TrendMiner
A SOFTWARE AG COMPANY

Best practices for implementing self-service analytics

Key learnings from our most successful customers

Contents

Introduction

Self-service analytics is generally recognized as a valuable asset within corporate strategies, and it's easy to see why: it provides process experts with the user-friendly tools they need to tackle their day-to-day challenges. It allows problems to be resolved faster and frees up central analytics groups to focus on other pressing issues.

Over the last several years, TrendMiner's analytics software has been implemented in plants worldwide and over that time we have witnessed successes as well as roadblocks. We have seen many successful projects that improve process efficiency and enable cross-company collaboration. In this ebook, we will share five key learnings from some of our most successful customers in order to help you drive your self-service analytics journey towards success.

MANAGEMENT OF CHANGE

Like any other introduction of a new or adapted way of working, implementing self-service analytics is largely a matter of Management of Change (MoC). Although you or your process experts (e.g., process, production or asset/maintenance engineers) may be used to working with process data, they most likely rely on visual trend inspections or limited exports to Excel.

What you're asking them to change is their way of working by letting the data talk. With the use of innovative tools they can approve or discard hypotheses based on their experiences. It might be fairly easy to convince a couple of analytics-minded innovators with a high affinity for technological solutions, and it probably won't be hard to find a small group of visionaries who see the potential and are willing to invest some time. The majority of stakeholders, however, will turn out to be pragmatists or conservatives who would prefer to stick to their existing way of working and will need to be fully convinced of the benefits before jumping on board.

> "INNOVATION IS LESS ABOUT GENERATING BRAND-NEW IDEAS AND MORE ABOUT KNOCKING DOWN BARRIERS TO MAKING THOSE IDEAS A REALITY."
>
> John Kotter, Accelerate

A successful Management of Change project has three essential building blocks:

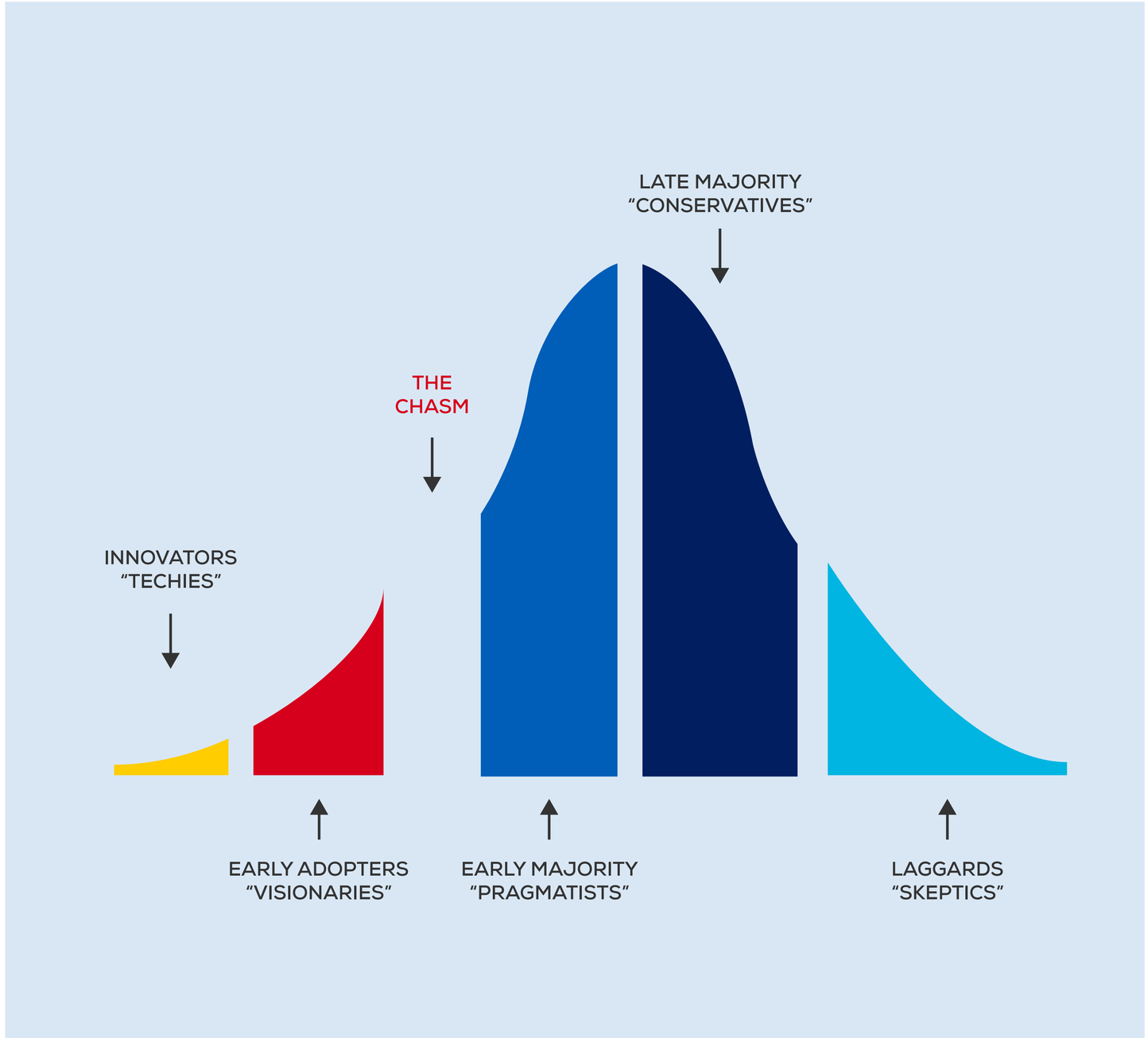
- **Technology:** have the required landscape in place
- **Management:** involvement and commitment to success
- **People:** getting the right people involved in the process

