
CONFESSIONS
OF AN SMS
HITMAN
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SMS4AVIATION

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By John Davisson

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Introduction

If you're an airport manager, you may be asking yourself how the heck am I supposed to adopt the safety management system (SMS) *and* manage the airport *and* do it using only my existing employees? If that question has crossed your mind lately, read on. You're in the right place at the right time. In fact, you've hit the motherlode.

After nearly two decades of working with SMS, I could fill two fat books or three thin ones about what I've learned along the way, but since I know how valuable time is, I've decided to condense and simplify those books into a single short guidebook—short enough for even the most anti-readers. If you will do me the honor of reading my contribution to your SMS efforts, I am pretty sure your SMS experience will be a good one and reading this book will be time well spent.

But please be advised, even simplified, the SMS is a process full of landmines, potholes, misdirections, and head-fakes that you might assume were conjured up by a death, dumb, and blind psychopath, but no, it was written by the *Standard's* folks. The ones that live in tall, glassless buildings surrounded by a moat and only come out at night. They conspired with the world's sheriffs and thus have produced this odd duck with the intent of improving aviation safety. But more about that later.

I presume you are about ready to explore your options and you've had the good fortune to surround yourself with flexible, malleable, and yes, loyal subjects with whom to travel down

the SMS rabbit hole. So, as a first step, let's meet together in a room conducive for the purpose. I would recommend a first-floor location to avoid anyone being injured as they attempt to jump out of the window.

Your single task in this meeting will be simple, as all things must be to be effective**.** You won't need to convince them of the SMS's worthiness—they will follow your lead. Yes, it will require the entire village, and yes, it will require some added work. It will entail learning new words and phrases, but they most assuredly already possess the knowledge required to make this transition painless and efficiently. The proof being they're still here among us, for without that knowledge, they would have surely been flattened like a pancake a long time ago. This business has its risks, as you know all too well.

The problem is not with the SMS's content—the facts are simple—change is the real challenge we face. Change is not a welcome visitor for most of us, especially when things have finally started to settle down from our recent calamities. And change can be a wall for some folks, but I will give you a leg up and over that wall, and together, we'll get her done in a lot less time than you think. (Play *Rocky* theme song).

The powers that be who designed the SMS have assumed you will spend vast sums using the people's money and not trouble yourself to be frugal, efficient, or quick during the change. There have been far too many who have traveled down that path, and they have failed utterly to achieve the prime directive. Money lost, morale damaged, and still worse, lost opportunity. But not you.

You have somehow ventured here to discover another way forward. To find that road less traveled, for as you know, it will make all the difference. You hold this dwarf of a book and with it, you will soon be backing up your truck to fill it with the rare knowledge you will need to succeed with SMS. Here is what you will walk away with:

- You will understand SMS better and know more than 90% of your peers.
- You will have your SMS plan in hand to send to Uncle FAA for acceptance.
- You will have your SMS procedures manual in hand.
- You will select your SMS coordinator and your SMS implementation team.
- You will establish a simple and easy-to-use reporting platform. (Your smartphone).
- You will have all the administrative tools and reference material you'll need.

You will be years ahead of the pack setting up your SMS training material and getting your staff fully trained, which for the record is mandatory. I know from long experience that a broad and steady swath of safety training topics chips away at complacency and complacency is the enemy.

That short list above represents what we refer to as your framework. It has been estimated to take your average airport nearly 1400 labor hours to accomplish when performed in-house with your existing staff. With this guide, you should arrive at the starting line in less than a month, slow walking it. Or you may decide to fast-track the process, which would get you to the starting line in two weeks. Your best option, of course, is to send me all the information I request, we set a date, and I show up with manuals, plans, and training material, and then spend the next two or three days training and implementing your shiny new SMS. That, my new friend, puts you at the starting line. Instead of 1400 hours and months lost, you have passed "*Go"* and collected $200: your SMS is ready to be used and even better, you'll know what to do with it.

While many airports have spent 1400 hours or more to get to the exact same place, you can plan on a different outcome if you heed my advice. Your choice, of course.

If you're wondering how so many airports (early adopters) could go that high in hours, the sad truth is that in the early days nobody, and I really mean nobody, had any SMS experience. Not the Federal Aviation Administration (FAA) or even the consultants who were hired to assist. Without experience and with a complicated standard to follow and nobody to answer your questions, it's easy to gobble up 1400 hours.

The airport pilot program proves my point. Many ended up with big numbers behind those dollar signs, but take heart, I shall do my best to steer you clear of that costly and avoidable possibility.

In my way of thinking, I could build a house in 1400 hours, and I can assure you all, we are not building a house here. What does concern me just a tad, though, is having done a few of these things, meticulously following the standard, and providing identical deliverables over the past eighteen years, I've never gotten within a mile of 1400 hours . . .

So how long should it actually take the average airport to adopt and implement the SMS framework, which as we mentioned above, gets you to the starting line? Airports come in all shapes and sizes, no question there. I know Hartsfield-Jackson Atlanta International Airport (KATL), to use the biggest of the big, has a larger staff and huge geographic area compared to say, Newport Municipal Airport (KONP), a small airport near me. But—and it's a big but—SMS is industry indifferent; it cares not what you do. The SMS for an airport has the *identical goals and purposes* that an SMS for a repair facility or a pipe manufacturer or for that matter, an airline. Of course there will be differences, but they are minor differences in which they will vary:

- Types and number of hazards to identify and mitigate
- Number of employees requiring SMS training
- Geographic size of the facility
- Number and experience of staff
- Reporting platform and protocols
- Amount of data collection, analysis, and mitigations

Okay, let's get back to how long it takes to plan, build your manuals, train your team, and implement the framework into your average sized airport. Using your standard project management tools (e.g. Microsoft PM, Mind Map, Smart Sheet, and there are hundreds more), you'll notice fairly quickly that time to build the framework varies very little between airports. In those examples, fewer than 10% to achieve identical deliverables in my experience, given similar starting points. *Full disclosure, I did not implement either airport's SMS mentioned above. I simply developed the project management plan and implementation plans to see where the labor hours went.*

My first project was around 600 hours, and my most recent was 160 hours. That is a pretty big difference anyway you look at it. The 160 number is based on my not starting from scratch and having all the manuals, plans, and training material needed to help airports get started. I recommend giving everyone twenty-four hours of SMS training. And by everyone, I mean every human, plus the guardhouse dog.

And, because the SMS is a standardized program (to make conformity audits easier), the framework is the framework. This notion that every single airport should or will have a different procedures manual is, well, not exactly accurate.

Sure, the names and phone numbers will be different and, of course, the airport name and address will differ. Airport organization charts will range from small to huge.

So, for the record, the SMS framework, however you design it, will provide you the protocols and processes to achieve the objectives of the SMS.

1. Identify hazards.
2. Mitigate hazards to ALARP (as low as reasonably practicable).
3. Build a culture of safety.
4. Strive for continuous improvement.

You may be wondering what we mean when we say "culture of safety," because it is very much misunderstood, so here you go . . . The Skybrary definition of safety culture is as good as any I've seen, so let's use it: *"The way safety is perceived, valued, and prioritized in an organization. It reflects the real commitment to safety at all levels. It has also been described as how an organization behaves when no one is watching. Safety culture is not something you get or buy, it is something an organization acquires as a product of the combined effect of organizational culture, professional culture and, often, national culture. Safety culture can therefore be positive, negative, or neutral."*[1]

You, being the top dog at the airport, the big kahuna, the big cheese, have worked hard to climb that ladder to the top, and now is the time to take that hard-earned experience and share it with your team, for they need that knowledge. The SMS project is a great team-building opportunity, a chance to raise the bar without stepping on toes, a learning opportunity which will continue for the life of the program, and provide plenty of safety training and leadership positions for anyone willing to do the work.

Getting the full potential from your SMS is a marathon not a sprint. While you'll start to see the benefits almost immediately, everyone needs to be trained to fully understand

[1] "Safety Culture." SKYbrary Aviation Safety. Accessed September 15, 2023. https://skybrary.aero/articles/safety-culture.

their new roles as it relates to SMS. The hard part is done, you've already got a safety culture and an experienced team, so making the transition to SMS will be a snap.

Chapter 1
The SMS Paradox

In the early part of the twenty-first century, The International Civil Aviation Organization (ICAO) discovered through their exceptional understanding of arithmetic that air traffic was about to triple, thanks in part to cheap airfares and booming economies. The accident rate had plateaued, and all was right with the world. Igor scratched his head and asked the obvious question—could the system sustain that increase in volume? Probably, was the limp response that came back from the experts. *Probably?*

Well, since then, we've come to realize we have a problem, a very dangerous problem. Increased traffic coupled with a controller shortage has resulted in dozens of near hits each month. August of 2023 alone had forty-six near hits.2 (*New York Times* 8/21/23). Those near hits indicate a breakdown in air traffic control (ATC) and you can bet at some point there will be a tragedy, along the likes of the Tenerife collision in 1977 that killed 583 people. Nobody wants to relive that nightmare.

For the record, the powers that be call those *near misses*, which in George Carlin's view is incorrect and I agree. They missed, and that makes it a *near hit!*

2 Ember, Sydney, and Emily Steel. "Airline Close Calls Happen Far More Often than Previously Known." The New York Times, August 21, 2023. https://www.nytimes.com/interactive/2023/08/21/business/airline-safety-close-calls.html.

Now then, as the talking heads at ICAO contemplated the idea of a tripling of traffic, Igor asked another relevant question, with some trepidation this time: if we increase volume by a factor of three and if the accident rate stays constant, won't that mean three times as many accidents?

The eggheads nearly vapor-locked in unison, but quickly adjourned the meeting to debate the pros and cons of the question.

Two years later, the Committee for Ensuring Air Safety (of course) came to the conclusion that yes, if volume increased by a factor of three, and the accident rate remained constant, there would indeed be an increase in accidents. How many more exactly was anyone's guess, but it would be somewhere in the neighborhood of three times as many.

That brought up another quandary of sorts. With that many airplanes falling out of the sky, is anybody in their right mind going to go anywhere near an airport? Probably not. There's that word again, *probably*, which doesn't inspire confidence, does it?

So it all came down to managing our perception of reality, because everybody knows, you can't change reality, but you sure as heck can change perception.

ICAO and later the FAA went hand in hand, searching for a way to bring down the accident rate, which is a great idea in my line of work. They looked high and low, and eventually took a look at how manufacturing companies were managing safety and realized they had been using management systems for quality, environmental, and safety for years with good results.

ICAO swung for the fence and grabbed onto the quality management system, at least initially—there being several versions of it, ISO9001, AS9100, Six Sigma, CMMI. But those standards are large—*really* big since they cover every inch of a large manufacturing company. Far too big and way

too complicated for your average aviator to manage. They looked at the environmental management system and realized that would not lower the accident rate at all, so why bother with that? The SMS was the only thing left and it was already in use by other industries at the time. It was a standard of sorts that provided protocols and procedures to assist with managing risk. It had potential and it even had the word safety in its title, so it became *the Chosen One*.

The FAA quickly issued an advisory circular that described the framework and called it AC120-92, which was identical to the manufacturing SMS standard. The chances of that happening are 10 billion to one, (OHSAS18001).

The terms were unusual and much of it needed to be read several times to comprehend it but besides that, it would do the job. The job of lowering accident rates that is. And just how would it do that you might wonder? We will get to that shortly.

Okay, seems like a good time, so here you go: think of the SMS as a tool that goes into your box of many, many tools (CFR 139, operations manuals, advisory circulars, safety bulletin, etc.).

