DOZUKI

CREATE THE FRONTLINE OF THE FUTURE

Exclusive Insights on the Dramatic Evolution of Manufacturing Technology

We believe it's part of our mission to formulate clear insights into the future of this industry.

And in the next decade, we foresee technology evolving dramatically faster than most expect, and it will radically change the manufacturing landscape.

Dozuki has spent the last decade helping hundreds of industrial businesses across the world develop and scale their frontline digital transformation initiatives. We talk to leaders every day who are tackling digital projects, but have no idea where to start when it comes to the frontline workforce. Many manufacturers have only scratched the surface of digital exploration. There is tons of work to be done to tie frontline workers, processes, and their systems together to operate at maximum efficiency.

This ebook is a manufacturing curriculum designed for teams seeking to improve their operations. By the time you're done reading, your team should be better equipped to operate efficiently and effectively in the manufacturing industry.

CONTENTS

PART ONE: HISTORY

What Is The Frontline of The Future?

The Critical Intersection of People, Process, and Production in Manufacturing

The frontline of the future is connecting people and processes with digital solutions for communication, standardization, training, reporting, and more. Here's the model we use both internally with our team, and externally with our customers.

This model dispels the pervasive myth that technology will automate you out of people in manufacturing. That's patently untrue.

People are an invaluable part of the process. Here's proof:

- According to an analysis by Kearney, 72% of tasks in the factory are still performed by people. People aren't disappearing, they're simply evolving. All species do it.
- NAM's analysis showed that 77% of firms are having difficulty attracting and retaining talent
- Deloitte's report showed that 68% of manufacturers believe there is a skills shortage in the industry
- McKinsey's guide on people power showed that 97% of digital transformations that don't engage the frontline fail.

In our experience, if you're starting with technology, you're starting wrong. The most successful and sustainable manufacturing companies start with people, and the technology comes later.

And before they do so, there are large forces to consider.

Evolutionary Forces Manufacturers Are Fighting

A key driver of the frontline of the future is timing. Numerous outside forces have converged to bring us to this critical moment in manufacturing history. In the past few years alone, there has been a confluence of social, economic, cultural and financial factors at work.

Consider the ever expanding list:

- Consumers reshaped habits in the pandemic
- Covid shutdowns created global supply chain disruptions
- Aging manufacturing workforce is leading to talent and knowledge loss
- Plant managers are fighting employee absenteeism and low retention
- There's a batch of macroeconomic and regulatory headwinds increasing costs
- Operations managers struggle to retain young, engaged, self-sufficient frontline workers
- Labor has become more expensive and requires efficient, cross trained teams
- Geopolitical conflict has accelerated the reshoring of manufacturing
- Government reshoring demands more efficient technical training
- New technology is ushering in the fourth industrial revolution

Everyone is starting from behind.

And yet, manufacturers can't solve this problem by throwing more technology at it.

Slapping an augmented reality headset on every frontline worker isn't the answer. The concept of smart glasses on frontline workers is many years out into the future. Right now, it's about layering familiar technology and digital solutions on top of the manufacturing organization.

We believe the frontline of the future relies on current technology widely adopted today, not future technology that will be widely adopted thirty years from now. The frontline of the future relies on comfort with technology. Teams will thrive when companies meet them where they are.

Manufacturers (just like any company) can easily over engineer digital solutions. They might try to solve a quality problem with smart glasses, but then go overboard with the tech. And wind up with more process waste than they started with.

To paraphrase the wise philosopher, The Notorious B.I.G., "Mo tech, mo problems."

But the industry is evolving.

The New York Times recently published a piece titled, Factory Jobs Are Booming Like It's the 1970s, and the numbers show U.S. manufacturing is experiencing a rebound, with companies adding workers amid high consumer demand for products:

"American manufacturers cut roughly 1.36 million jobs from February to April of 2020, as Covid-19 shut down much of the economy. As of August this year, manufacturers had added back about 1.43 million jobs, a net gain of 67,000 workers above pre-pandemic levels."