The factors that drive the importance of implementing new technology may be obvious: down-scoping hardware requirements, outdated historian versions, slow internal networks, lack of relevant data, poor data quality, etc. These "obvious" factors, even though they are often detected late in the process, are instrumental to your efforts.

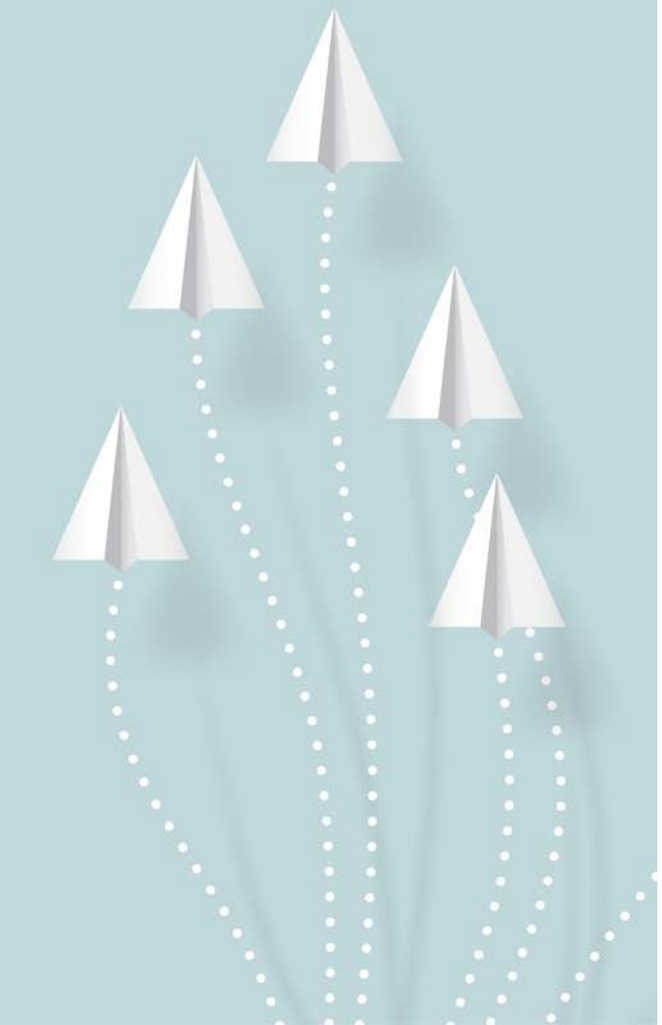
The other two building blocks, Management and People, do not get the attention they need from the early start. "Let's see what we get, first" is an commonly overheard statement that can cause big delays later on. For those reasons our key learnings are mainly focused on management involvement and engagement of the right people throughout the project.

BRIDGING THE CHASM

Whether it is due to lack of time and resources, or the hesitation to explore new technology, there is no denying a chasm betweem early adopters and pragmatic majority has formed. This chasm may actually be much wider than depicted here, and could potentially lead to a complete standstill within the organization if not addressed.



1 Identify clear goals tied to a long-term vision



Whether you are launching a full digital transformation journey, or just starting to learn about the value of self-service analytics, identifying your goals is the first key factor to success.

Project goals are often defined using the **SMART (Specific, Measureable, Achievable, Relevant, and Time-bound)** principle:

- **Specific**, **Measurable** and **Time-bound** goals will offer an efficient way to follow-up on the progress throughout the project
- **Achievable** goals will make sure all stakeholders believe in the success potential and will be committed to make it work
- **Relevant** goals will make it clear for management to decide on the next steps once the success is clear

Our most successful customers have tied their goals to a corporate vision to make them as relevant as possible.

If your organization is aiming at growing production capacity, increasing product quality or improving asset effectiveness, make sure to look into the benefits of self-service analytics on these topics and add them to your goals if you see a match.