The SMS will now be your safety management tool. It will provide you with a long list of protocols, procedures, and processes that are all designed to do one thing: help you manage your risks at work. That sounds right to me—simple and to the point. I like simple. For now, do yourself a favor and let that sit for a while on your cerebral cortex tongue; see it, swirl it, sniff it, sip it, and savor it for taste. Okay, I must be thirsty. The SMS, as a tool, is dependent upon the user to be effective, just like every other tool in the box, and effective is your goal. What does that mean exactly? You'll see very shortly.

The FAA will tell you the SMS is a top down, businesslike approach to managing risks, and that works for some people. I prefer to think of this particular tool as my guidebook, similar

to a maintenance manual or owner's manual. I use it when I need it, but I seldom need the manual at all because I already know how to drive.

Repetition is one of the best ways to commit something to memory, though there might be a shelf-life on that rule, since I can't remember the Gettysburg Address they made us memorize in the sixth grade. Say after me please: the four main objectives of the SMS are:

- Identify Hazards
- Mitigate Hazards to ALARP
- Build a Culture of Safety
- Strive for Continuous Improvement

SMS is a performance-based standard, which just means that *how* you achieve those things is up to you. If you are looking for a prime directive for the SMS, let's just say, we're trying to improve hazard awareness across the board, which ultimately will lower incident and accident rates and that will save lives.

If you recall, we started with a rules-based safety system or prescriptive way of staying safe. You followed the rules and when we busted a rule, the National Transportation Safety Board (NTSB) showed up to find out why. The first rule for aviators looked something like this: don't crash!

Sadly, we found people were not following the rules because we kept crashing. So we continued to spend lots of time, energy, and money trying to understand why we keep doing stupid stuff, only to keep coming back to the same answer. We're human. We make mistakes . . . lots of mistakes. We even know why we do what we do. The problem is that we can't seem to do anything to change our behavior. *Why*, you might wonder?

Well, there is plenty of research that confirms our personalities become fixed around puberty, and once that happens,

people have great difficulty in changing. That's one excuse. There are gazillions of others.

Fun fact, NASA was given the task a long time ago to figure out how many mistakes airline crews made on a typical flight. The experts rode along with their slide rules, pencils, and paper to observe and record every movement and every word spoken to see just how many errors were being made. The study revealed that pilots make errors and mistakes, about as often as I toot, which is about every six minutes. Stunning.

We probably need to accept that we are hard-wired that way, either from trauma in our developmental years or flawed genetics. That might be construed as a cop-out to many, and I agree, but there is a certain level of truth to it. I firmly believe we need to shoot for perfection and strive for continuous improvement, and do what we can do to improve, no matter how hard it gets. That's what pros do anyway.

SMS is the current tool to help us achieve that lofty goal. Will it be successful or fall flat on its face is yet to be determined, though I believe in it. Yes, SMS can be an effective tool in the right hands, and it will contribute to a better and safer system for us, but we still have a very long way to go. Especially in developing our soft skills—CRM markers, precursors, human skills, or whatever you want to call them—because they are causal in most accidents.

In our quest to achieve an effective SMS, we need to start with some basic ground rules. First and foremost, SMS *must be simple*! Simple to understand, simple to report, simple to analyze, simple to use. Keep it simple. You can spend a bundle on cool software that gives you charts, diagrams, and graphs, or you can do the identical thing with Excel. Your choice.

Another ground rule: there are no stupid questions ever with regard to your SMS, so when in doubt, ask. If you have a question, call me. If I am out walking the dog, I'll be glad to return your call.

Another ground rule: the reason the SMS looks so stinking complicated and confusing and intimidating is because *it is*. Just accept it, it's not you.

Remember, it was originally written by *standards* people, specifically the British Standards Institute (BSI), which is where the term egghead actually comes from. They are incredibly detail-oriented, to the point of being annoying. And they have their own language of sorts that doesn't particularly help the process at all for the rest of us *normal* folk.

YOUR OPTIONS ARE NUMBERED

Before we dive into the SMS implementation rabbit hole, we really need to discuss your options on how you will proceed. Those options are limited, with significant cost variation between those options, so you will want to *choose wisely*, Grasshopper.

The actual implementation process is basically the same whether you are John F. Kennedy International Airport (KJFK) or Fullerton Municipal Airport (KFUL). What will be different is the amount of time it will take you to train everyone and the number of hazards requiring mitigation, but the framework is the same.

Option 1

Self-implementation with existing staff only. You will want two to four people on your SMS team working on each component. Figure that each person will spend ten hours per week working on SMS. At that rate, you're looking at 34.5 months to complete the framework. Based on national average pay for airport workers ($20/hr.), that brings your cost to $27,600 – $40,000.

Option 2

Contract the entire project out to an architects and engineers (A&E) company. This is obviously the most expensive option and will take the number of hours the FAA said it would take. The difference will be the hourly rate of between $47 to $200 per hour ($64,000 to $276,000), but they will do most of the work for you and hopefully, they have some experience by then.

Option 3

A combination (in-house + expert). This is the most cost-effective and efficient way to go, bar none. If you can find an experienced SMS provider who is available, they will provide everything you need to get the framework in place, provide the initial training, customize your manuals and plans that you then submit to the FAA for acceptance, and provide guidance to your team to complete the implementation process. Cost will vary between $7,000 to $16,000. (The low number is me.☺)

Option 4

SMS Project Management Package. Included in this package are customized manuals, project management tools, implementation plans, training materials, and instructions for implementation. If you can find an experienced provider to share their material with you, you'll be saving yourself about 500 labor hours. $2,900. (Me again.☺)

As you can see right out of the gate, those options vary in cost enormously for the *same basic deliverables.* To make things less helpful in your SMS efforts, there is a Grand Canyon-sized vacuum of people who have applicable SMS experience and the knowledge to help you. There are plenty of project

management experts, more than enough to fill the Titanic, and we all know how that ended.

Another great source of information came out of the test airports where dozens of them adopted and implemented SMS. The ACRP 37 report on lessons learned confirmed my take on the challenges they would encounter. All but one of the participating airports hired a consultant to assist them with the project. Unfortunately, while the consultants had plenty of project management experience, they did not have much in the way of hands-on SMS implementation and SMS management experience, which led to what you would expect. Expensive SMS implementations.

ICAO recommends a phased-in approach which will break up the various sections of the SMS into workable blocks, which is the typical project management style for medium-to-large program implementations for most projects anyway. No surprise, project management tools number in the hundreds so you can go that route or simplify it by doing what I do. Pick an easy Mind Map or project management tool and use it to stay on schedule.

The challenge with the phased-in approach is that it is disruptive and creates added workload for your staff, who also have other primary roles and responsibilities. When performed with existing staff with little or no experience, the implementation process often leads to more questions than answers and can end with disappointing results.

When ICAO and eventually the FAA realized the SMS would be the new paradigm, they were not aware of the problems that small operators would encounter as they tried to adopt the program system-wide. The reason being that nobody in aviation had much SMS knowledge or experience.

Since those early days, we've figured out that you need to simplify and customize the SMS to match the scope and size of your operation. In reality, the only difference between

KATL and KONP is the number of hazards, the geographic size of the airport, the number of employees needing SMS training, and your software. The purpose/goals of the program are precisely identical:

- Identify hazards.
- Mitigate hazards to ALARP.
- Strive for continuous improvement.
- Build a culture of safety.

My job here will be to remove the complexity and confusing aspects of the SMS standard and the process of adopting and implementing it into your organization. My wheelhouse includes aviation transportation, education, and psychology, which means I love airplanes, airports, and all things aviation, and I can teach you how to fly *as well as* explain why you do some of the bats--t crazy stuff you do.

To summarize, big company widget SMS, airline SMS, airport and corporate flight operations SMS and Toilets-R-Us SMS are cousins, if not brothers. The SMS doesn't seem to care what you do, so long as you do it safely with the tools provided. When ICAO issued their SMS mandate for non-commercial aviation service providers, you might say I was in the right spot at the right time.

Chapter 2
Some Background

It was 2006. My phone started ringing and didn't stop for the next decade. Two years earlier I had retired from my flying job of twenty-five years without much of an idea of what I would do next. I had thought about starting my own business for years but had never quite figured out what I would be good at, so I waited, and waited some more.

What happened next was amazing—incredible, actually. Turns out, my flight and maintenance experience had value after all. Here's the crazy part. I had a brother in-law who worked in the manufacturing world as a safety specialist of sort—a quality, safety, and environmental management expert. He is also an OSHA expert, SDS expert, HazMat expert, thermal heat imaging expert, and has more degrees and training certifications than I knew even existed.

But he also planned and regularly implemented and audited SMS programs. Yes, I know, amazing. Unbeknownst to me, SMS had been around for years. So, lo and behold, I became an SMS apprentice for the next two years, (after humiliating myself by begging for the chance). I learned how to plan, implement, train, audit, and manage the SMS. For the record, managing it is where the challenge really begins.

And don't forget, SMS doesn't care what industry it's in, the goals and purpose are identical. In fact, as you probably remember from Chapter 1, the FAA selected the OHSAS

18001 SMS standard used by big manufacturing companies and later issued it as AC120-92 to the aviation world. That was a smart move on the FAA's part, by the way. After all, why reinvent the wheel?

Kaboom. You guessed it, I had somehow just managed to have stepped into a huge steaming pile of good fortune and luck to be there in the very beginning with two whole years of hands-on SMS experience before a lot of people knew what it was. That may not sound like much experience, but at the time, it was two years more than anyone else had in the entire aviation industry.

For the next decade or so there wasn't a lot of white space on my calendar. I regularly was on the phone with Don Arendt at the FAA, who was their point man when it came to SMS. He and I spoke often about the confusion that existed between regulators, the NBAA, and ICAO and how to ensure the SMS would be overseen and standardized. He was a gentleman and a great resource to me in understanding the regulatory side of SMS. I really wish he was still with us.

The confusion was palpable at the time, and Bermuda, of all places, was one of the 193 ICAO member states who said they were going to enforce the new mandate, which became known as the first shot heard across the boardroom. The FAA had no intentions of requiring SMS for corporate flight departments, though they strongly recommended it. They had their sights on bigger fish, namely the airlines and airports.

I had already planned and implemented a dozen or so programs for various flight departments by that time and I decided to get some clarification, so I called the Coordinator of Aviation for Bermuda's Civil Aviation Department. They asked a lot of questions, picking my brain about what I knew and what I didn't know. They asked me to send them copies of my plans, manuals, and training materials, and eventually

said they needed to talk about it and would call me back when they had some news.

They called me back exactly ten minutes after they received the material requested and said they had decided to send me the first SMS LOA and even waived the $14,000 fee for it. It was an impressive document, I must say. By the way, there is no formal process, even to this day, to have your SMS program approved or validated or inspected by anybody! Go figure.

That is because the SMS along with a bunch of other similar standards, are performance based as mentioned earlier, so nobody cares what your books look like as long as you are working to achieve the four *main* objectives of the SMS: Here they are:

- Identify hazards.
- Mitigate hazard to ALARP.
- Build a culture of safety.
- Strive for continuous improvement.

I've now worked with hundreds of flight departments of all shapes and sizes, taking my aviation experience and integrating my newfound knowledge of the SMS. For me, the initial learning curve took twenty-three months, nine days, and six hours of making every conceivable mistake, error, and omission that is possible in the process, eventually receiving my Th.D. from the SMS University of Hard Knocks. (Doctorate of Think-ology, 2006).

In the next chapter, you will ride along with me on a journey of sorts, as I share eighteen years of hard-earned knowledge, experience, blood, sweat, and tears—yes, plenty of tears but mostly sweat—learning all things SMS. So hang on, make sure your seatbelt is fastened and your tray table is in it's upright and locked position, this is going to be fun . . .

