



pluto^{shift} AI

3 Onboarding Hacks for **AI PLATFORMS**





Getting Started With An Artificial Intelligence Platform

Transforming operational data into industrial intelligence doesn't have to seem impossible.

To some, AI can sound like an expensive investment that is unlikely to deliver on the hype. For others, the prospect of another long, enterprise-wide technology project feels like an overwhelming undertaking with a huge chance for failure.

Implementing an AI platform to produce operational intelligence can be a significant challenge. We've been there—and we know what obstacles you will face. The good news is we have uncovered the right techniques to set you up for success.

This guide is intended to help you navigate your digital transformation journey and quickly realize the very real and tangible benefits from using an AI platform to monitor physical infrastructure.

PROBLEM

The Problem: Pilot Purgatory

What are we hearing from all of you on this topic? A Plutoshift survey of more than 500 industrial professionals from across verticals asked about their experiences with digital transformation—specifically, whether or not current strategies are working, if they’ve had to pivot their strategies, and if they were open to new ways of implementing digitization.

The traditional transformation method, a top-to-bottom approach, attempts to make sweeping changes to all aspects of the company. It tries to rapidly advance multiple workflows at once. The survey found that, while a vast majority of industrial companies take this traditional approach, very few think it is the most effective path.

In need of a better strategy, companies are looking toward an Op-Specific approach to digital transformation. More than 50% of survey respondents had already started to explore this option and early efforts showed promising success. And 94% said they’d like to do more with their digital transformation efforts.*

These are some common pilot purgatory phrases:

- ✗ “Let’s throw it against the wall and see what sticks.”
- ✗ “This project is the new flavor of the month.”
- ✗ “But we’ve always done it this way...”
- ✗ “We’re biting off more than we can chew.”
- ✗ “Maybe we should cut bait, count our losses and move on.”

94%

said they’d like to do more with their digital transformation efforts

*Source: *Instruments of Change: Professionals Achieving Success Through Operation-Specific Digital Transformation*. www.plutoshift.com. Jan. 2020

SOLUTION

The Solution: An Onboarding Roadmap

We know that using a structured and repeatable approach gives clarity to the overall direction and reasoning behind the methodology. Following simple steps, in a logical manner, with specific success metrics, can make all the difference between a project being completed on time and within budget.

The goal with these strategic hacks is to provide a framework that is easy to follow, is simple to explain, and is flexible, scalable, and practical.

1

Hack #1: Do the homework.

Completing this hack first allows you to do things in the right order and avoid the ever-so-common planning fallacy phenomenon. This foundational step sets you up to spot issues, find connections between items and pivot as needed to collect critical information before it's too late.

Begin by gathering information around these fundamental components:

- **The Data** - what data is available and how accessible is that data?
- **The Budget** - how much money is allocated and what are the financial metrics for success?
- **The Team** - how many people are on the project and who should be involved?
- **The Culture** - what are the current competency levels and how ready is the organization for change?
- **The Risks** - what are the common obstacles and roadblocks for successful deployment?



2

Hack #2: Lock in on a specific use case.

Before launching any AI initiative, there needs to be a very clear desired outcome. Factors such as scope, size, scalability, type, complexity, objectives and timing should all be discussed as potential use case inputs. The most desirable use case is one that can immediately drive a large impact on the business. Perhaps it can directly increase revenue and/or margins for the company. That kind of use case will help facilitate conversations with key project leaders and bolster credibility. Both things will move the project forward with less resistance.

3

Hack #3: Create a success template.

The main reason you're deploying AI is to drive a specific outcome, one that is measurable and has a direct impact on the business. Once the outcome from the first use case is achieved, the final step is to make that success repeatable and scalable. This typically starts with a project post-mortem which gives everyone involved the chance to look in the rear-view mirror to see what worked best, how the project succeeded, what people made it possible, and how it could be done better in the future. After a unique, company-specific playbook is developed, then the AI platform is ready to be scaled to other areas in the organization.



Hack #1: Do The Homework

Crawl. Walk. Run.

As the saying goes, “Haste makes waste.” The time you spend upfront planning and actively searching for relevant information will eventually pay off in dividends. This part of the overall strategy involves being resourceful, digging into the details, and problem-solving.

