

Data Artistry – The Treasured and Definitive Book

written by DaltonRuer | December 7, 2021



Foreword

All businesses have a product which they sell and hospitals, even non-profits, are no exception to that rule. Their product? Beds. Oh, sure they have lots of human beings that poke you, prod you, care for you and feed you. But make no mistake about it none of that could happen without their beds. Depending on your length of stay they may rent the bed to you for say the median price of new car, a new luxury car, or if you have real problems you pay them the price of a new home. As you can imagine these beds are valuable to them and they must ensure that if a customer like you arrives, they have a bed ready and waiting for you.

The world is all a buzz these days with talks of supply chain problems. You can't buy a new car, because the manufactures can't get engines to put in them. You can't get certain medicines because the pharm industry can't get the raw chemicals needed. The lack of clean beds in nursing units is a hospital's choking point. They can't release patients to floors from the post-operative area, and they can't admit people from the Emergency Room. If they can't free up the beds in the ER, they must have an ambulance route you to ... gulp ... their competitor who does have a clean bed.

Whatever line of work you are in, I'm sure you get the point that patient flow is key to the success of every hospital. There are lots of processes and many departments that all work together for the flow to occur smoothly. But the most critical is Environmental Services. They are the folks that clean the rooms and to my point ... the beds. Because if the beds aren't clean, the supply chain is backed up.

Preface

[In a plain old blog post I made regarding Data Artistry](#) I asked readers for feedback I should focus on, should I ever spend more time writing about the subject. While most folks don't often take the time to leave comments, Melvin Forrest did. He had some great questions that I will address in this book, and that I think will add value for you.

Acknowledgements

The names used in this book are strictly fictional and any likeness to characters in your life is purely coincidental. However, I have made one exception. Joe, the Data Knight, in this fictional tale, is actually [Joe Warbington](#) who is a real-life Healthcare, and overall, Data Knight/Artist. Who helps rescue damsels in distress, and organizations become data driven on a daily basis. Or at least one of those things.

Before arriving at Qlik 6.5 years ago, I was data literate, I was versed in data visualization and was a good storyteller. What I learned from Joe was how to combine all those things into something that was greater than the sum of the parts. The concept for this book and some of the visuals came from something Joe built that really moved me years ago. So let's begin.

Chapter 1 – The Royal Map

In a land far, far away there lived a wise and noble, albeit data challenged, King who lived in a very luxurious and high-tech Castle. While he wasn't the Chief Executive Officer of the Health System, or President of General Hospital, Bob the Chief Financial Officer pretty much determined everything that went on within General Hospital and its surrounding kingdom. One day in a meeting with other executives it came to Bob's attention that patient flow issues were causing financial issues for his kingdom.

"We must add a new KPI to my kingly dashboard that shows me the Average Turnaround Time. I understand from other kings in the region that this metric will help us better understand and track our patient flow problems. I decree as of today that our Average Turnaround Time should not exceed 75 minutes." Bob bellowed to all the royal servants, who quickly scurried off.

Eventually, word of Bob's decree fell upon the ears of a lowly data servant named Fred. Fred quickly did as he was told and slapped together a KPI that far exceeded the beauty of all other KPI's and displayed it for King Bob and all throughout the land to behold.

Avg Turnaround Time (minutes)

72.06⁷⁵
per King Bob

Great news for all, they would surely get their full annual bonus checks from the King. But alas, at the next summoning of all the royal servants, aka executive meeting, King Bob was furious.

"The peasants are still complaining of patient flow problems despite my Kingly dashboard showing me that our Average

Turnaround Time is only 72.06 minutes. Therefore, I change my first decree, and I now decree that we must average 70 minutes.”

Someone was sure to lose their heads for this, and nobody wanted it to be theirs. Especially not Charlotte who Fred worked for. The bearer of bad news was always the one that lost their heads. So, she asked Fred how he got to the number 72.06 minutes with a threatening voice.