Chapter 3
Start With the End in Mind

Let's start with the end in mind—another borrowed phrase, but a good one. The prime directive of SMS is to improve aviation safety. It does that by pursuing the following four objectives:

- Identify hazards.
- Mitigate hazard to ALARP.
- Build a culture of safety.
- Strive for continuous improvement.

Okay, I know you just read that, but it's kind of important. Write 'em down—it will be on the test. Commit those objectives to memory because they represent the purpose and goals of an effective SMS. By the way, should you remember those four nebulous phrases and someone in the distant future should ask you what you know about SMS, and should you regurgitate them in the blink of an eye, you shall for all eternity be known as a titan, a king, an expert among airmen! You'll also know more than 90% of the folks at the FAA, ICAO, EASA, JAA, IATA and the rest of the member states.

We might as well begin with your first minor challenge. Getting top management and line personnel to buy into the idea that SMS will improve safety. Some hate the idea, others are curious, while others are trying to figure out what does "short message service" have to do with me? Whether they buy

in or not, you've got to do it, so you might as well have fun in the process, right?

Buy in, as defined in the context of SMS, actually requires top management to provide the following:

- All resources, financial and personnel needed.
- Training must be provided and documented.
- Internal audit results must be acted upon.

Buy in has another definition concerning line personnel, which is the belief the SMS has value and will improve safety for them. The truth is that over the years of working with SMS I've come to the realization that SMS is most effective when you have a just culture (open communication), everyone is fully trained and understands their SMS roles, and everyone takes personal responsibility for their own safety, your safety, and my safety. It's the ideal culture, and if you have one like that, your transition to SMS will be a cinch. If not, good luck. I can assure you, if you don't have those things in place, don't waste your time or money on SMS until you do. An SMS built upon sand will not stand.

Just Culture

The concept which emphasizes that mistakes are generally a product of faulty organizational culture, rather than solely brought about by the individual directly involved. In a just culture, after an incident, the question should be, what went wrong? Rather than who caused the problem? A just culture is the opposite of a blame culture.

Basic SMS Fundamentals Training

For the small group that will be implementing your SMS, strangely named the implementation team, make sure they are

trained. There are tons of free materials online, our website included.

Now then, the powers that be have done the analysis and, in theory, know the potential benefits of a robust and effective SMS. There are, of course, other deliverables that make the effort worthy of your time.

Turns out, happy people are safer, more alert, more energetic, not to mention more fun to work with. In addition, here are a few other potential benefits of an effective SMS, at least theoretically.

- Reduced cost associated with accidents/incidents
- Improved staff relations and better morale
- Improved business efficiency
- Improved public image and public relations
- Lower insurance premiums
- Increased regulatory compliance
- Improved confidence
- Increased corporate and social responsibility
- Increased compliance and standard conformity
- Improved operational efficiencies
- Reduced operating costs
- Increased employee confidence
- Improved standardization
- Peace of mind
- Standards conformity
- Proven ROI
- Improved communication
- Improved decision making
- Improved documentation
- Proactive and predictive decision making
- Higher productivity levels
- A strong safety and just culture

Here is my list: (Okay, it's not really a list.)

- Higher hazard awareness means fewer incidents

DO YOU HAVE A JUST CULTURE?

Professor James Reason described a "just culture" as an atmosphere of trust in which people are encouraged—and even reward—for providing essential safety-related information, but in which they are also clear about where the line must be drawn between acceptable and unacceptable behavior.3

Regular people like you and me are less willing to admit mistakes if we are afraid of being embarrassed, ridiculed, tasered, or thrown overboard by our peers or our boss. That's a fact. To have an effective safety culture, you cannot, I repeat, cannot do those things when somebody screws up. Instead, if the error was not intentional or due to intoxication or a few other things, you probably should counsel and train the person. As hard as that can be at times, it is fundamental to safety reporting.

The consequence of not having a just culture is that your employees won't trust you or inform you of potential safety hazards, and that makes you unable to make the right decisions in order to improve safety. It is dysfunctional, which is a word that is pretty self-explanatory.

Even with a just culture, you'll still need to establish an anonymous reporting system as soon as possible so employees can report errors, mistakes, and concerns without being identified. Yes, in a perfect world having a just culture should be enough, but you still need anonymity to ensure people will report their errors, mistakes, and concerns freely.

3 Reason, James. Managing the Risks of Organizational Accidents. London, England: Routledge, 2016.

Remember, SMS's primary purpose is to identify hazards. Not reporting a hazard because you're afraid of being ridiculed or embarrassed is in itself *a hazard*.

DIFFERENCE BETWEEN THING ONE & THING TWO

"Thing One" is the old safety paradigm, which was mostly reactive when it came to hazards. We waited until Todd got ran over by the baggage cart before we worried about baggage carts or bothered to train Todd about baggage carts.

"Thing Two" is the SMS paradigm and it's all about being proactive and predictive in your analysis concerning identified hazards. It requires you to mitigate (fix, remove, warn, educate, limit access, etc.) those hazards to the lowest level of risk possible.

So what exactly is a hazard as it relates directly to your SMS?

A condition that could foreseeably cause or contribute to:

- injury, illness, death, damage to or loss of system, equipment, or property, or
- an aircraft accident as defined in 49 CFR 830.2.

In our quest to simplify our terms and protocols, I prefer to use one word definitions whenever possible and in this case it is. Concise and descriptive:

HAZARD = HARM

If something can harm people, equipment, environment, animals, or your reputation, that's a hazard and, under the SMS paradigm, we need to report it and fix it. Is a rattlesnake out on the taxi way a hazard? How about a pothole in the parking lot? How about a depressed coworker? Hmm, ponder that last one for a moment?

As part of this fun process, you will build yourself a hazard registry (HR), which you probably already have. That document lists the hazards, the potential for harm, and scores the severity and probability (subjectively I might add) to determine the overall risks. It also provides a summary of mitigations that are appropriate to keep those risks at an acceptable level, you know, ALARP.

Just for fun, spend a day and walk the movement and non-movement areas of your airport. Bring a pad of paper and a pen along or use your smartphone. Next, pretend you are a nine-year-old with no supervision. Ask yourself, "What kind of trouble can I get myself into?" and write it down. The list you are compiling will number in the dozens or even hundreds for an airport like SeaTac. There are no wrong answers by the way. You want a real list; things that could conceivably harm.

Fun fact: If you know of a hazard and don't report it or document it or fix it or remove it and somebody comes behind you and is injured from that hazard that you ignored, how do you think you're going to feel? Think about it.

The other concern, of course, is the question of liability or the possibility of negligence. Should there be a hazard that everyone knows about but has not been formally mitigated or even documented, and something bad happens later, someone might start asking why. For the record, and full disclosure here, I am not an attorney, and I am not giving anyone legal advice here. But my other brother in-law was a judge, and told me what to watch out for, especially when it comes to the term "negligence." Just saying.

In short, your hazard registry is helpful, and it shows you are doing the proactive due diligence required by your SMS, and probably your insurance underwriter. But it's not entirely a guarantee that somebody won't find a way to hurt themselves in a moment of complacency. The important part of this exercise is to educate everyone *what* and *where* those hazards

are, and you'll continue that process by sending out regular newsletters and updates of the list. And of course, your team will be reporting them as they see new ones. Great topic for your next safety meeting.

Finding the obvious hazards or low-hanging fruit is easy enough to identify and mitigate, but what about the human factor issues that are really at the root cause of the majority of incidents and for that matter, deadly accidents? Those can get complicated, so what would you think might be an effective mitigation for them? The first thing that comes to my mind is training. The second thing that comes to my mind is more training. The third thing that comes to my mind? You guessed it. Training!

Now that everybody knows their jobs and they know the hazards associated with those jobs, how do you know they are operating safely and are *fit to fly* as we used to say?

You ask them. You observe them. And you do it often enough to know they are operating on all cylinders. Really? Really.

That brings up the question, is *Todd's* attitude a hazard? Well, it certainly could be. What if Todd is under stress, say, suffering from a recent divorce, a death in the family, or illness or a hundred other things that could overload Todd's ability to play nice?

I know what you're thinking, it's not my job to make sure Todd is okay. Well, actually, welcome to the SMS world, because under the new sheriff, you are not only responsible for your own safety but you're also responsible for Todd's safety and my safety. Safety under SMS is a group responsibility. You may not like it, you may not take responsibility for it, you may say it doesn't say that anywhere, but you own it regardless.

From years of crew resource management training and accident investigations, we've learned there are behaviors called "markers" or "precursors" that are often apparent before,

during, and after a tragic event. It is a fine line to walk when someone is demonstrating unusual or concerning behavior, but it is often a red flag that may indicate a problem exist. The question then becomes, what action should you take?

We rationalize our disconnection by saying it's none of my business or he'll figure it out or a hundred other excuses to not get involved. But when tragedy strikes there will be collective guilt for not acting, and it starts all over again because we never seem to learn. You don't need a degree in psychology to understand behavior can often indicate trouble and SMS tells us it might even be considered a hazard, and you know what that means, *hazard = mitigation = action.*

From the vantage point of your SMS, there are plenty of hazardous attitudes that can be, well, *hazardous*. Here is my short list:

- Anti-authority
- Impulsiveness
- Invulnerability
- Too competitive
- Oversized ego
- Resignation
- Depression
- Procrastination

Again, welcome to SMS world, where each individual is watching out for each other and feels obligated to make sure nobody gets hurt today. In that world, we are all connected, striving for the same thing, acknowledging that we are a valued member of the team. It requires working outside of our comfort range at times, but it's worth it in terms of how it improves process, performance, and our job satisfaction.

With the right attitude and understanding of human factors such as they are, we should be able to improve safety levels

by everyone's concerted efforts, perhaps slower than we would like, but progress all the same. Below is a list of the *primary markers* we look for on the flight side of things, but it's relevant for airports as well:

Group Decision	Flawed Decision	Poor Judgment	Lack of Communication
Poor leadership	Poor Task Management	Poor Safety Assurance	Complacency
Distractions	Workload	Technology Errors	Errors in Standard Operating Procedure (SOP)
Fatigue	Poor Planning	Time Urgency	Stress
Non-Compliance	Non-Conformity	Poor Standardization	Lack of Knowledge
Norms-Status Quo	Assuming Too Much	Overconfidence	Lack of Resources
Scarcity	Competition	Elite Bargaining	Routinization
Cultural Complex	Incrementalism	Information Flow	Lack of Awareness

ERROR-PRODUCING CONDITION	**INCREASED RISKS FACTOR**
Fatigue	50 X
Startle Effect	17 X
Time Urgency	11 X
Information Overload	6 X
Poor Communications	4 X
Non-Standard Procedures	4 X
Distractions	4 X
First Mistake	Nobody knows, but it is huge

There you go, a list of the human factor hazards that are common and generally causal in accidents, so if you want to lower incidents, focus on them. Not only are we seeing these nervous breakdowns on airplanes, but we're also seeing an overloaded ATC system that is understaffed at the same time we're seeing lots of training. What could possibly go wrong?

Those are not hypothetical examples; they are real and current, which means trouble.