THE DATA

When it comes to company data to produce insights via an AI platform, one of the first steps is to assess data quality. Some of the quality checks should include:

1. **Consistency:** There shouldn't be any contradictions within the data.
2. **Accuracy:** The data should reflect reality. The machine learning model will assume that the data is true to make a prediction. If the data itself is inaccurate, the machine learning model will be flawed.
3. **Relevancy:** The data should be relevant to the use case. Machine learning can't do much with high-quality data if it's not relevant.
4. **Audibility:** We should be able to trace the changes made to the data. By understanding the changes made to the data over time, you can detect useful patterns.
5. **Completeness:** Fragmented data is one of the most frequent causes of subpar performance. In order to drive a use case, you need all elements of the data. Data completeness allows machine learning models to perform better.
6. **Timeliness:** If something is happening in the real world, the data collection system should be able to get that data into the hands of the end-user with minimal latency.
7. **Orderliness:** The data should have a fixed structure and format. Data format plays an important role in building scalable products.
8. **Uniqueness:** Data shouldn't be duplicated. There's no reason to store it more than once. It occupies more space and doesn't serve any purpose.



HACK #1: DO THE HOMEWORK

THE BUDGET

Managing conversations around the budget allocation for a technology investment can be challenging. Decision makers are typically concerned with how the contract will be structured, how the investment will impact the P&L and how soon the technology will provide a measurable ROI.

PlutoShift customers typically discuss the pros and cons of the investment being classified as Capital Expenditure (CapEx) or an Operational Expenditure (OpEx). We take this as a good sign because it means that technology has become an essential part of the strategy and company's future. To help refine the financial discussion, below is a high-level breakdown of the major differences between the two types of expenditures:

CapEx

Upfront investment made by companies for long-term assets

Asset depreciates over time and is deducted on an amortized basis over the asset lifespan

Does not show up on the P&L

Usually 3+ years or longer project

Higher levels of budget approval are typical

OpEx

Day-to-day operational expenses that support the business

OpEx expenses are ongoing and deductible in the tax year when the expense is incurred

Shows up on the P&L

Typically for pilots or shorter-term projects

The low initial cost means that budget approval is faster



HACK #1: DO THE HOMEWORK

THE TEAM

The success of an AI endeavor goes beyond evaluating the accuracy of the AI solution. When evaluating a new AI solution, get the right group of people who can make it successful. From our experience, there are 7 roles within a company that are critical in driving ROI and creating business value using AI:

1. Leader who owns P&L. This person directly benefits from increasing profitability. Within a big company, you need a strong leader who has the tenacity to look for business opportunities and be the authority that can implement new solutions.
2. Trusted Lieutenant who owns the tactical plan. He or she will drive resources towards these opportunities. This person is good at gathering consensus and making sure everyone stays focused on a given opportunity.
3. Process Analyst who identifies the data needed. This person will identify what data is needed to bring this opportunity to life. They know what data is being collected across various processes and can connect the process knowledge to the data.
4. Software Engineer who moves the data. He or she can extract the relevant data in a standard format. This person knows how to access the data and enables a smooth data transfer in an automated manner.
5. Architect who knows how to integrate. This individual will figure out the best place for the new solution within their existing infrastructure. Good AI solutions enhance the current architecture without ripping anything out.
6. Manager who has a small team. This leader reports to the Lieutenant and manages a close-knit team. This team is responsible for getting the day-to-day work done. People on this team are the primary users of the new AI solution.
7. Best Performer on that small team. This individual on the team reports to the Manager. This person can help bring the solution to life given that they are likely a rising star in the organization.

