

ORGANIZATIONAL DATA FLUENCY

INTRODUCTION

Data has the ability to dramatically improve *any* organization's competitive advantage in the global marketplace. It has the power to:

- increase the efficiency of every worker.
- increase the rate of good business outcomes.
- drive accountability and transparency.

...among other things.

Like solar energy, data is abundant, but most of us lack the ability to harness it effectively.

The book *Data Fluency: Empowering Your Organization with Effective Data Communication* was written by Zach Gemignani and Chris Gemignani. It does a great job at outlining a framework for organizations to follow when trying to become more data fluent. Data fluency lacks a specific definition, but it contains four specific tasks that organizations should attempt to improve.

1. **Grow Data Consumer Literacy.** Data has the ability to be misinterpreted, abused, and overlooked. An effective data consumer can pluck meaning out of data that's provided. They have knowledge in statistics and take a scientific approach to business problems.
2. **Author Effective Data Products.** An effective Data Author can cater their presentation to different audiences. Those leading dialogues are also making data products - not just making spreadsheet and presentations. This means using the right tools and methods for each kind of situation. An effective data author is both creative and empathetic.
3. **Champion a Data Fluent Culture.** Does the organization's culture promote curious discussion based on facts backed by data? Do office politics judge *what* problems get acted on? Policies should create a *shared understanding* of data. Leadership needs to promote the advantages of data fluency. This means making decisions with fact-based evidence. Most of all, leadership must realize that information is essential for the organization. Effective data authors and consumers help key information flow like water.

4. **Build an effective Data Product Ecosystem.** An effective data ecosystem of tools and standards helps the data fluent organization realize gains. Organizational standards drive consistency. This makes data products easier to understand and grasp. Easy-to-use tools lower the barriers data consumers may have in adopting data fluency.

All four areas are important in achieving data fluency¹. It is every person's responsibility to be knowledgeable in consuming data, authoring data, supporting a data fluent culture and building an effective data ecosystem. This is the message that needs to be promoted by everyone in the organization.

Who is this essay for?

- **Organizational leaders looking for different viewpoints on data.** Leaders ought to know the power of data. Not just dashboards - but communication and dialogue. Actions that leaders take are also a part of a data fluent culture because it sends a message to everyone in the organization.
- **Data consumers and authors frustrated with their organization's data fluency.** Everyone can afford to look inward when evaluating their organization. There are a wealth of tools available in your organization. Are you using them to their full capacity?
- **Those interested in organizational communication.** Communication leverages information and data. Each word has meaning.

What will this essay cover?

- **The Impact of Data Fluency on Business Decisions & Outcomes.** For those who doubt the power of data, this section will attempt to convince you why data-backed decision making is important. For those who fully understand the importance of data, it'll arm you with a few unique arguments.

ABOUT THE AUTHOR

My name is Christian Acosta. As of Spring 2016, I am a full-time Data Science Masters student at the University of Wisconsin. I created this paper for the course 'DS 735 – Communicating About Data.'

Like the authors of *Data Fluency*, I strongly believe one of the largest gaps in data analysis today is the inability to communicate. While I don't have a large sample size of different companies I've worked for, I have seen many faces of data fluency in my time at Rockwell Automation.

I started at Rockwell Automation in January 2009 in the dead of the *Great Recession*. I'm indebted to Rockwell Automation for taking the chance in hiring a college graduate during a tough economy. Like all companies, Rockwell had its ups and downs when it came to data fluency. What I noticed were pockets of people – *departments, teams and individuals* – adept at utilizing data.

At times, especially during the analysis (Part II), it may seem like I am angry or jaded. I recognize that my experience at Rockwell Automation is no different than the countless number of people I've spoken with at hundreds of other companies. Data fluency is a constant battle. For every opportunity I point out for Rockwell Automation there are 10 things I admired.

I see data as *the great equalizer*. It has the opportunity to negate office politics and bring truth to the forefront. But it requires people who *can consume data, author data, build and represent a data-driven culture, and construct data ecosystems*. Very few companies have this ability. Those that possess it are at the top of their industries.

I hope you enjoy this paper. If you have any questions, don't hesitate to contact me:

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THE IMPACT OF DATA FLUENCY ON BUSINESS DECISIONS & OUTCOMES.