In the SMS world, the answer is simple. Take action:

- Identify the hazard
- Define, investigate, and qualify the hazard
- Establish the level of risks that hazard exhibits: we do that by looking at a risk matrix that considers *probability* and *severity*. It matters not which type of matrix you use, they come in all shapes and sizes, some use numbers, some us letters, some use both. Others don't use either.
- Next, lets score the risks level by using this formula: P x S = RF

		Risk Severity				
		Catastrophe (A)	Hazardous (B)	Major (C)	Minor (D)	Negligible (E)
Risk Probability	Frequent (5)	5A	5B	5C	5D	5E
	Occasional (4)	4A	4B	4C	4D	4E
	Remote (3)	3A	3B	3C	3D	3E
	Improbable (2)	2A	2B	2C	2D	2E
	Extremely Improbable (1)	1A	1B	1C	1D	1E

Let's perform a hypothetical risks assessment of a hazard that I've identified, while out one day cruising the airport looking for hazards. Here are the steps to follow:

HAZARDS

I noticed on a paved area adjacent to the Fixed Base Operation FBO ramp, a twelve-foot-high chain-link fence that appeared too close to pavement should an aircraft turn too late when entering the ramp. I made a note of it and took a picture with my smartphone and then sent it via text to the safety management system coordinators (SMSC) I was working with at the time.

Qualify the hazard

The SMSC came out to see the hazard and we watched a couple of jets taxi in and out using the FBO's line personnel as marshallers.

No near hits were observed, but it clearly was a tight fit requiring two lineman, one on the wing and the other at the nose of the aircraft and we decided to run a safety risk management (SRM.)

Quantify the Risks Probability

Risk probability is *remote* to *occasionally* possible, so I select *occasionally (4)* (the higher number). Under the *severity* column, if there was a collision, it would probably not cause an injury, but could substantially damage the aircraft wingtip, so I select *major damage (C).* I Multiply P x S = RF/ 4 X C = 4C.

Find 4C on chart above, which is near the top of yellow and right below red.

Be advised, that was using my *subjective* opinion, which might differ from yours. Nothing wrong with that. If you have a consensus, just go with it. If you don't, I would tend to go with the higher risk value.

From this exercise, we would determine a high risk exists (4C) and therefore, should be mitigated. That mitigation needs to happen fairly quickly before an incident occurs.

Implement the mitigation

You may decide to get your safety committee together to select an appropriate mitigation. Or you may need to find out who's fence it is, airport, or FBO before proceeding. You also will want to train your line people about the fence. Get some cones, flags, crime scene tape out *right now* while you figure out a more permanent solution. What would you do?

I would either lower the fence, remove the fence, or avoid that part of the ramp for parking, which in this case, is not an option. I might also consider a different approach that requires my team to tug the aircraft into position, but that has problems as well. You can see how these little things can turn difficult really easily. Do it now, or wait? For the sake of training, let's wait in this example. What could possibly go wrong?

A few months later, we receive a notice from the FBO manager that an aircraft under the direction of his marshallers had clipped their wing while turning. Nobody was hurt, which is good. Unfortunately, it was a $50 million jet:

- Damage to aircraft wing – $350,000.
- Chartered jet to complete the flight – $75,000.
- Ferry permits – $14,000.
- Accommodations for two weeks for four – $16,800.
- Lost revenue for jet – $150,000.

- Damage to fence – $15,000, for starters.
- Not sure what the final bill will be, but right now it stands well over $600,000. *Ouch.*

You can argue that's why we carry insurance and you'd be right, but I am guessing that if we could have avoided that incident in the first place, that $600,000+ sure could have been put to better use. Just saying. By the way, that is a summary of an incident that actually happened to one of my managed clients a few months ago, so stuff like that happens all the time.

Chapter 4
Performance-Based SMS

Moving at the speed of a cheetah, your SMS knowledge base is rapidly growing, and it won't be long before you will be ready. Ready to attack the project with a level of expertise and confidence that will be inspiring. But we are still building that foundation and there are a few more things you'll need to know.

We've determined at this point you are responsible to make sure your SMS conforms to the standard—not the FAA and not me—so coming up, I will walk you through just how I conduct that type of audit, so you'll know how to do it yourself in no time. The other interesting thing is the FAA has neither the staff, experience, nor ability to audit every single SMS in the system, which is another reason why your SMS will be self-regulated, and it will be *up to you* to self-declare you are conforming to the standard. But first . . .

SMS AND ACCIDENTS (WHAT YOU SHOULD KNOW)

In Part 91 World, we've had a few accidents under the new paradigm, so we kind of know what to expect. In one case, the operator had an SMS plus a quality management system (QMS) and Stage II certification with the International Business Aviation Council (IBAC) at the time of the accident. The

ensuing investigation revealed a level of misconduct and a failure to comply with the manufacturer's recommendations regarding checklist and procedures to a degree you just don't see very often.

The NTSB report laid it out for the world to see and it was painful. The operator's SMS received zero attention in that investigation, though they did say that independent safety audits did not adequately encourage best practices for the execution of normal checklists. Huh? They wouldn't unless you flew with them.

I spend an inordinate amount of time reading accident investigations. I am fascinated with human factors, error chains, decision making, and a hundred other CRM markers that seem to always pop up as causal or contributing. My managed SMS group receives my summaries and how the SMS may have been involved in the most recent accident in my weekly safety bulletins.

So far, the NTSB has only referenced SMS in a few lines here and there without saying much in terms of how the SMS contributed to the accident. Remember, the purpose of your SMS is to identify hazards. All kinds of hazards, human-factor hazards, non-conformity to the manufacturer's checklist procedures is certainly a hazard. How about not following your SOPs, or not using your personal protective equipment (PPE) when you are supposed to. Those are going to be contributing factors in future investigations that point to a problem with your SMS, don't you think? It does to me, but then again, so far, the NTSB has not gone down that path very far yet.

The point, please? Well, if you are responsible to ensure your SMS conforms to the FAA standard and regulation and you have an incident or accident that determines you have an underutilized SMS, or worse a ticking time bomb, does that increase or decrease your liability? Or put another way, why didn't you use your SMS effectively?

That's the hypothetical stuff that keeps me awake at night. I don't have an answer either, but I do know there are an awful lot of underperforming, underutilized and dysfunctional SMS programs on the flight side, and in at least two crashes, an effective SMS could have prevented the accident. I suspect we will see a similar variation in quality of programs on the airport side with a similar end result.

Of course, aviation accidents are complicated, with lots of moving parts, but we do know with some certainty now that poor soft skills often lead to what we refer to as an undesired aircraft state (UAS) in flight operations, and the same will be true on the airport side of things. Our hard skills (technical expertise), with some notable exceptions, don't seem to be the problem. It is our soft skills.

The question you will need to ask yourself regularly is, "Are you striving to achieve the four main objectives of the program?" That is your benchmark and you either are, or you are not. If you are not, why not?

MORE ON THE FAA'S ROLE

The FAA at some point may want to see your manuals and your documentation, but they won't be issuing violations or sanctions should those docs fall short in their opinion. To say you are not conforming to the standard is a subjective statement that requires real evidence, not just an opinion.

For now, as you build your SMS, assume you must operate within your AOC and SMS once implemented. Think of those two documents as umbrellas—stay under them and you'll be just fine. Venture out from beneath that protection, and you're on your own. Yep, I've seen it happen way too many times to not believe it. That is why training is so important. Train your team to understand the rules and the policies and the

procedures that are in the book. The book being AOC and your SMS.

For example, if you say in your SMS procedures manual that you will perform an internal audit/evaluation quarterly, then you should have documentation to prove it. If you say you hold a safety committee meeting each month, have the documentation to prove it.

Fun fact: there actually is no process to have your SMS approved. It can be audited to determine whether it conforms to the standard or not, and there is a provision in the International Standards Organization (ISO) QMS that allows an organization to demonstrate their conformity to a standard by seeking confirmation of its self-declaration by a party external to the organization. That self-declaration process is what I do when I audit an operator's SMS. I sign the declaration once I've determined that yes, in fact, their SMS conforms to the standard. It is not required by the regulation that you get this declaration by the way.

So why bother? In the early days of the ICAO-mandated SMS, corporate flight departments with international exposure had to adopt SMS, without any way of ensuring it would meet the ICAO SMS standard. We are talking about thousands of Fortune 500 companies with expensive jets and fat cats in the back who regularly go to member states (ICAO 193 at last count).

To really add confusion to the situation, the NBAA/IBAC developed their quality management system referred to in the industry as the International Standard for Business Aircraft Operators (ISBAO). (QMS includes an SMS).

In reality, it was SMS that was required by ICAO, who never had a provision to determine acceptability or conformity in the first place. Wish they would have said that in the beginning, it certainly would have made my job easier.

Fun fact: Who will determine if your SMS conforms to the standard? Will it be the FAA? Will it be a third-party auditor like me? The honest answer to that question: "It's *you* baby." You will self-declare your SMS conforms to the standard. When your inspector comes calling, she or he will simply ask you if you have one. Initially, they may want to look at it, but basically, they will want to check the box and move on. They are airport experts, not SMS experts.

What would you suppose an inspector or auditor would be looking for when they pop in for an inspection anyway? Well, you've been through a ton of them already per Part 139. Now your AOC has a footnote saying you also have an SMS found in a stand-alone manual. Will they audit that manual? Nope, why would they? It's already been accepted by them during your initial SMS document review that preceded your implementation.

On the other hand, if you want a third-party SMS confirmation of conformity, something I do, let me give you an idea of that process. It all starts weeks before a visit. I request certain documentation, manuals, various reports that prepares me for my visit. I will spend a day or two looking at the following:

- SMS procedures manual revision date should be within two years.
- SMS workbook – This includes a few things that don't fit in the first volume, things like an HR, ERP, work instructions, JHAs, training material, KPIs, etc.
- SMS documentation in paper or digital format includes all submitted reports, incidents, near hits, and minutes of meetings.
- Reporting protocols I recommend using smartphones to make it simple.

Your manual will look pretty much like everybody else's manual since it's a standardized framework or standard. These four components being front and center

- Safety policy
- Safety risk management (SRM)
- Safety assurance
- Safety promotion

Great. Your framework is in order. Well done.

Next, I interview as many people as possible who will talk to me about how they report hazards, what is the participation rate, how is morale and job satisfaction, do they have team cohesion, what's their opinion of safety levels and the boss, what suggestions do they have, how many incidents were there, how many reports, how many near hits, and a bunch more. You get the idea. Lots to look at here.

From that data dump, I'll determine *if* they have an effective SMS or a ticking time bomb. With experience, like anything else in life, you learn as you go and that helps with making subjective decisions and judgments with confidence.

Remember, the SMS is a performance-based standard without a requirement to have the FAA audit it. Nice. That gives you maximum flexibility in how you achieve your *main objectives*. One more time:

- Identify hazards
- Mitigate hazards to ALARP
- Build a culture of safety
- Strive for continuous improvement

We are marching toward the starting line, and it won't be long before your basic SMS foundation is ready to build on.

Chapter 5
Getting Organized

You now have enough basic information to pull the trigger and get your program on the road again. Since SMS in its latest form is complicated enough to confuse most people I know, we'll simplify and translate as we move forward.

STEP 1

Get your SMS team together. I would recommend more than one and less than six. Assuming you are self-implementing, this team will be voluntary and can expect to spend about two hours per day together. If you can only get together one hour per day, that will double the time it takes you. Anyone can be on the implementation team, they just need to want to be there. (Not really, but it helps.)

STEP 2

Let's fill the top SMS position right now. Who wants it and who has great leadership skills, understands risk analysis, is a quick learner, and, oh yeah, wants it? You can call that position anything you want: safety officer, SMS coordinator, program coordinator, program manager, big cheese, big kahuna . . . whatever floats your boat.

There are some basic characteristics that we've identified over the years that should come with the job of SMS head honcho.