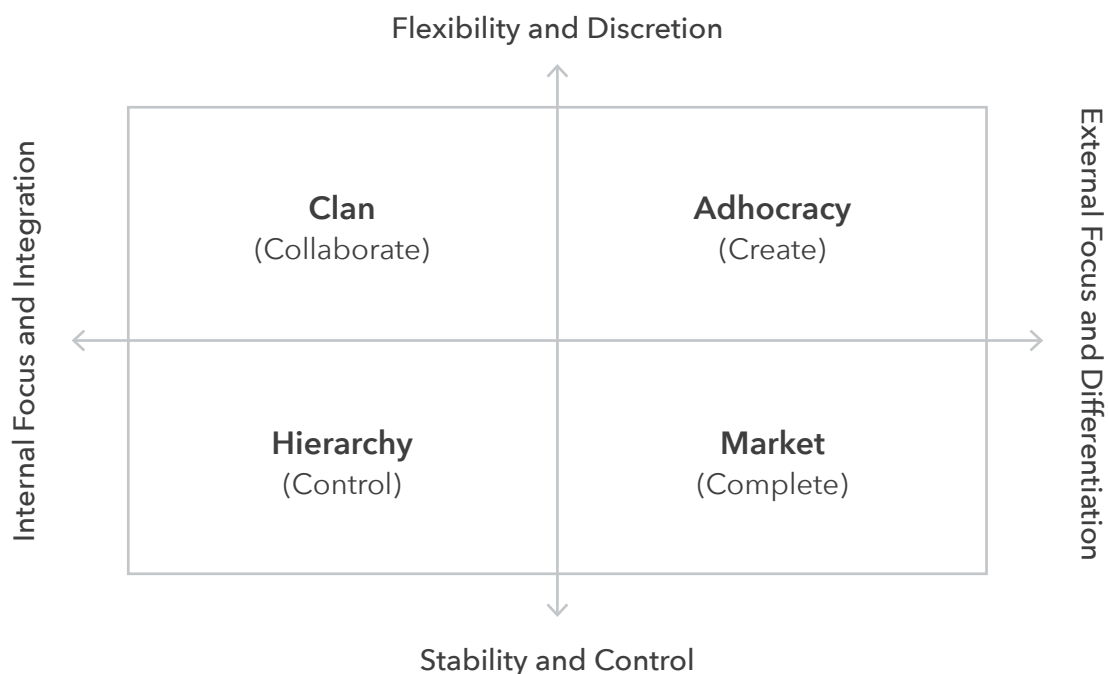
THE CULTURE

You need an AI delivery platform that actually helps the human element break out of the “status quo” loop of frustration. But achieving this kind of success only happens through the people—not without, around, or by force.

Several studies suggest that the most frequently cited reason given for any given project’s failure was a neglect of the company’s culture. In other words, failure to change the company’s culture catastrophically impaired the other kinds of organizational changes that had already begun. This makes completing a culture assessment and constructing an organizational profile imperative. One way to begin creating awareness for the current state of the company’s culture is by looking at the Competing Values Framework.

The Competing Values Framework was developed initially from research conducted on the major factors of effective operations. After the data was analyzed, two dimensions and four quadrants emerged to represent the set of organizational effectiveness indicators. One can quickly look at this chart and begin to see where their company is plotted on the map. This is an important first step in evaluating the need to change the current culture to adapt to changes required to make the platform and its performance successful.

These initial culture observations can provide a starting point for moving ahead with necessary changes. Organizational culture needs to have some compatibility with demands of the current market environment as well as the company’s strategic goals. Otherwise, sustainable progress and continuous improvement will be a bigger challenge in the long-term.



Source: Cameron, Kim; Quinn, Robert. “Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework”



HACK #1: DO THE HOMEWORK

THE RISKS

A company needs many tools to manage its business. Even though the core focus of a company should be its primary offering, people within the company often feel the need to embark on efforts to build those tools internally. One such example is building AI platforms from scratch. If a company needs a tool daily, they're tempted to build it in-house and own it.

They can certainly build the tool, but is it a good use of their time? Another group within the company feels that the build-it-yourself path is too long and that they should just buy existing software products from the market to run their business. How do you evaluate if you want to build it yourself or buy an existing software product? How do you ensure that you're positioning the company for success?

These are a few tradeoffs to consider before making the decision to build versus buying an AI platform:

- **Time sink:** Companies that can afford to consider building AI software in-house are usually large. From what we've seen, it takes 3 years to go from conceptual idea to production-ready software. For a company whose primary product is not cloud-based software, you'll position yourself for success if you invest your efforts in understanding how to choose the right software as opposed to figuring out how to build everything from scratch.
- **Talent churn:** A company can attract top talent for areas that drive its core business, but it will face difficulties in attracting top talent for AI software. Even if they hire software talent, the churn will be high. Due to this churn, the software that is built in-house will become clunky over time because nobody has a complete understanding of what's happening. This will render the asset useless because people internally can't (or won't) use it.
- **Distracted strategy:** Successful companies are focused on their core product to the exclusion of everything else. Their expertise in this area enables them to generate high ROI. For everything else, they get experts to do the work. If the company does the work in every single area, their ROI would be very low.