Dozuki is privileged to work with these remarkable and resilient manufacturing companies. It's clear to the leaders we work with that frontline digital transformation is essential to future success.

And as your company pursues digital goals, we're thrilled to be joining you on that journey.

We hope this introductory lesson has given you context for what the frontline of the future is, and why it's necessary.

In our next chapter, we're going to dig into the meat of this ebook, starting with our favorite word in the manufacturing vocabulary. Process. Stay tuned!

PART TWO:
PROCESSES

Process is more than a series of actions or steps taken in order to achieve a particular end. It's a vision for collaborative problem solving. A human centric horizon that creates operational leverage for the entire organization.

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Digitizing Your Processes

Mastering the Art of Process

Disconnected paper systems are preventing valuable efficiency gains.

In order to operate at maximum efficiency, manufacturing companies need to start from the fundamental core of what makes manufacturing work, process.

But in our industry, process is much more than a series of actions or steps taken in order to achieve a particular end. It's also a vision for collaborative problem solving. Process is a human centric horizon that creates operational leverage for the entire organization.

And yet, outdated, inefficient and even nonexistent processes seem to be the norm.

Digitizing Your Processes

Just recently we spoke with one of our customers, who runs a large transportation company. They've been in operation since the late seventies. We spoke with the director of IT, who has hundreds of employees and hundreds of million dollars in revenue. And she explained that only a few years ago, they were still acting like a mom and pop shop, as far as their processes went.

We see it all the time:

Documented standards: Few to none.

Process strategy: Not for creating or updating.

Revision control: Limited options and low distribution.

Content types: Walls of text and low quality photos.

What's your version of this? Think about the standard for how process updates are distributed to front line workers. Do you have nothing at all? Does it depend on the supervisor? Do you have a paper log to track when versions are removed from circulation?

Embracing the Future of Process Improvement

2025

2026

2027

2028

2029

2030

BY 2025

Universal strategy for creating processes

All processes have a documented standard

Reviewed with operators once a year to seek improvements

Consistent templates and formatting using photos and video

Version numbers are updated in the document name and we track that

BY 2030

Created on the floor, on mobile devices

Digital standard work audits for processes

A purpose-built format and template is used for all documented processes

Reviewed with operators at least once a quarter to seek improvements

System automatically updates processes and restricts old versions from circulation

Is your process ready for the frontline of the future? Here's what we recommend:

Leverage young workers to reach legacy workers.

If your process documentation is subpar or nonexistent, use your incoming workforce to document processes being done by the outgoing workforce. Remember, every facility has both experts and non-experts, and now they can collaborate. If your legacy workers have spent their careers not documenting, that means they will not start doing it just because you told them to. But the young workers who have boundless curiosity and energy will. Ask them to record and codify those processes. Veteran workers will feel honored to have their ideas captured, younger workers will get training, and the organization will not have to worry about tribal knowledge leaving the building inside certain workers' heads.

Embrace the productivity of constraints.

All of Dozuki's Guides look the same. No matter who builds it, and no matter which company uses it, there are only so many bullets and words available. This keeps instructions tight, lean and focused. We intentionally built our product to have such constraints, as it gives workers a standard framework for building processes. This ultimately leads to a unified strategy to leverage tribal knowledge. Whether you use Guides for procedural standards; or Wikis for knowledge capture, all the relevant information will be concise, accurate, updated and accessible to all.

Enlist third party support to do the heavy digital lifting.

If you're faced with the massive undertaking of transferring paper documents into guides, we've got your team covered. Many of our customers come to us with five hundred processes, and simply don't have the manpower or time to dedicate to those projects. Dozuki's Professional Services team of technical writers who take on that endeavor. They will come on site and help put your processes into proper format for maximum usability. Dozuki's document conversion services provide customers with an efficient and trouble-free way to launch new and existing work instructions to the platform.

Remember, if you tap into the resource of tribal knowledge, you not only make your company more agile, but more resilient, so you're not so dependable on individuals. You can really share knowledge and make sure that everybody within the company as well.

Extend the authoring capability of the majority of your instructions to people on the floor. Soon you'll have a process for your process, ensuring your frontline of the future is resilient, adaptable and able to support the evolving industry.