By the way, it does not need to be a line type person or a management type or a support type or even the new person. Try to get somebody who really believes in safety and has as many of these qualities as possible and who *actually wants the job.* They should possess:

- Sound knowledge of safety management.
- Good written & verbal communication skills.
- Computer literacy.
- Ability to relate to others.
- A self-motivated attitude and be well respected.
- Good analytical skills.
- Leadership, confidence, and tact.
- A high level of integrity and honesty.
- A strong desire to do the job.

I'll assume you have people that possess those attributes. And let's assume that someone won't mind a little extra workload, stress, and some minor fatigue, but only for the next three years . . .

Oh yeah, here's a question I get a lot. Does the SMS lead need to be an experienced safety expert? *No.* They do not, though it's nice if they have an interest. I have trained many, many, SMSCs. You're looking for someone who will not be overburdened with the job, is interested in safety, and will speak their mind when appropriate. It can be anyone with the right attitude.

My training program for SMS top dog is a deep dive that *could* last a week, but generally it's two days and dependent on the selectee's background, experience, attitude, enthusiasm, ability to lead, and their ability to buy in.

What's that mean?

They know safety is priority number one and it can be improved with lots of work. My point is I wouldn't object

to giving the job to a highly-motivated person that may not even work the line, fly, or wrench. I've seen it happen several times—a non-aviation type steps into the role and does a great job.

After all, you will be providing specialized training to the person you choose so you are looking for a motivated and assertive team player.

STEP 3

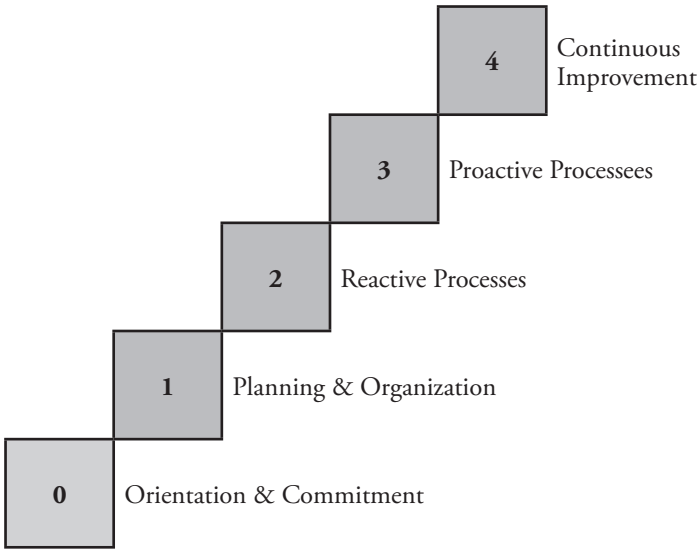
Get some basic SMS training. Visit my web site or a gazillion other ones for free material. Keep it brief and simple. Eight hours is more than enough; actually, four hours will do for now.

The FAA wants you to start your journey to SMS world with a gap analysis. The "gap" between what you currently have and what you want to have, is well . . . the gap. That gap gives you an idea of what you'll need to do as you make the transition to the new paradigm. No point in reinventing the wheel here. It's all been done and is available to you just for the asking. Let's start by saving you your first sixty hours of work by saying you really don't need to waste your time doing a gap analysis. Here's why.

- You will be adopting a stand-alone SMS and the SMS is standardized. You'll pull out the sections from your AOC you already have and plug them into the appropriate component.
- Under Part 139 you no doubt have an established culture of safety. That will make the transition to SMS easy. Remember, SMS is performance based to meet the four main objectives.

Our goal here is to get you to the starting line, where the work and fun really begin. It can take some airports up to

three years to get to the fourth level of the FAA's maturity ladder.



You should be able to quantify your progress (improvement) within twelve months. And, because SMS is a living document—*stay with me here*—it will evolve, change, and improve over time. You can plan on revising your SMS procedures manual at least once a year for a while.

Back to the question and confusion between the words "framework" and "standard." Originally, the FAA called the SMS a framework. The SMS framework found in AC120-92 and AC150/5200-37 eventually evolved into A and B iterations where it started to be referred to as a standard. To be perfectly honest, it really isn't a standard at all, because that process takes a long time and requires an extensive vetting process by the standards' bodies (BSI, ISO, AS, etc.). But for our purposes, it's a standard.

Just to confuse you a little bit more, I like to refer to the implementation process as building the framework of your SMS program. That framework needs to be strong and done

correctly because it's *foundational.* Here is what we are doing when we say building the framework.

- SMS implementation team formed and trained.
- SMS coordinator selected and trained.
- Implementation and project management plan complete.
- SMS procedures manual (AC150/5200-37A) complete.
- SMS Workbook (HR, JHA, WI, ERP) complete.
- Training program (initial and ongoing) in process.
- SMS administration—documentation, reporting platform, filing system in place.

Training your employees will obviously take some time, though they can do most of it online on their day off and then you could have a meeting to see who has questions. Or even better, train your trainer and set them loose. Plenty of free material out there, some of it better than others, some videos, many, many, *many* PowerPoints, so be careful because death by PowerPoint is a real thing . . .

Get your team together to celebrate when you complete a series of goals. We call them milestones.

Here are your initial goals.

1. You have your SMS implementation team + basic training
2. You have your SMS coordinator + basic training
3. You have your project management plan
4. You have your SMS procedures manual
5. Submission to FAA for "acceptance"
6. Milestone 1 Complete: Let's celebrate! How about a cake? Maybe a visit to the local pub? Though be careful. After all, we don't want to see headlines like this: "Local airport employee arrested for DUI

on drive home after safety meeting . . .” (Yep, it happens!).

Chapter 6
Project Management & Implementation Plan

Before we go deep into your project management and implementation plan, know that you have four components to fill regarding your SMS. Those four components are:

- Safety policy.
- Safety risk management.
- Safety assurance.
- Safety promotion.

Uncle FAA will want to see your implementation plan and your SMS procedures manual for acceptance. No formal approval process at this point. They will want to see if it looks similar to the other 268 plans and manuals they will be looking at. Very standardized stuff here. Again, you don't need to reinvent the wheel and you certainly don't need to spend a ton of money. In fact, by standardizing your manual, you've in essence made their job easier because they can take one look and know right away if you like standardization or you're a cowboy . . .

Okay, you've got one to six people on your SMS implementation team, and you have your SMS coordinator. And now the following steps will guide you through the project

management phase, which, in our case, will be simple, easy, and quick.

I break down SMS projects into six or seven phases and then assign team members to tackle them either individually or in pairs. You've got plenty to do here, but I'll be giving you pretty much everything you need and then some. So relax, breath, turn on some music, and pour yourself a cool one because everything's going to be just dandy.

In terms of keeping things simple, let's plan on using the benchmark: sixth grade simple. Shoot for that level of complexity. Nobody to impress here. That was the job of the standards folks that designed this monster in the first place, and I think we can all agree, they did a fabulous job.

The FAA provides an example of what they would like to see in your implementation plan that can be found in Appendix A: AC150/5200-37.

Chapter 7
Safety Policy

Thanks to Uncle FAA, you have the option to integrate the SMS into your AOC or make it a stand-alone document. In terms of simplicity and ease of revising, a stand-alone SMS is the way to go. Of course, that is your decision and if you've got a couple hundred spare hours of time, you may want to combine those two thin manuals into one fat one for the sake of saving money on binders. Entirely up to you. No judgment here.

One of the early things you'll need to determine is who exactly will be the accountable executive (AE). For the purposes of your SMS, the AE is the real top dog in the organization. The airport manager could be the AE, but not always.

There has always been a lot of confusion about who that lucky person will be at big airports, but in most organizations, it would be the top dog—the person who can make decisions and spend the money. In short, they are responsible for providing the resources needed to achieve an effective SMS. They do not typically manage the day-to-day operational aspects of their SMS. It may help to think in nautical terms, it's the person who will go down with the ship if it hits an iceberg.

They will be signing your policy statement, and that policy statement is kind of important. I've seen hundreds of policy statements and they really need to be specific to your unique

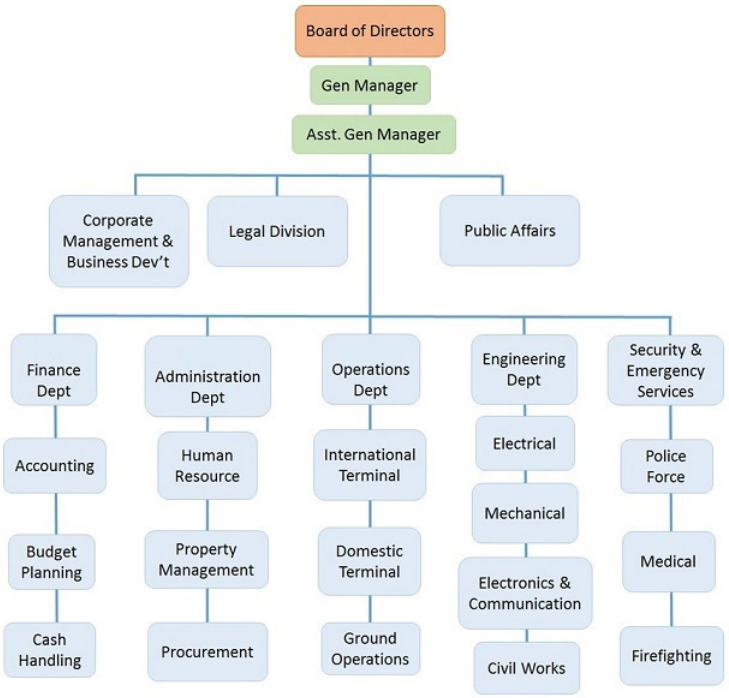
airport. One page is more than enough room to say what you want to say. It also helps to know while forming this document, if you ever have a serious accident or injury or worse, investigators will inevitably want to see that document. To repeat myself, kind of important. Here is one good example the things folks put in theirs:

> *In everything we do and in all aspects of our airport, we make safety our top priority, strive for first-time quality, and hold ourselves to the highest ethical standards. Our Safety Management System ensures the safety, quality, and compliance of our airport for the people who entrust us with their lives when they visit us. Our commitment is to the provide the following:*
>
> - *We commit to a Safety Management System to advance our goals for safety, quality, and compliance.*
> - *We foster a positive safety culture that enables proactive identification and mitigation of risks in order to prevent accidents, injuries, or loss of life.*
> - *We ensure all employees understand the requirement to report any safety hazard, incident, or concern.*
> - *We promote a just culture that protects and treats people fairly when they openly report safety, quality, and compliance concerns.*
> - *We openly communicate safety actions being taken while appropriately protecting the safety data and safety information driving those actions.*
> - *We clearly define the responsibilities of all employees so that everyone understands their roles*

in ensuring the safety, quality and compliance of our products and services.

- *We eliminate or mitigate potential safety, quality and compliance risks associated with our products and services, which must include meeting all applicable requirements and regulations.*
- *We use actionable key performance metrics and targets that drive continuous improvement of our Safety Management System.*
- *We allocate sufficient resources (people, processes, tools, and training) to supporting this safety policy.*
- *We ensure all employees understand that we all have a daily obligation to pursue safety, quality, and compliance as described in this safety policy.*

Remember to sign the document, actually that is a common finding during audit. Or you could do what some big corporations do, all the top executives and managers sign it. Once signed, it goes into your SMS and your AOC. It's not a bad idea to post it where everyone can see it as a reminder. Take a look at this organization chart to see who should be your AE:



In the case above, clearly the AE would be your general manager. Now, that person, or her representative, should have a chair at the safety committee meetings when possible, but they won't be running the meeting. Unless that person also happens to be the SMSC.

