The Tableau Drive Manual

A practical roadmap for scaling
your analytic culture

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Background

Drive is an enterprise deployment methodology for self-service analytics. This Tableau Drive manual is a practical roadmap for scaling analytic culture using Tableau as a transformational vehicle.

Tableau Drive was born from experience. Although Tableau has excellent self- service capabilities, we saw that some customers were more successful than others at achieving a culture of analytics widely throughout their organization.

We found that success with Tableau varies widely, depending on the implementation approach used and the organization's readiness to change. We developed this manual by analyzing the implementation of the organizations that were most successful in building an analytics culture and documented the most effective and repeatable techniques.

For some organizations, the framework laid out in this Driver's manual will be enough to move forward. However, guidance from a seasoned driver might get you to your final destination more quickly and efficiently.

For navigational assistance, you may choose to consult a Tableau partner or Tableau's Professional Services team.

Supporting the Cycle of Visual Analysis

Before driving too much further, let's understand clearly that at its core, Tableau Drive is about enabling individual or team-based visual analysis.

Visual analysis is an iterative and non-linear cycle of data acquisition, analysis, hypothesis building and re-examination. It cannot be short-cut or solved simply with better algorithms.

The Tableau version of this process is called the Cycle of Visual Analysis and since our founding, we've honed our software to make this process faster and easier.
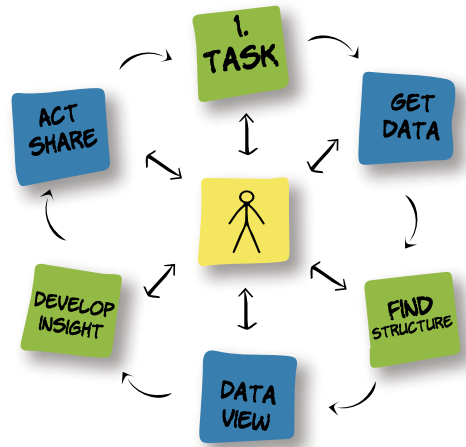

Figure 1: Cycle of Visual Analysis

What is Agile?

When the word process is used in relation to software development, one naturally thinks of Agile.

Agile is a collection of development principles that were proposed in the 1990s as a more flexible alternative to waterfall development, which made less sense in an era of quickly changing requirements.
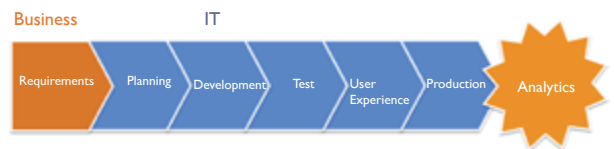

Figure 2: Traditional Waterfall Method

The guiding principles of agile methods are:

1. **People over processes and tools**

2. **Working software over comprehensive documentation**

3. **Collaboration over requirements gathering**

4. **Collaboration over requirements gathering**

In an agile process, there is almost no benefit to exhaustively documenting requirements. Requirements

are much more flexible, and the penalty to changing them is hours or days, not months. This allows more feedback to come into the process earlier, resulting in a much more effective result.

The Cycle of Visual Analysis is itself an agile process. In fact, some say that Agile is more suitable to analytics than it is to writing software.
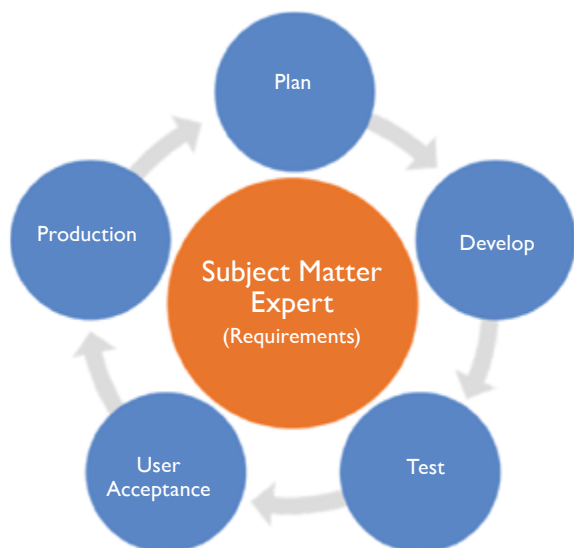

Figure 4: Improved Agile Process

Figure 3: Agile Process

However, the Cycle of Visual Analysis augments agile methods by suggesting a new division of labor between IT and business. Business users themselves are the developers - they control creative execution.

In a typical waterfall development model as shown in *Figure 2*, the business is involved only for the requirements-gathering phase. Agile methods suggest an iterative process.

Improving Agile

With self-service technology, this model improves further. When business users are able to work with their own data directly and visually, the requirements gathering, planning, development, and user-acceptance phases compress dramatically. With practice, business users can perform these activities in real-time, at the speed of thought – which not only makes report-writing much faster and more rewarding, but enables multi-person collaborative analysis.
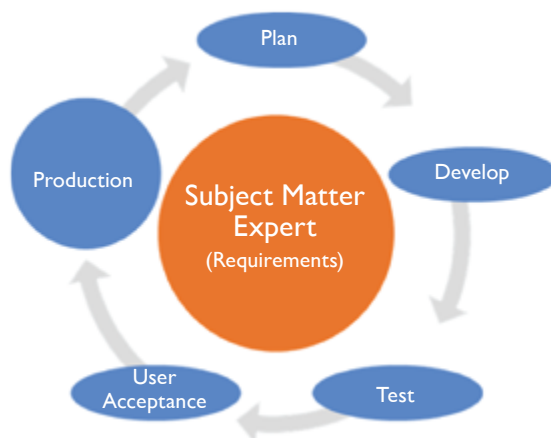
Roles and Responsibilities: IT and Business Users

Part of the Drive methodology is a new model of the partnership between business and IT. Drive cannot succeed without full support from both IT and business leadership. Although responsibilities are shared, each time has primary responsibility for certain aspects of deployment.

