5W1H Method: SAS® Viya® as Your Cloud Analytics Platform? Who, What, When, Where, Why, and How

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ABSTRACT

Defining an analytics strategy and selecting a vendor for your analytics software is a big deal for any organization—from start-ups to small and medium-sized enterprises (SMEs) to corporations. Making the right strategic investment decisions in the use of time, resources, and technology can be a make or break situation.

In this paper, I present a high-level look at using the common questioning framework 5W1H, sharing insights on the business, technical, and external factors that can help you to make the right choices in software selection and cloud implementation. The Who, What, When, Where, Why, and How questioning method is used to identify key considerations that should be explored and that influence a good decision-making process that determines whether an investment in SAS® Viya® as a modern cloud analytics platform suits your organization's needs.

INTRODUCTION

This paper provides some high level guidelines on factors for investigation in an organisation that is considering investment in a modern analytics software platform. The organisation could be an existing SAS customer considering modernisation, or one using alternatives, for this method to be applicable.

At the end of the paper you will be armed with some useful considerations and a method that could be adapted to your organisation's situation. This information will allow you make a more considered choice in selection of an analytics platform that will help you to achieve organisational success.

Note that this is an opinion piece and is not intended to be a comprehensive guide on a course of action to follow. Every business is different, therefore careful consideration and ideally specialist consultancy should be sought to evaluate your options in more detail, based on your own organisational factors.

THE METHOD

5W1H HISTORY AND RELEVANCE

The 5W1H Method is a questioning technique. This technique allows a problem to be segmented and handled in an analytical way. Origins of variants on this method are mentioned in a range of historical references dating back to Ancient Greece. This method was popularised early in the 20th Century by the British author, poet and journalist Rudyard Kipling in his poem "I Keep Six Honest Serving Men" at the end of his short story – "The Elephant's Child". The relevant excerpt from the poem is as follows:

"I KEEP six honest serving-men

 (They taught me all I knew);

Their names are What and Why and When

And How and Where and Who.

I send them over land and sea,

I send them east and west;

But after they have worked for me,

I give them all a rest…"   (The Kipling Society, Kipling, R. 1902)

In my opinion, Kipling in this poem characterises the 5W1H Method using trusted servants who keep his thought processes in good order. Later in the poem I interpret that some caution is advised; that the questioning process can never be exhaustive, just good enough for the situation in hand.

The 5W1H method does not hold any hard and fast rules about the order of the questions or extensions of the question to make them meaningful in context, but can be useful as a way to generate ideas or gain perspective, but also as a way to get directly to the point.

<div align="right">(Changingminds.org, 2015)</div>

METHOD APPLICATION IN CONSIDERING SAS VIYA ANALYTICS PLATFORM

For the 5W1H method in this application, I believe the following question extensions to be relevant:

What is a Modern Analytics Platform?

Why are we considering SAS Viya?

Who are the stakeholders?

Where should the platform be hosted?

When is the right time to move to SAS Viya?

How do I proceed in getting SAS Viya?

W1 –WHAT IS A MODERN ANALYTICS PLATFORM?

FRAMING THE WHAT QUESTION

In this paper the topic is about SAS Viya as an Analytics Platform. Before thinking about whether Viya is right for you, it is worth taking some time to evaluate the question – What is a Modern Analytics Platform? If you are unfamiliar with SAS Viya, please see the link to the SAS Viya Product pages in the recommended reading section.

GARTNER APPROACH TO DEFINING AN ANALYTICS PLATFORM

Gartner is a leading research and advisory company which publishes a number of industry research papers on a range of technological topics. Presentation of results in these areas typified by a research methodology called the "Gartner Magic Quadrant". Several of these Gartner Magic Quadrant categories are relevant in the context of the wider SAS ecosystem.

The two Gartner Magic Quadrant research documents that are most relevant in the context of this paper each contain a definition of a different flavour of Analytics Platform. 'Magic Quadrant for Analytics and Business Intelligence Platform' and 'Magic Quadrant for Data Science and Machine Learning Platforms'.