#2

Hack #2: Pick The Use Case

Selecting the right use case is very important. Whether it's a global brewery looking to drive down operating costs, or a large chemical manufacturer wanting to see a decrease in equipment downtime, the initial use case should have a clear end-goal in mind. Then the business should evaluate the use case on criteria including scope, size, scalability, type, complexity, objectives, timing, and value/ROI.

These are some of the most frequent use cases for an operational data platform:



WATER & WASTEWATER TREATMENT

- Monitoring the energy consumption of a wastewater treatment plant.
- Monitoring the performance of resource consumption for water-related clients.
- Monitoring the energy performance of mobile water treatment units.
- Monitoring the sizing process of membrane systems. Sales productivity and new revenue focus.



FOOD & BEVERAGE

- Monitoring the energy and water performance at breweries.
- Monitoring the refrigeration energy performance at a brewery.



CHEMICAL

- Monitoring the chemical performance of water treatment units.
- Monitoring the chemical consumption and water usage performance at a site.



OIL & GAS

- Monitoring the chemical dosage performance at a wastewater plant.
- Monitoring the chemical inventory performance at drilling sites.
- Monitoring the performance of midstream water operations related to transportation and disposal costs.



MANUFACTURING

- Monitoring the performance of product inventory and transportation systems.



HACK #2: PICK THE USE CASE

Example of pain points

“What keeps you up at night?” This is a common question designed to uncover the truth about a decision-maker’s common worries and fears. Despite an individual’s organizational level, location or direct line-of-sight to front-line operations, the people responsible for developing and implementing a technology strategy have similar concerns about performance, the people, the products, and their own ability to deliver on their promises.

Fully functional operational data platforms built on machine learning and AI can offer a level of predictability and reassurance that other programs and processes simply can’t match.

Below are some of the most common problems we see our customer trying to solve for:



Why is the energy consumption spiking up at the plant?



How do I estimate if resource consumption is going to spike up in the next 3 days?



Why is my water recovery percentage dropping?



Are we over-ordering chemicals for the site?



How do I create reports based on data across multiple systems?



How can I predict the maintenance schedule I need for our ten locations?



When do I clean my membrane next?



Are we spending too much on water treatment?



How do we better predict our chemical needs?



#3

Hack #3: Create a Success Template

We already know that the most successful and innovative companies are picking a process, or a workflow, and digitizing that first. Then, they are scaling it across the company. This is what Plutoshift calls the Op-Specific Approach. It's what has turned our customers into digital transformation champions.

Once you successfully execute on a particular workflow, it's time to replicate it with more workflows across the company. An initial use case would not be useful if it can't be scaled. (Refer to Hack #2.) And before empowering the AI platform with additional use cases, make sure the data infrastructure supports deploying a wide range of workflows. A good platform already has the necessary data infrastructure built into it. This will enable the creation of many workflows without a problem.

Creating a success template really involves taking an in-depth look back at the implemented use case to understand why and how it worked. Those lessons learned can then be applied to the next use case, and the next one, and the next one...

Here is a framework that can be used to help facilitate the conversations around creating a success template:

| | | |
|---|---|---|
| Members of the project review: | | |
| What were the objectives of the use case? | What were the achievements as measured against the success measures/KPIs? | What worked well that should be repeated in future use cases? |
| What didn't go so well that needs to be improved in future use cases? | Who are the next group of individuals that need to be involved? | How often are the certain tactics needed to achieve overall deployment success? |
| Suggestions or additional observations: | | |
| Action Item | Who | When |
| | | |
| | | |
| | | |
| | | |

CONCLUSION

Onboarding an AI platform doesn't have to seem impossible.

- **Start by developing a strong understanding of your data**
- **Set expectations for how far that data can take you**
- **Lock in a very specific use case**
- **Align with your organization**
- **Create a successful template**

Once you have assessed your data, set expectations on how far that data can take you.

The next step is to lock in on a very specific use case (i.e., chemical dosing, RO optimization and maintenance, pump fault detection, boiler optimization.) Start small to ensure success and user adoption.

Align with your organization and pick the right partner to understand the use case objectives and expected outcomes and help you implement a PoC. Supporting it is an alignment on scope, size, scalability, type, complexity, objectives, and timing so there are no disconnects on expected outcomes.

The last step is to create a success template to scale the benefits across the entire organization. This involves discovering what worked, what made it successful, how it was implemented and other project success factors that can be repeated.

BONUS HACK:

For more information about an operational data platform built on AI and machine learning, visit the Plutoshift website at www.plutoshift.com.

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