Fred stammered, clambered and yammered “I, I, I simply totaled up all of the time it took between each time a request was made until the bed was marked cleaned.”

Charlotte who was slightly more data literate than King Bob replied, “I must have more. I need you to slice and dice that number for me. I want bar charts, and line charts, and pie charts that show me breakdowns over time, by shift, by day of week and by hour.

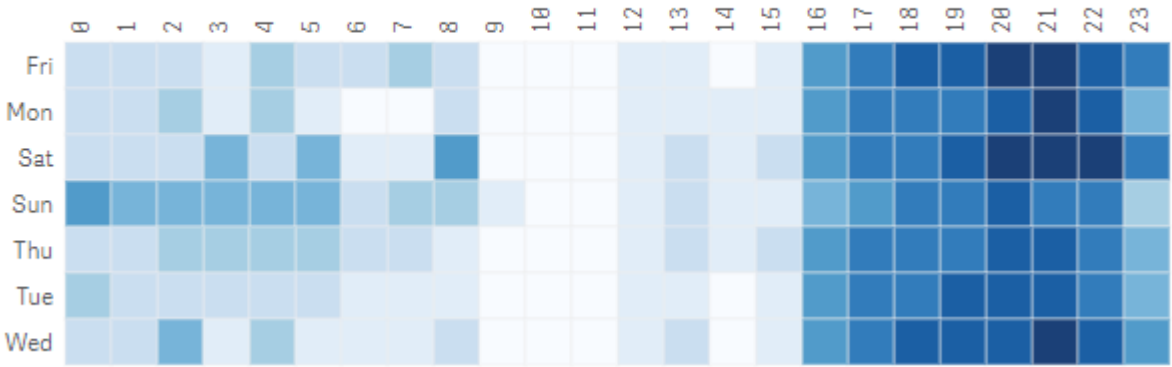
“Bar charts, and line charts, and pie charts. Oh my” Fred replied while gulping.

“Yes. We need to find the slowness, and fix the slowness.” Always one for slyness Charlotte added “Fred I know you will be working so hard to show our Average Turnaround Time 18 ways to Sunday. Therefore, I shall give you the honor of presenting the charts to King Bob at the next summoning of the royal servants. You should consider that an honor.”

Fred was slightly gifted in data, and he calculated that it was no honor at all. Charlotte was surely setting him up and he might lose his head at the next summoning. So, for the next several days he sliced, and he diced and presented the Average Turnaround Time 18 ways to Sunday. Finally, he prepared a gorgeous royal heatMAP that he was certain would save his neck when King Bob saw it. He wasn’t sure about the other peasants, but his son needed a new iPad so he needed this minimal wage position as the Data Jester. He began posting his visual

masterpiece all over the kingdom, including the break room of the Environmental Services department. Maybe the peasants responsible would run for the hills.

Average Turn Around Time



Chapter 2 – Thy Royal Consequences

Sally Sue arrived early for work as she always had. She was a single princess and needed this job, and her mother’s help to care for her 2 children, Tiny Timothy and Tiny Tinathy. The bluebirds helped her tie her cleaning apron as they always did and then Sally Sue departed the locker room. Her luminous smile became a frown as she heard the chatter from other Environment Services peasants.

“Look at these averages. Are these second shifters cleaning the royal beds or are they sleeping in them.” One peasant uttered, as others broke out into laughter.

Sally Sue ducked back into the royal locker room and waited until the first shifters entered to change. She didn’t like being laughed at and had no idea what the others had even been looking at. All she could see on the royal billboard was a bunch of colored squares.

Sally Sue couldn’t smile. Each trip up and down the royal

hallways seemed like a mile. Our princess felt like nothing more than a paid housekeeper each time she scrubbed, buffed, polished and tucked another royal bed.

Chapter 3 – A Data Knight Arrives

“Off with their heads” King Bob exclaimed after seeing thy Royal Heatmap. “Off with all the heads of those second shift peasants.”