Does your company have a corporate digitalization strategy? Work your analytics project into the picture so it becomes a part of the strategic plan and can gain broader attention.

Setting clear and specific goals will make it easier to start discussing relevant use cases that prove the value of self-service analytics.

WHAT DO YOU WANT TO ACHIEVE?

Are you aiming to grow production capacity?
Start by checking the impact of the most common bottlenecks and investigate their root causes.

Do you want to increase product quality?
Do an initial check on potential influence factors and tackle the most prominent ones.

Is improving asset effectiveness your main focus?
Think about starting a pilot on condition based monitoring for a selected group of assets.

Are you looking to optimize energy efficiency?
Creating a data-based overview of steam consumption over the last years might be a good starting point to identify the potential.

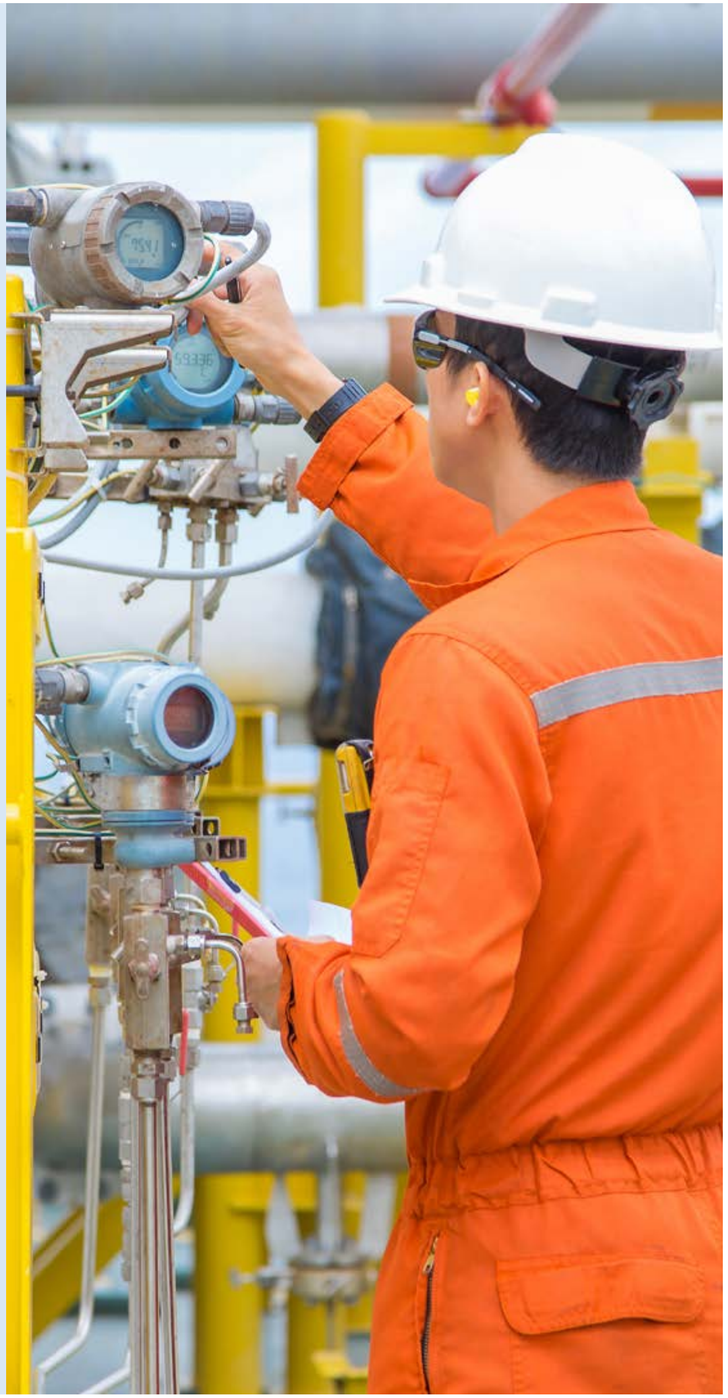
CUSTOMER CASE 1

Covestro's five pillars of their corporate strategy include:

- Harnessing potential for growth
- Focus on sustainability
- Innovation as a core element
- Efficient production
- Competitive cost

During a pilot at the Covestro Polyether plant in Antwerp, several use cases were tackled that fit directly under the umbrella of their corporate strategy pillars. In one particular use case, TrendMiner was used to report and monitor the plant's energy consumption as part of an ISO50001 project. Engineers were able to easily compare problematic batches and detect deviations using TrendMiner's fingerprint functionality, Production costs were effectively decreased by eliminating a production loss of 125 tons, without the need for tedious Excel calculations.

→ **Discover the full Covestro success case on our website.**



CUSTOMER CASE 2

One of the corporate programs at DSM Dyneema focuses on the use of Six Sigma and the DMAIC cycle as the go-to approach for improvement projects. A company target was set on the increase of the number of Six Sigma projects, while the average Six Sigma project duration amounted to 5-6 months.

