Transformation Plan: Artisans

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Description of Enterprise Analytics Transformation Plan

Artisan Partners uses data in every area of the business. Investment teams, seen in the outside circle in the image on the right, have their own, independent processes while operational teams, seen on the inside circle, represent everything necessary to run an asset management business. While data and analytics is used regularly across the organization, it is not used as strategically as it could be. For example, five different teams use the same data, but source it in slightly different ways which duplicates efforts and creates confusion. In many situations, data are stored in Excel files as opposed to a database. This is a bottom-up analytical approach that allows for agile exploration but only benefits individual groups. A top-down approach also exists to provide a structure for required data domains in an enterprise data warehouse. **The struggle is reconciling these two valuable approaches to provide the tools and pathway for both, but also to determine a point at which a bottom-up process reaches a threshold and should be converted to a top-down process that has more governance around it.**

An architecture already exists that supports both processes. Both an enterprise data warehouse as well as a data lake exist to provide storage for mastered data and alternative data, respectively. In both cases the data delivery tool of choice is Tableau, which supports the needs of casual users who are consumers of reports and dashboards as well as power users who want to iterate over their data and share their findings with their respective teams. Of course, there are other tools, such as Excel, that are widely used, but sit on the same data architecture. The goals of this transformation plan are as follows:

- Co-locate enterprise data next to alternative data for a full picture of the business
- Define a threshold at which alternative data should have additional governance controls
- Create a process to move a data domain from tactical use to strategic use
- Leverage data centralization to provide better business intelligence for corporate objectives
- Develop models to add value beyond descriptive and diagnostic analytics
- Architecture to support both types of needs creates a competitive advantage
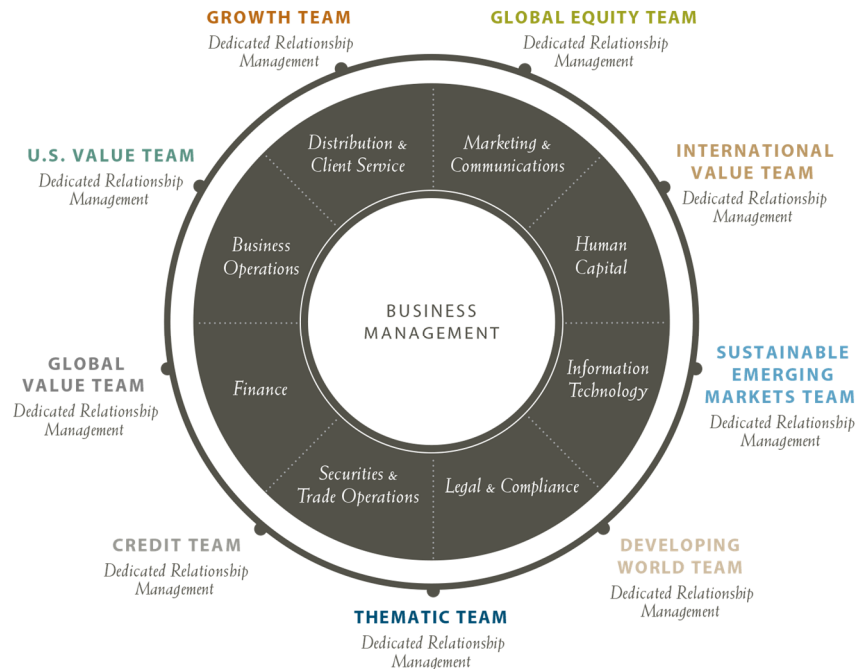
In addition to developing a clear path forward in the use of our existing data lake architecture, a leadership transformation must occur in which executives define a vision and communicate it throughout the organization. A successful transformation can be measured by the percentage of data sources used by three or more teams having gone through an industrialization and centralization process. In addition, the old data systems and processes should be completely terminated. The new data domains should be listed in a data catalog and made available to anyone in the organization with the appropriate level of access. Where models make sense, they should be implemented to further utilize our data assets. Finally, a holistic picture of our customers can be made available to anyone with the need for this information, trading and research can be optimized across all brokers, and our independent analyses of an issuer can be used to influence decisions within external organizations. This "data on demand" will increase efficiency and reduce internal silos by democratizing access to all data available at Artisan Partners.