Remember this: the SMS Coordinator must have direct access to the accountable executive (AE). If something comes up that is urgent or requires significant money, you will want to include the AE in that discussion.

To be clear here, the SMSC can act on their own and should make decisions on the spot when needed. We really don't need the AE's opinion as a rule, but we do need approval at times, because money is involved. Our experience in dealing with

the top dog is that they value quality and performance. They expect the best and they will not accept anything less. By implementing the SMS, the AE is simply taking the initiative to ensure that remains true. That means investing in your team and providing ongoing training and establishing high standards of performance.

The implementation of an effective SMS goes a long way in demonstrating your commitment to safety and professionalism at your airport. But also understand, an ineffective or underutilized program, can just as easily become more of a liability than an asset, which has happened way more than you might think.

It happens when you start ignoring or fail to make reasonable efforts to mitigate identified hazards. At that point, you run the real possibility of opening yourself up to potential claims of negligence should an injury occur as a result of that identified hazard that you did nothing about. (My opinion only, I am not an attorney).

There will be plenty of hazards that you cannot mitigate to ALARP, because mitigation is simply not reasonably practicable. In those cases, you can often use signage or limit access or provide specialized training, but at a minimum, inform and educate personnel and document it.

Keep in mind, your policy statement is a reflection of management's priorities and vision. It gives employees confidence when those words are believed and followed. Unfortunately, the other side of that coin is that if the statement is not taken seriously or not followed it becomes a joke, the whispered sarcasm throughout the operation.

Be careful what you say here and make your goals SMART—(Specific, Measurable, Achievable, Relevant, and Timed).

Your SMS implementation team along with the SMS coordinator, should put together a safety committee, a formal group that meets on a regular basis. Weekly to monthly is

appropriate depending upon your specific airport. Selecting the right people to be on that committee is important. The safety committee will be led by your SMS coordinator and reps from the airlines, airport rescue and fire fighting (ARFF), and even vendors depending on the size of your airport can be included in these meetings.

That committee's basic function will be to create and maintain an active interest in safety and hazard awareness and to reduce and eliminate incidents and accidents. Sounds simple enough. Meetings are prepared by the SMSC, and itineraries are sent out to participants in advance. Group size should be limited to ten if possible and keep your meetings to one hour. Yep, death by meeting is a real thing.

Topics will vary for each meeting but follow a general framework to ensure all SMS related concerns are addressed. Here is a typical list:

- Review previous minutes.
- Discuss results of regular inspections of facility.
- Review open corrective action request forms.
- Discuss all ideas to improve safety submitted by personnel.
- Discuss accidents and incidents and take preventative actions.
- Review and develop standards and practices for routine work.
- Post safety signs and promote the safety culture within the airport.
- Keep minutes of meeting for future reference.
- Establish training schedule and training programs for personnel.

Once your policy statement is a wrap, time for another celebration!

Chapter 8
Safety Risk Management (SRM)

The next step in our journey to SMS wonderland is dealing with the challenge of managing risks, otherwise known as safety risk management. It is right up there at the top in terms of what we're trying to do with our new SMS protocols and procedures. Our SMS objectives as you know all too well by now:

- Identify Hazards
- Mitigate hazards to ALARP
- Strive for Continuous Improvement
- Build a culture of safety

The SRM process starts when a hazard is identified by somebody. That person will take the appropriate action to mitigate it on the spot if possible, but if they can't, maybe a temporary cone will have to do until a better mitigation is figured out. If it gets mitigated right away, you may not even need to report it.

But, if it is a common hazard that keeps coming back, say an oil slick under a tug, then you will send that information via smartphone to the SMS head duck for analysis and further remediation. That's how it is supposed to work.

And that's why you'll need a super easy way for your team to report hazards and other observations. My favorite

methodology is using a smartphone to take a pic or send a text to the SMS coordinator.

Generally speaking, line personnel will see the hazard first. Here's the protocol in that situation.

- Identify hazard
- Mitigate on the spot if possible (mop it up, pick it up)
- If you cannot take care of the hazard for some reason at the moment, throw a temporary cone or flag to warn others if possible and applicable. Take a pic or text your SMSC for analysis and corrective action.

WHAT HAPPENS WHEN A HAZARD IS REPORTED TO THE SMS COORDINATOR?

Probably the most important and effective tool for reporting hazards is a smart phone. Forget about being afraid someone will hack your text and pictures and know you had a hazard. Who cares? Also, because of the busy nature of airport ramps, reporting has to be fast and super easy to do, or nobody will do it. Our goal here is to send a short text or even better still, a picture of the hazard to the SMSC and then go back to focusing on your job.

- Once the SMSC receives the message or picture, she will then determine the urgency of the hazard and take appropriate action as needed.
- When time allows, the SMSC will investigate, qualify, quantify, and mitigate the hazard to ALARP.
- That process is documented. And on that note, I highly recommend you go digital and get away from

generating paper. Use your desktop in the office and put all of your documentation where you can access it on your days off.

- If the hazard mitigation requires additional input from line or management personnel, the SMSC will hold a safety meeting.

Those are the basic steps to take when you see a hazard: The actual process of determining risks level is SRM and that will be the SMSC's job in most cases.

The process looks like this for non-emergency and non-immediate hazards:

- Qualify the hazard that just means go look at it to determine whether it meets our definition of a hazard
- Quantify the hazard using a standard risks matrix; the SMSC will determine the severity and the probability which determines level of risks.

Here is the risk matrix we looked at back in Chapter 3:

		Risk Severity				
		Catastrophe (A)	Hazardous (B)	Major (C)	Minor (D)	Negligible (E)
Risk Probability	Frequent (5)	5A	5B	5C	5D	5E
	Occasional (4)	4A	4B	4C	4D	4E
	Remote (3)	3A	3B	3C	3D	3E
	Improbable (2)	2A	2B	2C	2D	2E
	Extremely Improbable (1)	1A	1B	1C	1D	1E

This alpha-numeric matrix is just one type of risk matrix, but there are several options. Pick one you understand.

This is a subjective exercise, but I always lean toward higher values than lower ones, but again, it's up to you entirely. The red zone is considered the intolerable region, and that means you really don't want to be operating there. It means that the risks are too high, and you should stop what you're doing until you can lower those risks. You can operate in the yellow and green, without much mitigation, though you should always consider trying to lower risks as low as you can get them.

Here is just one from a hundred examples I've seen over the years:

Let's say you need to replace a light at the top of a thirty-foot pole on the ramp. You just happen to have a thirty-foot ladder. You also have a high lift that would be better to use, but it's in the shop for a couple of days. What will you do? Under the old way of managing safety, we would probably pull the ladder out and climb away and hope the wind's not blowing. Using our handy-dandy risk matrix, let's calculate the risks:

Step 1

What are my chances of falling off that ladder today? Using the probability (P) column, I would say there is a *remote chance* I'll fall off the ladder, which makes P = 3

Step 2

Look at the severity line and ask yourself, what happens if I fall thirty feet today? Using the severity (S) line, I would say if I fall, I'll be dead, so it gets scored as S = A

Step 3

Now multiply P x S = 3A. According to our risk matrix, a 3A is in the red or intolerable region, which means I would be crazy to use the ladder!

If you've been in aviation for a week, you know you really don't need a risks matrix to tell you when something is really stupid, but take my word on this one, evidently a lot of people didn't get the memo. Good rule of thumb is "When in doubt, don't." Also, you can always break out your matrix and argue your decision was a reasonable one . . . if it was.

YOUR MITIGATION STRATEGIES FOR HAZARDS

Generally, there are five major categories of control measures: elimination, substitution, engineering controls, administrative controls, and personal protective equipment. This little book won't go into each one of the five listed above, but when you need to mitigate, make sure you document the process you used to come up with a solution. Once the fix is in, monitor it for effectiveness.

It's incredibly common to think signage and a cone will work to keep people from running into a wing tip, but you would be mistaken. In that one example, you'll need signage, training, flags, cones, *and* you'll need to limit access—for starters.

In other words, people will surprise you on a regular basis when it comes to not having or exercising common sense, which, for the record, is about the least common thing I can think of . . .

Chapter 9
Safety Assurance for SMS

Simplicity means success when it comes to SMS. You need to keep things sixth grade simple, so when it comes to assuring your SMS is effective and conforming to the standard, there are a few things you'll need to know. You may be wondering if you need to have a third-party audit you or if the FAA will be auditing you at some point.

You can relax because SMS is a performance-based standard. It's not a pass or fail endeavor. You either conform to the standard or you are nonconforming to the standard. If you are nonconforming, you simply write up a corrective action plan and fix it. Done, set, match.

Safety Assurance (SA) is about checking your work on occasion to see if you're making progress toward the objectives you are pursuing, and we all know by now what the heck that means. We're baaackkkk!

- Identify hazards
- Mitigate hazards to ALARP
- Strive for continuous improvement
- Build a culture of safety

The airport SMS standard (AC150/5200-37A) is your guiding document and you'll want to have a copy of it so you can reference things as you start to work your SMS. First thing is to have a super easy reporting process in place, as we

mentioned above, smartphones are great for that. In the early days, we had to go hunt down a form and fill it out then give it to the SMSC for analysis and review. That wasted time and interrupted our workflow.

Today, it makes sense to use technology and avoid paper as much as you can. Just make sure you back up your documents. You will also need to codify your policy regarding using smartphones, and yes, you will need to make sure the phones are only used for work. That may mean you provide airport-only smartphones that are checked in and out each night. Or you could have everybody sign a non-disclosure agreement that says airport information is federally protected and violation of the rule is a terminating offense. That gets everybody's attention.

Line personnel already have their own PPE. Just add a smartphone to their tool bag. That process becomes easy and really effective once everyone is trained. The picture or text goes straight to the SMSC, who will take appropriate action at the appropriate time. It gets documented automatically, too, and that is where you save yourself a ton of time and energy.

Let's talk about collecting data because there is a lot of confusion about it. The word data sounds like we're trying to collect numbers, but just change the word "data," to information or observation and it will all make perfect sense. Information comes in the form of observations from line personnel that can be useful over time. Officially, we call it surveillance, but it's just paying attention to your surroundings.

For example, let's say Bob notices a dramatic increase in the crow population at end of the runway and we know what birds can do to jet engines. He may just send a text. *High bird activity RW 24*, send. For the sake of your SMS, that's data, but it's really just information that you'd like to collect, so over time you can watch for trends**.** Once a trend is established, time to consider a mitigation.

In this case, you can do what they do in Saudi Arabia—shoot off a cannon every five minutes. No, let's not do that, but at a minimum it represents a hazard, and you know what that means.

Now some of the pictures I get could be construed as sensitive and that's where the whole data security debate gets heated. Everybody is afraid that hackers will steal sensitive information and then blackmail you. In SMS world, it's all about transparency—you will never try to cover anything up and that means you have nothing to worry about should somebody breach your data. Who cares? It's a felony that would get somebody in big trouble for starters and of course the information/data is what it is.

In eighteen years I've never seen it happen, though I read that the FAA and airports talk about data security and sharing issues all the time. If you want a successful SMS, get over the idea that your data needs to be encrypted and marked top secret. It doesn't. Transparency is the best defense against data insecurity.

Share your experiences and accept the new reality: we make mistakes, sometimes real doozies, but we pick ourselves up, and we learn from them. That's what we mean when we're striving for continuous improvement; continuous improvement, despite being a weird phrase, just means we learn from our mistakes, we are proactive and predictive in how we treat hazards, (*hazard* = *harm*) and we take corrective action before something bad happens.

