



We Need More Jack Sparrow, Savvy?

A Swashbuckler's Guide to System Modeling With SysML

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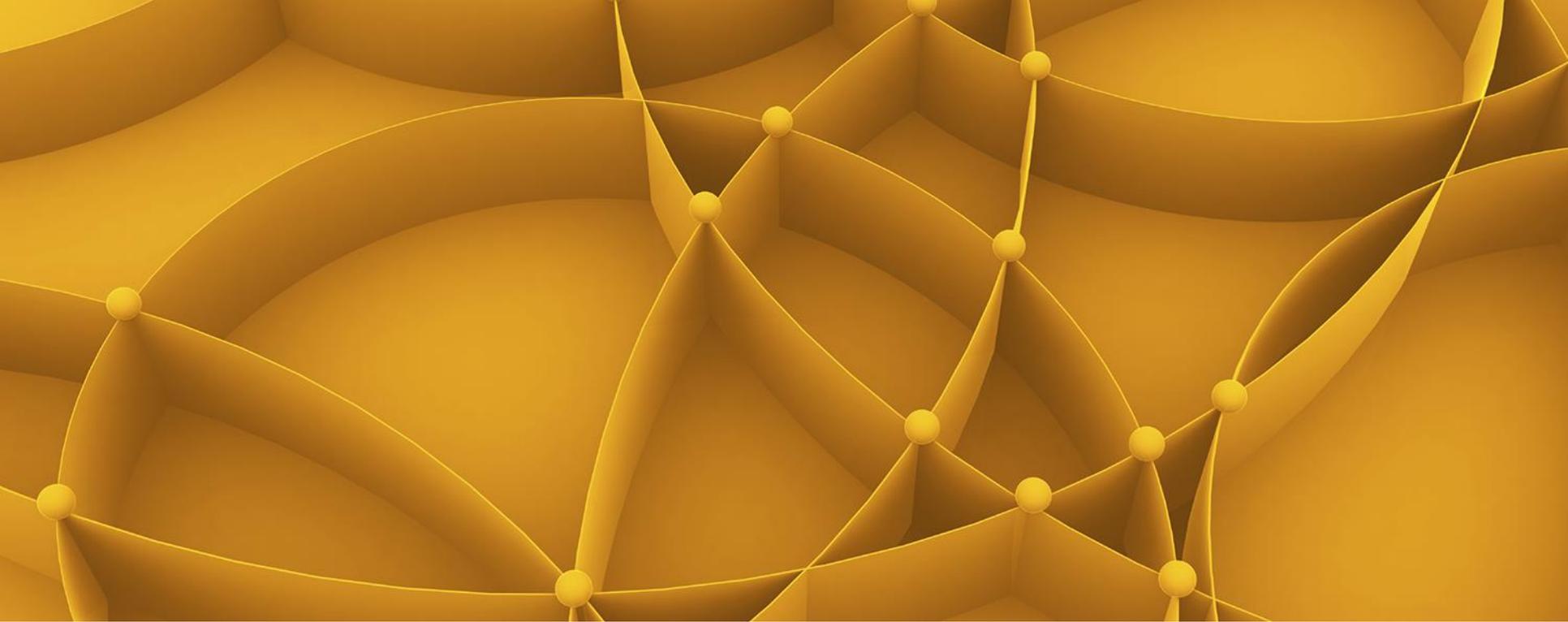
Why do projects overspend and overrun?

“Why do so many big projects overspend and overrun? They’re managed as if they were merely complicated when in fact they are complex. They’re planned as if everything was known at the start when in fact they involve high levels of uncertainty and risk.”

Architecting Systems: Concepts, Principles and Practice, Hillary Sillitto, Back cover

What is the issue?

- System complexity has grown to the point where no single individual can have deep, thorough understanding of every system element and its:
 - Attributes
 - Behaviors
 - Roles
 - Interactions



WHAT ARE WE TO DO? MODEL THE SYSTEM!