Most of these goals are seen in the demonstration project, specifically the benefit of centralizing a data set that is widely utilized. By showing the capabilities of a flexible data architecture, broad data availability, and advanced analytics, a vision of the future will become clear. A roadmap of the high level transformation plan is depicted in the figure below.
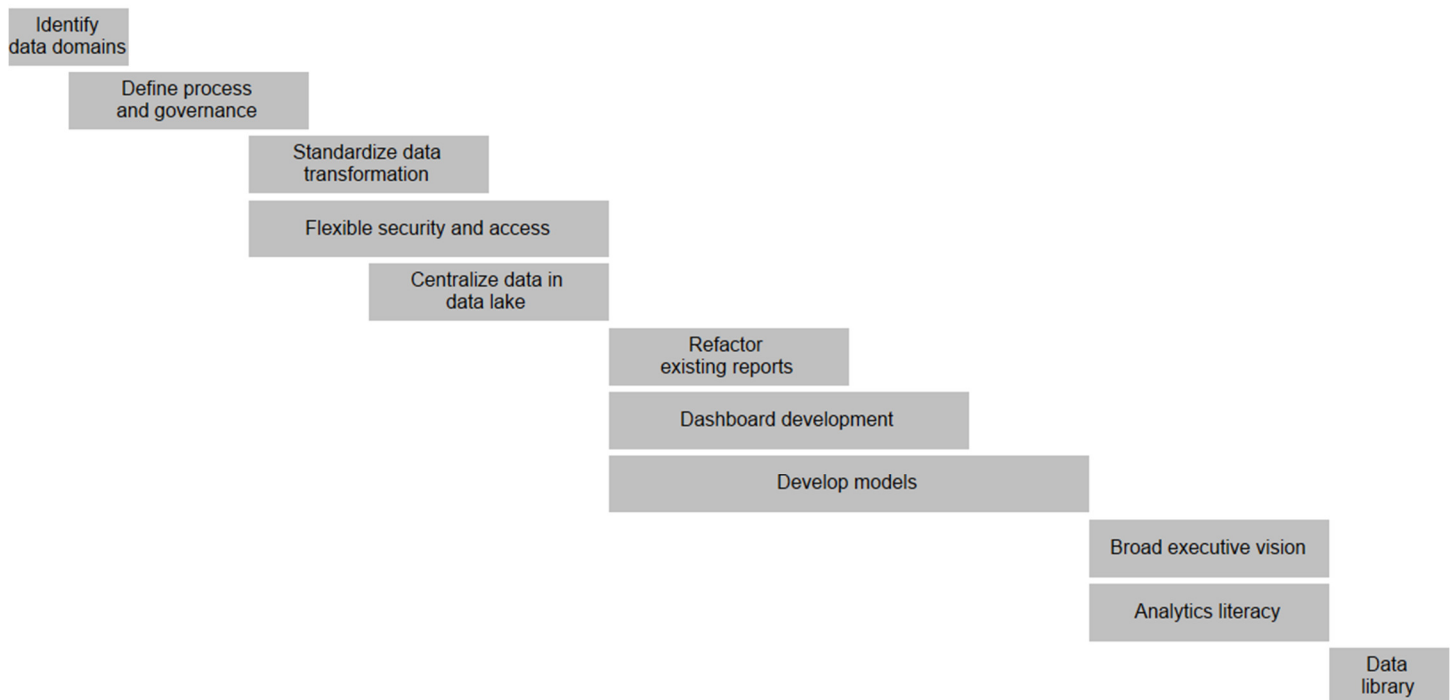

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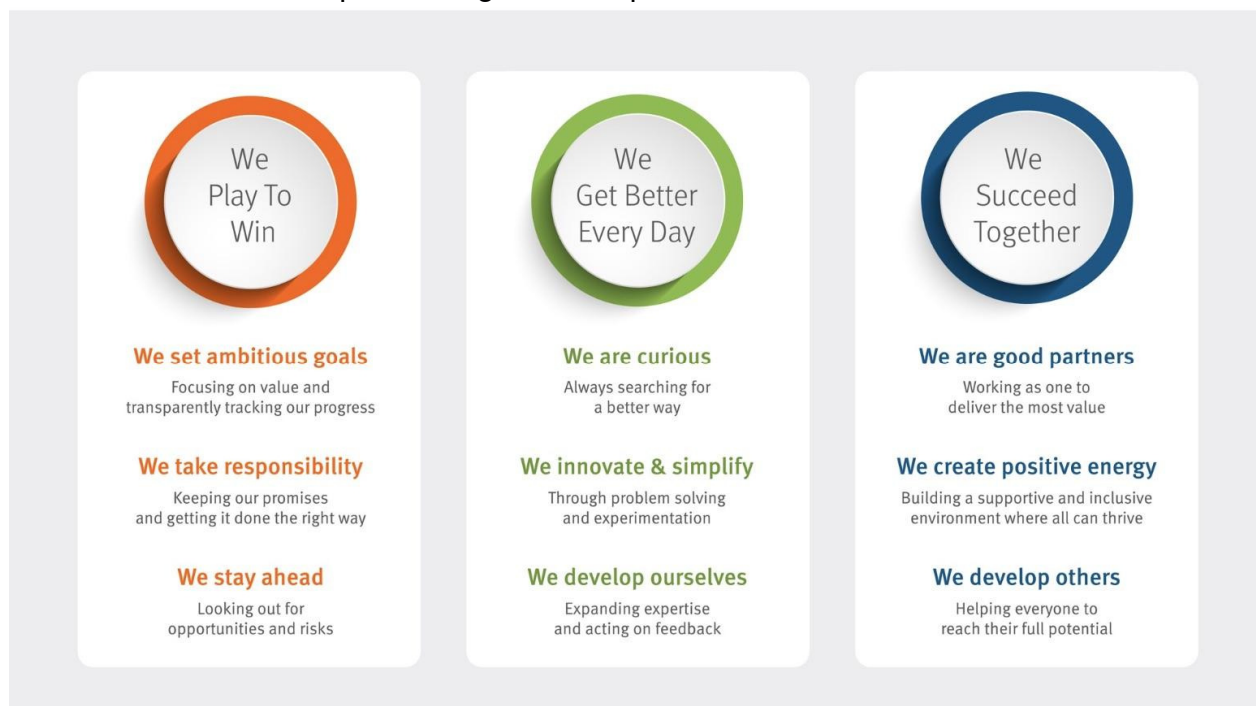
Transformation Framework

The transformation framework the team will be utilizing is the Lean transformation framework due to its simplicity and alignment with agile methodology. This framework acknowledges that the organization has a foundation built on their current thinking, mindset, and assumptions, but the transformation team - represented by the workers on the outside of the house - are able to ask simple but crucial questions to build a set of value add processes to transform the business to a higher level of analytical maturity.