Now that you understand process, the human centric horizon that creates operational leverage for the entire organization, our next lesson will be about accessibility.

PART THREE:
ACCESSIBILITY

Manufacturers that don’t provide broad access to essential knowledge are at a significant deficit. This form of content debt comes at a very real and very expensive cost, both at the frontline and managerial level.

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Accessibility Creates Profitability

Access Granted: The Crucial Role of Permission in Digital Transformation

The logical next step in this progress is to talk about who can see what, aka, accessibility.

Manufacturers that don't provide broad access to essential knowledge are at a significant deficit. This form of content debt comes at a very real and very expensive cost, both at the frontline and managerial level.

When companies lean on legacy document management systems (see also: dusty binders) that makes it difficult and time intensive for employees to access standard work instructions. Tribal knowledge needs to be accounted for and made available to all. Teams that aren't intentional about getting what's inside of people's brains out and into an accessible and useful form, can't scale.

Accessibility Creates Profitability

Another customer of ours, a beverage manufacturer that's come a long way from their old ways of inaccessibility, shared a delightful story about this issue:

"This is the first time that I've done a project where more and more people volunteered to join the pilot. We started in one area of our warehouse, but have since expanded now to all logistic departments. Now team leads came to my desk asking to get access and try out this new digital platform."

If only that was the standard when it comes to accessibility. More than not, it looks like this:

Format:
Only available on paper, maybe a pdf if you're lucky.

Viewership:
Often requires supervisor assistance to see production processes

Distribution:
Documents are cumbersome to share, particular as physical objects

Manufacturing's Fourth Industrial Revolution:The Future of Digital Accessibility

BY 2025

Procedures, SOPs, and training will accessible from computers or tablets

All knowledge will be stored in a purpose built system

Documents will be quick to access with search or bookmarks

BY 2030

Procedures, SOPs, and training materials will accessible from mobile devices

No more waiting, with instant access via optical recognition or a code scan

Is your accessibility ready for the frontline of the future? Here's what we recommend:

Move away from paper based solutions.

The worst case scenario of accessibility is not only using paper documentation, but storing in a different room than the factory floor. And understandably, many manufacturing environments are such that paper won't survive. If you work in food processing, chicken fat might splatter onto your work instructions. If you work in heavy machinery, binders may catch on fire from three and four digit degree temperatures. Point being, your training material needs to be digital, but also available right there on the floor. Not in a series of unnamed folders deep inside the archives of your shared network drive where people aren't comfortable navigating. But on multiple tablets that provide operators a simple way to access the procedures. Just remember, complicated is almost as bad as inaccessible.

Install digital codes on machines.

Imagine the production manager at a facility where the frontline staff is not English speaking. Workers haven't used tablets much before in previous jobs, and they're required to perform a task on a wiper gasket. But they don't want to search through a digital breadcrumb trail through folders. Dozuki users benefit from instant communication of procedures via a quick scan of a QR code. Create a code for any page, stick it on the machine, and now the worker can scait it and go straight to the process for the machine. You can even use multiple codes for each machine, one for operating training instructions, one for maintenance, one for training and one for safety. No searching, no mystery and no using the wrong outdated procedure.

Get support for hardware acquisition.

Dozuki has created the most comprehensive resource on the internet for rolling out a fleet of tablets in industrial and manufacturing environments. Learn about the benefits of tablets, how to evaluate them, which ones have our highest recommendation, and which accessories are the best fit. Additionally, our team regularly consults with facilities and even helps them acquire the hardware and build the QR codes themselves. Our customers ask our sales and customer success teams about tablets all the time, and we've got answers ready for you. PS can help with hardware acquisition. We told you we got your back!

Ultimately, digital transformation is a function of access.

Manufacturers that don't make procedures accessible are at a significant deficit.

With Dozuki, we ensure your team's tribal knowledge is accounted for and made available to the right people who will benefit from it most, when they need it the most.

Now that your process and accessibility are getting into proper shape, you're ready to level up your frontline training.