System modeling

- System modeling enables the codification of subject matter expertise in a clear, unambiguous format. It enables the creation of a “single repository of technical truth” that an entire development team can draw upon to have timely, relevant, and useful information in the execution of its tasks.
- Lockheed Martin speakers have elaborated on this further and call it the “weaving of a digital tapestry.” This is an apt metaphor, since a comprehensive system model is not just a single thread of information but a rich, multi-dimensional representation of the system of interest.

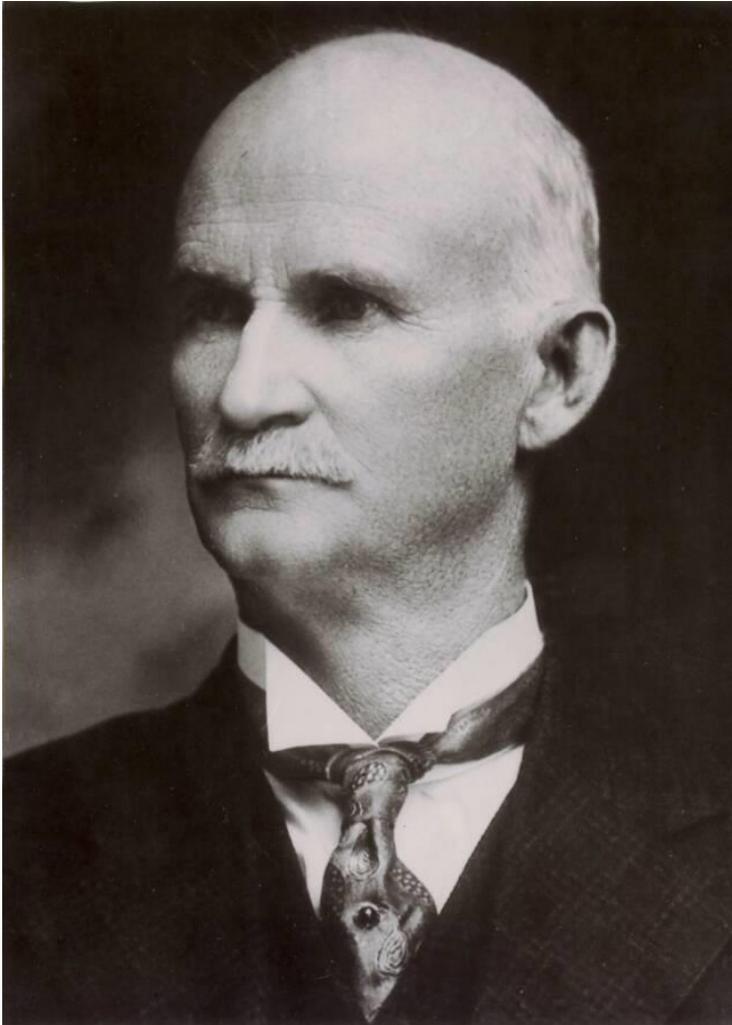
How to do it?

- If we agree that constructing system model is the right way to handle the both the complicated and complex nature of modern systems, the “how” is critically important.
- The engineer/modeler is THE key element in the system (even more than the modeling tool chosen)...so we need better, more capable modelers/architects.
- How do we nurture and grow these craftsmen?

Real Engineering Heroes

- Throughout the history of engineering there have been many great engineers who could, and arguably, did have this comprehensive knowledge.
- Learning from them (and their examples) would be fruitful for many systems architects, engineers, and modelers.
- Some good examples include:

John Browning



- John Browning, one of the most prolific inventors in history, had 128 patents and designed numerous firearms that are still in production today. (John Browning, n.d.)
- He arguably could and did understand every component (there are fewer than sixty in the M1911 pistol)

Sir Barnes Wallis



- Sir Barnes Wallis was another prolific engineer:
 - R-100 airship
 - Bouncing bomb
 - Earthquake bombs
 - Supersonic transports
- The R-100's main framework was made of 7 different parts..there were only 42 different parts in the frame! (Bouncing Bomb Man: The Science of Sir Barnes Wallis by Ian Murray)

Admiral Hyman Rickover



- ADM Rickover was the father of the U.S. nuclear Navy
- *Against the Tide: Rickover's Leadership Principles and the Rise of the Nuclear Navy* (ADM Oliver) is a worthwhile read for any engineer

My favorite Rickover quote:

“A good manager must have an unshakable determination and tenacity. Deciding what needs to be done is easy, getting it done is more difficult. Good ideas are not adopted automatically. They must be driven into practice with *courageous impatience*.”