Leadership Style and Behaviors

At the center of the transformation framework is the leadership behaviors required to support the transformation project. The team will be adopting the adaptive leadership style and utilizing the leadership behaviors shown in the figure below. These leadership behaviors are:

- Simple to understand - they're short and to the point
- Collaborative - they all start with "We" to emphasize working as One Team
- Easily incorporated into Agile Methodology - the emphasis on simplicity and innovation matches well with the speed of Agile development

We Play To Win

We set ambitious goals
Focusing on value and transparently tracking our progress

We take responsibility
Keeping our promises and getting it done the right way

We stay ahead
Looking out for opportunities and risks

We Get Better Every Day

We are curious
Always searching for a better way

We innovate & simplify
Through problem solving and experimentation

We develop ourselves
Expanding expertise and acting on feedback

We Succeed Together

We are good partners
Working as one to deliver the most value

We create positive energy
Building a supportive and inclusive environment where all can thrive

We develop others
Helping everyone to reach their full potential

Core Capabilities of Data-Driven Organizations

Finally, the team will utilize the Tableau Blueprint of Core Capabilities of Data-Driven Organizations in addition to reviewing the leadership of the company to ensure that the team can

create a sustainable, lasting, and valuable transformation for the organization. The Tableau Blueprint was chosen due to the existing relationship between Artisan Partners and Tableau.
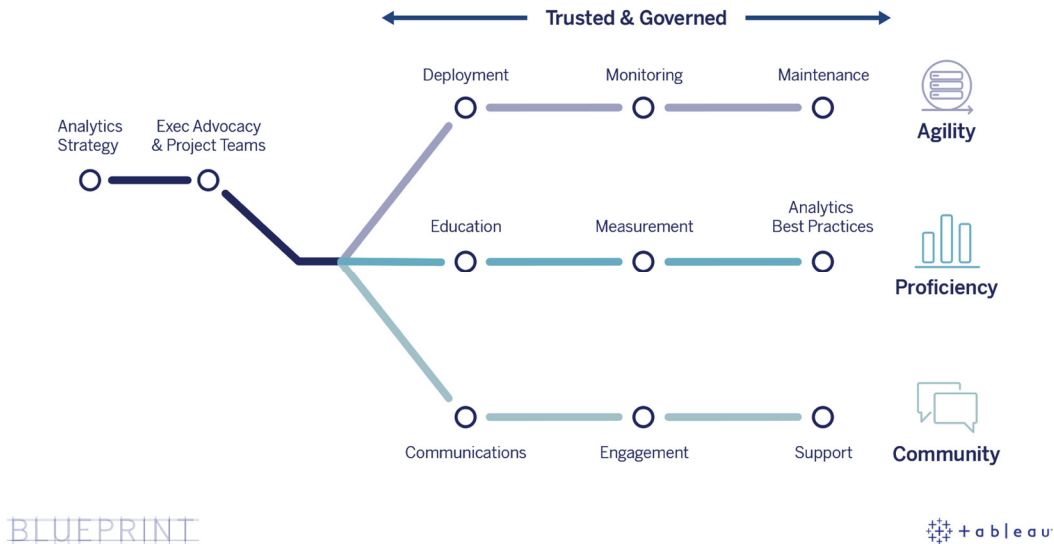
- Leadership: How can the team align with leadership to accomplish this transformation?
  - Sharing a sense of urgency - Ensure leadership understands the value of analytical maturity and the cost of analytical immaturity.
  - Forming a coalition with leadership - Meet with leadership regularly in order to update the status of the project and escalate blockers.
  - Creating a shared vision - Get early buy in for the end state of the transformation.
- Agility: How can we quickly implement iterative, repeatable processes?
  - Deployment - When can we use existing infrastructure versus investing in new?
  - Monitoring - How can infrastructure be measured to ensure it is utilized efficiently?
  - Maintenance - How will existing and new infrastructure be regularly maintained?
- Proficiency: How can the transformation team ensure that the user community has the technical skills to support the increased analytical maturity of the organization?
  - Education - The creation of ongoing educational training and development plans are critical to driving user adoption and maintaining long term utilization of tools and data.
  - Measurement - Measuring the use of analytics will help the organization understand the strengths and opportunities for the future ways that analytics can be used.
  - Analytics Best Practices - Maintaining a set of organizational standards and norms will ensure consistency going forward with sustainable, repeatable processes.
- Community: The creation of a collaborative community of analytical data users is crucial to maintaining analytical maturity.
  - Communications - Timely communication of resources available to users will ease adoption of new technologies.
  - Engagement - Creating analytics user groups will ensure ongoing user engagement.
  - Support - Ongoing end user support will need to be implemented.

