stratosphere

Data Governance and Le Mans:

HOW DATA STEWARDSHIP WINS RACES!

Data Stewardship sits in between "the garbage in, garbage out" to clean data before it enters the "engine" to ensure that only high-quality data enters the system.

Executive Summary

Abstract: *a best practices approach to Data Stewardship and ensuring your data is consistent and trustworthy.*

"Formula 1 is incredibly data-rich...Although we are a race team, we're really a technology business at heart."

-Dan Keyworth[1]

Keeping a racecar running at peak performance for 24 hours straight is no easy feat.

Every aspect of design, engineering, strategy, and performance is pushed to the limit. The process of finishing a race involves hundreds of team members working together round the clock to make it possible.

Since its inaugural race in 1923; 24 Hours of Le Mans has been one of the world's most grueling endurance tests for cars and drivers.

Today, it's the ultimate proving ground for next-gen automotive technology.

Dynasties like Toyota Gazoo Racing and Porsche Team rely on endpoints (e.g. integrated cameras, GPS, sensors) to deliver the intelligence and analytics necessary for fast response times and better insights.

An important lesson in Data Governance can be learned from the way manufacturers, teams, drivers, and stakeholders approach the "Grand Prix de Vitesse et d'Endurance."

Data Stewardship Ensures Data Integrity Actually Exists

Data Governance

We can all agree that ensuring **integrity is arguably one of the biggest responsibilities** of an organization. One of the most common misconceptions of data integrity is that it is a stand-alone activity handled solely by the IT department.

Rather than a periodic tune-up, Data Governance is very much an ongoing process set in motion by Data Stewardship.

One of the most important functions of Data Stewardship is to scrub and remove debris from the pipeline to prevent the garbage in-garbage out cycle. **Data Stewardship sits in between "the garbage in, garbage out"** to clean data before it enters the "engine" to ensure that only high-quality data enters the system.

Our Objectives
Stratosphere Perspective

In this whitepaper, we will discuss key takeaways such as:

- What is Data Stewardship?
- What are the most important aspects of its role within an organization?
- How do you measure its effectiveness?
- How can you put an effective Data Stewardship framework into practice?
- Why does Data Stewardship matter?

1 How Data Analytics Automation Is Powering McLaren's Success

Three-Cylinder Model

Just as much as general management and strong teams bring home trophies; Data Stewardship can help organizations achieve their goals. The Stratosphere perspective identifies **three core concepts** of Data Management that win races.

1. Data Governance – Rules of the Road

On a high level, **Data Governance is the philosophy, policies, and practices of Data Management.** Data Governance is defined by the Data Governance Institute as:

"…a system of decision rights and accountabilities for information related processes, executed according to agreed-upon models which describe who can take what actionwith what information, and when, under what circumstances, using what methods." [2]

Designing a Plan and Navigating the Course

At 24 Hours of Le Mans, new cars rebuilt with the latest developments in mind dominate the race. Similarly, organizations using cutting-edge technology and the latest, greatest design architectures have an advantage.

Although ideal, this is not practical. This is as true for racing as it is in business. The majority of organizations **do not have the luxury of repeated overhauls** because it is not practical.

The reality is that Data Governance policies have grown organically over the years, which means organizations struggle to constantly modernize outdated models on a one-off basis.

Yellow Flags, Black Flags, and Red Flags

The data-driven world is rapidly changing. This presents unique challenges for organizations. Each year brings new hazards, new bumps in the road, new constraints, and new regulations.

While some of the policies in place may have been sound, others may bring unintended consequences down the road because they do not adhere to a master plan.

Data Governance principles, like promoting consistent data exchange formats across the organization or adhering to specific retention policies, will **deliver better outcomes in the long-term** while reducing costs.

The car talks to you now: you can see from various displays **exactly how healthy the engine and tyres are**…without those it would all be down to **guesswork** once we arrive at a circuit.   - Nick Tandy, 24 Hours of Le Mans Champion (2015) [3]

2. Data Management – Monitoring & Diagnostics

*Data Management is **all the policies, processes, and controls** that ensure data is properly managed and used. It includes all the processing systems and organizations directly overseeing the data lifecycle. By understanding and analyzing data, businesses can make better decisions on how to proceed.*

Data insights help organizations produce better outcomes.

Data Management is a critical enterprise asset, especially when it comes to security, compliance, management of sensitive data (personally identifiable information, for example), and data security.

For example, when an organization is facing a legal challenge, it may need to request records from various team members about the disposition of an employee or situation with a client.

If those records cannot be located in a timely manner, it could delay the legal process and put the organization at a disadvantage.