Center of Operations (IT)

• Data acquisition, preparation, security, governance, and provisioning

• Intranet wiki and community software and services

• Tableau Server deployment, configuration, and maintenance

• Tableau Desktop provisioning

Center of Evangelism (Business Users)

• Development and promotion of best practices

• Training and support

• A continuous campaign to promote analysis development and culture

• Identify & prioritize new data sources

Tableau Drive promotes shifting ownership of creative analytic work from IT to the business user. While IT may continue to develop specialized workbooks for special circumstances (e.g., CEO KPI dashboard), business users will be enabled and expected to do their own analysis.

Drive Teams

The best work typically happens in small teams. Performing real-time analysis within cross-functional teams is one of the most efficient, effective, and culturally transformational things an organization can do. With homage to agile methodologies, we call working as a team through problems like this, a Drive Sprint. On any Drive Team you need the following skills. Some people may fill two or more roles, but it is important to keep in mind that the cycle breaks down when any roles are missing.

The Drive Team

Executive Sponsor: The person who commissions others to deliver the project. This person (or people) will normally be a senior member of staff with a relevant area of responsibility that will be affected by the outcome of the project. The Executive Sponsor is involved from the start of the project, including defining the project in conjunction with the Project Manager. Once the project has been launched they should ensure that it is actively reviewed. The Executive Sponsor sets the strategic direction of the project and aligns with corporate direction or initiatives.

Project Manager (PM): The person responsible for developing, in conjunction with the Executive Sponsor, a definition of the project. The Project Manager then ensures that the project is delivered on time and within budget. He or she ensures the project is effectively staffed, manages relationships with a wide range of groups including the work of consultants, allocating and utilizing resources in an efficient manner and maintaining a cooperative, motivated and successful team.

Tableau Champion: The person who has the vision of how Tableau can help them achieve their business goals using analytics. This person is deeply familiar with the questions the analytics are designed to answer and can explain the impact of acting on data insights. He or she is involved from the start of the project, including defining the project deliverable, in conjunction with the Project Manager. Often the champion has been prototyping analysis and using results from those early projects to push the larger project forward. Once the project has been launched this person may be dedicated to the effort.

Tableau Administrator: The Tableau Administrator is responsible for the installation, configuration, upgrading, monitoring, maintenance, and security of the Tableau server. He of she will also provision, publish and manage the Tableau data sources to ensure alignment with the data governance policy of the entire organization. Depending on the security topography, a Tableau Site Administrator and/or Tableau Project Lead may be designated to split the Tableau server workload.

Tableau Author: The Tableau Author will develop and publish dashboards to the development (or staging) environment. This person, or ideally set of people, will have had enough "time-on-mouse" with Tableau that they can actually build and rework visualizations in real time. They will also be a resource for others ramping up their Tableau skills.

Tableau Consumer: The Tableau Consumer will be the ultimate Visual Analyst. Working with reports published on Tableau Server, he or she will ask and answer questions in the course of normal business.

Database Administrator (DBA): The Database Administrator is an IT professional responsible for the installation, configuration, upgrading, administration, monitoring, maintenance, and security of databases in an organization. The Drive team will call on the DBA for appropriate connections to the data set.

In certain situations the DBA will model or structure the database in a manner that enables optimized integration with Tableau.

Data Steward: The Data Steward is responsible for maintaining data elements in the Data Dictionary (DaD) or metadata registry.   The Data Steward is a broad job role that incorporates processes, policies, guidelines and responsibilities for administering organizations' entire data in compliance with business and/or regulatory obligations. It is critical that the Data Steward have an understanding of the business domain and the interaction of business processes with data entities/ elements. A Data Steward ensures that there are documented procedures and guidelines for data access and use, and may work with database administrator to plan and execute an enterprise-wide data governance, control and compliance policy.

Extended Drive Team

An organization may choose to work with a Tableau partner or Tableau's Professional Services team to execute Drive. In that case, people from that organization will become part of the extended Drive Team.

Tableau Project Manager: The Tableau Project Manager is responsible for external team. This person monitors the project deliverables, both from a client and Tableau perspective to verify its progress and identify any issues that may arise. He or she coordinates the Consultant requirements to utilize resources in an efficient and cost effective manner. During scoping, it may be determined that the Tableau Project Manager will also manage the entire Drive project, from both Tableau and client perspective.

Consultant: The Consultant is a highly skilled Tableau expert. He or she will work in partnership with the client, guiding them towards an analytics-driven culture. This person will lead the Drive effort and conduct all of the on-site workshops, drawing on best practices from successful implementations.

Later, we will discuss Drive Sprints more deeply. But as a rule of thumb, if you are seeing a continual cadence of Drive Teams solving analytics and more generally business problems together – you are driving well.

The Four Phases of Drive

After covering these foundational concepts, we are ready to discuss the four phases of the Drive methodology itself: Discovery, Prototyping & Quick-wins, Foundation Building, and Scaling Out.
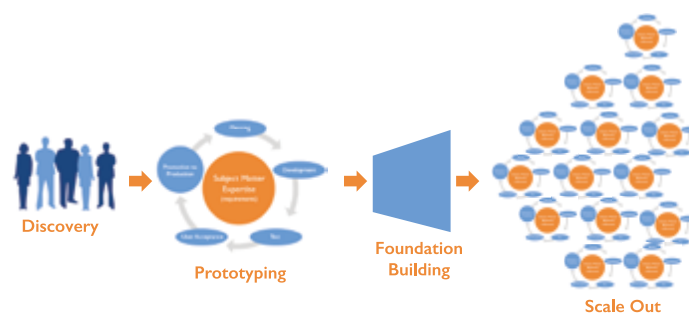

Figure 5: Phases of Tableau Drive

1. Discovery
A discovery exercise to evaluate a company's readiness to promote analytic culture and identify a plan to close the gaps.