	QESSH	Process stability	Capacity increase	Satisfied customers
Troubleshooting		✓	✓	
Product evaluation		✓	✓	✓
Root cause analysis		✓	✓	✓
Six-sigma projects	✓	✓	✓	✓

By mapping TrendMiner's functionalities to the different phases of the DMAIC cycle, it became clear that the tool can be applied in most of these phases and will reduce the time needed to complete each phase considerably. A test case at the DSM Dyneema plant in Heerlen proved that the duration of the Define and Measure phased can be reduced from 2 weeks to 2 afternoons.

→ **Learn more about the success of DSM Dyneema with TrendMiner.**

CUSTOMER CASE 3

When Ashland made a strategic transition from producing low value products for construction to high value products for pharmaceutical applications, they also had a shift in their focus on quality.

The Ashland production facility in Doel (Belgium) is using TrendMiner to analyze the effects of process parameters and finally improve the on-target GMP production.

→ **Get to know how they approached this in this webinar recording.**

2

Start small, grow fast

All too often, new software is purchased and installed for a large user base and expected to be picked up by everyone from the start. And although self-service analytics software is user-friendly and results easily interpretable, self-service analytics does not necessarily correspond to self-service *onboarding*.

While tech-savvy engineers with a high level of analytics maturity will easily pick up the new tools, others may struggle and eventually abandon the software only to have to climb a higher hill to readopt it.

As we previously mentioned, most potential users are on the other side of the chasm and will need to be convinced of the value before adopting a new way of working. Even when appropriate training and support materials are available, this is a crucial stop on the road to success.

Instead of organizing large training sessions, start with a small group of key users and bring them together with an analytics expert to work on specific use cases using their own data, in line with the predefined project goals.

Use cases can range from simple impact analysis and hypothesis testing to Root Cause Analysis, as well as identifying early indicators for process issues and monitor set-ups.

Only when enough (first) value is demonstrated can the majority be convinced of the benefits and can the software be rolled out to the larger group of users through organized training sessions.

This approach has multiple advantages:

- It ensures first value is obtained early in the process of implementation and remediating actions can be taken if the selected tooling does not completely match the expectations.
- Second, the results (solved use cases) from these hands-on sessions can be used as examples to onboard additional users.
- And finally, it ensures the benefits of self-service analytics are well understood before roll-out. As the use cases are typically examples from their own or similar processes, potential end-users will be able to clearly see the added value and therefore be more willing to adopt the new tooling.

A similar principle holds when rolling out self-service analytics software over multiple plants or sites world-wide. Taking the time to set up a pilot on one plant, exploring the benefits of self-service analytics, and learning from successes and failures during the adoption process has been proven to contribute to the success of final roll-outs.

This approach significantly reduces the roll-out time because new sites that are gradually being onboarded can take advantage of lessons learned during previous phases.

TOTAL

CUSTOMER CASE 4

After a successful pilot at their Antwerp refinery, Total was one of the first companies to roll-out TrendMiner throughout their Refining & Chemicals division worldwide. TrendMiner was selected because of the software's potential to increase productivity and plant availability, but what does that mean in reality?

→ **Total shared their experiences using TrendMiner to improve their overall equipment effectiveness in this presentation.**

3 Identify the right key users

Success during the initial hands-on sessions is another key to a successful implementation, and identifying the right people to take the lead during this stage of the process will be crucial. Key users should be working in a role close to the process that is going to be analyzed, making use of process data for problem solving or improvement projects on a regular basis. In order to get things in motion fast, they should have a minimal level of analytics maturity. Finally, the key users should be willing to improve both the process as well as their way of working, and be willing to share their experiences with colleagues.

KEY USERS PROFILE

Key users are typically analytics-aware. Within their roles they:

- are involved in problem solving or improvement projects.
- work regularly with time-series data.
- have solid process knowledge.
- understands company challenges.

Additionally, personality traits include:

- a willingness to improve.
- a willingness to share.

Key users should be intrinsically motivated to participate in the hands-on sessions and to explore the value of self-service analytics. Forcing this task upon someone generally does not lead to the desired outcome. And management should, of course, allow these users to spend time getting to know the new software and applying it to various use cases. Adding it to their job description or personal (development) goals typically increases their motivation.

FROM KEY USER TO SUCCESS COACH

Selecting users who adhere to this profile and are intrinsically motivated not only enhances the chances of success during implementation, it also increases the chances of having a self-service analytics coach in place after the hands-on sessions. Our most successful customers were able to establish at least one such coach on every production site.

Coaches typically:

- motivate their colleagues to use the software.
- act as a first contact for questions and remarks.
- initiate the sharing of knowledge and experiences.
- identify new opportunities based on process challenges.
- communicate with the software supplier.

Management is encouraged to nurture these people because undertaking this role will benefit not only their personal development, but also the success of the company.

