. It is therefore worth spending some time discussing why SMSs often become overly complex. Over a 10-year period the Lovoy Team analyzed 63 SMSs, many with around half a million words.

More than 1,000 seafarers worldwide completed our SMS Usability Survey which found these typical problems:

- Difficult to locate info
- Instructions not following workflows
- Spaghetti mixing of explanations and operative tasks duplicated in several places
- Difficult words, long and passive sentences

Contrary to many beliefs, our research found that the problem is seldom too much information. The problem is usually the way SMSs present information.

Oversimplification

Shipping companies who believe the solution is to remove the “excessive” details may end up removing facts needed by inexperienced users or audits. They risk losing years of hard learned company experience. We call this oversimplification.

Written by Seafarers for Seafarers

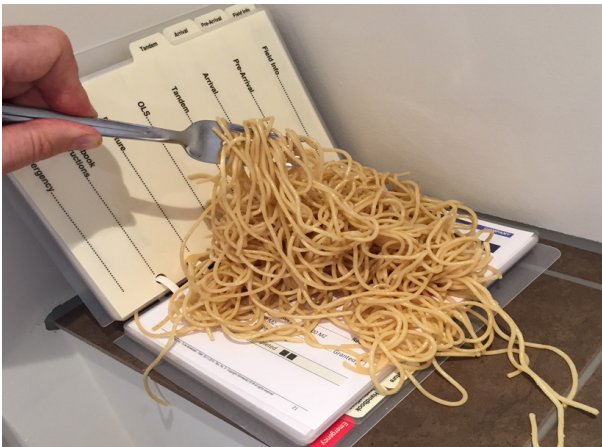
Our research gave better understanding of the problems and we started testing improvement methods. True simplicity comes from thorough understanding. Simplicity without understanding is difficult. Those who do not know subjects well often insist on complexity. Our vision was to train seafarers to write rather than train technical writers to understand subjects.

Not a Quick Fix

Lasting SMS simplification is not a quick fix of documents, it is about stopping people from adding more complexity. The first step is to invest in your own people by training them to stop adding more complexity. To do this they need good methods.

Focus on the Big Picture First

Big picture thinking is a crucial part of structured problem solving. In our case it means first untangling what we call the spaghetti structure. Spaghetti structure comes from copying, pasting and mixing operational tasks and background explanations. This mix has tangled spaghetti-like strings of text cross-referencing throughout the SMS. It is not following the seafarers' normal workflows.



How to Untangle the Spaghetti?

Untangling the spaghetti structure is the hardest part. Many writers therefore skip this crucial step. We designed an advanced MS Word template to help writers separate step-procedures and prose text background explanations. The template can make notes, cautions, warnings and other styles. Most importantly, it has different layouts for regular prose text and operational tasks. We made special rules for how to format operational tasks as proactive imperative step-procedures starting with verbs. Correct use of the template gives operational tasks their own exclusive proactive layout to make them extra accessible. When using this template, writers must first untangle any spaghetti structure. The last thing they should do is wash the text.

Wash the Text Last

Text washing means to simplify difficult words, passive sentences and long sentences; and remove double talk and filler words. Filler words are words that add little value such as *completely* dead or round *in shape*.

The table below has text washing examples:


Before Text Washing	After Washing
Give consideration to	Consider
During the period of	During
On an hourly basis	Hourly
Give the recognition to	Recognize
Because of the fact that	Since
20 words	5 words

Short everyday words are easy to understand. As required by the ISM Code – we should use them as much as possible to make our language clear and understandable. Reading complex words takes more time even for native speakers. We made a free online dictionary at <https://lovoy.info/dictionary/> suggesting simpler alternatives to typical complex words found in older SMSs.

We should continue using technical maritime words. But it is important to understand the difference between technical and general words. We suggest keeping maritime words such as port and starboard. But try to find simpler alternatives for general words such as elucidate and discernable.

Success Factors

Many companies succeeded in simplifying their SMSs. Feedback from their seafarers and auditors were positive. Surveys typically showed around 70% increased perceived usability.

Oldendorff Seafarer Feedback 

- Words are simple and easy to understand
- Sentences are short and to the point
- Far better than old style
- Easy to read, understand and use
- All info needed for jobs in one place
- Logical structure
- Clear attention to key points for safe work
- All crew understood procedures well
- Step-by-step structure is easier to follow
- Takes less time to prepare for jobs
- This will really help us in the future

Shared with permission: Feedback from seafarers collected by Oldendorff Carriers GmbH & Co. KG when testing their new simplified SMS procedures in 2021.

Measure SMS Text with KPIs

The most successful companies always measured their results. We designed Key Performance Indicators (KPIs). These helped each writer meet clear targets such as Percent Passive Sentences (PPS) and Average Words per Sentence (AWS). Most importantly, they used our cross-reference template to untangle and measure any remaining spaghetti which ensured proper workflow structure in step-procedures, checklists and permit-to-work forms.

Mike Bradshaw, Global Head of HSSEQ for VGroup, 2020:
The figures clearly show that the process is helping us deliver more concise information and part of our ongoing drive to make information more user-friendly for our seafarers. We believe the new format of the VMS will be well received by all our colleagues when the updated version is released this month.

David Furnival, BSM Chief Operating Officer, 2017:
Project Pilot was a much-needed initiative aimed at making procedural understanding and communication easier at all levels, as well as promoting better teamwork. Processes are now unified, with better cross-checking and the feedback we have received from our crew in particular, as well as the shipping industry in general, has been encouraging.

Possible Problems and Risks

Some writers simply paste old spaghetti structure and text into new layouts. This may look nicer, but PPS, AWS and process cross-reference KPI checks reveal that putting garbage in gives garbage out. This is the most common problem among untrained SMS writers. We also see a tendency to write everything as fragmented bullets with little or no prose text. With prose text, we mean regular sentences. Fragmented means we are missing basic words needed to form a complete sentence. It might be shorter, but it is harder to understand.

Some thought the solution was to switch to a new SMS software first without fixing the spaghetti. But digital spaghetti is even less user-friendly than paper spaghetti.

The Way Forward

Simplification can be a challenge. Without the right tools and knowledge of how to use them, you risk washing out the information you need.

Most support simplification, but few have specific methods for how to achieve it. Simplicity does not happen by itself – you must design it, and this requires resources. Simplicity is abstract; it is easier to get funding for technical projects. But it is not the technical factors that causes most losses. Since human error causes 70-80% of today's marine losses it deserves its share of our focus. With a modest investment, compared to the large investments we manage, there is a sizable potential for making SMSs more user-friendly. This is good for safety and good for business. To succeed we must put a value on simplicity.

Complex text is like sand in the machinery which slows down large companies. SMS simplification is therefore a cost saving initiative. It requires extra resources in the ultra-short perspective. We should consider it a slow down to hurry-up strategy. It will save time in the long run.

With properly trained internal writers, SMS improvement projects are low risk with high success rates. The projects are low tech, do not require new software or hardware, but have huge potential.

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Resources

Available at <https://lovoy.info/>

Simplification Wins Safety Award (Video)

Offshore Production SMS (Video)

BSM Navigation Procedures (Video)

New Teekay Nav Procedures (Video)

User-Friendly Procedures are Used More (Video)

Simple Word Dictionary