-- ADM Hyman G. Rickover

But...

- Most engineers are unwilling to invest the time to pour over biographies and other books...
- ...so we need another way to distill and communicate the lessons learned and values.
- Ideally, we need to make it enjoyable...

No policemen!

- Systems engineers are too often thought of as either policemen, ensuring that the drudgery of existing systems engineering processes have been followed
- Or they are viewed as an unwelcome drain on resources “who make a career out of stating the obvious.”
- We need to be highly visible and demonstrate that our work is a facilitating activity that increases the odds of a project’s success...we need to be *swashbucklers!*

Why swashbuckling?

The Merriam-Webster Dictionary defines a swashbuckler (Merriam-Webster, n.d.) as:

a person or a character in a movie, book, etc., who is very brave and has many exciting adventures

1. a swaggering or daring soldier or adventurer
2. a novel or drama dealing with a swashbuckler

Not pirates!

- This term is preferable to pirate, in that pirates engage in unlawful, destructive, and murderous behavior. The primary historical mission of navies was to suppress piracy and ensure the safety of sea lanes.
- For that reason, this presentation will focus on the concept of swashbuckling because it is more associated with derring-do, adventure, and bravery...all traits that are arguably important for a successful system modeler.

Whom shall we choose?

- Audiences need the same contextual dictionary as the presenter for metaphors to work..
 - “He’s as nervous as Captain Queeg playing with his ball bearings” means little to someone who hasn’t seen Humphrey Bogart in *The Caine Mutiny*.
 - “Managing systems engineering with DOORS and documents is a Sisyphean task” does not communicate the intent to those lacking a knowledge of Greek mythology.
- Popular culture, particularly television and movies, is a fertile source of metaphors...

If this talk were given in the 1930s...



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<https://madamebibilophilerecommends.files.wordpress.com/2015/04/bloody5.jpg>

If this talk were given in the 1950s...



<https://s-media-cache-ak0.pinimg.com/564x/38/a2/0b/38a20bf90f853d1ccd718b80eb7abe78.jpg>
<https://s-media-cache-ak0.pinimg.com/564x/a5/73/c6/a573c66a8445c0847513b0ca198ad9ba.jpg>

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If this talk were given in the 1960s...



<https://s-media-cache-ak0.pinimg.com/236x/a3/e4/24/a3e4248b1c042f587880eb00265bdbcf.jpg>

<https://upload.wikimedia.org/wikipedia/en/d/dd/Haveguncard.png>

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If this talk were given in the 1970s...