The Gartner Magic Quadrant for Analytics and Business Intelligence Platforms defines a Modern Analytics and Business Intelligent platform as follows:

"Modern analytics and business intelligence (BI) platforms are characterized by easy-to-use tools that support the full analytic workflow — from data preparation and ingestion to visual exploration and insight generation. They are most differentiated from traditional BI platforms by not requiring significant involvement from IT staff to predefine data models or store data in traditional data warehouses. The emphasis is on self-service and agility. Most modern analytics and BI platforms also have their own self-contained in-memory columnar engine to ensure fast performance and support rapid prototyping, but many can optionally use existing modeled data sources. The growing use of data lakes and logical data warehouses dovetails with the capabilities of modern analytics and BI platforms that can ingest data from these less-modeled data sources".   (Gartner Inc. 2019a)

The Gartner Magic Quadrant for Data Science and Machine Learning Platforms defines a Data Science platform as:

"A cohesive software application that offers a mixture of basic building blocks essential for creating all kinds of data science solution, and for incorporating those solutions into business processes, surrounding infrastructure and products."
                                        (Gartner Inc. 2019b)

SAS APPROACH TO DEFINING AN ANALYTICS PLATFORM

SAS uses a bold definition of an "Analytics Platform" in the eBook 'How To Maximize The Impact Of Your Analytics' as follows:

"An analytics platform is a software foundation that's engineered to generate insights from your data in any computing environment. Built on a strategy of using analytical insights to drive business actions, this platform supports every phase of the analytics life cycle – from data, to discovery, to deployment."   (SAS Institute Inc. 2018)

This Analytics Platform definition is neatly evaluated from an architectural standpoint by James Ochai-Brown in his SAS blog post entitled 'The Analytics Platform seen through Enterprise Architecture' with the following succinct points…
"

1. It is a generic definition not tied to any one vendor or technology. That makes it entirely suitable to be adopted by the Enterprise Architects in any organisation.

2. It can be run on any computing platform, on premises or in cloud. It could even be distributed with elements running in databases or in edge devices.

3. It supports analytical activities related to data, discovery and deployment. These three categories will be important in building the conceptual framework."

                                        (Ochiai-Brown, J. 2018)

ANALYTICS PLATFORM IN SUMMARY

At the time of writing, my observation is that with the latest release SAS Viya 3.4 and with the most recent innovations in containerised deployment patterns, achieved what can be defined as a Modern Analytics/ Data Science Platform in its own right – using both their own definition and the Gartner definitions referenced.

W2 – WHY ARE WE CONSIDERING SAS VIYA?

FRAMING THE WHY QUESTION

Why are we considering SAS Viya? This I interpret as defining the relevant problem statement(s). Capturing problem statements is useful for the following reasons:

1. This is a useful technique to gain clarity on issues and to articulate why you are considering a course of action. By carrying out and documenting this step you are able to check back that your investigation topics have been addressed.

2. It is important to evaluate the alignment to business strategy and objectives to help inform a business case/ proposal. According to Robin Kay in his interpretation of the "Association of Project Management Body Of Knowledge v6", he consolidates the objective and purpose of the business case as follows;

   "Every project must in some way contribute to the corporate goals of the organisation."   (Kay, R. 2014 p.52)

3. If you later decide, after initial investigations, that you would like to embark on a project to enact change; or seek funding to allow for a more detailed investigation, then the clear description of the problem and expected outcomes will be necessary.

EXAMPLES OF POSSIBLE WHY PROBLEM STATEMENTS

Your problem statements will likely be diverse in the context of an Analytics platform and could contain a mixture of drivers, be that technical, business, political, cerebral or even emotional.

Here are some Problem Statements (denoted *WHY*) that I have either encountered or envisaged that might provide a cue to SAS Viya being a valid consideration. A SAS Viya relevant outcome is suggested in italics denoted by 'Viya':

WHY: I would like to simplify and accelerate the analytics lifecycle from Data to Discovery to Deployment. End to end model development process involves a range of tools and we face technical constraints.

