SitScape

Capability White Paper

Prescriptive Maintenance

How will it make managing your assets better, faster, smarter, more comprehensive and affordable?

Introduction

This is an overview for those folks who do not have much of an idea about what Prescriptive Maintenance is, and further, want to know why they should care!

As we all know, time = money. And glitches take time to recognize and troubleshoot. There is now a solution to manage these problems: modern automation management lets you leapfrog over your competitors.

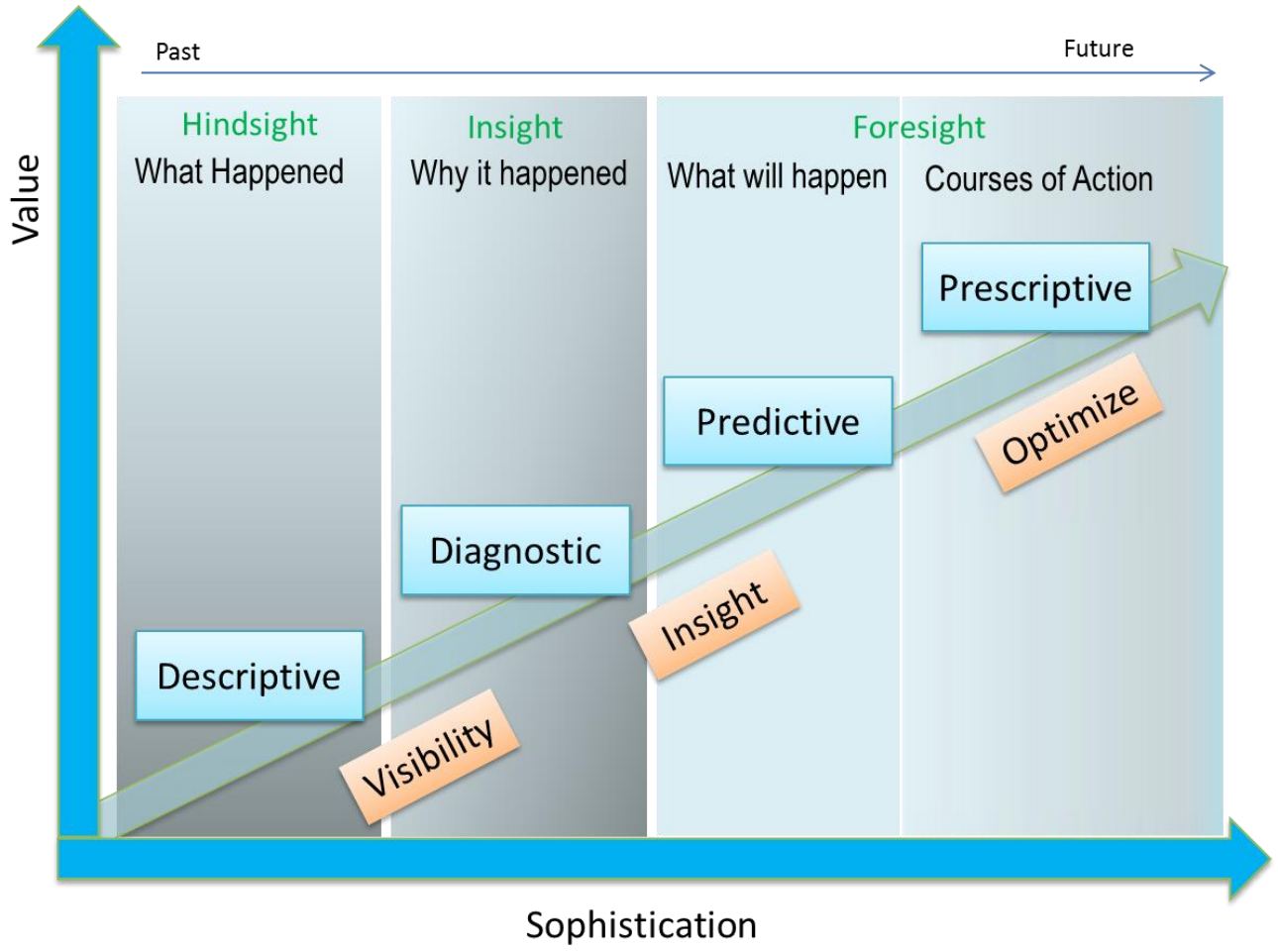
This is Prescriptive Maintenance (PRx) with SitScape.