Joe a regional Data Knight, arrived on the scene just in time. “If I may be so bold oh great and mighty Bob I would like to ask you a few questions before you behead all of thy second shift peasants and the fair and beautiful Sally Sue.”

“My regional cronies have talked about you Joe. So, I shall grant thee 3 questions. But be thee careful. If you anger me your head shall be the first to be removed”

“I shall use my time wisely as you always do oh wise and noble, albeit data challenged, King. My first question to you is this. On what metadata is your Royal KPI time based?”

All the royal servants took a step back as the King raised his royal finger to his chin. For they knew not if the King was about to slide his royal finger across his neck. “I know not of this metadata you speak, whatever you do mean Joe?”

“My gracious, benevolent, albeit data challenged, King. Metadata is what they royal data servants should use to describe all measurements. So that you know exactly what you are measuring. For upon first look at thy Royal Heatmap it would appear it is reflecting slowness. After all the average time is far greater for the second shift. But if you had the royal metadata, about the data, you would see that it’s a measurement of the time from the request for a royal bed to be

cleaned, until thy royal housekeepers have completed the task.”

Again, King Bob’s finger reached for his chin as he leaned forward in his luxurious, and ergonomically designed leather office chair. I mean throne. “So, are you saying those times don’t just measure the speed of my royal housekeepers?”

“Correct my increasingly wise, and less data challenged, King. Now I shall ask my second question of you in the form of a riddle. If the Average Turnaround Time is a measurement of the time from the request for a royal bed to be cleaned, until thy royal housekeepers have completed the task, what else could be responsible for the differences in the times if it was not just thy royal housekeepers like the fair princess Sally Sue?” Joe the Data Knight sat back on the benches assigned to the royal servants knowing this might take King Bob some time to respond to.

Indeed, it did. King Bob scratched his head, chin, ears, neck and belly many times. After each he leaned forward, and then back in his luxurious, and ergonomically designed leather office chair. I mean throne. Finally, King Bob took a guess. “I suppose that since my royal guests come and go at different intervals, and we have differing amounts of royal housekeepers per shift, perhaps there are too many royal requests for the number of royal housekeepers to complete in the same amount of time.”

“King Bob thine curiosity to ask questions of the data is ever increasing. Now I shall ask my final question of thee. One that I think will help you judge the fate of Sally Sue. What if Sally Sue or any of your other second shift royal housekeepers had tried to manipulate thy Royal KPI by shortcutting their duties?”

“Easy peasy” King Bob uttered in laughter. “My royal guests might get sick from the germs. I certainly wouldn’t want that

because my quality numbers would take a dive and the peasants might choose a bed at another King's castle."

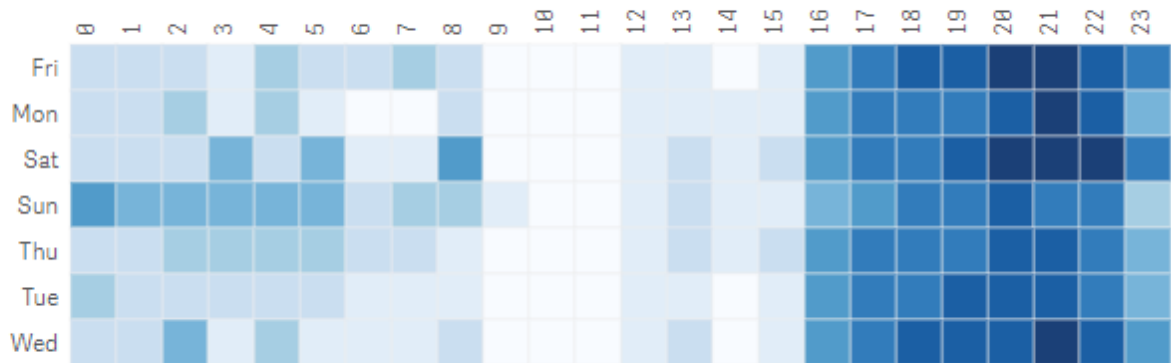
Data Knight Joe rose from the royal servant's bench and spoke. "Correct King Bob. Your royal data literacy is certainly increasingly. Might I be so bold at this time as to make a suggestion, rather than asking you another question so I don't lose my head."