Viya: SAS Viya VDMML (Visual Data Mining and Machine Learning) may be a good place to look due to breadth of coverage of the analytical lifecycle provided.

"SAS Visual Data Mining and Machine Learning is the first solution that combines the most advanced analytics, data prep, visualization, model assessment and model deployment in a single environment. It also supports programming from popular open source languages. This consistent, collaborative environment produces repeatable results, helping improve organizational processes and uncover new opportunities for growth".

WHY: I am struggling to find analysts with X niche programming language experience and want to be able to work with a wider talent base familiar with Python, R or other open source languages.

Viya: SAS Viya allows Python, R and a range of other languages to be used. There is also flexibility on the (Integrated Development Environments) IDE's that can be employed. SAS programmers can use the familiar code they are used to, but also a range of additional features and enhancements.   (SAS Institute Inc. 2019)

WHY: I want the ability to create rich visualisations of my data so that I can show my stakeholders how my business area is performing in a more impactful way.

Viya: The Visualisation tools are available on the SAS Viya platform are smart and powerful. There is a new interface for SAS Visual Analytics and SAS has also launched a new mobile app that facilitates voice commands.

WHY: Slow data processing is impacting our effectiveness. The time taken to undertake scenario analysis or to run a key report is affecting our ability to drive good business outcomes.

Viya: The CAS (Cloud Analytic Services) engine that underpins the SAS Viya platform is built to allow for fault tolerant Massively Parallel Processing.

*"In MPP mode, CAS supports workers to help offload the analytics and spread the data out to allow for parallel processing on the multiple workers."   (*Pendergrass, J. 2017.)

This functionality means that your Analysts can run multiple scenarios simultaneously and the SAS VDMML (Visual Data Mining and Machine Learning) provides an intuitive web browser based visual interface.

WHY: My Data and Analytics software toolset is no longer palatable to renew - licence cost, vendor gone out of business, incompatible with other tech in the organisation.

Viya: This could be a reason to consider SAS Viya in terms of future flexibility and compatibility. Immediate priority would be to capture or document business critical code, data, processes or insight that is tied in to the outgoing systems.

WHY: Our competitors are moving ahead of us in the market, we need to understand how we can win.

Viya: Absolutely an Analytics Platform underpinned by a good strategy and skilled people will allow you to set yourselves apart from the competition.

WHY: We have heaps of data in our organisation, there is surely some value in all this data.

Viya: Absolutely, you may wish to get some help from a Data and Analytics specialist to get you started on this journey and adapt your ways of working. Just make sure you clearly articulate the scope and gain IT buy in and support for data access.

WHY: We have decided to go all in on open source in our business, why would we pay for an analytics platform when we can use a free one.

Viya: Note that an analytics platform such as Viya provides a platform facilitating stability, scalability and trust. An open source solution will likely do the job as a tactical play or for a simple or niche individual business case, however there are a number of reasons why you should look more closely at the benefits of a supported platform.

W3 – WHO ARE THE STAKEHOLDERS?

FRAMING THE WHO QUESTION

In considering the question 'Who are the stakeholders?' this should be a prompt to think very carefully about the people involved or impacted by the decision. In the Association of Project Management Body Of Knowledge, a Stakeholder is defined as "Individuals or groups who have an interest in the project, programme or portfolio because they are involved in the work or affected by the outcomes". (APM, 2013)

INTERNAL STAKEHOLDERS GROUPS

In the case of an Analytics Platform, the set of stakeholders is likely to be diverse, therefore consulting widely is recommended. Considerations should include the following non exhaustive list:

Potential Sponsors – Senior support and funding will be necessary.

Board Members – Titles are diverse across different organisations, but certainly executives with a Technology, Data, Risk or Analytics remit should be consulted.

Analysts, Developers, Data Scientists – Users of the technology, what are their views?, what do they do now?, what are the most valuable elements of their work?, will SAS Viya enhance their activities?

Cloud Technologists – Likely to be involved in setup, maintenance and ongoing support.