2. Prototyping & Quick-wins
A period where power users get the support and training necessary to become confident analytic champions and to develop "quick wins" that prove the value of business-led analytics and can be copied and expanded over time.

3. Foundation Building
Putting in place the processes, organizational structures, and technical infrastructure to support broad adoption. This is typically where security, data governance and other policies become mature, and where broad training and enablement is put in place.

4. Scale Out
Measured roll-out to the enterprise of empowered analytics capability.

1 Discovery Phase

The first stage in Drive is a classic discovery and qualification process. The key question is simply: "Can we be successful?" And if so, what is the roadmap to achieve that success. Just like embarking on a road trip, you want to review all of the critical elements to make sure you will arrive safely at your destination.

As-is Assessment

In order to arrive at a destination, you need to know your starting point. Institutional memory is precious and in some cases, scarce. It is quite common that a consultant will arrive on-site and have to conduct extensive interviews just to determine the history and current state of organization, current or historical strategies, software, and hardware environment. Clear documentation allows new team members and troubleshooters to begin contributing much sooner. It also makes it easier to reference a "future state" vision.

All too often we focus the current state only on the current reports, but people, strategy, and processes are equally important in driving change.

As-is Assessment Checklist

People

- Organizational chart
- IT / Business Analytics Roles and Responsibilities

Skills assessment:

- Tableau capabilities
- Data visualization best practices
- Data source expertise
- Business domain expertise

Strategy

- Past and current executive sponsor priorities and concerns
- Business Intelligence usage, history, concerns
- Related and complementary initiatives

Technology

Tableau and database environments:

- Hardware and software
- Machine names and IPs
- Firewall, proxy, network boundaries

Current state technical architecture:

- Data warehouse
- Extraction, Transformation and Load (ETL) Tools
- Data quality
- Data enrichment
- Metadata management

Data:

- Entity-relationship diagrams
- Table and field descriptions including data dictionary and lineage
- Meta models from other business intelligence tools

Reports:

- Current Reports and Dashboards
- Refresh frequency
- Distribution lists

Process:

- Current life cycle management
- Training modes and preferences
- Current "Center of Excellence" model

Data governance:

- Current group-, role-, or user-level security rules

- Current process for managing data quality

- Storage of current, historical, summary and transactional data

Future State Vision

The future state vision will outline the desired state at the end of the journey and at key milestones along the way. This will be a holistic plan that provides a vision for elements discussed in the "as-is" assessment around people, strategy, technology, and process.

While the specifics will be unique in each organization, thematically the most successful organizations focus their vision around building a pervasive analytics culture underpinned by business empowerment and self-reliance.

The vision will balance empowerment and flexibility with data governance and quality. In the Foundation and Scaling Phases we will explore techniques that help make that vision a reality.

2 Prototyping and Quick-wins Phase

As we looked at the most successful deployment of Tableau they had one common theme: A passionate user community that could realize value quickly by implementing Tableau even against an imperfect data set. The Tableau Champion is typically drawn from this set of early users, and the Executive Sponsor has usually gotten involved by seeing the results from the Prototyping phase.

Prototyping Candidate Projects

At the outset, identify power users from the lines of business who are likely to want to participate and business units that have the greatest need for analytic clarity.   Existing Tableau users are prime candidates but others who are technically capable and open minded should also be considered. In some organizations there might be multiple candidate projects to choose from and in others there may be only a single candidate project opportunity. If there is no obvious candidate project, your organization may not be ready to begin the journey.

Defining Project Success

With more traditional business intelligence implementations, project success is typically defined by a singular deployment milestone. When the objective is to empower a culture of data informed decision making there isn't necessarily a traditional "go-live" milestone. Success is defined by users finding important and valuable insights and packaging and disseminating those findings beautifully and convincingly.

Sometimes, the output from this phase is a set of reports that in the past we would have considered "complete" or "done." However, in dynamic organizations with analytic cultures, the end is always another beginning from which actions and new questions may be based.

The Prototyping phase should focus on using Tableau as designed rather than replicating a dashboard or report created with other tools. Let the journey of discovery be the guiding principal for this phase. Take a time-boxed approach measured in days and weeks not months. Don't let the quest for perfect data slow you down. At its core, this phase focuses on the two foundational elements discussed at the beginning of this manual – the Cycle of Visual Analysis and the Drive Team.

Drive Sprint

We discussed Drive Teams earlier. With homage to Agile, we call collaborative Drive Team development activities "sprints." During a Drive Sprint, the Drive Team will meet face-to-face to create a set of reports, analytics and/or dashboards in short order.

Each Team member should:

- Have Tableau Desktop installed

- Have watched many of the free training videos on the Tableau website

- Bring a burning business question

- Be ready to work with whatever data is readily available

- Provide input on the final (production) state of that data

Some principles to follow are:

Work in Real Time: Tackle those initial burning business questions with Tableau in real-time and change approaches if your initial attempt stalls. Create placeholders where data is missing and take notes on the workbooks themselves for follow up.

Favor Face-to-Face: A Drive Team works faster and more efficiently when face-to-face. During meetings, prioritize modifying and creating content rather than taking actions to do later.   Collaborating over a web conference system is nearly as good. Avoid working in isolation, except to resolve technical challenges.