"Of course, you may. Speak my royal Data Knight. Speak" King Bob said while turning his royal palms upwards and stretching his royal arms to his sides.

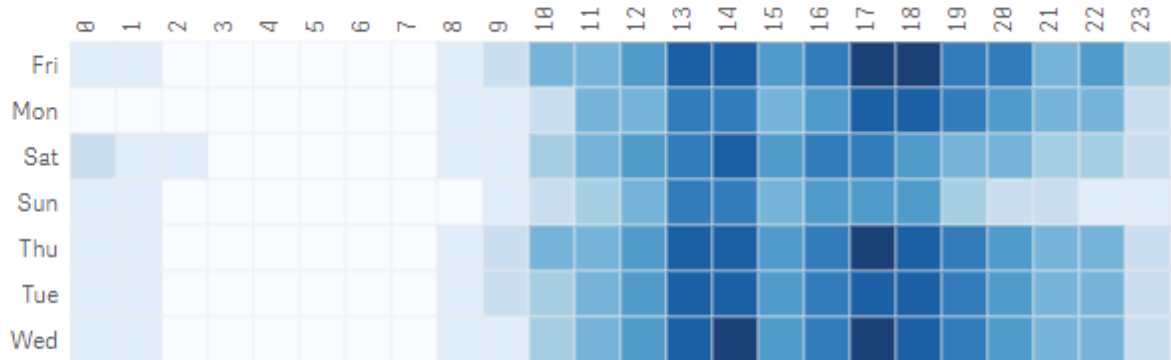
"I suggest that when asking your royal data team for a KPI, you think through the ramifications of monitoring that one number by itself. For as you have seen great King, there is much value in knowing the full context of the number. You need to measure the royal drivers behind your KPI as well as measure anything that is related. Before I depart your royal presence, I have prepared you this royal present. For it is mine own Royal Heatmaps."

We aren't staffing to demand

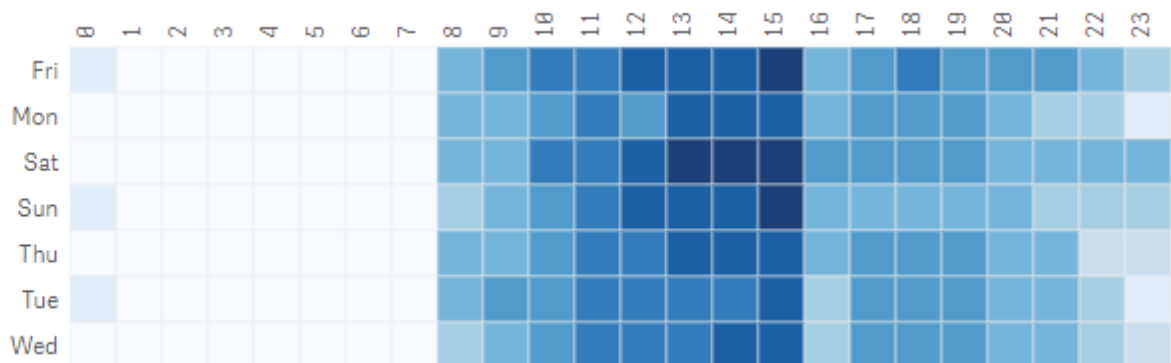
Average Turn Around Time



Requests



Staffing



“It appears that Sally Sue was being set up to fail. My royal schedulers were not scheduling the royal housekeepers appropriately to meet the demands of my royal guests.” Just as King Bob sat back down in his luxurious, and ergonomically designed leather office chair. I mean throne. Harold, his royal scheduler was seen running for the doors, never to be

seen again.