Back to safety assurance, we use a quarterly internal audit schedule on the flight side, and I send out the protocols a week before they are due. The on-site SMSC then performs the evaluation, (takes less than one hour) and sends it back. Then, once a year we do a safety performance assessment (SPA) virtually, that confirms all systems are green and we're

go for launch. Airports are already doing much of the work, so not a huge change or added workload.

Who can audit your SMS? Anybody you want, though I recommend they work at your airport. Of course, the SMS assessment is not pass or fail. You will make adjustments and corrections as you go, and it is always a good idea to take those results and review them each year as a group. That will be an important part of your ammo with regard to quantifying your continuous improvement.

I have nothing against the fancy dashboards and cool graphs and metrics that are available to purchase. In terms of costs however, they can get pricey, and I always lean toward cheap, easy, effective, which is in-line with simple. If you want an effective SMS, that is definitely what you should be shooting for. *Simple.*

It is also a good idea to share the workload of performing evaluations among line personnel, adds perspective and great for team building and team cohesion. They simply read the checklist and add their comments. We've also noticed over the years that good morale and team cohesion correlates with an effective SMS, so it is well worth the effort to include as many folks as you can in the process of ensuring conformity.

Your SMSC will be responsible for collecting, documenting, and writing reports as needed. She or he will also provide the analysis and recommendations when corrective action is necessary. In addition to all of that, the SMSC will want to survey the team to make sure morale is good and performance is high where it needs to be.

Unfortunately, we've also learned over the years that the SMS, once in place and being effectively managed, tends to slip, something we call, appropriately enough, *slippage.* Normal and entirely predictable. But it does need to be addressed, which is why an occasional visit from a third-party

auditor is not a bad idea. That is not a shameless plug . . . well maybe a little bit.

The hard cold reality is that we are easily distracted and tend to become complacent over time with pretty much everything we do. That complacency under the new paradigm is considered a hazard, and hazards need to be identified and mitigated to ALARP. Everyone needs to be on the lookout for complacency and when they see it, they really need to say something. How do you know when your operation is becoming complacent?

It typically starts with attitudes, then moves into lower enthusiasm and performance, followed by near hits, and if it should continue, probability says watch out, somebody is going to get smushed.

In flight operations, we call it the normalization of deviance and it is at the root cause of most accidents, so you really need to understand it and train your team to know it when they see it. In a nutshell, it is substandard performance that continues because nothing bad happens and there is no consequence.

TYPES OF DATA/INFO TO COLLECT

Let's start with the *why*. To ensure you are achieving continuous improvement, you'll need to collect information, observations and other data points that validates that you are improving system wide. Some years, you will have setbacks, other years you will be making significant gains. Improvements in process, performance, productivity, enhanced hazard awareness, higher participation levels, improved morale, fewer injuries, fewer sick days. Okay, you get it. Plenty of key performance indicators (KPI) or safety performance indicators (SPI) to collect that provide you the data.

The types of data points you collect is entirely dependent on your operation. Some folks establish KPI/SPIs, don't get confused, they are the same thing. Here are some safety KPI examples of what airports track.

- Fatality.
- Reportable illness.
- Reportable serious injury.
- Near miss.
- First aid injury.
- Equipment property damage.
- Lost time injury.
- Medical treatment case.
- Restricted workday case.
- Number of reportable events.
- Bird strike.
- Operational delay.
- Operational cancel.
- Customer complaint.

Of course, there are hundreds of things you can call a KPI/SPI, so get creative as you build your lists. How you decide to set up your administrative process is up to you, and I suspect you'll just integrate it into your existing system. I know there are requirements to maintaining records for specific time frames, which I have found to be confusing and difficult to track. So I save everything. Once I fill a hard drive, I get a new one and send the old one into storage. Of course, I do have hard copies of really important stuff, but for the other material, I just save it in the hard drive and back it up.

If you are like me, you've had a couple of crashes, not airplane crashes, computer crashes, that resulted in some sleepless nights. Data that seemed to be gone forever was actually still there, we just had to pay somebody to go find and retrieve

it for us. Computers break, software tends to go bonkers for some reason (and sometimes for no reason at all), and now you're wondering what happened to that file you need. Oh, I hope I am not the only one that happens to.

Chapter 10
Safety Promotion

Safety promotion is another one of those *standards* phrases that totally confuses people. In our continued adventure down the SMS rabbit hole, let's simplify this term so we will know exactly what it means.

SAFETY PROMOTION = TRAINING (CONTINUOUS)

That's much better. Now, safety promotion may be the fourth and last component of your SMS, it actually might be one of the most important ones in terms of achieving an effective SMS, at least from my experience. You will obviously get some initial SMS training, either by reading a book or visiting a web site or having me or somebody like me, come to your airport for a fun-filled day of training.

Starting with this initial training, you'll learn the what, why, and when of SMS in general terms. From there, you will notice that on the face of it, SMS really doesn't need to be complicated at all. So why is it? As I mentioned earlier, the original SMS was written by BSI standards folks for large companies that had quality assurance (QA) departments with plenty of people standing around the water cooler. In aviation, we just don't have that luxury.

The SMS has now been modified for aviation by Uncle FAA and ICAO, who had no serious hands-on experience with the processes and procedures of how it was supposed to work. But,

over time we've seen the value of an organized, codified system that guides managers to be proactive and predictive when it comes to safety. In other words, we know SMS works. Just how well has yet to be determined. If I had to assign a letter grade to the SMS effectiveness on the flight side, I would give it a C-. Not great, but passing, barely. Lots of reasons for that, but I'll save that for Volume Two.

We've come a long way in the last forty years since I began flying, with technology breakthroughs and equipment reliability. In fact, we're moving to a place in the not-too-distant future where humans will become the backup for a failed black box.

The Navy is moving full steam ahead with pilotless jets and the airlines can't wait for a single piloted Boeing 777. We learned a long time ago that if you give a chimp enough bananas, he can fly a perfect instrument landing system (ILS) to minimums. We big-brained humans just may have put ourselves out of a job over the next forty years. It goes something like this. Man makes technology; technology eliminates the need for man; man gets fat and retires to Florida. Hey, that's movie material right there.

The progress has been in technology, not in human behavior or performance, and that means that our Achilles heel is *us*. We are the weak link. Now we're getting somewhere. My delayed point is your safety promotion efforts need to focus on human factors. How we communicate and listen, how we make decisions, how we process information, how we respond to stress and fear are all well-known markers and we still haven't come close to improving it much.

Safety promotion (training) needs to occur weekly to monthly. I actually send out a weekly safety officer bulletin (SOB) to my clients and though they complain at times it's too much, they all keep resubscribing because they know it chips away at complacency. We know it is almost impossible to

change people's attitudes and behaviors. Personality becomes fixed and we tend to foreclose our opinions and beliefs. That means you're not going to be very successful trying change somebody's annoying tick, or arrogance, or insecurity—that ship has sailed. If you're lucky about all you can do is manage that behavior that is driving you crazy.

We've been taught to recognize error-producing conditions, hazardous attitudes, and other characteristics that represent red flags. You will want to establish an ongoing training program that covers a wide range of topics, from staying alert to zero harm and everything in between. Decision making, judgment, interpersonal communications, fatigue management, stress management, just culture, team building, accident investigation, near hit reports, ladder safety, blood-borne pathogens and a hundred OSHA safety training bulletins. Lots of material out there and it's all free and easily retrievable.

You can also post safety material on the bulletin board each week or month or send it to everybody's email address. Whether they read all of it or not, they will read some of it and that will increase their hazard-awareness levels and reduce their work-related complacency that can lead to problems.

And that, my friends, is making progress—real, measurable progress that goes into the continuous improvement calculation. You may already have a training officer, but if you don't, there is an opportunity to give someone an important role while sharing valuable information. The training officer can work hand and hand with the SMSC. Under Part 139, you already have various training requirements so adding the SMS into the mix should be simple enough.

I spend plenty of time writing reports, summarizing articles, updating investigations, but I love doing it and I use an email service that sends out my safety officer bulletins with a simple push of a button. I know who reads it and who doesn't from

the service, and it all gets automatically saved. That is data/info that allows me to track and monitor participation, which is a handy KPI to monitor.

Chapter 11
Final Thoughts

The most important concepts for you to take away from this booklet are the following:

- Identify hazards
- Mitigate hazards to ALARP
- Building a culture of safety
- Strive for continuous improvement.
- Your policy statement should reflect your commitment to be the safest airport possible by achieving an effective SMS.
- You will utilize SRM tools and risks matrixes to determine levels of risks in your operation with the intent to lower risks to the as low *as low is reasonably practicable* (ALARP).
- To ensure your SMS conforms to the standard, and more importantly, is effective, you will establish an internal evaluation program that regularly audits your operation, making adjustments and improvements as needed.
- To further ensure all employees participate in reporting their safety concerns and identifying hazards as they occur, you will establish initial and recurrent SMS training for all. You will also send regular safety bulletins to chip away at complacency.

As part of safety promotion, you will hold regularly schedule safety committee meeting that will review operational performance as it relates to SMS.

- Perform a SPA once a year that includes AE.
- Remember to make your reporting platform simple, like smartphone simple.
- Documentation is important, so document it all and keep it in a secure location and limit access.
- Once a year, celebrate another safe year!

When you started on this journey with me, I suspect you were confused and a tad bit anxious about how you were going to move your airport into SMS world. I hope you have learned that you are not alone. In fact, most everyone I've talked to over the years had the same feeling in the beginning.

Things are finally smoothing out a bit compared to the early days, when there was a ton of confusion and an even bigger void in accurate information. I initially blamed the standards people, then the ICAO/FAA, then the NBAA, but time has taught me that nobody was to blame for the confusion. After all, we had zero SMS experience back in 2006, the first year SMS became a thing.

By the way, if I didn't mention this earlier, your SMS is a work in progress and always will be. It will evolve just like we did, in fits and starts. As you learn how the system works best for your particular airport your comfort level and confidence will increase. Until the next iteration comes along, and you'll start the entire process over again, but with much more wisdom and experience than before.

In regard to your shiny new SMS, the following is what I have found to be most important in achieving a successful SMS implementation and ultimately achieving the goals of an effective SMS:

- Keep it simple.
- Include *everyone.*
- Know the four basic objectives of SMS.
- Establish an ongoing training program.
- Hold regular safety committee meetings.
- Require participation.
- Establish simple filing and admin system.
- Train often and everybody.
- Document the process.
- Have fun!

The basic framework can be done in a long weekend folks, so don't stress out about it. Remember, getting your framework implemented only gets you to the starting line and you've got more than enough time to do it in-house with the right guidance.

Thank you for reading this compact guidebook, I sincerely hope you found it useful. Should you have a question or comment by all means email or call me anytime. I love what I do and will do my best to help in any way I can. For now, best of luck and safe travels my new friend.

Happy Contrails,
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Appendix
Airport Safety Management System

IMPLEMENTATION PLAN

(AC150/5200-37 Appendix)

Use this implementation plan template to summarize the airport's plans for implementing SMS. The template includes areas for narrative descriptions and a checklist with common implementation steps. Expand the template where necessary to reflect your unique operating environment and programs.

SMS Development and Deployment Strategy

In this section, provide a detailed proposal on how the airport will develop its SMS. Use the subsections to guide your description and add subsections where necessary. Each subsection includes lists of items to include in the narrative.

SMS Development

- How will the airport develop its SMS manual? Will it procure consultant assistance or develop it in-house?

- Will the airport conduct a formal gap analysis? If so, what is the timeline for completion?
- Are there any existing programs, policies, or practices that the airport plans to use as a foundation for the SMS elements?