Seek Clarity: Is the current business question clear? Is the analysis effective at answering it? Do the drill-down views reach the root cause of the problem? Is more data necessary to answer the question? Don't get carried away with the visualizations; make sure that you're providing useful answers to important questions. If you're coming up short, clearly annotate your dashboard to help inform subsequent efforts.

Meet Frequently: A weekly cadence of producing new reports, revising reports and iterating on the data architecture has proven sustainable. Some teams meet more frequently, in-person or virtually.

Leverage Interactivity: The goal with static reports was often to put as much information on the page as possible. This leads to poor visual design, a low information communication rate, and serious performance optimization problems. Instead, put the most essential items on a page and let the rest come through in drill-down and interactive exploration. Create separate reports to answer different questions. Use the *Story Points* capability added in 8.2 to guide analysis. Follow best practices for information design to help people understand more about the data.

Expert Assistance

It is important to have one experienced and knowledgeable Tableau expert available to help launch and sustain the initiative -- either on-staff or in a consulting capacity.

Even if novice users are able to inventively power through problems, they will not know when it is prudent to change gears or to give up on a dead-end approach. Moreover, the uncertainty and second-guessing that will occur without proper oversight will hurt project momentum and executive confidence. Experience matters.

Work With The Data You Have

In the early stages, business user champions may have their own spreadsheets and "unofficial" data sources. Start analysis right away with the data that exists. Waiting for "certified" data sources will hinder momentum.

Sometimes the data is large and unwieldy. In that case, Tableau provides a file-based, proprietary "fast data engine" database that is fully provisioned by simply creating an "extract." Simply extracting and summarizing data in this way may make a large dataset useful for real-time analysis. After creating a rough workbook, be sure to consider summarizing extracts and hiding unused fields in order to improve query performance.

Wrangle Data Properly

Sometimes the source data is not in a star schema or the clean tabular format that Tableau needs. The challenge of pivoting cross-tabs, combining disparate data, cleansing "bad" data, imputing null values, and such affect Excel users and data warehouse builders alike.

Tableau has several Knowledge Base articles on data preparation and offers a free data pivoting utility for Excel.

Fortunately, a new class of personal ETL tools are making complex data wrangling easier than ever. Vendors offering desktop or web-based tools include: Alteryx, CloverETL, Lavastorm, Informatica, Paxata, Rapid Insight, SnapLogic, Syncsort, and Talend.

Check out the Tableau forums to find out what tools other customers are using.

Deliver Reports Immediately

In this phase, understand and accept that the first series of reports may eventually be thrown-away. That's better than okay - it stops paralysis! You can always swap data sources and rework workbooks at a later time using Tableau's data source replacement functionality.

Also be sure to leverage and learn from workbooks pre-dating the Drive initiative. What worked? What didn't work? What questions were not fully explored? Deliver v0.6 immediately - v1.0 will come later.

Prototyping and Quick-wins

This is an important phase that allows your organization to build analytical muscle while simultaneously delivering analytical value. You will sacrifice some of the process and governance niceties in this phase, but don't fret, those will come next in the Foundation Building and Scale Out phases.

Working through data and formatting challenges requires an ambitious start somewhere and quick wins are important for building excitement and momentum.

Prototyping Milestone Checklist

*   Have you produced reports for one or more business unit that are widely considered compelling and useful?

*   Is there a sense that the work you have done is adding value and can be replicated?

*   Have you identified initial Drive Teams in the organization?

*   Is there a shared sense of excitement about visual analysis?

*   Are rumors spreading about the amazing work your team is doing?

If the answer to these questions is yes, you're likely ready to lay down the enablement bricks which will be the foundation for scaling out.

3 Foundation Building Phase

During the Foundation Building phase, we will build the organizational and process muscle to enable and prepare for scaling out agility without sacrificing data quality and governance. Many of these techniques will be tested during the Prototyping phase, but now it is time to secure the foundation.

Center of Operations

The heart of the Tableau deployment will be a Center of Operations, the "CO," within the IT organization. The CO will be responsible for setting up Tableau servers as well as the intranet applications. During the Foundation Building stage, the CO will drive the process including setting up Tableau servers, creating and documenting data sources, and establishing the architecture to enable Scale Out.

To start, the CO will setup two projects or sites on the first Tableau server. A *project* in Tableau is a collection of related workbooks, whereas a *site* is an entry point

for different organizations or groups on a single server which gives the appearance of having separate servers. One will be the sandbox or "playground." The sandbox environment was likely setup during the Prototyping phase. The other will the "certified" or production system.

Publishing rights to the "certified" environment will be locked down. Business users will publish reports to the playground and IT or a Tableau content steward will promote them to production.

There are trade-offs to using sites versus projects. If using projects only, search results within a site may include content across projects, which may cause confusion. Sites provide content isolation at the cost of a separate publishing step. To "move" content from one site to another you would need to import and republish from the desktop client, command-line scripting, or using a 3rd party tool like Interworks Enterprise Deployment for Tableau. Most larger organizations prefer this step anyway for quality assurance and validation.

Analysts or other business users can begin creating reports in the sandbox immediately—before "official" data, published sources are finalized. If the reports are satisfactory, they will be promoted to the certified project.

If external user communities are envisioned, we firmly recommend setting up separate sites: internal and external. Although users may have access to multiple sites, artifacts are not shared at all between them. This makes it much less likely that internal content is accidentally shared with external audiences.

Data Sources

Configuring and documenting shared Tableau data sources is on the critical path for success with Drive. Tableau data sources are conceptually similar to Business Objects Universes or Cognos Framework Manager models.