Analytics Gap Assessment

A multipronged approach is needed to accomplish the goal of transforming an organization's analytical IQ. In this case, steps are needed to raise the levels of data maturity, analytical maturity,

analytical culture, as well as scale and scope. These dimensions align with the framework above and are outlined in detail below.

Scale and Scope: Currently Stage 3 → Future Stage 3.5
- Current State
  - There is an enterprise data warehouse, which houses the most needed data.
  - An enterprise data lake is the next generation data storage technology that allows for flexibility in allowable data sets.
  - Static reporting is the only customer facing data delivery currently taking place.
- Future State
  - An ongoing analysis of data domains that have broad use across the organization.
  - Defined process to increase governance and industrialization of a data set when it reaches a critical threshold.
  - Streamlined collaboration across organizational units.
  - Delivery of analytics to customers, brokers, and issuers.
- Action Items
  - Metadata capture showing use of data across the organization.
  - Committee of organizational heads that engage project team and work through process of centralization commonly used data domains.
  - Flexible data delivery tools to make collaboration and external use of analytics possible.

Data Maturity: Currently Stage 3.5 → Future Stage 4
- Current State
  - An enterprise data warehouse exists and is both regularly used and maintained.
  - An effort is being made to move data storage to the cloud (AWS) and leverage data lakes.
  - There currently is not a big data ecosystem.
- Future State
  - Centralized data storage for both governed data from our warehouse as well as alternative data domains in a flexible architecture.
  - Leverage the data lake and AWS capabilities to allow for new types of data that we currently are not equipped to handle.
  - Provide a data catalog and dictionary for self-service use of all data assets.
- Action Items
  - Define data lake architecture and plan to move new and existing data domains to this structure.
  - Create a clear path for all types of users to access data through a flexible and scalable security model.

Analytical Maturity: Currently Stage 3.5 → Future Stage 4
- Current State
  - Most departments leverage interactive dashboards but no models have been built yet.
  - Investments are being made in the data fluency of employees.
  - Opportunities to leverage advanced analytics is actively being pursued.
  - Training and conferences are supported and return on investment is tracked.

- Future State
    - Integrated predictive, prescriptive, or scoring models.
    - Requires centralized data that can combine user-contributed data with enterprise data.
    - Understanding and awareness around machine learning capabilities and pitfalls.
- Action Items
    - Data science platform project will be completed in 2019 that provides existing data scientists the tools they need to perform their duties.
    - Operational data science project is scheduled for 2020 to brainstorm opportunities to layer modeling capabilities into existing processes.
    - Educate power users about the benefits and use cases for machine learning.

Analytical Culture: Currently Stage 3 → Future Stage 4

- Current State
    - Each team has their own set of mission critical dashboards and executives rely on them daily.
    - Most webinars touch on the use of data by investment teams as well as the business.
    - Many new job descriptions prefer experience with data and analysis.
- Future State
    - Executives define corporate objectives around the strategic use of analytics.
    - Employees know when and how to use data to their advantage, collaborate with other groups where overlap is identified, and best practices are instilled.
- Action Items
    - Analytics literacy project will be conducted in 2020 to educate both employees and executives about the strategic value of analytics.
    - Create coalition of executives to develop a vision of how the organization should use data and analytics to their competitive advantage.

Overall, Artisan Partners is in need of an executive-level vision for analytics and direction on how to leverage their data assets as a competitive advantage. **Much of what needs to be done requires executive sponsorship, a strategic vision for the future, and a tactical plan to get there.** While executives are very interested in the capabilities of data science, a more technical leader is needed to rally them around a clear vision. Once established, a multipronged approach can be undertaken that leverages the forward-thinking architecture of a data lake, invests in the data literacy of employees, and layers in advanced analytic capabilities in order to capitalize on data assets.

Value is created for anyone in the organization who is looking to spend less time with manual or repetitive data tasks and more time creating value for their team and the organization as a whole. The enterprise will benefit from better data quality, increased data availability, and elimination of duplicative efforts. Given the scalable and flexible data infrastructure and access, users throughout the organization will be able to make more informed decisions. Further, currently impossible data domains will be possible in the near future, leading to untapped opportunities.

Initial Demonstration Project

During the demonstration project, we successfully co-located alternative attribution data into the data lake. ETL processes were created to meet business requirements by creating raw, primary,