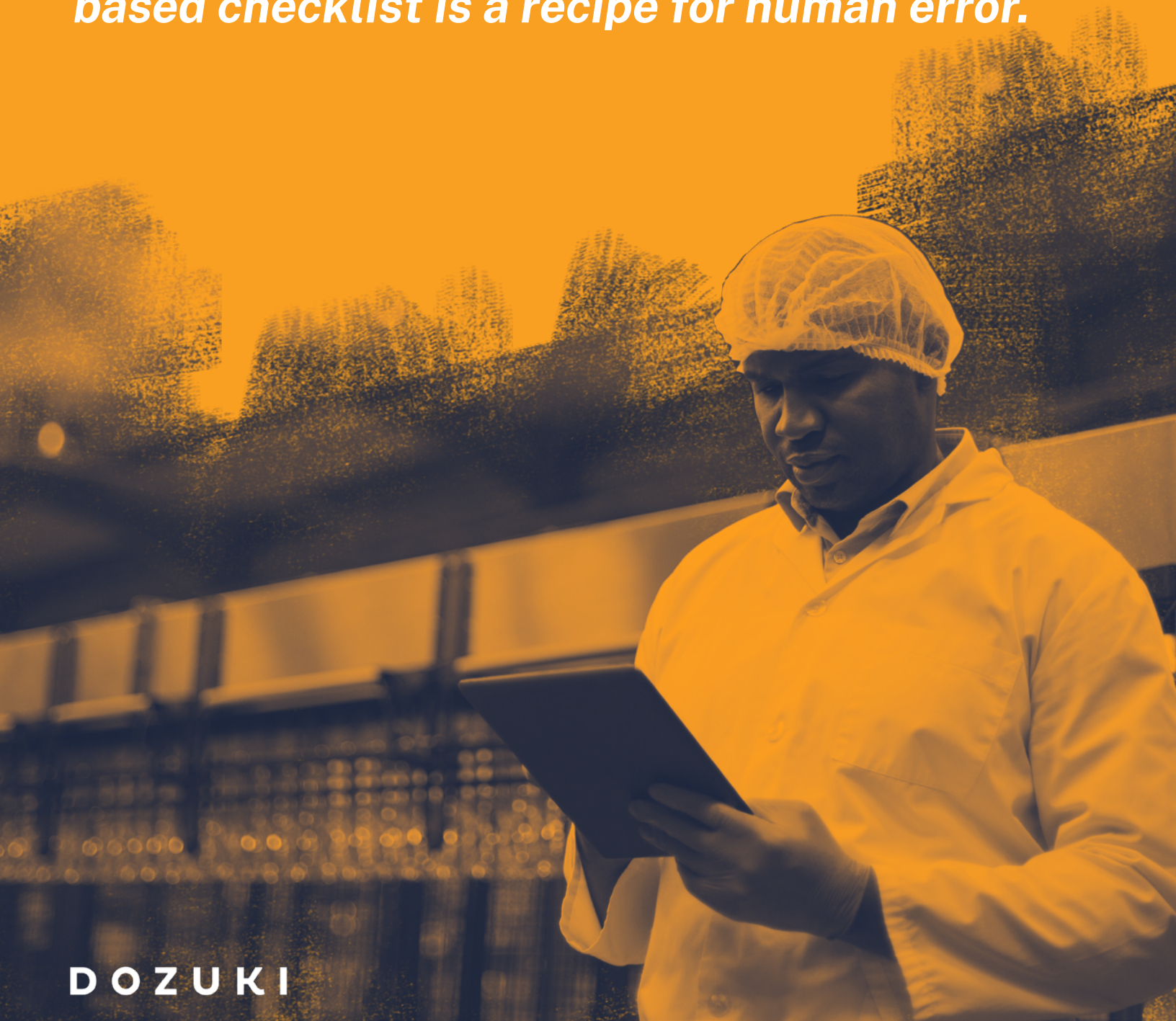
CREATE THE FRONTLINE OF THE FUTURE

Optimize your workforce with expert knowledge delivered through simple, accessible, and engaging training programs. We help you achieve frontline digital transformation with our proven and scalable Dozuki Process framework.