Although they are created in the report authoring tool (Tableau Desktop), they can be published to the server separately and shared by multiple workbooks.

When users are connecting to published data sources from Desktop or Server, credentials may be embedded in the data source, or users may be prompted for credentials (once or every time).

When building data sources it is important to understand and implement best practices. Keep these principles in mind:

Directness: Use the simplest and most direct data structure possible. Resist adding complexity. Err on the side of leveraging many simple models instead of one enormous semantic layer.

Security: Configure data source filters to implement group, role, and user specific security. Analytic self-service does not imply giving all data to all people. Only you know the right level of data access for your organization.

Speed & Governance: Users expect results quickly. If you anticipate long- running queries, consider creating well-indexed summary tables or off-loading processing to the Tableau Data Engine.

Flexibility: Pay attention to analysis that business users are doing. Their work will inform you how to configure data sources. Welcome new requirements; they represent deeper understanding and unsolved problems.

Data Quality: It should be obvious from initial queries whether data quality is sufficient for widespread consumption. Be mindful of null fields, unmatched rows (in the case of non-star schemas), duplicates, and non-conformed dimensions.

End-user Data Dictionary: After creating data sources, write a short document that will help future users understand where the data came from, what information particular data fields contain, and how they might start using them. One or more simple sample reports can be helpful. Leveraging in- model tool-tips are particularly useful.

Effective Use Of Extracts

For many organizations, extracts served by the Tableau Data Engine will be the primary analytics database. The benefits of using extracts are that they require no indexing or DBA resources. In large customers like eBay, new data requirements are satisfied using extracts first. If after 90 days, the extract is heavily used, DBAs consider recreating an indexed or materialized view in the primary database. Sometimes summary data is served from extracts while row-level detail remains in the read-write data warehouse.

Keep in mind that size does affect extract query performance. As with other columnar databases, querying large numbers of columns at once will impact performance. Extracts are file-based and not limited by main-memory capacity. They were designed to support 1 billion row datasets but you will see performance degradation at that size. If your data comprises more than several hundred million rows you may want to consider summarization strategies.

Office Hours

During the Prototyping Quick-wins stage we were building business unit champions and helping them find critical insights. During the Foundation Building stage we are expanding that community to a broader group of business unit champions.

One proven technique for collaborative capacity building is to set up regular "Office Hours." For example, at regularly scheduled times, a Tableau expert could be available to train and assist with workbook creation in a conference room. Office Hours can also be implemented virtually using personal video conferencing.

The server should already be set up so that work-product can be published quickly and celebrated with business unit leadership and executive sponsors.

Office Hours itself is a prototype for the kinds of technical-business collaborations that will be scaled out. While office hours may be a technique used during the Prototyping Quick-Win phase, it is a foundational best-practice to growing and scaling out capabilities.

Best Practices, Templates, Style Guides

Tableau is a free-form environment that invites user creativity. Creativity flows more freely when compelling examples and clear guidelines are provided. It is no surprise that tidiness and appearance inspire confidence not only from brand managers and executives, but everyone. Consider these best practices:

Simplicity: Put the most essential items on a page and let the rest come through in drill-down. Use titles, axes and tooltips to help explain the data. Do not build monolithic dashboards. Guide users through multiple click-paths with thoughtful contextual cues and logical drill- downs. This strategy not only generates much better performance but also makes the analysis more usable.

Perfect is never perfect: Preferences and aesthetics change over time. Create a high quality sample but do not over-deliberate. Think, but don't become paralyzed

Beauty: By copying and pasting worksheets into a template workbook, inexperienced end-users should be on their way to creating beautiful work. Give them a leg up!

Teamwork: The most durable model is one that is appreciated widely. You may want to create several template "looks" and vote on which will be the final one.

Best practices for building templates

Work with Tableau experts and your marketing team to create compelling and functional workbooks that will be used as templates for subsequent work.

Consider including:

- Jump page (Title Page) with navigation links

- Two or more dashboards with 3-4 views per dashboard

- Built-in instructions for the user through your titles and sub-titles

- Icon library saved in "My Shapes" which includes common buttons like Help, Home, Back, Forward, etc

- Use of Help and Home buttons (separate sheets with shapes) with instructional tool-tips

- Drill through links to other pages

- An attractive, branded look and feel

Center Of Evangelism

While the Center of Operations will build the IT infrastructure for success, the Center of Evangelism will build the human infrastructure for success.

The Center of Evangelism may start as an individual effort but will grow to include key stakeholders both from IT and the business units.

Take time during Foundation Building to develop and test creative ideas to engage business users. Also prepare Tableau champions for spending more time ramping up others.

Enablement Platform

While early champions continue to work on report development, IT should finalize the resources that business users will need to work effectively and comfortably with the new technology.

These materials should be made available on the corporate intranet. A good first step is to setup an internal email alias for personal support and troubleshooting. This would be supported by CE staff and/or outside consultants.

Recommended Resources in the Center for Evangelism

- Resource directory

- Data platform

- Data Server data sources documentation

- Data dictionary documentation

- The on-boarding process for getting users up and running on Tableau

- Training collateral and calendar

- Personal data source promotion to centralized data assets

- Links to Tableau training collateral

- Prototype workbooks with narratives around usage and effectiveness

- Well-documented templates and style guides

- Analysis discussion forums

- Internal data analysis blog

- How-to documents or videos:

- Getting a Tableau license

- Finding Tableau enablement and training materials

- Publishing to the "playground" environment

- Requesting workbook promotion to the "certified" environment

- Starting a new report using the style guide as a template

- Common formatting and layout techniques

- Tips and tricks from internal users

Ramp-up Center of Evangelism

During this phase the Center of Evangelism will launch a variety of programs to celebrate the work of Drive Team members. Many of these techniques are piloted in the Prototyping Quick-wins phase. The recognition of activity and achievement cannot be over emphasized.