and feature layers. Tableau template dashboards with co-located data are used by business teams and an effort is made to replace their current excel processes. We implemented demonstration project in relational database as shown in the figure below as a data warehouse. Tableau is used for reporting and free software like R and Python are used by data scientists to develop predictive models.
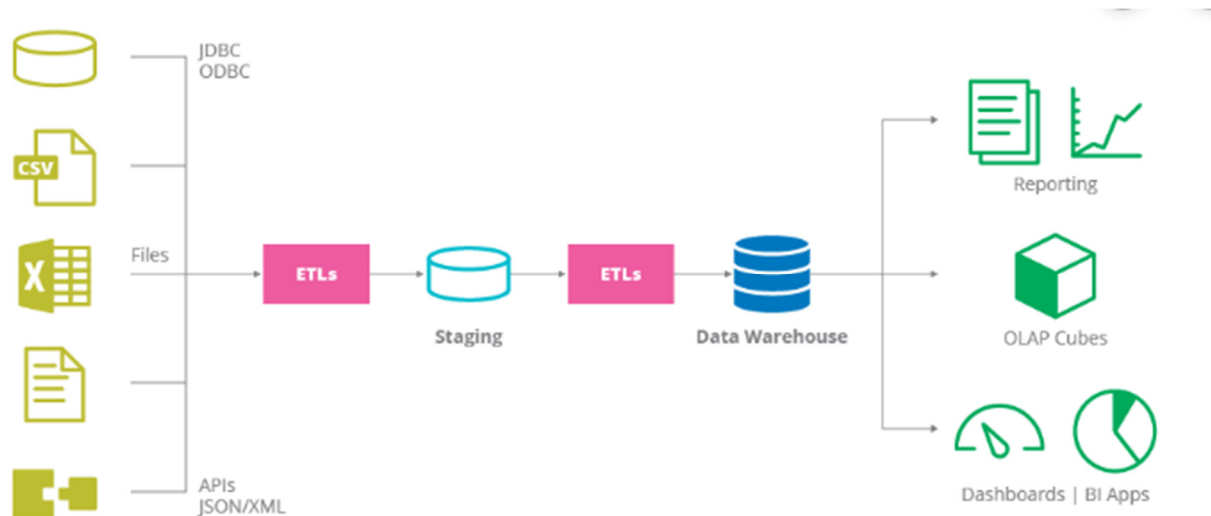
Initial results from the measurement system we established during demonstration project:
- 8 in 10 users expressed satisfaction score in terms of ease of use and replication of their excel processes
- The time to process and generate insights from alternative data by data analyst reduced from 16 hours a month to 1 hour
- The predictive model developed by the data scientist showed high potential for improving recommendations of which securities to pick to augment trading analyst's intuition

While transitioning initial set of users from excel based processes to this new process, we learned a few lessons:
- Interface and environment in which they utilize data played a bigger role
- Making sure to provide views/tables with minimal changes to column names had least resistance from the users
- Keeping them informed about daily/weekly changes to the interfaces kept them open to change
- Transforming complex formulas used by custom users into a unified data model presented several challenges - it led to developing a strategy to provide sandbox type environment for users to create their own tables with custom formulas but the tables are maintained and processed through IT processes in the data lake, once the users feel comfortable about their custom views, a process is set up to develop formal ETL and productionize them
- Rolling out trainings in a timely manner kept them motivated

With the gains and lessons learned through demonstration project, the executive team approved a transformation plan for the entire organization to improve its analytical maturity curve and turn alternative data into a strategic asset.

Pipeline of Demonstration Projects

The strategic plan is to establish a hybrid analytics organization with a central team responsible for center of excellence and decentralized teams with dotted connections to a chief analytics officer (CAO) in the central team. The tactical, technical road map is to establish an AWS data lake with a Tableau reporting layer and implement the transformation plan through four waves, throughout the organization, over a period of two years. We plan to adapt the standard AWS architecture with Tableau as a platform for reporting, as shown below.
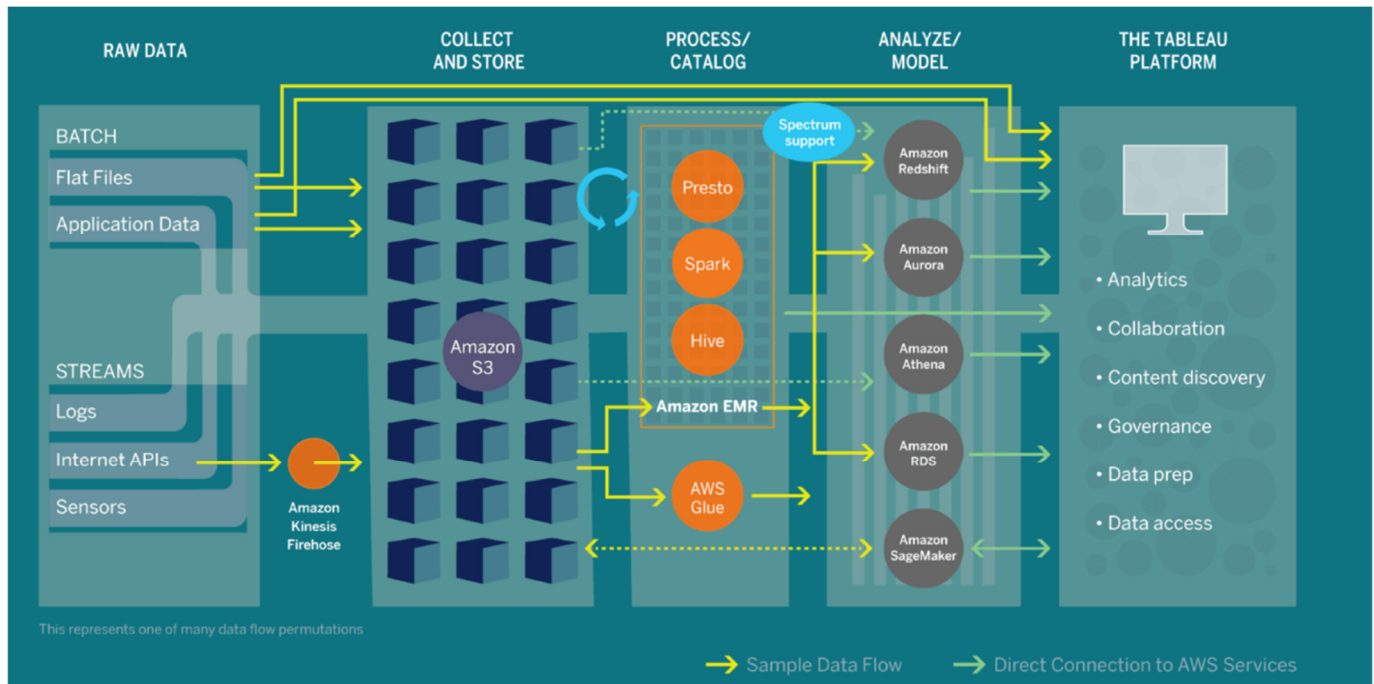
Through these four waves, we plan to launch several agile product/project roadmaps to move organization analytical maturity to level four in the first year and level five in the second year. Our transformation plan includes, launching the following demonstration pipelines:

- AWS architecture and data lake establishment
- Data modeling, master data management, and governance
- BI/visualization framework & decision management across organization
- Predictive modeling and incorporation of AI bots

The below infographic showcases the major components included in these technical initiatives.

The following transformation plan shows approximate timelines for each wave and associated product/project timelines. While the technical resources and infrastructure are key to make this transformation happen, executive leadership by forming a CAO organization and buy in from business resources plays a vital role for successfully rolling out transformation plan across the organization. We plan to track associated risks and value by establishing a measurement system across all four dimensions of the analytical maturity model namely data maturity, analytical maturity,

analytical culture, as well as scale and scope using agile SCRUM methodology. The measurement system, at a minimum, would consist of tracking promised versus delivery time through agile SPRINTs, budget, resources, and benchmarking on the metrics during demonstration project (user satisfaction and time savings with old process versus new processes/tools). During implementation we plan to come up with business specific metrics for each group based on each pipeline projects and track the improvements over old processes as well as new gains.
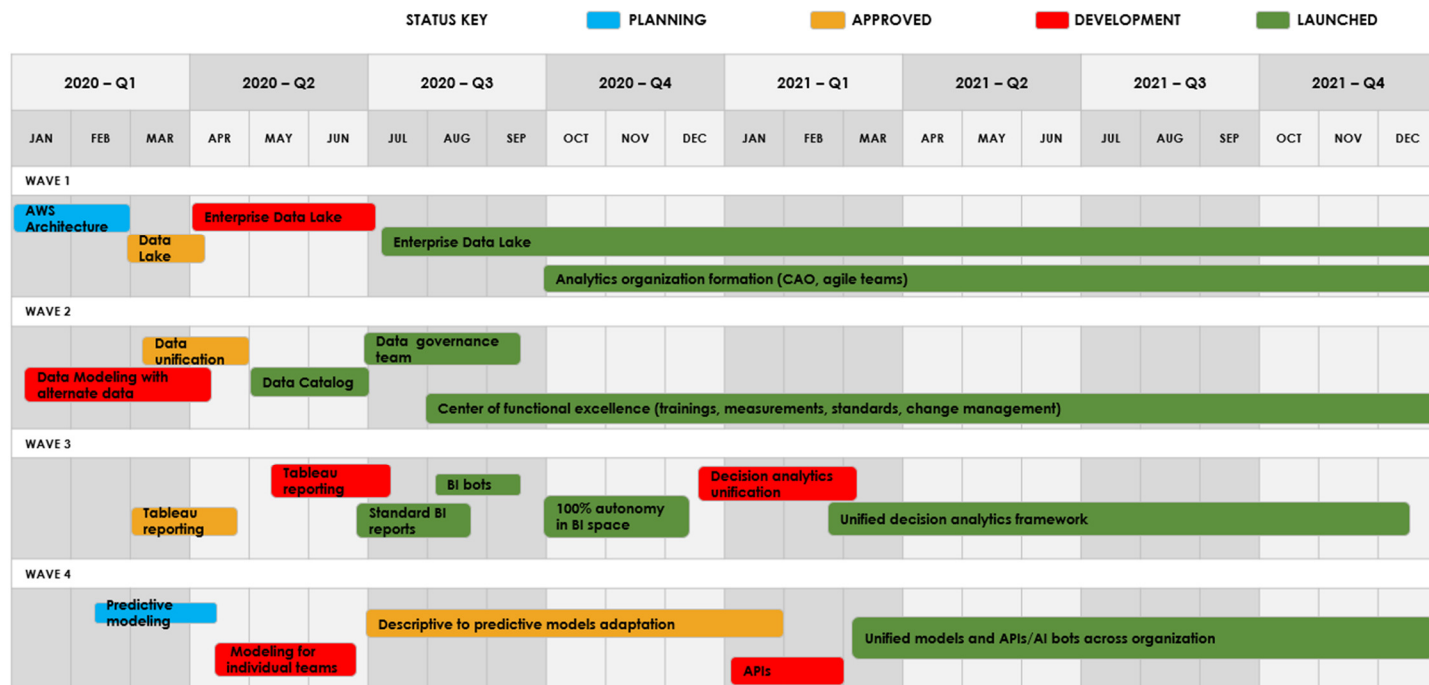
People and Technology Infrastructure Investments

From a technical perspective, the organization already has an enterprise data warehouse, but it is a structured, relational data store. Data lakes are already being created to store various types of data side by side. Given the future roadmap of data management architecture at Artisan Partners, we have chosen to put newly industrialized data into a data lake. Alternative data, such as the set used in our demonstration project, will be stored in a data lake titled "Third Party" to indicate it's broad use, while mastered data is co-located in a data lake titled "Enterprise" to indicate it's governed nature.