SitScape is a powerful tool that provides efficient use of all your data from all your diverse sources, both structured and unstructured. It is tailored to predict situations that will eventually arise in your company and enables you to make smart automated preemptive moves. Significant savings will accrue from having the ability to measure PRx options and selecting the most cost-effective ones for your unique challenges.

1. ***What is prescriptive maintenance?***
2. ***How does it work?***
3. ***What can it produce that other models can't?***
4. ***Why should I care?***

This White Paper will try to answer these four questions with a basis to understand the SitScape Prescriptive Maintenance capabilities.

Climbing the Ladder



The first rung of the ladder is Descriptive Analytics and Diagnostic Analytics. Those are the simpler class of analytics, ones that allow you to condense reams of information into smaller, more useful nuggets of information. The purpose of descriptive analytics is to summarize what happened. Descriptive Analytics are all just simple event counters. The purpose of diagnostic analytics is about finding insight on why it happened.

Predictive Analytics is the next rung on the ladder of data reduction. Predictive Analytics utilizes a variety of statistical, modeling, data mining, and machine learning techniques to study recent and historical data, thereby allowing analysts to make predictions about the future.

Predictive Analytics cannot to tell you what will happen in the future. Predictive analytics can only forecast what might happen in the future. All predictive analytics lead people to make decisions based upon what is “probably” true, as no one can be completely certain about the future.

The next rung is the emerging technology of Prescriptive Analytics (PRx). SitScape can go beyond descriptive and predictive models by recommending one or more courses of action, and showing the likely outcome of each decision. Following this course will deliver a better outcome because you understand what the available options are.

How does it work?

It begins with Prescriptive Analytics, which informs you that a problem is likely to exist, but gives you multiple responses or actions from which to choose.

For Example: One of the machines on your production line is showing an elevated operating temperature. *Predictive analytics* looks at the historical or accumulated temperature profile and tells you it is likely to fail in "X" amount of time based upon information from a "library" of data that is captured and held in storage. This behavior "library" tells the Predictive Analytics that based upon behavior characteristics of that type of machine that it *will likely fail* (for instance) in 24 hours.

Alternatively, *Prescriptive* analytics tells you that based upon information from the "library" that if you slow the equipment down by 15%, the time to failure can be delayed by (for instance) 72 hours. This delay puts this machine within the already scheduled maintenance window (which is another data element accessed by SitScape), and tells you that you will still meet planned production requirements (which is another data element accessed by SitScape).

It lets organizations make informed decisions about what to do based on stored records of operational characteristics contained in its "library" of facts. *Prescriptive* Maintenance allows SitScape to consider other sources in that "library" entitled "Maintenance Schedules", "Scheduled Production Runs", "List of Available Engineers to Fix Problems and Current Assignments", and "What Each Engineer Has in his Ready Toolkit". SitScape with PRx can open *all* the available sources that have the necessary information to form a set of options.

What can it produce that other approaches cannot?

SitScape with PRx will provide the appropriate options to folks within your organization. It Provides the best options available based upon the examination of *all* the facts relevant to that machines behavior in that operational instance. SitScape will automatically invoke a pre-configured *automated workflow* (determined by the customer desired outcome) that responds to this type of anticipated failure. SitScape automatically invokes an end-to-end sequence of events that is triggered by this machine's behavior which takes place without *any* manual intervention.

Why Should I care?

Prescriptive Maintenance will save the organization significant funds that formerly were spent on the time it took to *manually* determine what should happen. Checking all the various facts found in the "library" manually, and acting once the situation had been brought to the appropriate person(s) attention. Saving time, money, personnel, and other valued resources that formerly were expended in the pursuit of correcting an anomaly.

Prescriptive Maintenance – the PRx for the Future

Significant savings will accrue from having the ability to measure PRx (Prescriptive Maintenance) options and select the most cost-effective ones from those available.

PRx is a component of the Industrial Internet of Things (IIoT). PRx uses machine learning and automated data review to prevent equipment or device failure. Industry experts call it preventive maintenance with built-in intelligence.