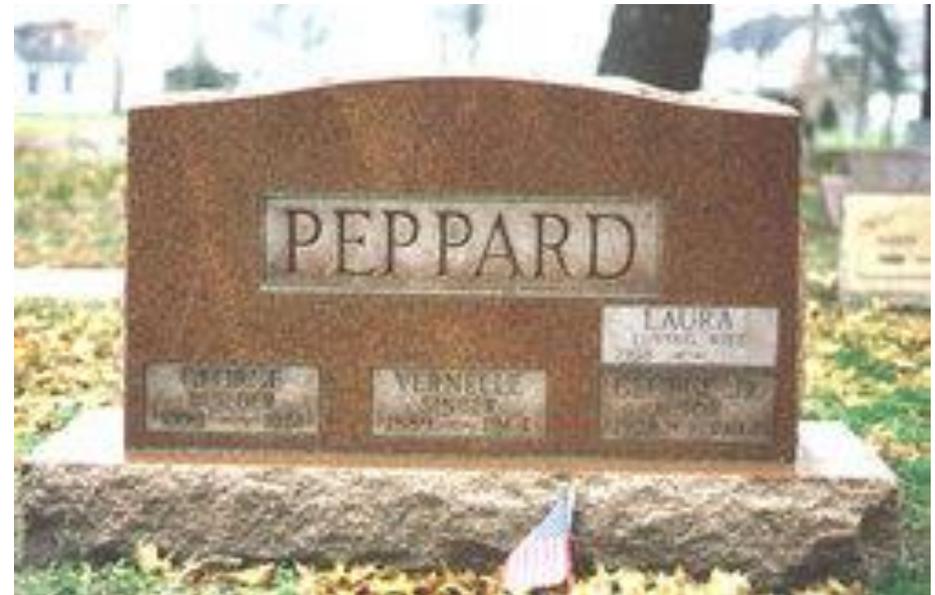


If this talk were given in the 1970s...



- During my presentation at the GLRC, an audience member pointed out this swashbuckler from the 1970s should have qualified to replace the previous slide.
- I still remember sitting in the theater as an Imperial Star Destroyer rumbled into view for the first time and change science fiction films forever (I was 7 at the time).
- I apologize for not associating Han Solo with this talk from the outset.

If this talk were given in the 1980s...



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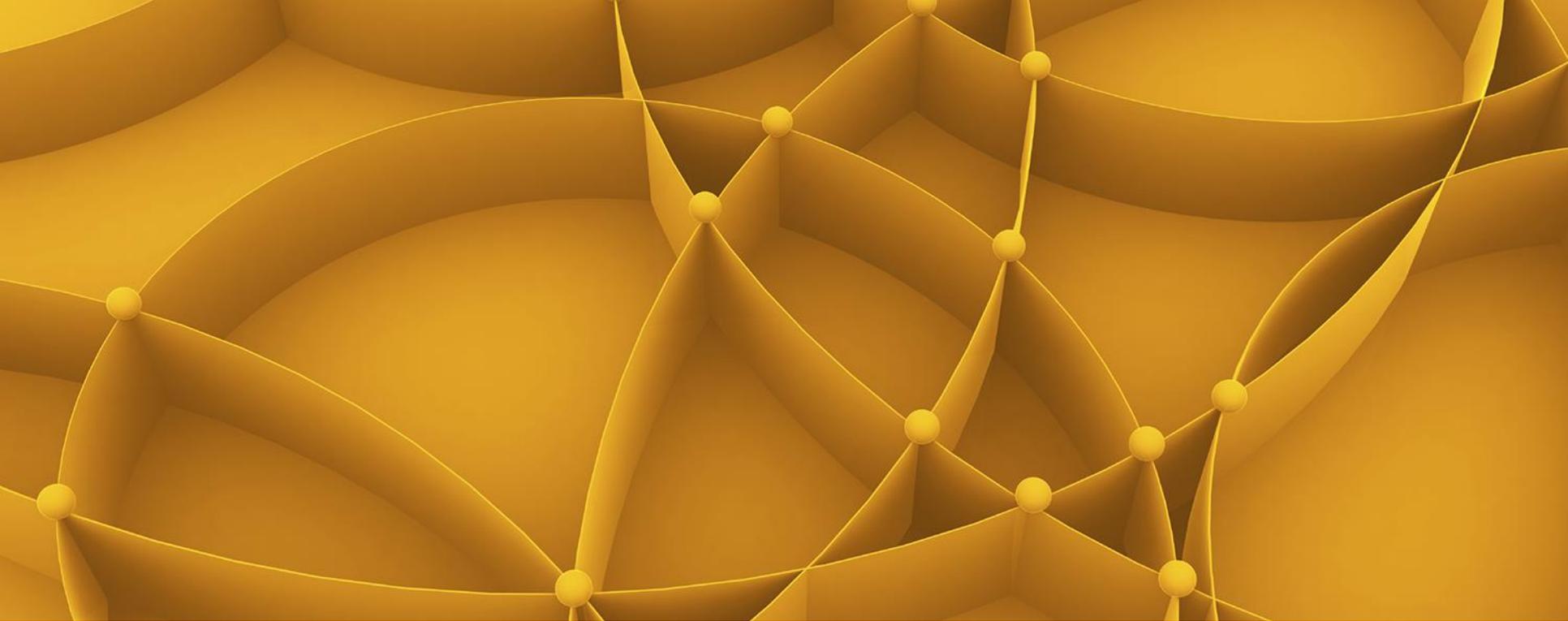
Since it is 2016...