MEMBER OF THE STEERING TEAM

It is good practice to reserve a couple of seats for your key users or coaches in the project's steering committee, along with site management, project management, and an IT representative. They will be able to provide valuable feedback regarding the progress of tool's adoption as well as any potential bottlenecks that may turn up. This feedback will enable the steering committee to take the right decisions in defining priorities, determining action points, quantifying results, and communicating progress to all stakeholders.

Another thing to consider is including the analytics supplier in the steering committee as well. This can establish a partnership that will allow both parties to collaborate and influence future roadmaps.

As the implementations advance and more plants are added in a roll-out, you can also consider extending your steering committee to include local management to ensure global involvement.

4 Communicate progress from start to end

As with all projects, communication will play a key role in establishing a successful implementation of self-service analytics within your company. Even though the project starts with only a couple of key users being involved, all stakeholders (and hence all potential users) should be informed on the vision, goals, approach, and planning of the project from the start. A dedicated project meeting or a comprehensive email (with the option to learn more) seem to be the most appropriate communication options around project kick-off.

USE VARIOUS COMMUNICATION CHANNELS

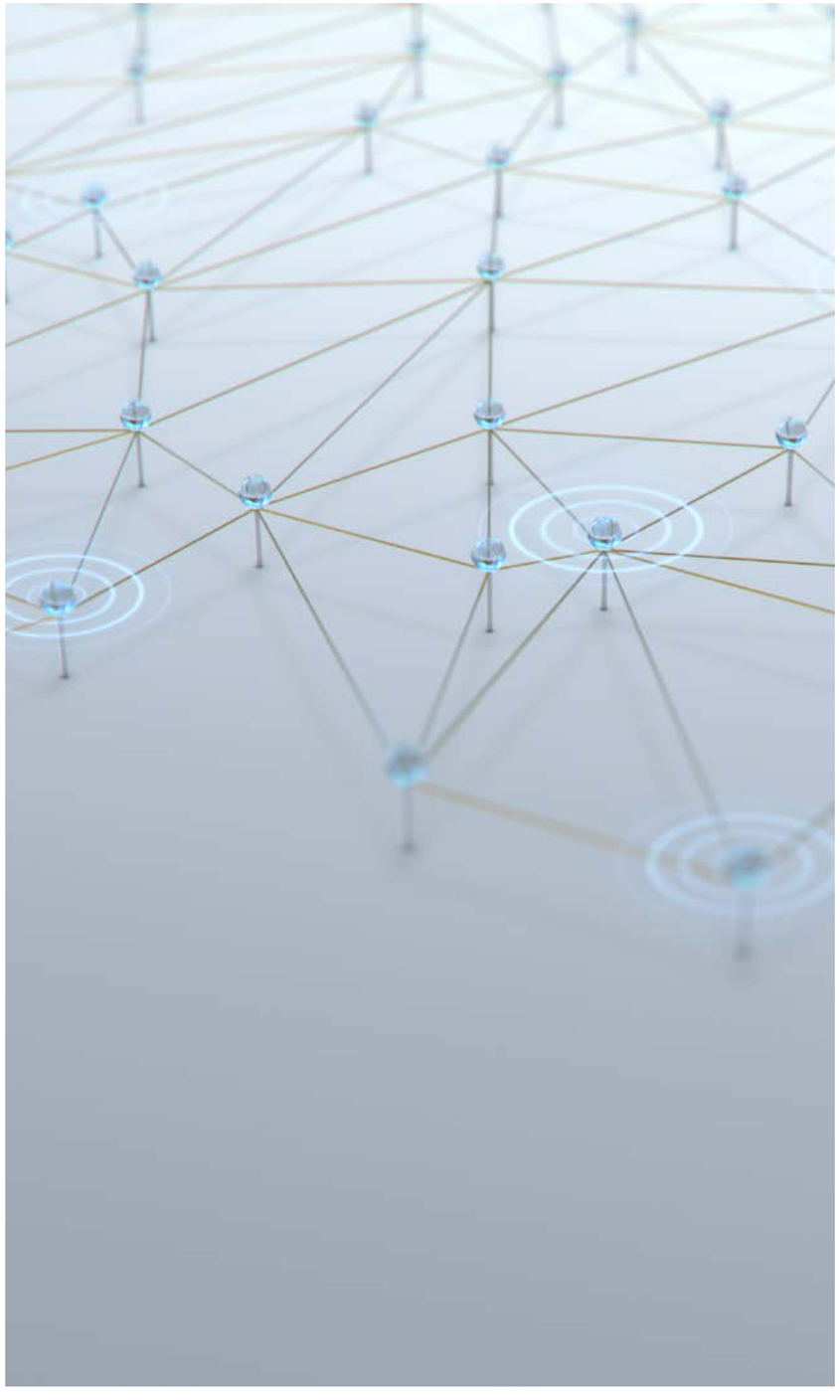
Depending on availability, various systems, like your internal company newsletter for example, can be used to keep everyone informed about the project progress. As the project progresses, satisfaction surveys, value meetings, and user webinars may help gather feedback and allow users and plants to share their experiences.