Businesses must make sense of data before it expires. Enterprises are losing valuable insights with many disjointed sources generating and collecting data on their own, contributing only bits and pieces of the big picture, instead of delivering a broad view. Much significant data relevant to PRx is stored in legacy systems that run the business for the Enterprise.

This data was not available to be used because in the past there was no way to share, visualize, and correlate this data with newer more up to date systems. Even if the data was shared there was no way to easily correlate, visualize, and use the actionable information that was generated. SitScape corrects this problem and allows the use of stored legacy system data as one of the *many* sources of data.

A major reason for the lack of follow-through is the inability to promptly act on plant-floor data, also known as perishable data from the field, or the factory floor.

Automation is the wave of the future. Automation is happening right before our eyes, everyone is talking about how best to automate their processes and procedures. Everything in our modern world is getting faster and quicker. Unless you have a good understanding of the ways that you can introduce automation into your environment, you could be left behind. There are those that make things happen, those that watch things happen, and those that wonder what happened.

At SitScape we want to make sure that you are in the first group; the successful, forward-looking group. We are taking this opportunity to talk to you about PRx and SitScape, why you need to have it, and what might happen if you do not.

Common “drivers” of Prescriptive Maintenance

Several key business drivers are spurring interest in PRx strategies. SitScape is on the cutting edge of driving comprehensive and diverse data solution development. SitScape has end-to-end processing which considers *all* the diverse data sources which can influence the PRx outcome.

Automation: Because SitScape allows you to automate your processes with our STP (Straight Through Processing) capability, you can think your way through to PRx automation. You will take your manual process, and have SitScape Automate the PRx process which will eliminate the risks and costs associated with manual responses. No more manual in your system! Automate not populate. This allows you to get more done faster and better, which saves you money.

Economics: SitScape keeps you “in the know” regarding best option from an economic standpoint. SitScape lets you know what can fail and when it might fail. SitScape can comprehensively understand all the options for PRx maintenance, and the financial implications of each option. You are on firm footing with your economics. You keep more of what you have, and spend less while making more.

Changes in the Workforce: As older workers are retiring, and newer, younger workers are coming on board, SitScape provides them with the smarter tools that they expect to help them do their job. Happy and effective workers save time, which saves money.

Operating conditions: SitScape can monitor all the operational conditions in your environment. SitScape knows that assets not only fail by their own means, but also by the way they are operated. SitScape has Prescriptive Analytics built in that can consider all operational conditions and make sure that all your assets are operating at their peak capacity. This makes you money because you only spend what you need to spend to get your desired outcome.

Asset performance: SitScape Monitors the Industrial Internet of Things (IIoT). SitScape is unique in its ability to ingest years of operational data and massive quantities of structured and unstructured data scattered through different systems of record to deliver answers to questions that you did not even know that you could ask. This makes you money, because you know what should happen based upon what already has happened.