Commercial and Legal – Engagement of 3rd parties will likely be involved.

IT teams including Solution Architects, Database Administrators, Infrastructure specialists and probably many others.

Business teams, there will be a wide range of people who will be able to benefit from the capabilities and usability that a modern analytics platform provides.

EXTERNAL STAKEHOLDERS GROUPS

It should be noted that when taking on new technology, external stakeholders are also relevant for consideration, also non exhaustive:

Customers & Clients.

Service providers.

Training providers.

Local talent pool.

Partner organisations with skills and perspectives to offer.

Recruitment firms.

FOCUS ON THE CUSTOMER

In moving to a modern analytics platform, it would be useful to ensure that you are thinking as a digital business. Some good advice from McKinsey is relevant to this topic. From the thought leadership article "The seven traits of effective digital enterprises" where the advice given in trait 7 is to "Be obsessed with the customer". (McKinsey, 2014)

This advice is given in the context of customer experience, this should be a key consideration. The customers of your business are key stakeholders and it is important that this remains a central focus.

In my opinion it is also useful to extend this thinking to the users of the analytics platform with the following points of impact worth consideration; User experience, User productivity, User empowerment. Each of these is likely to be positively influenced if an organisation embraces a platform such as SAS Viya.

W4 – WHERE SHOULD THE PLATFORM BE HOSTED?

FRAMING THE WHERE QUESTION

In considering the question of 'Where should the platform be hosted?', technical specialists should be involved to enable an effective design of the solution and to determine how SAS Viya can best be integrated into your enterprise solutions.

A certified specialist cloud solution architect in your cloud technology provider of choice should be engaged to support decisions on which cloud products and design options best suit the situation. Also a consideration of TCO (total cost of ownership) and ROI (Return on investment) should be taken. In addition a technical architect with understanding of SAS Viya and also of the typical ecosystems around Data and Analytics will be important.

The importance of seeking advice in these areas should not be underestimated as each discipline is complex and diverse. The number of configuration options across the technology spectrum is also changing rapidly.

In terms of typical resulting solutions, SAS Viya is often hosted by an IaaS provider and is compatible with Windows or a Linux O/S. Container deployment options leveraging the capabilities of Docker and Kubernetes are also now available at the time of writing.

The range of options available at the time of your investigation should be considered in more detail and the relevant deployment guides be consulted at the SAS Support Pages. https://support.sas.com/en/documentation/install-center/viya/deployment-guides.html

Take note that the deployment mechanisms and documentation are being refreshed frequently, so be sure to keep checking back.

W5 – WHEN IS THE RIGHT TIME MOVE TO SAS VIYA?

FRAMING THE WHEN QUESTION

The Fifth W question is one of time… When is the right time move to SAS Viya?

The two main areas to think about are when you are ready as an organisation and whether the product you are purchasing will be able to provide the technical capabilities you require.

ARE YOU READY.

Whether your organisation is ready will be able to be determined by analysis of dependencies and risks. Your business strategy should ideally be defined in tandem with a supporting Data and Analytics strategy, which should at the very least consider the key building blocks of building Data Driven decisions into the organisational culture. Other dependencies to be considered are those relating to Users, Infrastructure, Platform, Software Capabilities, Data Sources, Governance Approach, Security and Vendors.

Any key organisational direction changes may also influence the decision on readiness and the type of offerings that you select. For example, a merger or acquisition, opening up a new business line, or outsourcing may trigger an evolution of your strategy.

VENDOR PRODUCT ROADMAP.

You may decide that there is some key functionality not yet available in a leading edge product. This has been a key consideration for many making an early leap into SAS Viya. At the time of writing, the platform is now more mature with an impressive range of products and features.

As a general point in considering a software purchase, it is important to check that the key capabilities you need are available, clearly understand what you are buying and check the product roadmap from the vendor for any key upcoming features or changes. You may wish to involve a SAS partner, take some demos, perform a vendor analysis or have some trusted colleagues undertake some training to get a more detailed view of the product capabilities and feature sets.