Sometimes even the smallest communication efforts can make an enormous difference and you may be surprised of the impact that sending a short use case example or a quick “how-to” on a simple workflow can motivate potential users to attend trainings and become more involved.

During busy periods, the focus on timely communication may get lost so developing a structured communication plan, like the one shown below, is important. This can ensure that necessary information is communicated to the right people at the right time and that key project milestones stay on-track.

COMMUNICATION PLAN (12 MONTHS PROJECT)

Start of Project	Communicate vision, goals, approach, and planning to all stakeholders
Pre Hands-on	Align key users on approach and discuss use cases (key users kick-off)
Pre Training	Short communication of first value to motivate users (email, recording)
Post Training	Weekly newsletter with tips & tricks to increase adaption (email)
Post 3 Months	Satisfaction survey to gather feedback (survey)
Post 9 Months	Satisfaction survey as input for evaluation (survey)
Post 10 Months	Meeting to discuss value obtained (meeting)
End of Project	Evaluation meeting with key stakeholders (meeting)
Monthly	Internal team meeting to discuss use cases and progress (meeting)
Monthly	Newsletter to share results across departments/plants/... (email)
Monthly	Steering committee to discuss status/feedback and drive actions (meeting)
Quarterly	User webinar to share best practices across departments/plants/... (meeting)
Quarterly	Quarterly business review with management (meeting)
Ongoing	Online user community to share experiences, ask questions, ... (community)



5

Work towards quantified results

The final key learning goes hand-in-hand with the first. While specific measurable goals will make it easier to assess the results at the end of the implementation, this should not be the first time you attempt to assess the value self-service analytics can bring to your company.

Even when adoption is high, the actual value of self-service analytics is not always easy to assess. It's therefore important to commence this process early in the project, starting right after the hands-on sessions.

Begin by taking a look at results from your use cases and try to determine the value being added. If this is not immediately clear, dive deeper into the cases to figure out what is needed to make this analysis. Gather all input in a working document for a value report to be finalised at the end of the project.

Business value of self-service analytics

INCREASE RESOURCE EFFICIENCY

Self-service analytics allows engineers to perform tasks more efficiently, solve more production issues, and implement improvements faster while avoiding manual work or time-consuming data exports. Consider what more could get done with the time being saved.

FIND ROOT CAUSES

Identifying root causes of process problems or setting up monitors to prevent issues from happening are typical use cases for self-service analytics in which the associated value is easy to calculate based on the impact of the problem.

ANALYZE PROCESS BEHAVIOUR

Impact analysis and hypothesis testing based on process data will lead to better conclusions and project justifications. Investments that may have seemed wise could prove to be unprofitable, and process improvements that may not have been previously executed could actually get implemented.

DRIVE OPERATIONAL PERFORMANCE

Process and asset experts can look into process optimizations without the need to build data models. Optimizing your production processes can lead to increased revenue, decreased costs, or controlled quality-to-market demand, all of which have direct monetary value.

INCREASE COMPANY-WIDE COLLABORATION

Self-service analytics tools enables global collaboration by making problems more insightful, allows users to share their work, and adds needed context to process data. Although the related value is hard to calculate, it should not be underestimated as it supports a culture of continuous improvement.

AIM FOR QUANTIFIABLE BENEFITS

Aim at quantifying results in terms of euros or dollars as much as possible to fully understand the benefits and convince your management of the success of the implementation.

Root cause analysis and process improvement cases might be the easiest to translate into value, but they are also the hardest to work on. Therefore, don't lose sight of the smaller cases as many small gains can add up. This way your analytics project might be part of the transition to becoming a value-driven organization.

SITECH SERVICES
We improve, every day

CUSTOMER CASE 5

Sitech, an engineering services company in the Netherlands, used TrendMiner to diagnose the root cause of peaks in chemical concentration in the washing unit that removes this component as it can cause too high temperatures in the downstream process. By comparing problematic periods with periods of normal operation and identifying the differences, the root cause was identified and remediating actions were taken. This lead to increased stable operation, increased production, and decreased steam consumption, amounting to a recurring annual benefit of €1.8 million.

→ **Want to know more?**
Check out this webinar recording.

Analyzing influence factors on product quality and the resulting actions increased the on-target production of GMP products at Ashland Doel from 70% to over 95% - an achievement for which the value is even clear without translating it into euros.

"We wouldn't be where we are today in overachieving our goals without TrendMiner."

Jan Meireleire
Engineering Manager at Ashland

Summary: Key learnings

Our experience with hundreds of use cases solved using our self-service analytics software has helped us determine which key factors influence successful results. By following these best practices, you should increase your chances for an equally successful implementation of self-service analytics within your organization. We welcome you to reach out to discuss these guidelines or share your own experience.