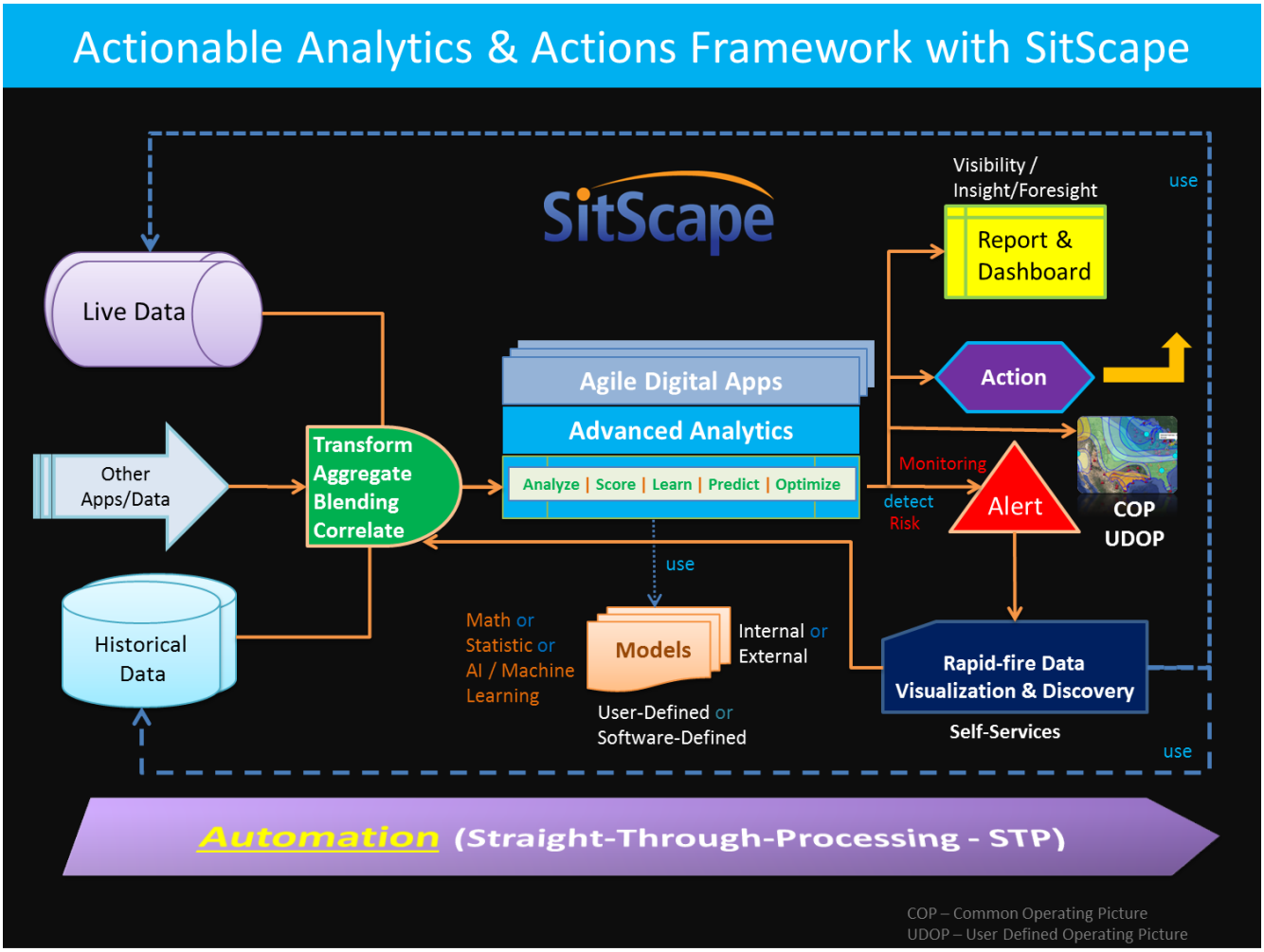
With the IIoT communications capabilities growing smarter every hour, the assets will tell you *themselves* what is needed to fix any issue. PRx with SitScape will *automatically* check to see which of the engineers available to repair the issue has the right components in their response kit to accomplish the repair, and will automatically assign that engineer to the job. PRx with SitScape makes you money, because you have the right people, at the right point, at the critical moment.

SitScape can incorporate structured or unstructured data, such as work orders, and parts databases, as well as operational and technical manuals, to provide a true PRx view. Not only is the user now able to understand something is going to fail, *but* he is provided with options about how to address the problem. Significant savings will accrue from having the ability to measure the PRx regarding options and select the most cost-effective ones from those available.

A New Reality

Manufacturers are entering a new reality where quality has retaken its rightful place as a very real competitive differentiator. Producing high-quality products isn't only required for retaining and gaining customers, it also translates into cost savings that significantly impact the bottom line. This especially applies to those facilities where one wrong item can affect the entire enterprise out of all proportion to its value in the manufacturing process.

A big challenge in the industrial analytics world is that most machine learning and AI techniques are data-driven. While the industrial world has a lot of data, the type of data needed for analysis from a reliability and maintenance perspective has been hard to access because systems in use were not designed for this type of analysis. This is one of the many areas where SitScape comes into play. SitScape allows end users to create custom automated STP workflows which reflect exactly what the end user wants to accomplish, based on our actionable analytics framework.



Simultaneously, SitScape provides the ability to get answers, identify anomalies, and provides new ways of looking at diverse data sets. It automates the processes, and procedures which result in new functionality based upon your end users desired outcomes. This saves money and increases productivity because we now have new ways to accomplish tasks that originate “on-the-fly” based upon real time needs.