Internal Show and Tell: The best content comes out of sharing and the feedback from sharing.

Competition: Recognition, no matter how small, is motivating. Give out prizes for simplicity, for Guided Analytics, for creativity, and even for obscure insight.

Games: Make analysis fun by turning it into a treasure hunt for insight. Draw in new people who may

complement or replace those currently in the Drive Team.

Tableau Days: Try to schedule a "Tableau Day" every month. Use it as an opportunity to introduce new features in the software or in your program. Invite speakers from inside the company as well as from Tableau.

External Stimulus: Participate in Tableau User Groups in your area, act as a reference for another organization, submit answers in forums, do a

Case Study for Tableau's web site and/or be a guest presenter at a Tableau conference.

Foundation Building Milestone Checklist

The systems you set up during the Foundation Building phase need to be assessed. The Organizational Readiness Plan must be rock-solid and usable before "launching" scale out.

During this phase you are launching a collection of services that will make business users feel comfortable with new technology. The perceived risk will be inverse to the breadth and depth of the foundation.

- Are roles and responsibilities clearly defined for Center of Evangelism, Center of Operations, and Drive team members generally?

- Have you assigned someone to maintain and update the intranet wiki, training calendar, and all other documentation/resources?

- Have you identified who will be responsible for staffing the internal troubleshooting email account and do you have a process for escalating issues?

- Do you have a process for collecting, reviewing, and implementing suggestions for improvement?

- Have you publicized the existence of enablement resources to the user community, either through your company intranet or an email distribution list?

- Have you clearly defined end-user and IT work flows for promoting content from the playground to certified environment?

- How are you going to measure/monitor usage of the resources you have provided?

- Do you have a process for governing data quality and data definitions?

- Do users understand how to get their content promoted to the certified server for company-wide visibility?

- Finally and most importantly, sit side-by-side with a business user and login to the project intranet the way they would. Is the experience smooth? Are their questions answered?

Once you get the processes and organizational structure in place, it is time to start rolling out to a broader community. With the right processes and organizational community support – you have paved the way for broader adoption. Scale Out is the main event – the time when all of that preparation and planning pays off.

During Prototyping, Quick Wins and Foundation Building, everything you do will be appreciated. In the Scale Out phase, a lack of readiness will come at high cost.

Ordinary users are easily discouraged, can be fearful of new tools, and impatient for results. Prepare for the worst before hoping for the best.

4 Scale Out Phase

Your scale out strategy will continually improve. Gather benchmarks and measure adoption. Learn from work with the first business unit and fix problems before moving on to the second.

Business Unit Kick-off Meetings

Start with champions: We do not advise scaling out across the organization all at once. Instead, start with the business units with the most enthusiastic Tableau

champions and strongest prototypes. In fact, some organizations take a business-initiated approach: different business units opt into the program as projects surface that require analytics.

Hold a kickoff meeting: Introduce the Tableau champions and present the intranet resources built up in the Foundation Building phase. Start with a "Wow!" demo created during Quick-Wins. Introduce the author and let he or she discuss the need, inspiration and process for creating the workbook. Talk about how that workbook is used today and the impact it is having on the business.

Spread the mission: Take the time to articulate the company's vision for democratizing visual analysis. Discuss the history of business intelligence in your organization and the huge investment IT has made to allow self-service.

Evangelize self-service: Talk about the benefits of self-service from a personal as well as corporate perspective. Be inclusive of all who can contribute to analysis. Set high expectations for broad-based participation, teamwork, and opportunities for individual recognition.

End with hands-on training: Before wrapping up the kickoff meeting we suggest including a one-hour, hands-on-the-keyboard follow-along training using company data. While somebody leads the training, stronger Tableau users should circulate and help the beginners. Wrap up by announcing formal training options and a calendar that includes Drive Team activities.

Business users should leave the kickoff meeting with a strong conviction that they can do this, as well as an understanding of the agile approach.

Scale Out Milestone Checklist

- Did you select business units who are willing and logistically able to do their own self-service analysis?

- Do key business unit stake-holders see the value of improving their analytic culture?

- Have you created qualitative and quantitative metrics for measuring the success of the scale-out effort?

- Are stake-holders comfortable with the mission statement and committed to a shared goal?

- Do you have a good feel for when other business units will be ready to scale out?

- Are users comfortable with the level of support they are getting from the Center of Operations and Center of Evangelism?

Conclusion

Drive is a top-down and bottom-up deployment methodology that draws on agile methods and defines a new partnership between IT and business users. In business intelligence, self-service is often framed as self- adoption.

But that is far from the truth: to achieve wide adoption, an organization needs highly engaged business users as well as programmatic support from IT.

Feedback

We want to hear from you. Drive is a living and breathing methodology developed from our own and our customers' implementation experiences. Perhaps you have found something we didn't consider before. Please send us your ideas and suggestions at: *drivefeedback@tableausoftware.com*.

Many videos, white-papers, manuals, and case studies can be found on the Tableau website at: *http://www.tableausoftware.com/Drive*

Glossary

Agile: A software development philosophy characterized by shorter development cycles, cross-functional teams, continuous testing, and frequent, shippable builds.

Analytical Culture: Practices, programs, and capabilities that encourage and empower smart people to think critically, work collaboratively, understand the business and make informed decisions.

Business User: Non-IT personnel who seeks insight from their data.

Center of Evangelism (CE): A working group of enthusiasts who provide encouragement, quality assurance, and support for software usage and adoption.

Center of Operations (CO): An IT working group that sets up, maintains, and documents Tableau servers and data sources.