1. IDENTIFY CLEAR GOALS, TIED TO A LONG-TERM VISION

- Tie your SMART goals to a (corporate) vision
- Select use cases in line with these goals and your strategic challenges

2. START SMALL TO GROW FAST

- Start with a small group of key users
- Learn from successes and failures in a pilot before rolling-out

3. IDENTIFY THE RIGHT KEY USERS

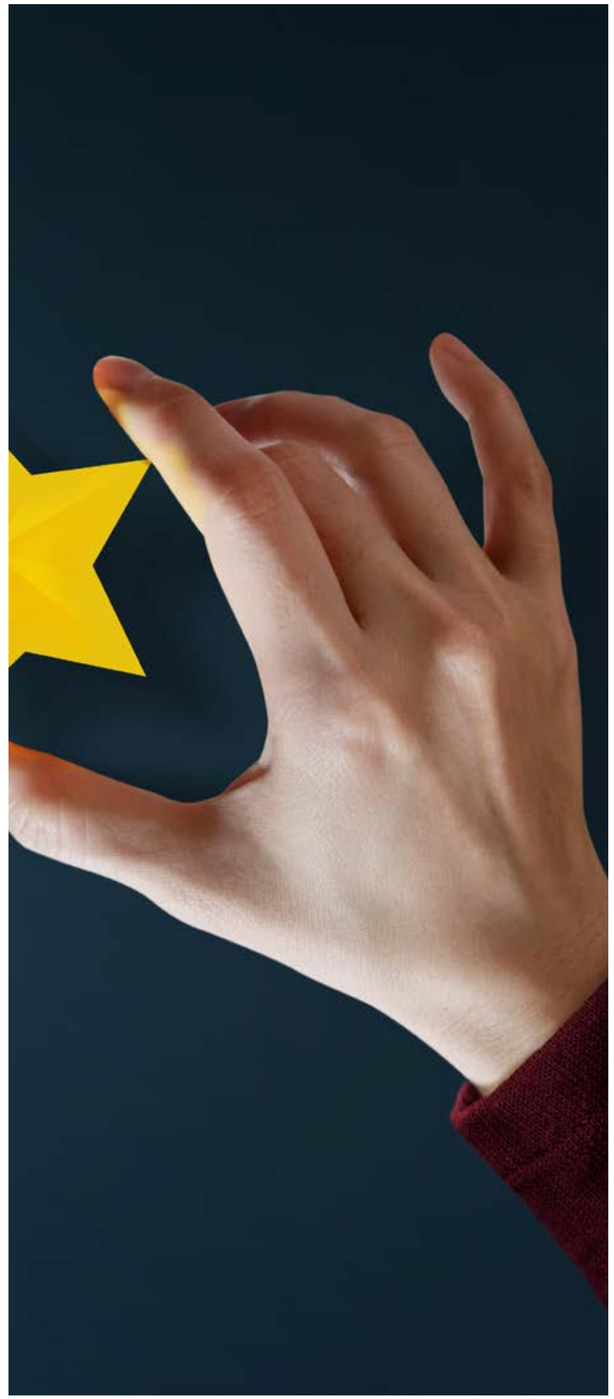
- Adhere to a pre-defined key users profile
- Work towards coaches on every plant
- Establish a steering committee to keep overview

4. COMMUNICATE PROGRESS FROM START TO END

- Communicate progress throughout the project
- Develop a structured communication plan

5. WORK TOWARDS QUANTIFIED RESULTS

- Keep focus on value
- Quantify results to fully understand the benefits



You can't get ahead if you don't get started

YOU'RE NEVER TOO BUSY TO IMPROVE.