3. Data Stewardship – Vehicle That Drives Change

Both Data Governance and Data Stewardship determine solutions, methods, and procedures needed to identify risks and help deliver products and services. Data Stewardship is the lowest level of interaction with the data itself.

Data Stewards are largely responsible for **promoting responsibility around Data Management.** They are your pit crew, the drivers, the engineers—everyone at the center of decisions made around Data Management in your company.

While they are key players, Data Stewardship is an organization-wide effort built into company culture.

Most organizations have a vision and strategic roadmap. It could be to improve customer loyalty, expand to a new market, support a social cause, etc.

To achieve those goals, everyone from the executive level down to the front lines needs to participate in supporting those objectives and understanding their larger role in the context of the company's vision.

3 Madden, A., Peel, D., & Barnes, L. (2021). Driver's perspective: Nick Tandy. In How it Works - Book of Amazing Vehicles (Vol. 9, p. 35). essay, Future Publishing Limited.

2 Data Governance Institute

What happened to Capital One?

~$10M LOSS

Before MDM Solution: It doesn't take much data to **pollute the pipeline.** A marketing campaign gone wrong led to a **~$10M loss of new credit card business**.

The Problem: Credit card offers sent to prospective clients based on bad data sets meant clients received multiple mailers in error which led to frustration, confusion, and loss of new business.

They had to **spend 18 months building an intelligent MDM solution,** to resolve their data issue so sales and marketing could run their business campaigns with confidence.

~$7M WIN

After MDM Solution: **~$7M in new business** after the first year, accurate sets across their organization. and a reduced exeption backlog.

Drilling Down into Data Stewardship

The function of a vehicle fuel system is to deliver a constant and steady flow of fuel to the engine. It is made up of various components, including the fuel tank, lines, pump, filter, and injectors. The fuel system is only effective when the fuel is properly filtered, and the injection system is running optimally. It is easy to draw a parallel here with the data that fuels your business operations and drives digital transformation.

Undesirable Business Outcomes

A faulty filtration system in a vehicle is not a good thing. A bad filter will either **restrict fuel pressure or let unwanted contaminants** into the system, negatively impacting gas mileage and putting the engine at **risk for serious long-term damage**.

Just like a racecar needs premium gasoline to compete, management systems need high-quality data to thrive.

Proper maintenance of all the components in your system keeps garbage out of the pipeline—ensures reliability, accuracy, and trustworthiness. Otherwise, garbage in the system will lead to unpredictable results.

Dirty Data Causes Unexpected Problems for External Stakeholders

The ultimate goal of Data Stewardship is to ensure that data is trustworthy and reliable. It's valuable to the extent that stakeholders have confidence in how data is collected and used.

Robust Data Governance keeps the entire system running smoothly, with Data Stewards there to help the organization prevent undesirable business challenges.

Inaccurate or outdated data fails to generate value. More than that, it brings substantial downstream effects for stakeholders that can cause financial losses, legal issues, and in some cases, put lives at risk.

Dirty Data Throws a Wrench into Internal Operations

Management systems are designed to streamline an organization's processes so teams can work more efficiently. High-quality data drives better outcomes and prevents costly delays. Timely access to trustworthy data is essential, and data, like fuel, needs to be processed efficiently to keep the entire system running like a well-oiled machine.

Too much garbage in the pipeline pollutes the system and leads to higher costs, longer lead times, and errors. This has an enormous impact on your team's ability to measure key performance indicators and the ability to meet milestones.
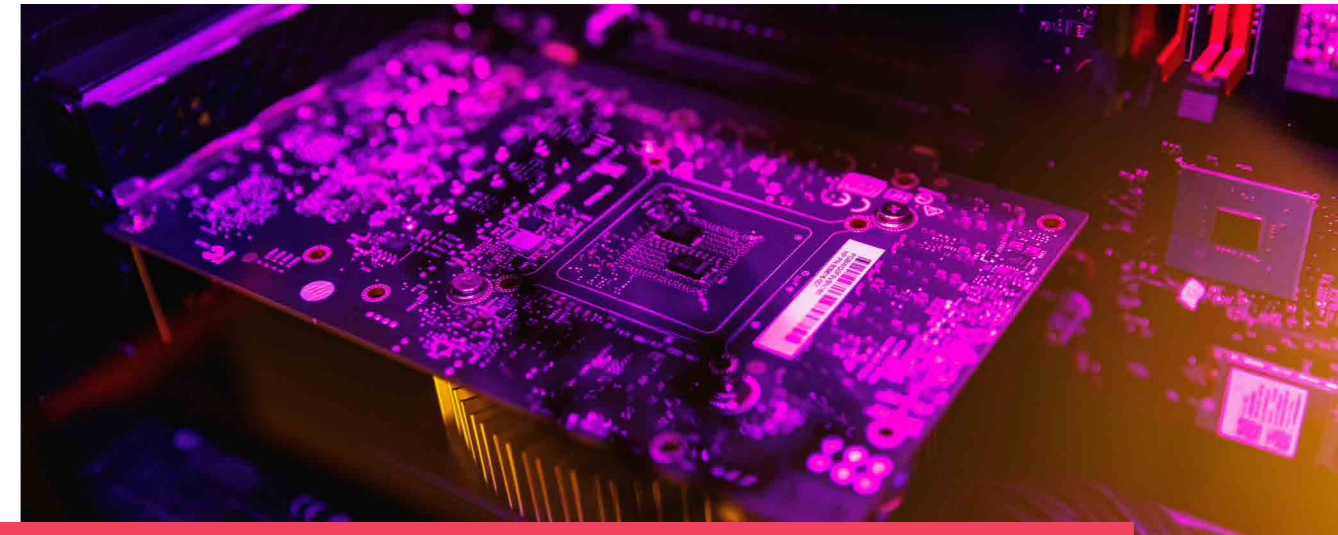
Measuring & Monitoring Performance for Rapid Response