Simply put – *data can be king*. Like the story of *Prince Arthur and Excalibur*, those capable of wielding such a powerful tool have the potential to drive immense change. Data's strongest ability is to help drive informed decisions. I'm a firm believer in the power of the *right* question. Before you can understand how data can transform business, you need to understand why data is so important in the first place.

THE IMPORTANCE OF DATA

Data by itself is pretty useless. *Six... what? Six feet?*

- When data is organized to bring meaning it can be *informational*. *Christian is over 6 feet tall.*
- When information can be aggregated, it has the power to become *knowledge*. *99% of humans are less than 6'6" tall.* Knowledge is how modern societies are built.
- Knowledge can be used to create – *"we should definitely make sure our door frame is at least 6'6" tall."*

Data, information and knowledge have the ability to answer burning questions such as *how will we travel to the moon, or how can we fly like birds?* I argue that *all business problems can be framed into questions*. *Data and information enables us to answer these burning questions*. I'll go even further out on a limb – problems never have only one question behind them. Here is an example:

- **The Service Desk satisfaction rating is only 5.8 of 10.** *Why is our service desk rating only 5.8 out of 10? How can it be improved? Which area is suffering the most? How long does it take to solve a typical ticket? What about ticket, by type? Does the person responding to the ticket have an effect on feedback scores?*

Data can be used to answer questions. Once this data is combined, it can provide information to answer a question.

Information can be a story or a logical progression to answer a question. *"Service Desk tickets that are closed after 4 days have an 80% chance to receive negative feedback."*

Knowledge is something that can be relied on to build towards a more promising future. *"We realized that a bulk of our negative feedback came when service tickets were closed more than four days after they were opened by the customer. We will use this knowledge to build the right process to follow-up with our customer once we pass day 3."*

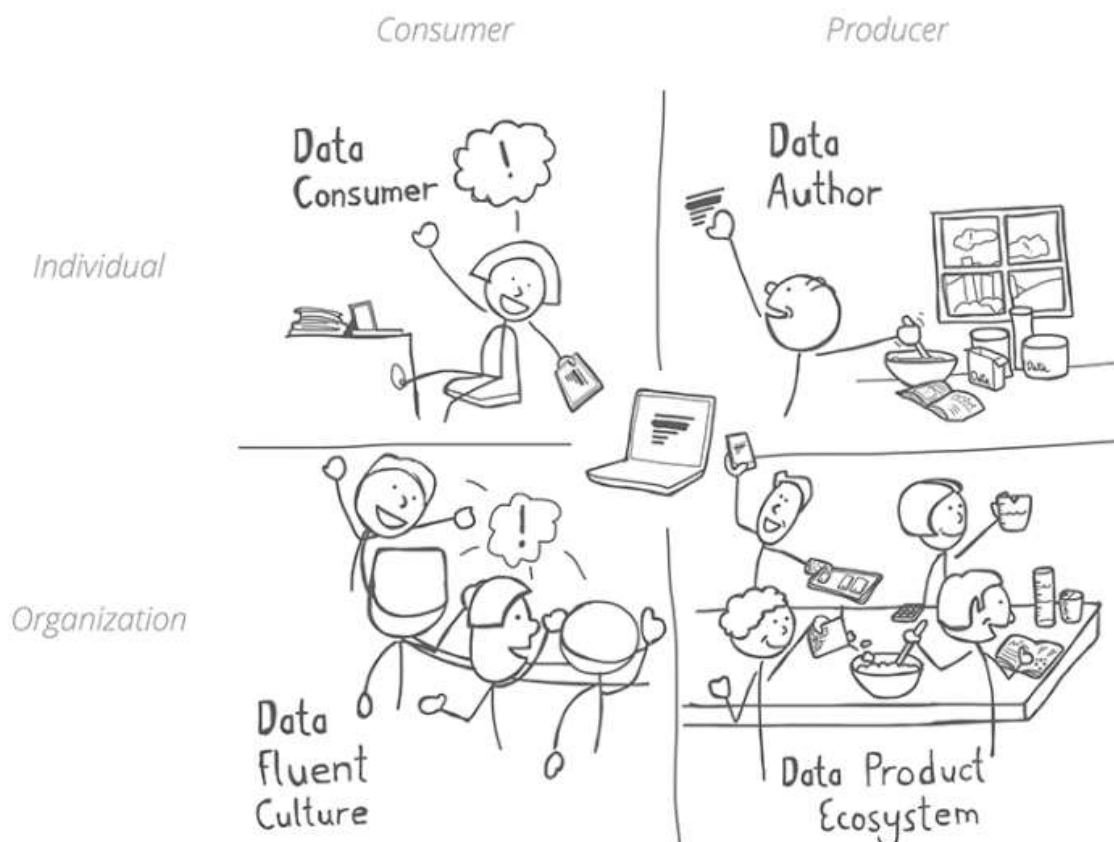
This simple example shows the importance of data as it has the *ability to solve problems*. But without meaningful action it is as good as useless. It requires organizations and people who are committed to using it.

