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# Accelerating Your Digital Transformation:

Bridging the Gap Between  
Aspiration and Reality

**Three-Part Guide to Using  
Manufacturing Analytics to Accelerate  
Digital Transformation**

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# Accelerating Your Digital Transformation: Bridging the Gap Between Aspiration and Reality

## Introduction

### 3 Step Guide

Digital Transformation looks different for each company, but the process is largely the same. In this guide, you will find helpful resources and practical techniques for advancing to the next stage of digital transformation at your organization.



## STEP 1

# Identify the Problem

Manufacturers understand the potential impact of a digital transformation but struggle with the question of where to get started. A successful journey begins with setting the foundation with manufacturing analytics. With a better understanding of processes and better control there are few limits to what you can do next. Manufacturing analytics technologies have many potential applications, like Machine Learning or AI, but many would like to skip ahead, forgetting the importance of identifying a single problem to attack before trying to implement something larger.



## STEP 1

# Industry Case Studies

## MANUFACTURING ANALYTICS

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### Chemical Use Case

**APPLICATION:** Reduce variation in critical chemical properties by delivering near real-time statistical alerts that key process parameters are off target and require corrective actions (e.g. concentration, pH, temperatures, pressure, etc.)

**BENEFIT:** Improve process capability (Cpk) to better meet customer requirements, increase yield and assist new operators with defined KPIs and associated out-of-control actions

### Pharmaceutical Use Case

**APPLICATION:** Reduce variation in critical chemical properties by delivering near real-time statistical alerts that key process parameters are off target and require corrective actions (e.g. concentration, pH, temperatures, pressure, etc.)

**BENEFIT:** Improve process capability (Cpk) to better meet customer requirements, increase yield and assist new operators with defined KPI's and associated out-of-control actions

## STEP 1



# Where to Begin Worksheet



Ask the following questions to help identify pain points and problem areas:

What problem do you want to solve?

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What are your Data sources?

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Who are your Subject Matter Experts (SMEs)?

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What parameters will you measure?

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What does success look like (increased yield and efficiency, improved quality, decreased costs, etc.)? \_\_\_\_\_

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# Overview & Evaluation

## FINDING & DOCUMENTING SUCCESS

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### FURTHER CONSIDERATIONS

Start by identifying a small problem that could be solved with analytics. A few things to consider when identifying a problem:

- Processes not functioning in spec, or frequently out of spec
- Processes that frequently cause alarms
- Prevalence of tribal knowledge versus protocol

Questions to ask when identifying a place to start:

How well do we understand our processes? \_\_\_\_\_

Where is our data stored? (Historian, ERP, MES, etc.) \_\_\_\_\_

How do we currently use our data? \_\_\_\_\_

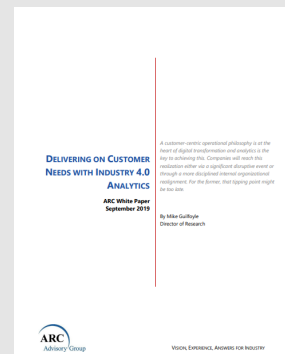
Is our data accessible? \_\_\_\_\_

What does success look like? \_\_\_\_\_

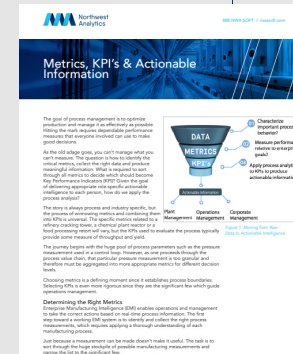
Do we have an existing manufacturing analytics project? \_\_\_\_\_

## More Resources

Please click on the image or text to be directed to the resource. Alternatively, you can copy and paste the URL.



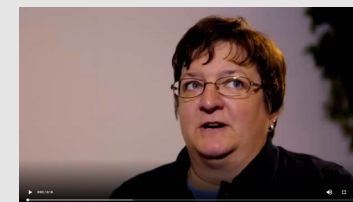
**WHITEPAPER:** [Delivering on Customer Needs with Manufacturing Analytics](https://bit.ly/34X0CiZ)  
(<https://bit.ly/34X0CiZ>)



**ARTICLE:** [Metrics, KPI's, and Actionable Information](https://bit.ly/3FzFJfO)  
(<https://bit.ly/3FzFJfO>)



**ARTICLE:** [What's Your Problem?!](https://bit.ly/3bW8K71)  
(<https://bit.ly/3bW8K71>)



**PEER PERSPECTIVE:** [Much Data is Collected, but Not All Data is Information](https://bit.ly/35W0VIO)  
(<https://bit.ly/35W0VIO>)

## STEP 2

# The Human Side of Change

Humans are notoriously change averse. And yet, humans can be the difference between a successful manufacturing analytics implementation and a failed attempt. Step 2 is focused on bringing together the right people to generate buy-in across all levels of the organization.