- Captain Jack Sparrow, originally a supporting character to Orlando Bloom's Wil Turner (the actual hero of the first three films), outshone the ostensible hero and became an archetype unto himself.

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<http://motivationgrid.com/career-lessons-from-captain-jack-sparrow/>



3 SAVVY LEADERSHIP TIPS COURTESY OF JACK SPARROW

([HTTP://WWW.REFRESHLEADERSHIP.COM/INDEX.PHP/2011/06/3-SAVVY-LEADERSHIP-TIPS-COURTESY-JACK-SPARROW/](http://www.refreshleadership.com/index.php/2011/06/3-savvy-leadership-tips-courtesy-jack-sparrow/))

“There should be a ‘captain’ in there somewhere.”

“While it could be chalked up as one of his many quirks, Jack never fails to remind others of his qualifications. You don’t want to alienate your team or co-workers with arrogance, but you can subtly remind others who’s in charge with your confidence, vision, and passion. Once that leadership and vision is displayed, your employees will know what’s expected and have an example to follow.”

So for a modeler...

- When modeling systems, there should be a clear, unambiguous leader of the modeling team. The model is a system and a project in its own right, and just as there should be a clear chief engineer/architect for the system under development, the system model should have a single responsible leader.
- This individual needs to understand the possibilities and limitations of system modeling, be passionate about the project's success, and confident that a well-executed model will facilitate the success of the project. Vigorous, decisive leadership is a key enabler of a successful modeling effort.
- It is also critical for the modeling lead to be on good terms with the other project leaders. They are peers and consumers of the modeling team's information and can be powerful advocates for the modeling effort.

“You know that feeling you get when you’re standing in a high place...sudden urge to jump? I don’t have it.”

- “If there is one thing Jack is good at, it’s improvising and going with his gut. A true leader has the instincts and self-confidence to know when to move forward, no matter the direction of the tides or even against the advice of naysayers. You’re in your current leadership position because of your ability to take calculated risks.”

So for a modeler...

- System modeling is still an emerging discipline. Opposition from other stakeholders, technical obstacles, and general resistance to change **can and do** hamper modeling efforts. It is critical that the modeling lead have sufficient self-confidence and moxie to drive the effort forward.

“I thought I should give you warning. We’re taking the ship. It’s nothing personal.”

- “Although honest pirates might be hard to come by, honest leaders should not be. It’s never easy to deliver bad news, but hearing it upfront and from your own lips will make it easier for your employees to digest and move forward. Also, remind them that decisions are based on what’s best for the company – they’re not personal! And remember, sometimes you have to do what’s best in the long-run, and not what’s necessarily popular right now.”

So for a modeler...

- At the 2016 No Magic World Symposium, I presented my 10 Commandments for modeling. The 10th is:

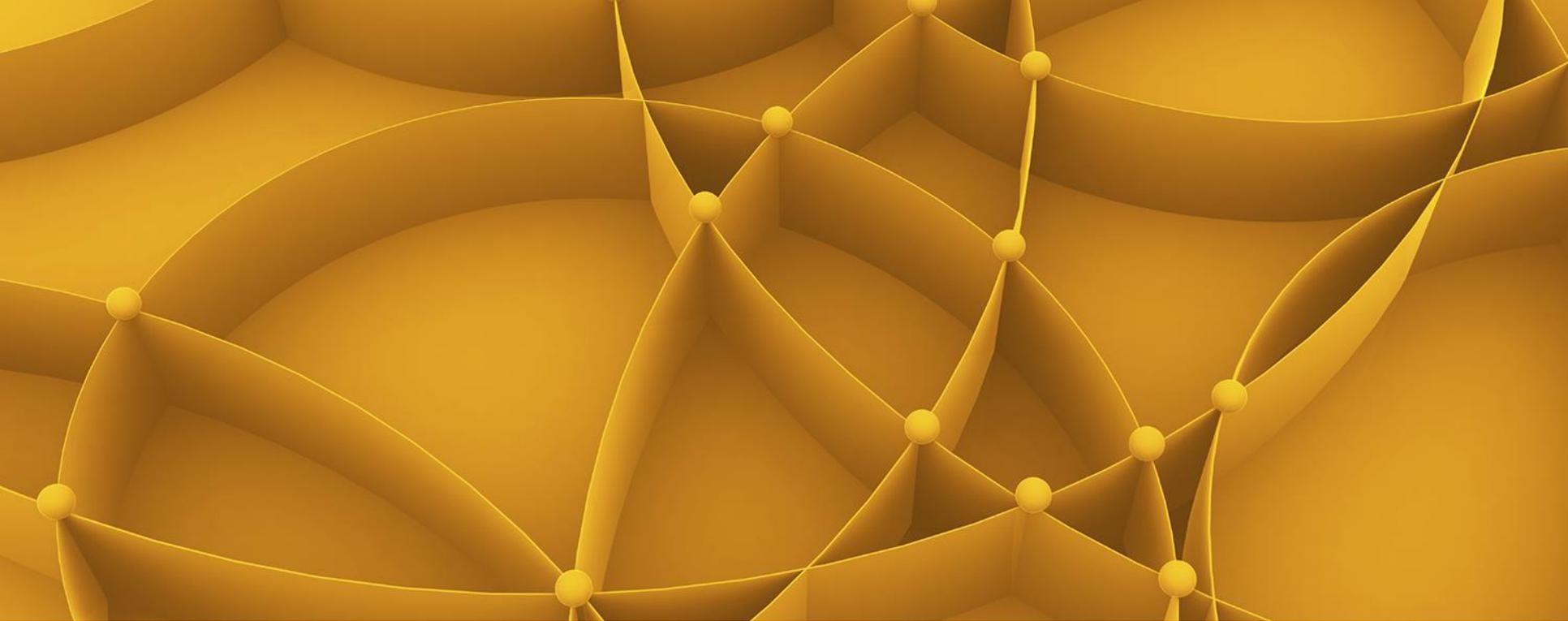
Thou shalt always do what is right for the model

- This aligns well with Rickover's dictum to "Do what is right."
- It also means that a modeler must be willing to continually assess the approach; if new information or capabilities are discovered that require reasonable rework to gain important new benefits, embrace them.
- Which leads us to the greatest of my modeling commandments:

The greatest modeling commandment

Thou shalt ruthlessly subordinate thy approach to what the modeling tool does easily and well

- There is no point in trying to model and automate document-based processes with their inherent inefficiencies
- Do not be afraid to tell stakeholders “no” if giving them the last 2% of what they want will cost you 30% more time
- This is particularly difficult when trying to transform a requirements-centric culture to a behavior/structure/interface culture in which requirements are a text-based projection of the system model, not its driver.
- Remember, “It’s nothing personal.”



5 UNEXPECTED CAREER LESSONS FROM CAPTAIN JACK SPARROW

[HTTP://MOTIVATIONGRID.COM/CAREER-LESSONS-FROM-CAPTAIN-JACK-SPARROW/](http://motivationgrid.com/career-lessons-from-captain-jack-sparrow/)

Don't be afraid to just be yourself

- “When talking about Jack, Esmeralda says: ‘Jack is an absolutely fascinating man. You’re unlikely to meet anyone else like him.’ He may be the king of over-accessorizing, slightly madcap and highly unpredictable, but Jack is true to himself and wins the love and respect of others because of this.
- When it comes to your career, you’re going to spend some 99,117 hours of your life at work. You might as well spend that time being the person you really are rather than the person you think will most impress others. If, as Jack says, ‘the deepest circle of hell is reserved for betrayers,’ don’t risk betraying your own originality for the sake of a job.”