This is where data fluency comes in and why it's so important in building an efficient organization.

WHAT IS DATA FLUENCY?

An organization's data fluency consists of four different parts:

1. **The Data Consumer.** The one who is taking in the data being presented to them. They are the customer. They are also the critic. Good data consumers drive accountability throughout the organization.
2. **The Data Author.** The author is the one responsible for reaching their audience. They create data products. Remember: A data product doesn't have to be an excel dashboard or PowerPoint presentation. It could be a meaningful dialogue or conversation based on fact-based evidence. They have to do what they can with what they have to communicate their points to the audience.
3. **The Data Fluent Culture.** A culture built on data fluency places evidence and facts above politics and 'gut feel.' This type of thinking enables fact-based truths to drive decision making.
4. **The Data Ecosystem.** Ease-of-use and consistency are key to building the right data products. The data needs to be accessible. It needs to be easily manipulated to each user's needs.



Graphic from *Data Fluency*.

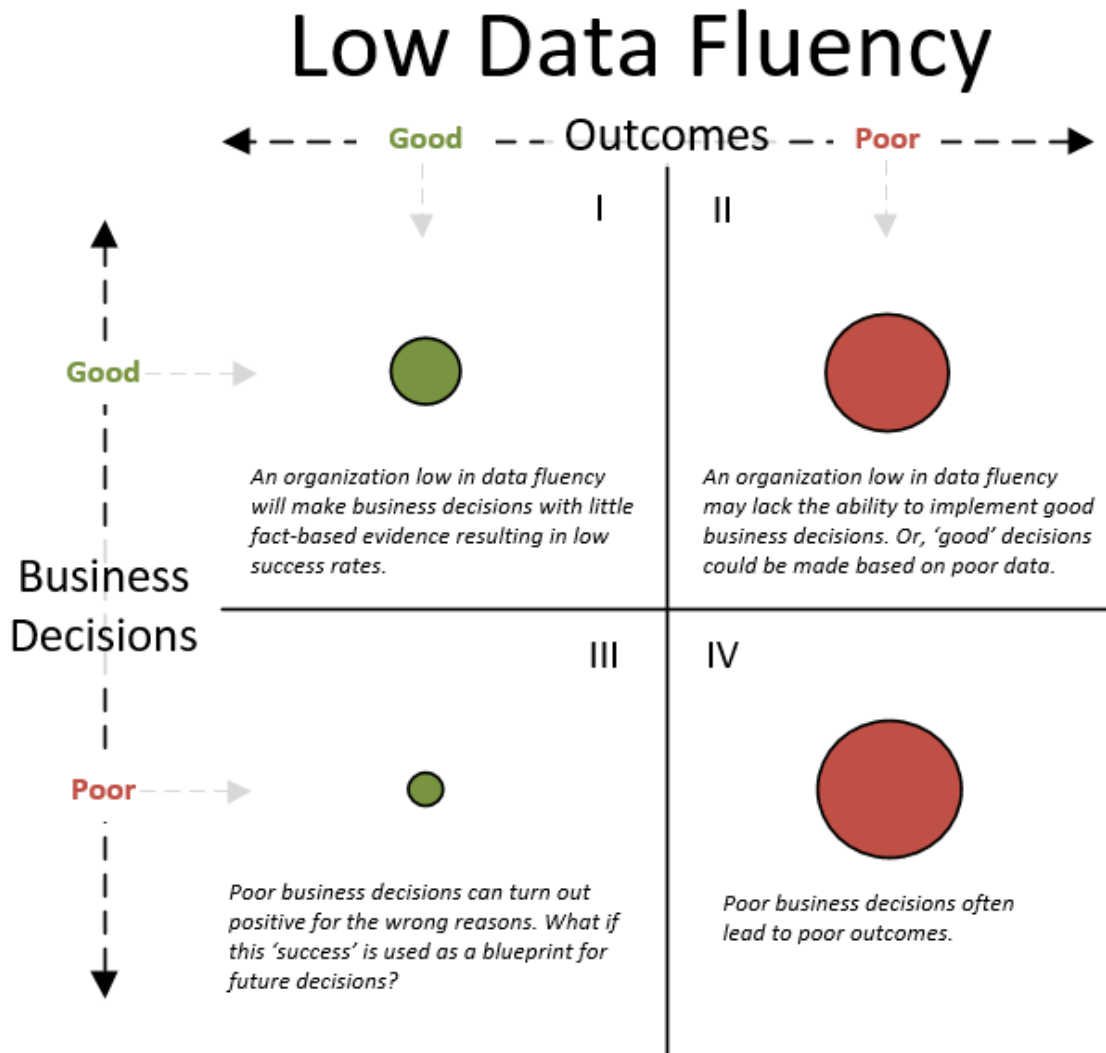
According to the authors of *Data Fluency*, building competency in these four areas enables a data fluent organization to:

- **Communicate more effectively and efficiently.** Consistency drives increased performance across the board.
- **Create a culture of accountability.** Alignment to well-understood metrics helps members of organizations get on the same page. It also holds people more accountable.
- **Build more curiosity behind data.** As people become more knowledgeable, they ask more questions. A data-driven culture can promote curiosity which can lead to further knowledge.
- **Gain better decision-making ability.** A more systematic approach to decisions generally leads to better results. ²

Making informed decisions with data is an obvious success strategy. Few organizations seem to grasp the importance of the *systematic* approach using data. While no organization can totally avoid bad decisions, data fluent organizations tend to be in a better position.

DATA FLUENCY DRIVES BETTER BUSINESS OUTCOMES

The effective use of data helps make an organization more data fluent. A data fluent organization makes better business decisions which results in more favorable business outcomes. Increasing the rate of favorable business outcomes leads to a greater chance of long-term success.



Analysis for an organization with low data fluency (above):

Quadrant I (top left) – Good business decision leads to a good outcome. Well-intended business decisions can lead to good results; no one can deny that. An organization that bases decisions on *gut feel* as opposed to *fact-based evidence* may have many symptoms:

- **High amount of 'tribal knowledge'.** Decisions made on gut feel require highly-experienced people. As experience level declines, the odds of poor results go up. These organizations pay a premium for talent that is available for lower rates in an organization with high data fluency.
- **It is difficult for cross-functional teams and projects to succeed.** When knowledge data is shared person-to-person, it's tough to grasp the full picture. Significant time is wasted relaying knowledge. Often, people come in with little idea as to what others do.
- **Highly-political culture.** When individual stories can be leveraged over fact-based evidence, it tends to create a culture of relationships. These organizations are reactionary to '*who screams the loudest and swings the biggest stick.*' Relationships are important, but they should not override facts.

Quadrant II (top right) – Good business decision leads to a poor outcome. In an organization with low data fluency you can expect *what appears to be good business decisions end up with poor results.* Of course this still happens in data fluent organizations. But low fluency organizations can't perform effective root-cause analysis.

- **It has the power to make talented members/groups of an organization look bad.** When sound business decisions made with available data end up with a bad outcome, it can affect the individual's confidence. Others may begin to doubt a truly sound leader or individual!
- **It could send the organization down a spiral – where everyone begins to doubt sound decision-making ability.** What does this do to the organization's dynamic? It could create a 'silo' mentality and promote a culture of doubt (or even animosity)! When there's a lack of data fluency it's hard to providing reasoning.
- **An organization with low data fluency lacks the right knowledge and information to implement projects.** Lack of fluency increases the amount of *organizational friction.* This *friction*, caused by a lack of data fluency, adds to the amount of time it takes to get a project done. Friction has the power to stop even the best business decision in its tracks. It adds to cost and takes up valuable resource time. Highly-political decisions can halt the project. This friction

then requires a leader (sometimes even a senior leader) to spend a great deal of time pushing a project through.