Is it a knocking sound or a banging sound? In the past, mechanics would spend exorbitant amounts of time troubleshooting to find the root cause of mechanical failure. Those days are over. Now, automobile sensor systems integrate both nano and micro technology, which provides the empirical evidence engineers need to solve problems.

In the same way, sound Data Governance principles automate monitoring and diagnostics, taking the guesswork out of troubleshooting—minimizing time spent hunting down the source of a problem.

Nevertheless, how do you measure the effectiveness of Data Stewardship? What areas require the most scrutiny? The answer to these questions is the first step in being able to detect and correct errors before things spin out of control.

Measuring Errors and Performance

Tires are the only point of contact with the road, so their condition is critical to the handling and safety of a car. Key Performance Indicators (KPIs) based on size, quality, durability in different environments such as lap times and fuel efficiency determine which tires give the best performance.

Your Data Governance policies and Data Management procedures come to bear in your Data Stewardship teams. They are **"where the rubber meets the road", and similar KPIs provide valuable insights and predictors of performance.** What are the severity and complexity of remediation measures? What is the frequency of error? Managers should measure the accuracy of incidents and reversals to answer these questions and ensure that data is being handled correctly.

The Actual Humans Behind the Scenes

A successful strategy hinges on tools and technology, but perhaps more important are the people in the process. How are individual team members influencing performance? Your pit crews are made up of Data Stewards who need to perform at the highest level in high-pressure situations. Each car has an engineering team and a pit crew standing by to change the tires and get the driver back on the road as quickly as possible.