So for a modeler...

- Remember that you are a highly skilled individual who has the power to tip the scales of success heavily in favor of your program...if you embrace that responsibility.
- Develop your own style and drive the modeling culture by example.

If at first you don't succeed...

- “Jack epitomizes perseverance. Despite all the tight spots he gets himself into, Jack keeps his wits about him and never gives up. In his own words: ‘When you marooned me on that god forsaken spit of land, you forgot one very important thing, mate: I’m Captain Jack Sparrow.’
- If Jack can manage to avoid being eaten alive by cannibals and being shot by the legions of people who want his head, we can all re-attack that horrible project at work. The next time you feel like giving up and calling it a day, think like Jack and tell yourself that: ‘The seas may be rough, but I am the Captain! No matter how difficult I will always prevail.’ Surprisingly deep, huh?”

So for a modeler...

- Trust that you are using the best possible tools to tackle the problem at hand...remember, if it's hard for a system modeler it's impossible for somebody who's document-centric, using traditional requirements management techniques, or drawing tools.

Know when to challenge the status quo

- “At work, there’s a time and a place to stick to the rule book and a time and a place to suggest new avenues. Knowing when to push back is one of the most important things anyone will learn in their career, but you also have to learn which battles to pick. Take a look at Jack: his success is largely built on only fighting when the time is right.
- As he sagely points out, ‘Why fight when you can negotiate?’ He gets ahead by strategically challenging authority and negotiating himself into better situations, and it is this nifty knack for knowing when and how to challenge the status quo that can also be a driver of career success.”

So for a modeler...

- You aren't going to change a document-centric culture overnight. Success will be built brick-by-brick...and exploiting opportunities when they arise.
- Demonstrate capabilities and gradual improvement to establish a track record of success.
- When the gap in the status quo appears, offer to “show them the wow.”

Be a creative problem-solver

- “Sometimes, solutions to problems can seem downright impossible. We’ve all felt despair about a particularly challenging work predicament, but it is how we address the predicament that shapes our ultimate triumph. To lend Jack’s adage: ‘The problem is not the problem. The problem is your attitude about the problem’
- If you think outside the box and don’t resort to abject hopelessness, most problems can eventually be solved. If you’re anything like Captain Jack Sparrow, you might even be able to pull off an innovative solution with a little panache!”

So for a modeler...

- Trust that the modeling tool can probably do what you need...you just need to figure out how to ask it.
- I call this “wrestling the genie.”

Work with flair

- “In business, ‘Average Joes’ tend not to get too far ahead. It’s the entrepreneurial go-getters with a different way of doing things who impress. Jack was a man ahead of his times in many ways, but his key point of difference is his innate flair.
- Jack knows how to create a buzz around himself and his work, carving out a name for himself as someone to watch. You’ll accelerate your career faster if you show originality – don’t be afraid to stand out for all the right reasons!”

So for a modeler...

- Don't be afraid to tackle your work with zest and to be visibly enjoying it.
- Take on the hard challenges...and deliver the lift (not just drag) for your projects.

Flair is important!

Our first view of Jack Sparrow



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http://pirates.disney.com/jack-sparrow-gallery?image_id=52f547200a172d5ba8009aff

...little did we know



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http://1.bp.blogspot.com/-M_xVY7KVX1E/T9ksczsy8fl/AAAAAAAAAagg/K3BdaBMk3GQ/s1600/JackatPort.jpg

It works!



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Since he went to Mars...



- This showed up in the MagicDraw LinkedIn forum...
- Which inspired me to adopt...

<https://imgflip.com/i/155e8l>