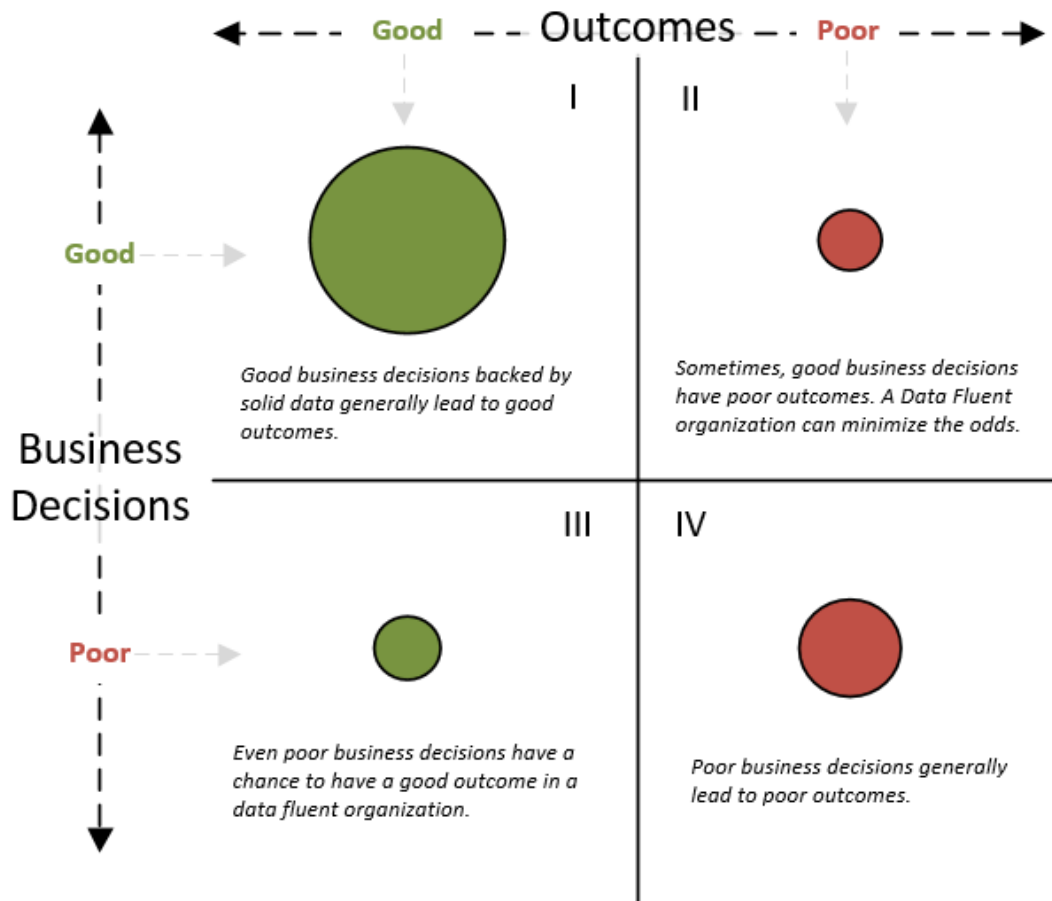
Quadrant III (bottom left) – Poor decisions can lead to a good outcome. Nothing is scarier to the long-term health of an organization than *false positives*. Poor decisions, either made by unintelligent people or for political reasons, can sow the seeds of destruction.

- **A poor business decision chosen for political reasons creates a high level of animosity.** Just like international politics, petty fights have the chance to turn into group-think. If a good outcome occurs from a poor decision, it serves to strengthen political beliefs. I have seen this personally working in IT. The lack of shared knowledge and information drives uncertainty in cross-functional projects. Finger-pointing begins. Data Fluency is a team effort.
- **Poor business decisions built on faulty assumptions have the chance to become standard practice.** What if an incorrect thought process led to a good outcome, but for all the wrong reasons? Logical fallacies can occur when you base your decisions on a small amount of observations (sound like *gut feel!*?). For example: when a customer gives poor feedback for a service desk experience, many believe it is the service desk agent's fault. When assumptions like this happen, it has a chance to alienate entire groups of people. In this case, the service desk agent could have been replaced by a more effective person. But what if the problem had little to do with agent effectiveness in the first place?