Data Stewards are often unable to make key decisions related to **which attribute values propagate to the composite view of an entity.**
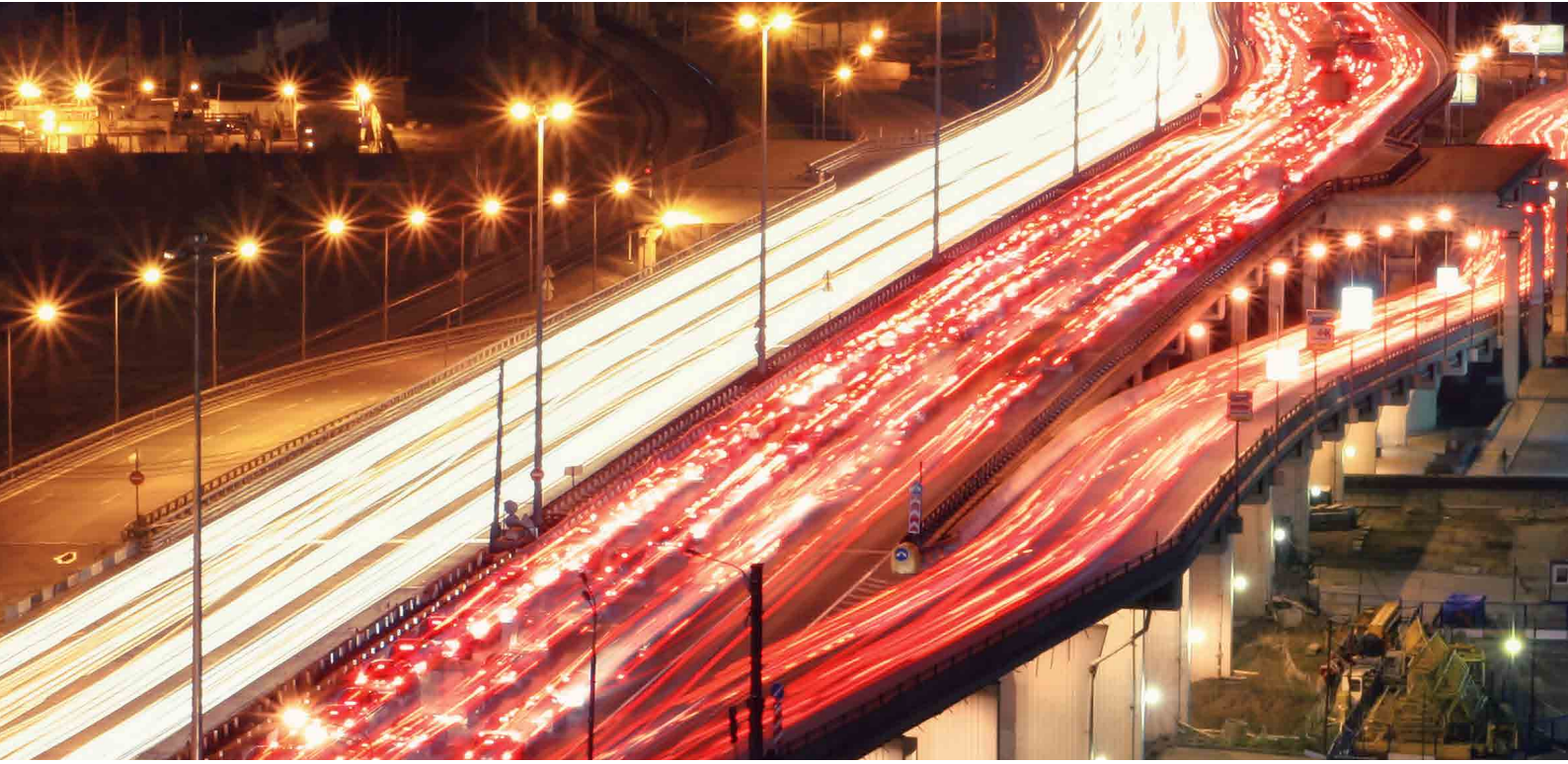
Pain Points of Data Stewardship

The peculiar irregularities of an automobile can be downright frustrating. Many of us have been lucky enough to experience the pleasure of mechanical failure. Even something as mundane as a broken wiper is risky. It may not be a priority on a sunny day, but it can cause a wreck if it rains. Likewise, minor issues will become major problems if they are swept under the rug.

The Costs of Delays and Detours

An overwhelming exception backlog can cause a standstill if root issues aren't resolved right away.

Often, these processes are delayed by problems such as incorrect or incomplete data, mismatched systems, and negative impacts on business. Resolving the root causes of future exceptions is costly.

Decisions Based on Unreliable Data

One of the main pain points of Data Stewardship is that Data Stewards are often unable to make key decisions related to which attribute values propagate to the composite view of an entity.

Data integrity issues arise when data is unwound and previous links between records are broken. In this case, the rollback process is a huge headache, and can often result in a lot of wasted time and money.

Cue Stratosphere Match

MATCH helps Data Stewards by connecting the "car" to the road at high speeds, even in awful conditions. At 24 Hours of Le Mans, even a delay of a few seconds can mean the difference between winning and losing. The same is true in business. In both cases, it is essential to have the tools and infrastructure in place to win the race.

Modern, Inuitive User-Interface (UI)

Built on Pega, The UI is easily configurable and extensible, so it can be tailored to meet the specific needs of your organization.

One of the main benefits of using the MATCH framework is that it helps Data Stewards to make decisions about how to structure and manage their data in an intuitive way by simplifying alteration and customization, data reversion, and rollback.