## STEP 2

# Identify Your Team

Creating the best team possible for your project involves starting with the end in The Human mind. Below, begin to define roles and skills needed.

Name	Role	Description
	Project Champion	
	Subject Matter Expert(s)	
	Change Champion	
	Management Support	

# Building Your Team

Building a successful digital transformation team involves a breadth of skill and knowledge across multiple disciplines. A successful team will be a blend of business, technology, process and people expertise.

## Roles:

- **Project champion or sponsor(s):** This person will effectively be the digital transformation lead and should believe in the goals and objectives of the project. While there can be multiple champions or sponsors, having an executive sponsor will be critical to the project's sustainability.
- **Subject matter expert(s):** Lean on the people who know your processes the best (e.g., operators, process engineers). Beyond simply asking for their inputs or knowledge, find ways to engage them in the project. Someone who is brought into the project early on will work a lot harder than someone who does not feel connected.
- **The technical engineer or IT:** This person will have a good understanding of the organization's IT infrastructure, how to work with it today, and what it might look like in the future.
- **The change champion:** This person will be a very effective communicator who can easily move from talking to enterprise leaders to the shop floor to advocate for the project from all angles.

## STEP 2

# Building Your Team (cont.)

### Soft Skills:

- **Clear communication** – even under the best of circumstances, communication across an organization, from the board room to the plant floor, can be challenging. Understanding your audience and speaking to the things that matter most to people is an asset.
- **Critical thinking** – digital transformation projects are often a thorny undertaking with little going exactly as planned, so demonstrating good problem-solving skills will serve the team well throughout the journey.
- **Collaboration** – most work environments are inherently collaborative already but taking on a project that transforms the way an organization does business will require everyone to listen to new ideas, take feedback, and be willing to share the project load.
- **Emotional intelligence** – a mixture of self-regulation, empathy and motivation will help the team to come together to accomplish some lofty, even extraordinary goals.
- **Flexibility and adaptability** – no matter how solid the plan, something will always go awry and when new challenges come along, being able to change course and pivot quickly will mean the difference between a dead end project and one that achieves its goals.

**Building the right team that can take on all the challenges of a digital transformation project is no easy undertaking. But keeping in mind the importance of soft skills as well as the roles will help you build a more effective team and greatly increase and enhance your chances for a successful outcome.**

## STEP 2

# Industry Case Studies

ROLE-BASED

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## Engineer/Operator

**APPLICATION:** Eliminate 3000 Excel charts requiring daily review by engineers (manually)

**BENEFIT:** With the right data at their finger tips, engineers and operators can move from reacting to issues after they happen to preventing them in the first place

## Plant Manager/Executive

**APPLICATION:** Top-level statistical dashboard indicating health of product/company

**BENEFIT:** Moving from a weekly report that takes hours to compile gives a 24/7 real-time look at health of product/business while retaining critical plant process knowledge within a software platform



STEP 3

# Choosing the Right Technology

Manufacturing analytics technology is abundant - it can be hard to discern differences between solutions. In this step, we explore key things to look for and how to find the right solution for your goals.



STEP 3



## Technology Needs & Considerations

Connectivity:

- Should access and leverage data from existing technology infrastructure through industry-standard technologies (e.g., OLEDB, ODBC, OPC, ADO.NET)
- Should not require specialty programming to adjust to underlying code for each needed data source

Scalability:

- Analytics should be easily extended across different lines within a plant, as well as across multiple plants (horizontal)
- Accessible to all levels of an organization including operators, plant managers and upper level executives
- Should include operational guidance outputs specific to the user's role, driven from the same data
- IT can make simple adjustments

Sustainable Technology:

- Long term-effectiveness factors should include:
  - No required special coding
  - User-managed system (not an expert-only technology)
  - Limited IT involvement subsequent to establishing the initial data source connections
  - Easily understood by all user levels and easily changed to evolve application of the analytics
  - Enable users to easily expand and apply analytics to new process areas
- Easily understood analytics visualizations that deliver immediate clarity toward how analytics driven changes impact processes

Other Considerations:

- Are the analytics well documented and characterized? Are they appropriate for the problems your organization is trying to solve?
- Is the technology commercially available? If so, is it likely to be available and supported in the future?
- Is the technology secure?

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## STEP 3

# Essential Questions to Ask When Determining Technology Needs

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- Does the solution leverage data from your existing technology infrastructure?
- Does it require specialty programming?
- Is it scalable across the organization and available to (and understood by) multiple roles including operators, plant managers and upper level executives?
- Does it provide operational guidance outputs specific to the user's role?
- Can IT make simple adjustments?
- Can you easily expand and apply the analytics to new process areas?
- Does it produce easily understood analytic visualizations?