The data needed to improve maintenance diagnostics is mainly collected and captured around failures and fault cases; this kind of information is usually stored away in legacy machine log files deep in the bowels of most enterprises, saved for the day that there might be some use found for it. SitScape solves this problem by having the native ability to add this data to the “library” and allowing it to be used. In addition, SitScape can create custom workflows which deliver new and original ways to put different and diverse data, of all types, into a unified framework. This results in answers to questions that you did not even know that you had the ability to ask.

SitScape can access a “library” of previous similar cases to compare against, automated diagnostics can provide a description of the problem; and based on past performance of multiple assets, provide meaningful statistical forecasts of potential time-to-failure, and suggest multiple fixes to the problem. Once these “fixes” are identified, SitScape STP workflows can be assembled to deliver faster, better and more efficient resolutions at a better overall cost. These are executed in an automated fashion without the risk of having human involvement vary the results because we know precisely what we want, and have an automated workflow that has been vetted and “certified-good” to accomplish the task.

SitScape connects assets, inventory, and data sources all of which are essential pieces of the IIoT puzzle. Operations experts are beginning to see the many benefits of having unified operations including use of any new data sources (like real time supply information) that are added “on-the-fly” to the overall picture. Seeing the total process end-to-end using SitScape to tap into all the relative data streams (including those from your Legacy systems running SAP or other applications) will improve productivity and increase quality, which is precisely what using SitScape to combine all your IIoT data streams will deliver. You gain superior visibility, more efficient use of assets which translates into a more productive bottom line.

Legacy Data – You have it, you just cannot access or use it, until now, with SitScape

Legacy Data Sources are the data sets that are from legacy systems, and have typically sat outside the purview of traditional data marts or Integration of Unstructured Data. This data has been sitting off to the side waiting the day when something or someone would be able to bring it into the mainstream and tap this data for the relevant insights that it offers. That day is now, and SitScape is the solution that can access that stored data, relate it to current requirements, and deliver results that save real time and money.

Unstructured Data – How to use it, apply it and manage it to get answers formerly out of reach until SitScape

Many of the traditional data environments were designed only to maintain and process structured data which consisted of numbers and variables but not words, videos, and pictures. Customers want to be able to integrate their unstructured data and to apply this data to various applications where the unstructured data adds value to the analysis of many existing applications. SitScape provides the platform that allows inclusion of many new unstructured data sources into the mix-and-match, which results in answers to questions, that you did not even know that you could ask. SitScape delivers the ability to integrate unstructured data and delivers the combination of quantitative metrics with qualitative content.

Social Media and Behavioral data from the Internet – now able to be incorporated using SitScape

As a further capability firms will turn to tapping into the Social Media and Behavioral Data Sources. This new source of data will begin to be used as untapped opportunities present themselves in many diverse and different areas such as patient adherence and mobile device recommendations based on consumer purchasing behavior and preferences. Companies will investigate the expanding variety of data sources and find answers where formerly there were none.

Conclusion

SitScape gives you the ability to stay ahead in pursuit of the best of breed PRx. This translates into more efficient use of assets, which translates into a more productive bottom line.

SitScape
– Makes PRx extremely profitable
– A PRx must-have.
– The answer to unified PRx data
– Stay ahead of the rapidly changing game.

Please call to schedule a demonstration for your management team and we will show you how to find the answers that make you money, save you time, and deliver excellence on time and under budget. We're here to help.

SitScape is the tool and platform which provides intelligent automation and powerful digital transformation in this rapidly changing environment.

Learn More

To learn more about how SitScape's technology solutions can help you increase your situational understanding, optimize your analytics-based decision making, improve your secure information sharing and real-time collaboration capabilities, please contact us at info@sitscape.com, or call us at 888-762-6562, or visit our web site at http://www.sitscape.com.

About SitScape, Inc.

SitScape Inc., the recognized leader of software solutions for Intelligent Digital Operations, is trusted by the Federal government and various Fortune 500 organizations for real-time collaboration, agile data correlation, continuous monitoring, analytical visualizations and flexible straight-through-processing (STP) automation. Our solutions support critical decision making at real-time with our self-service, easy-to-use, highly collaborative User Defined Operating Pictures (UDOP) graphical user interface, and the underlying engines with unmatched data correlation, analytics, monitoring/alerting and process automation capability for the next-generation digital operations.