Chapter 4 – The End. Or is it The Beginning?

Data Knight Joe rode his stallion off into the sunset and all lived happily ever after.

Truly a story for the ages and one that should quickly put into movie form. Right?

Unfortunately, this isn't Hollywood and although fictional in my context, this story is played out in healthcare systems, all over the world daily. Scratch that, businesses of all types all over the world daily. And not all the stories are wrapped up with Knights riding off into the sunset. If your organization doesn't already have a Data Knight ensuring Data Artistry I have a few suggestions as you begin:

1. KPI's are nothing more than numbers. One sentence, of 1 paragraph, of an entire story. Don't settle for anything less than telling the whole story. Otherwise, people in the breakrooms will make one up. More often than not, their interpretation of isolated visuals will be wrong. If you want to achieve Data Artistry, then Context is King, not Bob.
2. While 1 number by itself is just a number, it indeed better be right. 100% of the time. The most emotion I've ever seen in corporate meetings is when a number is just a single 0 off. Whether extra or missing, one 0 can make people lose their heads emotionally. You simply can't have Data Artistry without Data Quality.
3. Continuing point 1, stories need a context. Interaction between multiple characters is what makes people want to read books and watch movies. You simply can't have Data Artistry without Data Storytelling because meaning is

found in explanation. Or as Money Ball author Michael Lewis says, "Explanation is where the mind comes to rest."

4. In my previous post, Melvin asked a great question, "What if the picture is blurred?" The first royal heatmap was metaphorically blurry because it lacked Metadata. Everyone must know exactly what they are looking at or they will jump to the wrong conclusions. You simply can't have Data Artistry without Data Governance.
5. A lack of organizational data literacy at the bottom rungs can cause real morale issues. They will dread the phrase "we are going to start tracking ____." Real workers, in real positions are made to feel like Sally Sue daily because they aren't equipped to read fancy schmancy data visualizations. A lack of organizational data literacy at the top end can cause leaders not to pause and ask the right questions. You simply can't have Data Artistry without Data Literacy for everyone in the organization.
6. One of the fundamental aspects of Data Literacy is curiosity. Those in meetings that ask questions like "What really drives this KPI?" or "What happens if this number is manipulated by human beings who are in fear?" should be appreciated. Not told they should hurry up so the meeting can end on time. In this case shortcuts cleaning beds/rooms to speed up time measurements really can have a disastrous effect.

To be clear I'm not suggesting that this happens. Again, I'm not suggesting that this happens. I'm simply stating that if you are going to focus on a measurement that human beings can manipulate to protect themselves, you better consider all the ramifications if they do, and track them as well.

Epilogue

In my fictional story you could say that the morale of the story was about “staffing to demand.” Which in my experience has been a big issue at many organizations, so I wanted to raise it. If you track any of your KPI’s “by shift” and your patients, customers, clients, production don’t align with those shifts, you probably needed to read this story. As humorous, or long as it might have been.

More importantly I used the story and the visuals to make the point I began in my previous post. Data Visualization + Data Storytelling will evoke emotion and drive people to action. I used a staged image in my first post and this time I promised to deliver a real-world scenario. Hopefully, I delivered.

Would the heatmaps been as clear without some text specifically calling out that they weren’t staffing to demand? Would text alone have invoked the kind of emotion and action that it did combined with the visuals? In an art gallery you might turn to someone and ask them for their insights on a painting. Including narratives along with your visuals is like providing a dilettante next to each painting in your gallery.

I stand by my assertion that Data Visualization and Data Storytelling magnify each other. They don’t compete against, nor do they just complement each other. When used together they incite emotion and drive to action to improve the organization.

And unless I’m missing something, that’s kind of what Data Driven organizations are supposed to do.