H1 – HOW DO I PROCEED IN GETTING SAS VIYA?

FRAMING THE HOW QUESTION

Once you have analysed the situation to ensure that you are making the right investment decision and that Viya is right for your organisation. The logical next step is to consider 'How do I proceed in getting SAS Viya?'. For this, key elements will be Strategy, Purchasing, Technology and Capability.

STRATEGY

You should define an Analytics strategy for your organisation to help inform your purchase, this is likely to inform scale (also important for the architectural design) and feature set decision making. The recommended reading section of this paper contains links to further sources of information on Analytics strategy. It should also be noted that a Data Strategy is also important for Data Capture, Data Storage and Data Governance.

A more all-encompassing Data and Analytics Strategy that is well aligned to Business Strategy allows presentation of a cohesive perspective of both data and analytics priorities across an organisation.

PURCHASING

There are a range of options here to consider in the case of SAS Viya. If you have been working with a SAS Partner organisation during your evaluation process, the SAS partner will likely be able to support with software procurement and with the steps to consider the different combinations of product bundles and options available.

TECHNOLOGY

There are a range of factors in the technology space which is also mentioned in the W4 Where section of this paper; you should work with your architecture teams and with specialists from SAS or a partner organisation. It is important to carefully consider the information on the SAS support pages e.g.: https://support.sas.com/en/documentation/install-center/viya/deployment-guides.html taking particular note of any complementary technology requirements.

CAPABILITY

The skills of those involved are important to the success of standing up an analytics platform. Key skillsets necessary to get set up will include Architecture, Cloud Specialists, Deployment Specialists, Support & Administration, Database Administration, Analytical &

Data Science teams. You will also benefit from a strong technical manager to coordinate activities and bring all of the elements together. Training may be a necessary investment in some areas to cover either a technical dependency, to allow for effective use of advanced features or to upskill in complementary domain knowledge.

CONCLUSION

The decision making process on moving to a modern analytics platform is complex with a wide range of considerations and factors. It is advised that the segmentation of the investigation into manageable chunks is a valuable exercise. The 5W1H Method is proposed to allow a clear assessment. Components of this method that are thought to be valid for consideration in an analytical modernisation assessment have been investigated.

SAS Viya as a platform is unique, modular, extendible and open built by a reputable organisation with heritage. When choosing to work with SAS you also benefit from a strong support model, partner network, high quality training and educational resources and an active and enthusiastic SAS user group network.

If you are considering SAS Viya, be sure to speak to SAS or to a SAS partner organisation and take a more detailed look at the products. Get involved in the SAS community and SAS user groups and learn about the rich and diverse landscape of SAS offerings. Collaborate widely, work in the open and embrace all that the digital world has to offer. A future of analytical value and a lifetime of learning awaits.

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ACKNOWLEDGMENTS

RECOMMENDED READING

- *SAS Viya Product Page:* https://www.sas.com/en_us/software/viya.html

- *4 pillars of analytics strategies:* https://www.cio.com/article/3221467/4-pillars-of-analytics-strategies.html

- *What's in your Data and Analytics Strategy:* https://blogs.gartner.com/andrew_white/2018/02/24/whats-in-your-data-and-analytics-strategy/

- *The Architecture of the SAS® Cloud Analytic Services in SAS® Viya™* https://support.sas.com/resources/papers/proceedings17/SAS0309-2017.pdf

- *Rudyard Kipling Story and Poem:* https://en.wikisource.org/wiki/Just_So_Stories/The_Elephant%27s_Child

- *SAS Viya Deployment Guides:* https://support.sas.com/en/documentation/install-center/viya/deployment-guides.html

- *SAS User Groups:* https://www.sas.com/en_us/connect/user-groups.html

- *SUGUKI (SAS User Group UK and Ireland)* https://www.meetup.com/SUGUKI/

- *Sopra Steria Group:* https://www.soprasteria.com/en

- *Sopra Steria UK:* https://www.soprasteria.co.uk/en

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