Cycle of Visual Analysis: An iterative analytics development process that describes Tableau workbook development. The cycle includes: task, get data, find structure, data view, develop insight, and act/share.

Drive Sprint: A continuous Drive Team development session; adapted from Agile time-boxed development periods.

Drive Team: A collection of people representing three competencies: data, Tableau skills, and business – who comfortably work together in real-time; adapted from Agile cross-functional teams.

Experimenting: Completely ad hoc workbook development.

Jedi: Highly skilled and experienced Tableau user.

Office Hours: Recurring, on premise or remote analysis facilitation by a Tableau Jedi.

Prototyping: High quality visual analysis work performed by subject matter experts and Tableau evangelists with guidance from experienced Tableau users.

Stakeholders: People that sponsor, develop, or are impacted by self-service reporting.

Subject Matter Expert: Specialist within a particular area of business.

Tableau Drive: A deployment meta-process for enabling and encouraging non-technical users to more fully participate in analytic culture.

Viz: Tableau-speak for visualization.

Waterfall: A sequential software development process used for highly complex systems with static requirements and clear roles separation.

Tableau Drive Resources

Phases of Drive

1. Discovery

A qualification exercise to ascertain whether sufficient technical, business, and political resources can be marshalled. The number one reason why change initiatives fail is because important people aren't enthusiastically on-board.

2. Prototyping & Quick-wins

A period where power users get the support and training necessary to become confident analytic champions and to develop "quick wins" that prove the value of business-led analytics and can be copied and expanded over time.

3. Foundation Building

Putting in place the processes, organizational structures, and technical infrastructure to support broad adoption.

4. Scale Out

Measured roll-out to the enterprise of empowered analytics capability.

Drive is a never-ending journey. There will always be more problems to analyze, more employees to teach, more subject areas to master. In so doing, you will most certainly strengthen your analytic culture and make a healthier, more engaging workplace for all.
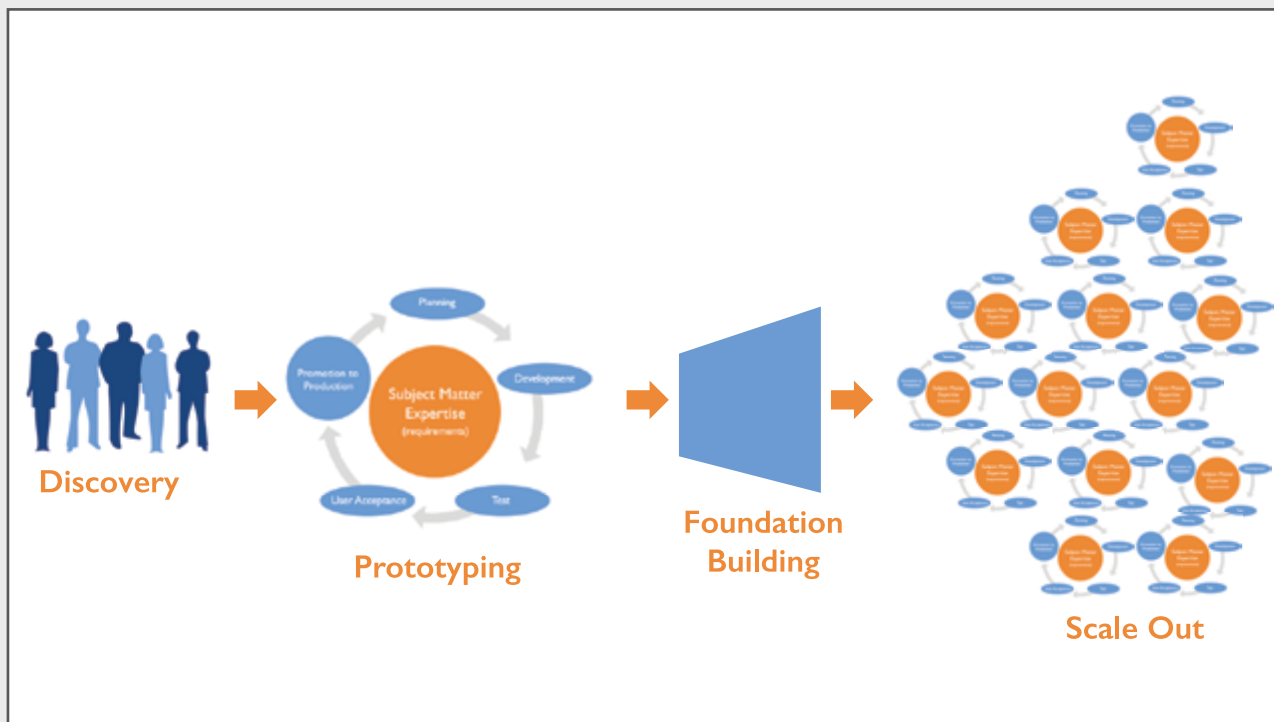
Journey to Mastery Tools

Some users pick up Tableau for the first time with substantial academic and practical experience with data analysis and infographics development. Others are starting completely from scratch. The highest level of proficiency comes with mastery of three disciplines:

- Tool usage: how to use Tableau

- Data: general numeracy and knowledge of databases, SQL, and statistics.

- Visualization: the art of communicating visual information effectively

Within each discipline and across them, there are communities, courses, and a lifetime of exciting learning opportunities. You will find the pathway toward mastery in one or all of these areas extremely rewarding. Best of all, the learning journey can be completely free.

Online Tableau Training

Tableau would not be a fast-growing software company without the incredibly high quality training offered for free on its website. The core curriculum includes over 10 hours of wisdom served up in bite-sized, 3-30 minute pearls: *http://www.tableausoftware.com/learn/training*

Tableau updates this incredible resource with every major release and it should be your first stop on the journey to Tableau mastery.