Quadrant IV (bottom right) – Poor decisions lead to poor outcomes. This isn't a surprise to anyone. What's important is the recognition of *why* there was a poor outcome in the first place.

- **Without data fluency, it can be tough to detect why the outcome turned out poor.** Identifying *the wrong cause to a poor outcome can be just as dangerous as a false positive*. An organization lacking data fluency may experience everyone's least popular game – *the blame game*.
- **It's very tough to hold people accountable.** Ignorance is a valid argument when there's no data-driven approach.

High Data Fluency



Analysis for an organization with high data fluency (above):

Immediately you begin to notice a difference.

- Good business decisions generally have good outcomes.
- There are fewer poor outcomes that arise from good business decisions.
- Poor decisions, whether through politics or ignorance, can still produce good outcomes.
- Poor business decisions still lead to poor outcomes.

Just like the last section, there's more than meets the eye:

Quadrant I – Good business decisions usually lead to good outcomes. *No duh.* So what are the important pieces?

- **Project execution is significantly better in a data fluent organization.** When knowledge and information is shared in a concise way, it makes it easier for everyone to understand. A culture of honesty (through accountability with data) breaks down organizational walls and makes communication easier.
- **Data fluent users and data producers know *how* to best communicate with their peers.** Instead of posting spreadsheets on a PowerPoint slide, the data producer creates meaningful graphics. On the other side, the data consumer is free to ask questions.
- **There is a culture of accountability.** Data is the source of truth. It is clear what everyone's job is, because there are transparent metrics and knowledge centers with the information.

Quadrant II – Good business decision leads to a poor outcome. As much as we'd like to be right 100% of the time, it is impossible. But how is a data fluent organization more prepared to learn from poor outcomes?

- **Data fluent organizations can perform better root-cause analysis.** Data helps create fact-based evidence. Evidence can be used to create a story as to *why* something happened. Those who can learn from past mistakes will always be better off.
- **Data provides transparency and accountability.** Data, in the form of the story, helps others understand why a leader may have chosen a certain direction. If they are data literate, they can also figure out why it didn't have the proper result. The leader can also show how they are prepared for this outcome the next time around.

Quadrant III – Poor business decisions lead to a good outcome. Unlike organizations with poor data fluency, *false positives* have a way of being sniffed out via data.

- **Decisions made for political reasons may have a *smoking gun* hidden in the data.** In a project review meeting, we ask the project manager *what were the steps that led you to take this decision?* Assuming it was politically motivated decision, the evidence should show up in the project manager's reasoning. When an organization is data fluent, it can pick out logical flaws.
- **Poor decisions built on faulty assumptions have a better chance of being corrected.** Like the last point, a review with peers should uncover assumptions that happen to lead to a bad outcome.

Quadrant IV – Poor business decision leads to a poor outcome. Even a data fluent organization isn't immune to bad decisions and outcomes.

- **Root-cause analysis helps identify where it went wrong.** This lets people learn the *right* solution after the fact. Hopefully this prevents it from happening in the future.
- **Accountability ensures the same mistake isn't being made over and over.** With historical data, poor performance for individuals or teams can be analyzed. Instead of playing a game of politics, hard data can determine *what* went wrong and *why*.

At the heart of organizational effectiveness is its approach to data-driven decision making. While success can never be guaranteed, the data fluency approach promises to cut out a handful of symptoms seen in low fluency organizations. In summary:

- **The flow of information.** Data-driven organizations increase the flow of vital information to those in need. They do it through effective presentation and data product creation. They are supported by their leaders and have the right tools to perform their job.
- **Politically-backed decision making.** I believe a political culture arises in an organization when there is a lack of accountability. Freedom to information (and solid metrics) creates transparency to goals. This has a chilling effect on traditional office politics, where relationship trumps business need.
- **The sharing of goals and metrics in an understandable way.** When all employees can see how their goals tie up to overall organization goals, they can feel a new sense of belonging.
- **Effective root-cause analysis helps avoid the same outcome.** This becomes knowledge the organization can rely on!

THANK YOU

Thank you for investing your time in reading this. This is, and always will be, a work in progress. It is open for discussion and criticism. Feel free to contact me with any comments, questions or concerns.

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Sources

1. Frank and Chris Gemignani, *Data Fluency: Empowering Your Organization with Effective Data Communication* (Wiley, 2014).
2. Ibid.
3. Ibid.