Imagine being able to rewind prior to a car accident; MATCH gives us that type of power with our data in real-time.
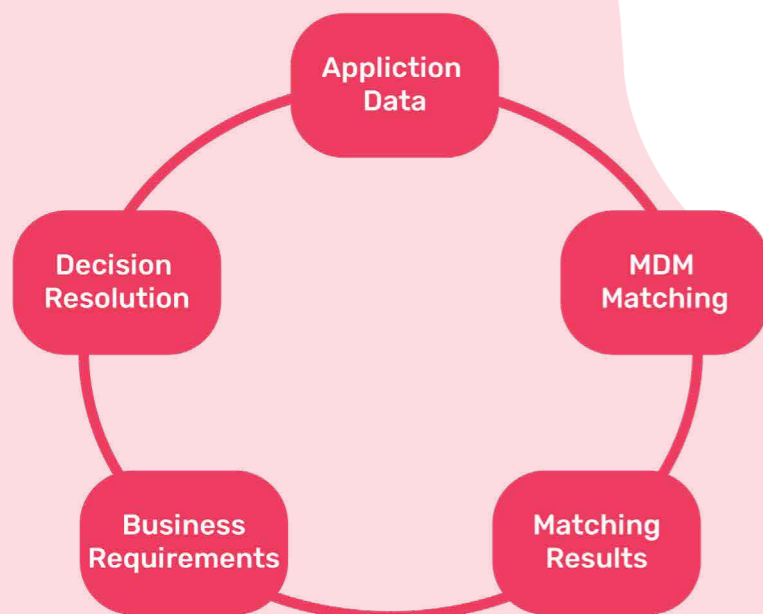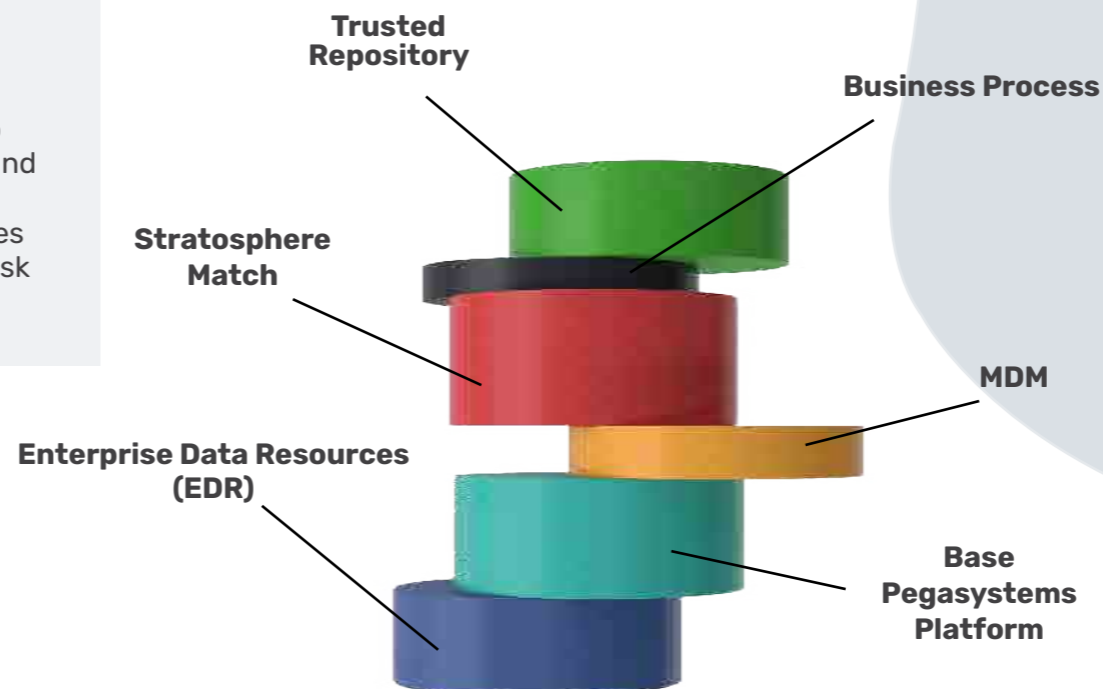
Prioritize Tasks to Improve Data Integrity

When critical tasks are delayed, the impact can be disastrous. Efficiently routing those tasks to the right people at the right time minimizes or eliminates delays altogether.

MATCH is designed to help Data Stewards evaluate the complexity of tasks based on prior decisions. The framework takes into account the metadata associated with each task, as well as the hierarchical structure of the data. This feature reduces exception backlogs as well as labor involved in processing tasks that could have been prevented or resolved quickly.

It also allows Data Stewards to quickly and easily implement and test changes to the matching algorithm to resolve root causes of future exceptions without risk and additional budget.

Our solution **integrates seamlessly** within your existing architecture with **zero impact.**

Solution Website

Trusted Repository

Business Process

Stratosphere Match

MDM

Enterprise Data Resources (EDR)

Base Pegasystems Platform

Appliction Data

Decision Resolution

MDM Matching

Business Requirements

Matching Results

MDM Process Automation Works together to ensure things run **smoothly througout the data lifecycle.**

Multi-dimensional Reporting and Analysis

The MATCH framework provides Data Stewards with multidimensional reporting and analysis that helps stewards drill down to any reporting dimension. Some examples include the ability to generate reports on:

- Tasks by team
- Tasks by steward
- Tasks by source
- Errors by steward
- Errors by source

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