Team-specific data lakes can be used much like data marts, with user-contributed data capabilities but also access to the Third Party and Enterprise data lakes. **This architecture supports both a top-down need for standardized, strategic reporting as well as a bottom-up need for ad-hoc, tactical analysis.** Additionally, investments in a data science platform that allows existing data scientists the foundation to scale their productivity, was approved and is in the midst of being implemented.

We are looking at the AWS Cloud Practitioner Certification to ensure the technical team knows how to work with this new system. The cost of the training per person is $348 per year. Tableau is also needed as certified data sources need to be created, existing dashboards need to be converted, and new dashboards need to be developed. There are three types of Tableau accesses needed, Creator, Explorer, and Viewer. The company already holds these licenses so they are considered sunk costs. Training can be accessed online via youtube, Tableau.com, and various other sites for free. However, a 15 day training course can be taken through Edureka.com $404 per person. During

the Business Understanding phase of the project, the project team will identify 2 power users for each of the teams to undergo training. Two people per team with five teams is a total of $3,480.

Top Three Risks and Mitigation Strategies

1) Culture and Talent Risk

The top risk is the transformation plan is getting the culture and talent to 'buy in' to technological changes. We must create not just data driven department, but a data driven enterprise. The first place to start is to change the culture which means that analytics leaders need to connect to the employees on emotional level finding out their motivations and desires. **Analytics leaders must make their stakeholders feel safe before proceeding by confronting the ethical implications of data and analytics, demonstrating the business value of the data and managing the effects on organizational culture.** Once we have the culture and attitudes changed towards a data-driven culture the biggest assets in the enterprise must be guarded: your talent.

There are two ends of the spectrum on the talent in the organization. On the one hand there are employees that we call 'Power Users' that if they left the company today, they know so much that it would put a serious hurt on the organization. On the other end of the spectrum are the employees that are siloed into knowing only their job. The analytics team must integrate specific KPI's (Key Performance Indicators) for the job description of the individual contributor. This should happen with the leadership team and the employees. These specific KPI's and training benefit employee engagement by giving advantages to employees in order to develop analytical skills and cross train with the 'Power Users' in the organization.

2) What is the Agile Risk?

Agile principles on the other hand, work to deliver value by reducing risk. That's accomplished through continuous delivery as requirements are discovered. Agile exposes and provides the opportunity to recognize and mitigate risk early. Risk mitigation is achieved through: cross-functional teams, sustainable and predictable delivery pace, continuous feedback, and good engineering practices. Transparency at all levels of an enterprise is also key.

3) Big Technology Fails

Finally, what are big technology pitfalls to avoid? The first pitfall is the data lake could become a swamp. **Data could end up in a place that hoards data without any structure or organization.** Therefore, data just sits there unused because no one knows how to use it, nor will it ever go into production. Another technological failure is there is no foreseen value add.   The data lake is treated as an updated form of the data warehouse. If a company uses old processes as if in the data warehouse it might actually lengthen the time of processing and data analysis. Data lakes require new processes that provides the ability to process and analyze data in the same place as where the data is stored. The final technology letdown would be the failure to data mine for analytics. This is particularly problematic when the analysts do not own the data. Companies need to remove barriers and ensure analyst have the tools needed to work with data lakes.

Personal Philosophy of Analytical Leadership

As mentioned above, in order to address the greatest risk to a transformation plan - the culture and talent risk - leadership should adopt a particular philosophy that is ideal for adaptive situations like the one we are faced with here. For instance, our leaders may say something along the lines of:

> *"My leadership style is about helping people change and adjust to new situations. A leader is not someone who solves problems for people, but rather is someone who encourages others to do the problem solving themselves. It is my job as a leader to encourage people to feel safe as they confront possible changes in their roles, priorities, and values."*

While change may sometimes feel like navigating rough waters, a good leader can act as a boat captain to steer their ship in the right direction. Like with the boat captain, it is the behavior and actions of the leader of an organization that inspires their people to leave the quiet comfort of the status quo and enter into unknown territory which may lead to an even better situation. One particular approach to leadership is especially suited for this. As its name implies, adaptive leadership is about how leaders encourage people to adapt to face the challenges that come with change. Unlike other more traditional theories of leadership which focus predominantly on the characteristics of the leader, adaptive leadership stresses the activities of the leader in relation to the work of followers in the contexts in which they find themselves.