SMS Deployment Strategy

- Does the airport plan to use a phasing strategy? If so, what will be phased (i.e., phasing the SMS into the movement area first and then into the non-movement area or phasing the components and elements of SMS)?
- Will the airport include its landside operations in the SMS? If so, how will landside requirements be kept separate from airside requirements?

Procurement

- Does the airport plan to acquire any new systems or technology that will require procurement? If so, how long does the airport anticipate that procurement taking? Approved by: [signature] Date: [insert date]

Schedule for SMS Development and Deployment

Major Milestones:

List the major milestones associated with SMS development and deployment. This can be in narrative or tabular format. A sample table is provided below. This section should summarize the airport's major milestones and the target date

for completion. Within each milestone, list the known smaller steps required to achieve the milestone. This will help identify any unanticipated obstructions.

- Develop implementation plan.
- Conduct gap analysis.
- Finalize SMS manual.
- Provide SMS training.
- Deploy hazard reporting system.
- Full implementation of SMS.
- Conduct first evaluation of SMS implementation.

Challenges

List and explain any challenges the airport may face that could impact these target dates (e.g., lease or union negotiations or procurement schedules). Where possible, include a description of the methods the airport will use to mitigate these challenges where possible and track the status of these issues.

Implementation Plan Checklist

The Implementation Plan Checklist provides a guide for airports to use in developing and deploying the essential components and elements of an SMS. For efficiency, airports should look to existing systems, processes, and procedures to determine whether they can be used within the SMS. Additionally, the "status of implementation" column can be updated over time to communicate progress to the accountable executive. An airport could use this checklist as a means for updating the accountable executive on the progress of SMS implementation.

1. **Documentation**

   1.1 SMS Manual (optional method)

2. **Safety Policy**

   2.1 Identify the Accountable Executive
   2.2 Develop and distribute a Safety Policy Statement
   2.3 Make Safety Policy Statement available to all employees
   2.4 Identify organizational structure responsible for airport safety issues
   2.5 Communicate safety organizational structure to airport employees and managers
   2.6 Define airport management, including various levels throughout the organization, responsibilities, and accountabilities for safety issues
   2.7 Establish a procedure to periodically review management responsibilities and accountabilities for safety issues
   2.8 Establish Safety Objectives
   2.9 Establish process or procedure to maintain and periodically review the Safety Objectives
   2.10 Define methods, processes, and organizational structure necessary to meet safety objectives.

3. **Safety Risk Management**

   3.1 Establish a system for identifying safety hazards
   3.2 Establish a systematic process to analyze hazards and their associated risks to an acceptable level
   3.3 Establish a system for regular assessment to ensure mitigations are effective

3.4 Establish processes or procedures to document SRM efforts and retain those documents

4. **Safety Assurance**

4.1 Establish processes or procedures to monitor safety performance and safety objectives identified through Safety Policy

4.2 Establish a hazard reporting system that provides a means for Reporter confidentiality

4.3 Maintain the hazard reporting system and establish a process for reviewing and analyzing reported hazards

4.4 Establish a process or procedure for reporting safety information and data on a regular basis to the Accountable Executive

5. **Safety Promotion**

5.1 Develop training on airport's SMS requirements specific to the audience's roles and responsibilities.

5.2 Provide initial training to personnel with roles and responsibilities in SMS.

5.3 Develop processes or procedures to record training.

5.4 Develop informational material about hazard awareness and reporting.

5.5 Develop methods for communicating important safety information.

5.6 Establish a procedure to periodically review and update comm methods.

5.7 Develop processes or procedures to record safety communications.

ICAO recommends that phased-in approach, which breaks up the various sections of the SMS into workable blocks, which is kind of typical project management stuff for large program implementations. Our goal now is to stop worrying about it and get to the starting line as soon as possible. We can always tweak it later.

Once you get your project management implementation plan and manuals *accepted* by Uncle FAA, work on a filing system, reporting platform, and basic team training—something we can do in a long weekend. Once completed, you'll be ready to start playing with your brand spanking new SMS.

It took them a while, but the FAA eventually realized and acknowledged many small to medium sized airports were going to have a problem implementing and managing a robust SMS, since it was originally designed for the big guys.

Since those early days, the powers that be have changed their tune to fit reality and now say the SMS can be modified to fit the organization.

What that means for you is the transition to SMS doesn't need to be expensive or disruptive at all, but it does need to be easy and simple to use. That is great news, right? Well, truth be told, minimally staffed airports (most) will still need to figure out how to manage the administrative side of SMS, collect and analyze data, hold safety meetings, generate safety bulletins, write reports and corrective action plans, and investigate incidents, near hits, and accidents while documenting the entire process.

It is the exact same challenge we had in Part 91 World. There, when they say minimum staff, they really mean it. So how did we make it work?

All the labor an effective SMS requires needs to be done by somebody. The work mentioned above needs to be done by a human, not a computer, though computers and smartphones will definitely be involved. Just how much time would

you care to guess this work requires? Here's a rough estimate. Just how rough? Well, maybe corn cob rough, but better than nothing as they say.

Remember, the only difference between airports and airlines and corporate flight departments and widget makers is scope and size, the number of people needing training, and the types of hazards. You will still be doing the same work (protocols and procedures), but chances are you'll be driving if you're at KATL and probably walking if you're at KONP.

What follows is how I manage the SMS for a dozen clients, each with one to five jets, a fuel farm, a large hangar, an office building, and five to twenty people on the payroll (typically-sized client). Please remember, I've been working with SMS for a while, and spent twenty-five years flying. I also utilize two workstations, each with multiple monitors, and all backed up with a server. Below is a list of support services I perform each week.

- Write and send out a weekly safety officer bulletin (SOB).
- Receive, review, and analyze FRAT/FOQA/EVENT forms daily.
- From submissions, generate various investigative, corrective action, and incident reports, and document and monitor for trends.
- Send out quarterly internal audit protocols to client and review when complete.
- Perform an annual SPA virtually for each client.
- Document and de-identify (anonymize) everything and securely maintain that documentation.
- I regularly talk with pilots, management, technicians, FAs, and others regarding issues that come up almost every week. Typically related to reportable events, morale, problems, gripes, near hits, and, of

course, the occasional boo-boo that requires immediate response and investigation. Reportable events are any safety or performance event that makes you ask the question, "Should I report that?"

- ERP point of contact
- Aviation Safety Action Program (ASAP) management
- Mediate issues and conflicts

That works out to about four to six hours per day, collecting data, writing reports, and putting training material together for distribution to twelve operators. I would guess my twelve operators combined is the equivalent of a medium sized airport, say John Wayne/Orange County Airport (KSNA).

That works out to about eighty to 120 hours per month for me. I've been using virtual video for years, long before COVID hit, which allows me to provide these services with one to two people. My point of contact for each client is the SMS coordinator, who will either perform the quarterly internal audit or delegate it, (takes about an hour, tops).

In other words, managing your SMS the way it was intended to be managed is going to require thirty to sixty hours per week if you know what you're doing and have access to the latest technology, which you will. It's not rocket science and it is a skill set you will learn rapidly. At least I did, and I am about as average as they come.

Another question I get all the time: Can it be done as an ancillary role by someone who also handles a bunch of other responsibilities? It is a stretch to ask someone to add twenty to thirty hours to their current workload even if you were to make it worth their while financially. Fatigue is a hazard, morale issues are a hazard, and burnout is certainly a possibility if you saddle somebody with that level of extra work. And here

is another consideration—as if you needed one—*you get what you pay for*. A part time effort will deliver a part time result. If you're lucky.

I have yet to see it work very well anywhere, except one small department who had assigned roles and responsibilities to each member of the team. No SMS top dog, just five really unhappy employees who were constantly in a state of denial. Not sure how that's going since I have not heard a peep from them in at least two years.

Here's the more likely scenario that many airports will fall into. You will spend an hour here and an hour there and end up with what we refer to as an underutilized program. The ICAO folks call that a ticking time bomb, which might be an exaggeration. Then again, it might not be an exaggeration.

I sincerely hope the position of SMS coordinator will become a full-time position because, should the SMS start to underperform, what I referred to earlier, underutilized, you run the real possibility of falling into what I like to call "the Challenger trap." Yes, *that* Challenger, the 1986 shuttle disaster.

From that investigation we learned we tend to normalize substandard performance, even though we know better. There are no consequences for the operators. We cut corners and even get "atta-boys" for doing it. Then, probability and time collide, and boom! It happened again, for the exact same organizational reasons seventeen years later when the Columbia re-entered and broke apart. Both accidents were predictable and preventable.

It's called the normalization of deviance (NOD) and it is the primary causal factor in a large percentage of aviation accidents. If you are interested in understanding error chains, human factors, and accident causation, you really need to understand NOD.

So the question you, and only you, can decide is, do you want a robust safety program that requires a full-time position to manage, or do you want an underperforming and underutilized one that may miss an opportunity to prevent a safety event? It happens because nobody, and I really mean nobody, thinks the SMS top job is a full-time gig, which is completely bonkers in my humble opinion. If you are doing it correctly, it's a full-time job.

And just to be clear regarding the small group I manage. They possess highly effective and robust SMS programs and are what I refer to as Post-Stage 3 operators. (Post-Stage 3 refers to the ISBAO certification QMS I mentioned earlier).

I've audited these companies, have flown with some of them, and to say I know them well would be an understatement. They take safety and SMS very seriously and have high expectations and demands, as you might expect of somebody flying a $50 million jet. The good news is my support services are effective and I know that because this particular group would drop me in a New York minute the second it stopped being effective. And that means you should be able to implement it too.

Your takeaway from this chapter is to understand that your SMS is a management tool that will take time and dedication to fully benefit from. It's not a "magic bullet," nor an answer to all of the problems associated with your airport. As we've learned from the flight side, it can easily be manipulated to create a false sense of security and that is truly dangerous.

But, when fully integrated and given the proper resources, it can improve the overall safety of the organization, by raising hazard awareness, improving morale, and enhancing team cohesion. It's a beautiful thing to behold in the right hands.

Now let's tackle your SMS procedures manual. Just for fun, I've got one version I've used in Appendix B. Feel free to use it. It consists of four components:

- Safety policy
- Safety risks management
- Safety assurance
- Safety promotion

Your procedures manual codifies the SMS protocols and procedures and is your guiding document in terms of how you will conform to the SMS standard (AC150/5200-37). As you know all too well by now, you have maximum flexibility to design your manual as long as you accomplish those four main objectives that you should have memorized by now.

- Identify hazards
- Mitigate hazards to ALARP
- Build a culture of safety
- Strive for continuous improvement

Most operators have a hard copy of the SMS procedures manual in their offices, sitting in their safety libraries. In the early days, we actually carried that book on the road because we didn't know what ICAO inspectors might want to see. But now, most everyone digitizes their procedures manual and puts it on their iPad or laptop. That is what I refer to as the SMS procedures manual, Volume 1. For many airports, you will also have a Volume 2, which holds support material such as the following:

- Hazard registry.
- Work instructions.
- Job hazard analysis forms.
- Fatigue management program.
- ERP.
- Investigation tools.
- Forms and checklist.

That volume is what we call a workbook, because you'll be working in that book more than you will the procedures manual.

The FAA will want to look at your procedures manual to make sure it looks like the other 268 manuals summited for acceptance. They probably won't be interested in Volume 2.

Component 1 of your SMS program is about your safety policy. That policy codifies your safety priorities and allows you to convince the world of your commitment to safety. There is a policy statement which your accountable executive (probably you) will sign. It is important and should reflect your overall vision for your airport, so spend the time to make it yours.