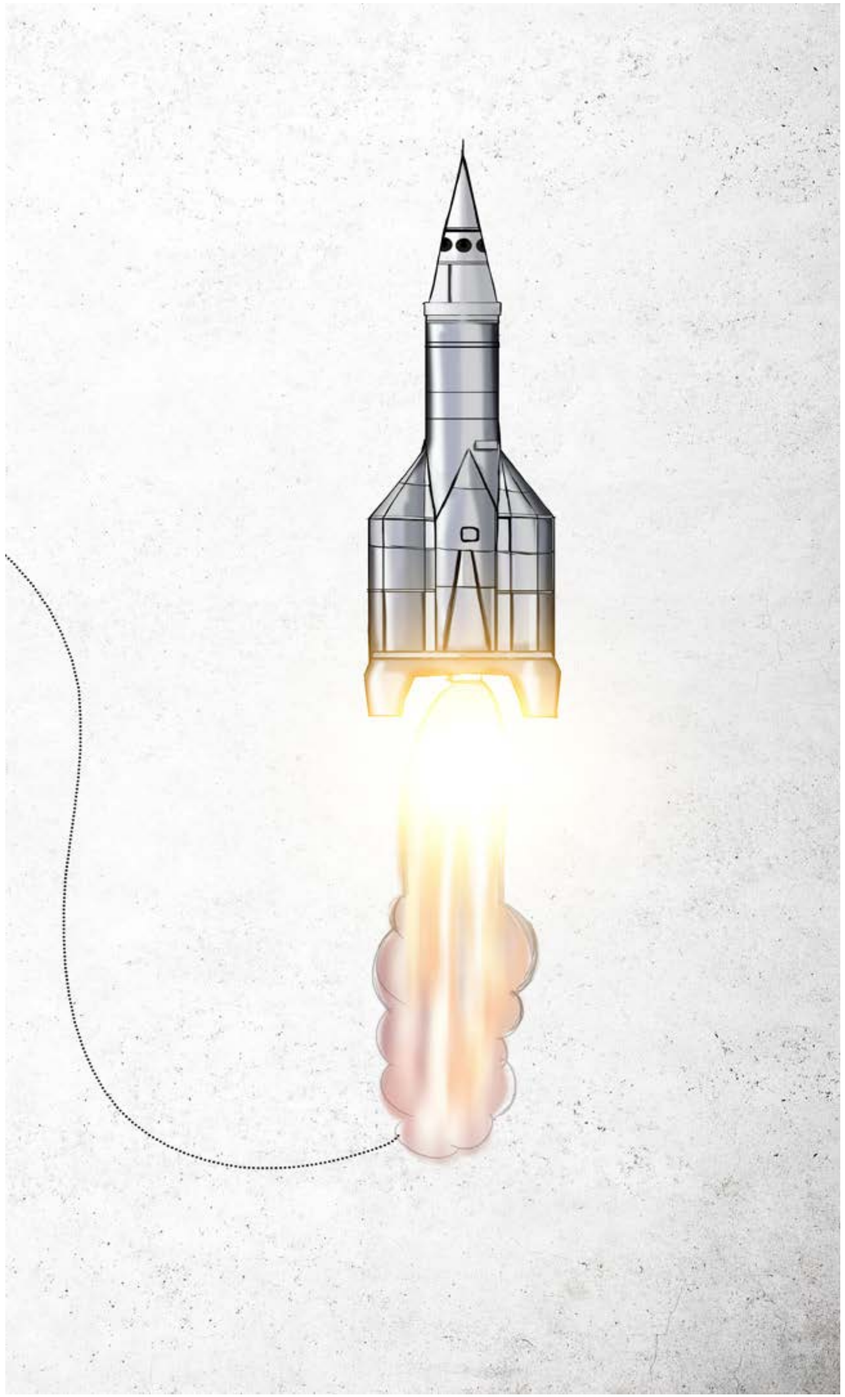
By making your process and asset experts more efficient with data analytics, you free up a lot of time to improve your operational performance. Sometimes it's necessary to take a small step backwards to make a huge step forward.

START ADDING VALUE IMMEDIATELY

Knowing the first steps are the hardest, TrendMiner has taken the feedback of her customers and the key learnings to develop a best practices on-boarding approach. We understand each production process is unique, and so are our customers. Therefor we adapt our on-boarding approach to your specific situation. The value of our software is often proven during the training phase. A double benefit; learning to leverage your new self-service advanced analytics tool and improving at the same time.

→ **Learn more about our approach to help you succeed on your digitalization journey.**

→ **Or contact us directly to discuss how to get you started with self-service advanced analytics**



About TrendMiner
Make better decisions, faster

SELF-SERVICE SOLUTIONS

TrendMiner is a software company that provides self-service analytics for the process industry. Our software helps users to analyze, monitor, predict and contextualize the causes of process performance. We put the power of the data into the hands of the people who understand what it means: the engineers. By giving engineers a self-service analytics solution we help them contribute to overall plant profitability.

TrendMiner was created by engineers who saw the need for specialized analytics for the process industry. They developed a user-friendly software platform that meets the high demands of time-series industrial analytics - but is designed to be used by non-data scientists.

Our software is designed to make better decisions, faster. No more waiting for long implementation projects. No data scientist required to interpret the "black box" of analytics. Just instant, accurate insights and trustworthy answers to your day to day questions.

INDUSTRIAL ANALYTICS

We help companies to optimize their production processes, increase plant productivity and improve the effectiveness of the assets.

We make it simple by giving actionable insights from analytics to the people who need answers: the engineers and operators in the plant.

With a self-service solution, our customers can find new ways to further optimize their production processes by harnessing the knowledge of their engineers and their historical process data.

We do this by providing analytics software based on advanced search technology built with pattern recognition and machine learning.

Our software easily connects with existing data sources and allows users to gain insights into their process data, monitor production and predict problems early on.

MORE INFORMATION

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www.trendminer.com

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