The practice of leadership requires that leaders address three kinds of situational challenges. First, there are challenges or problems that are primarily technical in nature. Technical challenges are problems with known solutions that can be implemented through existing organizational procedures. For technical challenges, people look to the leader for a solution, and they accept the leader's authority to resolve the problem. Second, there are challenges that have both technical and adaptive dimensions. These are challenges that are clearly defined but do not have distinct straightforward solutions within the existing organizational system. Here the leader may act as a resource for others and provide support, but the people need to do the work—they need to learn to change and adapt. Finally, there are challenges that are primarily adaptive in nature. Adaptive challenges are problems that are not clear-cut or easy to identify. They cannot be solved solely by the leader's authority or expertise, or through the normal ways of doing things in the organization. Adaptive challenges require that leaders encourage others to define challenging situations and implement solutions. Not easy to tackle and often resisted, adaptive challenges are difficult because they usually require changes in people's priorities, beliefs, roles, and values.

While addressing technical challenges is important, adaptive leadership is concerned with helping people address adaptive challenges. Given that the transformation plan that we are proposing is highly adaptive and will involve many people across the organization, and will require the cooperation of five different teams, the leader (or leaders) best equipped to handle this challenge must take on a certain philosophy. This philosophy must change the focus of leadership from the leader themselves, to the followers. Rather than seeing themselves as a savior who solves problems for people, this leader must conceptualize themselves as somebody who plays the role in assisting people who need to confront tough problems. **An effective leader in this situation will challenge their followers to face these difficult challenges, providing them with the space or opportunity they need to learn new ways of dealing with the inevitable changes in beliefs, attitudes, perceptions, and behaviors that they are likely to encounter in addressing real problems.**

Six leader behaviors play a pivotal role in the process of adaptive leadership. These behaviors are general prescriptions for leaders when helping others confront difficult challenges and the inevitable changes that accompany them. Although there is a general order as to which leader behavior comes first in the adaptive leadership process, many of these behaviors overlap with each other and should be demonstrated by leaders at the same time. Taken together, these leader behaviors suggest a kind of recipe for being an adaptive leader.

1) Get on the Balcony

"Getting on the balcony" is a metaphor for stepping out of the fray and finding perspective in the midst of a challenging situation. Being on the balcony enables the leader to see the big picture—what is really happening. An effective leader must find a balance between this and staying engaged as a participant with the challenges his or her people are confronting

2) Identify Adaptive Challenges

Leaders must also analyze and diagnose the challenges that his or her people are confronting, which includes differentiating between technical and adaptive challenges. As mentioned earlier, adaptive leadership is most effective for adaptive problems. Failures in leadership are often attributable to failures in diagnosing challenges correctly.

3) Regulate Distress

Adaptive challenges create the need to change, and the process of change creates uncertainty and distress for people. The challenge for a leader is to help others recognize the need for change but not become overwhelmed by the need for the change itself. The adaptive leader needs to monitor the stress people are experiencing and keep it within a productive range or regulate it.

4) Maintain Disciplined Attention

It is common for all of us to resist change and strive for a sense of balance and equilibrium in our day-to-day experiences. People do not like things "out of sync," so when their sense of balance is disrupted by the need to change, it is natural for them to engage in avoidance behavior. This leader behavior is about helping people address change and not avoid it.

5) Give the Work Back to the People

Giving work back to the people requires a leader to be attentive to when he or she should drop back and let the people do the work that they need to do. For adaptive leaders, giving work back to the people means empowering them to decide what to do in circumstances where they feel uncertain, expressing belief in their ability to solve their own problems, and encouraging them to think for themselves rather than doing that thinking for them.

6) Protect Leadership Voices From Below

Too often, leaders find it convenient to ignore the dissident, nonconforming voices in an effort to maintain things as they are and keep things moving. Adaptive leaders should try to resist the tendency to minimize or shut down minority voices for the sake of the majority. To give voice to others requires that a leader relinquish some control, giving other individual members more control.

Adaptive leadership offers a unique prescriptive approach to leadership that is particularly applicable to situations like the one we find ourselves in here. We believe that if our leaders at Artisan Partners adopt this style of leadership, we will be successful in implementing our transformation plan.

Behavioral Change

Achieving lasting behavior in an organization requires more art than science. Along with developing adaptive leaders, **we plan to use tools and techniques to empower and engage employees and help them find purpose in the work they do for Artisan Partners**. We will use the five principles below to bring change during the implementation of our transformation plan.

1. Target simple but vital behaviors
2. Motivate change by appealing to both heart and mind, but mostly heart
3. People automatically adapt to changes in the environment so change the environment
4. People change people so look to networks, groups, friends and family members
5. Behavior change is an experimental process of learning from experience

Tableau, being the tool of choice for reporting and visualization, keeps us at an advantage for the aesthetics and appeal it has to offer and lets employees notice minimal differences in the environment they operate. We will launch human factors analysis & UX teams to understand varied business teams behaviours and their interactions with the current operating environments so we will align the changes by focusing more on back ends with minimal impact to front ends. We will foster curiosity, ideas from employees to come up with design patterns for screens, and insights from data to create a crowdsourced community for easy exchange of ideas and outcomes. Creating career paths, recognizing contributions in a timely manner, tying employees work to big picture and timely feedback, and keeping them informed will not only make it a safe environment but encourages them to become change agents. Maintaining transparent workflows and provide tools to employees to sense old and new processes on their own has better chance for adaptation - they get to learn from experience. Creating affinity groups, networking groups and forums - keeps them engaged and entertained.

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