Mind-Bending Webinars

For deeper, more involved talks on visual design, consider watching the recorded webinars at: *http://www.tableausoftware.com/learn/webinars*.

Open Online Courses

There are also a myriad of fascinating courses now offered online for low or no cost. Searching with keywords such as "data analysis", "statistics", "databases", "communication" and "visualization" turned up more than 20 free courses at Coursera and EdX alone.

In the history of humanity, this is a fantastic time to have an itch to learn something new. As Mihaly Csíkszentmihályi, originator of Flow has found, knowledge workers who are no longer foraging for the next meal, simply need to learn new things and to challenge themselves.

Blogs and Community

Tableau software has had a powerful impact on the lives of many elite data analysts. Many of them "give back" through data analysis blogs -- personal or organizational. Every month Tableau publishes a *Best of the Web* post that highlights Tableau techniques and commentary. Check out recent posts to find the best Tableau resources on the web.

Tableau Public

Finally, do not forget Tableau Public: *http://public.tableausoftware.com*

Tableau Public is a free viz hosting service that is today the world's largest repository of online analytics. The online Gallery is a great staring point and anything you find on "public" can be downloaded and reverse engineered as a learning exercise.

1. Discovery Phase Checklist

People

- Organizational chart
- IT / Business Analytics Roles and Responsibilities

Skills assessment:

- Tableau capabilities
- Data visualization best practices
- Data source expertise
- Business domain expertise

Strategy

- Past and current executive sponsor priorities and concerns
- Business Intelligence usage, history, concerns
- Related and complementary initiatives

Technology

Tableau and database environments:

- Hardware and software
- Machine names and IPs
- Firewall, proxy, network boundaries

Current state technical architecture:

- Data warehouse
- Extraction, Transformation and Load (ETL) Tools
- Data quality
- Data enrichment
- Metadata management

Data:

- Entity-relationship diagrams
- Table and field descriptions including data dictionary and lineage
- Meta models from other business intelligence tools

Reports:

- Current Reports and Dashboards
- Refresh frequency
- Distribution lists

Process:

- Current life cycle management
- Training modes and preferences
- Current "Center of Excellence" model

Data governance:

- Current group-, role-, or user-level security rules
- Current process for managing data quality
- Storage of current, historical, summary and transactional data

2. Prototyping and Quick-wins Phase Checklist

- Have you produced reports for one or more business unit that are widely considered compelling and useful?

- Is there a sense that the work you have done is adding value and can be replicated?

- Have you identified initial Drive Teams in the organization?

- Is there a shared sense of excitement about visual analysis?

- Are rumors spreading about the amazing work your team is doing?

3. Foundation Building Phase Checklist

- Are roles and responsibilities clearly defined for Center of Evangelism, Center of Operations, and Drive team members generally?

- Have you assigned someone to maintain and update the intranet wiki, training calendar, and all other documentation/resources?

- Have you identified who will be responsible for staffing the internal troubleshooting email account and do you have a process for escalating issues?

- Do you have a process for collecting, reviewing, and implementing suggestions for improvement?

- Have you publicized the existence of enablement resources to the user community, either through your company intranet or an email distribution list?

- Have you clearly defined end-user and IT work flows for promoting content from the playground to certified environment?

- How are you going to measure/monitor usage of the resources you have provided?

- Do you have a process for governing data quality and data definitions?

- Do users understand how to get their content promoted to the certified server for company-wide visibility?

- Finally and most importantly, sit side-by-side with a business user and login to the project intranet the way they would. Is the experience smooth? Are their questions answered?

4. Scale Out Phase Checklist

- Did you select business units who are willing and logistically able to do their own self-service analysis?

- Do key business unit stake-holders see the value of improving their analytic culture?

- Have you created qualitative and quantitative metrics for measuring the success of the scale-out effort?

- Are stake-holders comfortable with the mission statement and committed to a shared goal?

- Do you have a good feel for when other business units will be ready to scale out?

- Are users comfortable with the level of support they are getting from the Center of Operations and Center of Evangelism?

Best Practices for Building Templates

- Jump page (Title Page) with navigation links

- Two or more dashboards with 3-4 views per dashboard

- Built-in instructions for the user through your titles and sub-titles

- Icon library saved in "My Shapes" which includes common buttons like Help, Home, Back, Forward, etc

- Use of Help and Home buttons (separate sheets with shapes) with instructional tool-tips

- Drill through links to other pages

- An attractive, branded look and feel

Center of Evangelism (COE) Recommended Resources

- Resource directory

- Data platform

- Data Server data sources documentation

- Data dictionary documentation

- The on-boarding process for getting users up and running on Tableau

- Training collateral and calendar

- Personal data source promotion to centralized data assets

- Links to Tableau training collateral

- Prototype workbooks with narratives around usage and effectiveness

- Well-documented templates and style guides

- Analysis discussion forums

- Internal data analysis blog

- How-to documents or videos:

- Getting a Tableau license

- Finding Tableau enablement and training materials

- Publishing to the "playground" environment

- Requesting workbook promotion to the "certified" environment

- Starting a new report using the style guide as a template

- Common formatting and layout techniques

- Tips and tricks from internal users

About Tableau

Tableau Software helps people see and understand data. Tableau helps anyone quickly analyze, visualize and share information. More than 12,000 customer accounts get rapid results with Tableau in the office and on-the-go. And tens of thousands of people use Tableau Public to share data in their blogs and websites. See how Tableau can help you by downloading the free trial at *www.tableausoftware.com/trial*.

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