LEARN MORE

PART FOUR:
TRAINING

Job shadowing and classroom training are better than nothing. But competency based on time spent watching other people work isn't enough. Manually tracking with a paper based checklist is a recipe for human error.



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Training Is The Force Multiplier

12.5 Million Strong: The State of Manufacturing Employment in the United States

That's just eight percent of our nation's employment.

And yet, it's still hard to retain those workers. Particularly for companies who aren't pursuing digital transformation goals. Manufacturers often lose promising new workers because of poor training.

Human resources managers in nearly every industry have heard or seen firsthand horror stories of new employees coming to work on their first day, but not coming back from lunch. Mostly because they didn't receive proper, or even any training.

Thus far in our curriculum, we covered manufacturing history, process and accessibility.

Now it's time to talk about the great force multiplier, training.

Operators will be sent to the floor with no experience or skills, make an embarrassing or expensive mistake, feel disempowered and simply not return to the line after lunch. It's heartbreaking, and the workers aren't to blame.

Training Is The Force Multiplier

Here's an example from an agricultural manufacturer, whose former frontline employee left an illuminating review:

"They expect you to learn so much, but it's very confusing. It's not clear on what management wants you to learn, and everything is a treasure hunt to get skill blocks done. Working here is not worth it. High turn over rate. I've seen ten operators quit in the last year."

Now, many manufacturers offer job shadowing and classroom training, which is better than nothing. But competency based on time spent watching other people work isn't enough. And manually tracking with a paper based checklist is a recipe for human error.

Do you have a standard role based training process?
And a standard evaluation of competency?
Or is your training support limited to, "Just go ask Roger, he knows everything."

Revolutionizing Frontline Training: A Vision of the Future in Manufacturing

BY 2025

Standard training process for new employees

Evaluation based on self-led assessments and in-person training observations

Tracking is done manually in spreadsheets

BY 2030

Automatic training assignments

Automatic notifications for expired training

Updates automatically require re-training

Tracking is automatically tracked and visible in a purpose-built tool

To create the frontline of the future, here are our training recommendations:

Move beyond traditional shadowing to robust education.

Most facilities we speak to offer job shadowing as their training. Which is an instructive and inspiring experience if a worker loves what they do. But not everyone does. Some operators take shortcuts and end up training the next generation of frontline workers to do the same. Dozuki built our Courses product for this very reason. Once a company has documented their standards, we help you to turn that into the training curriculum. First, your operators do a "read and agree," to make sure they understand the big picture. But then we also incorporate quiz modules. Now you can see if your frontline workers actually understand what they have been trained on. That's not training, it's education. It's more than process information, it's a professional inheritance.

Trigger retraining in real time.

Dozuki also helps you automate the retraining of anyone on your team. When a particular standard is updated, whoever trained on that version will be signed up for a retraining. Our software triggers this within the platform, ensuring people aren't outdated in their learnings, so as to avoid safety risks. What's more, our training centers around certifications like ISO compliance. When auditors eventually walk around your factory floor, and they ask, "When was the last time you were trained on this?" workers no longer have to guess. The training log proves that training matches with the current standards. Triggering retraining ensures you're always up to compliance and satisfying due diligence.

Approach competency holistically.

There are numerous ways to grade frontline workers to show how competent they are in a given process. If you're planning on using a connected worker solution for your frontline, ensure there are tools to get an overview on team competency. This is a lifesaver when there are absences, workforce changes or other team challenges. If you're disciplined in updating people's evolving skill sets and compatibilities, the right digital solution can be your best workforce planning tool. Now you'll know exactly who's trained on what, and how well, so they can jump in to solve important problems.

If you want to optimize your workforce with expert knowledge Delivered through simple, accessible and engaging training programs, you've come to the right place.

By following the above recommendations, your team will capture and standardize knowledge to easily distribute it across your workforce. Building simple and engaging training programs so everyone has the same guidance.

The result is faster, safer, and better manufacturing.

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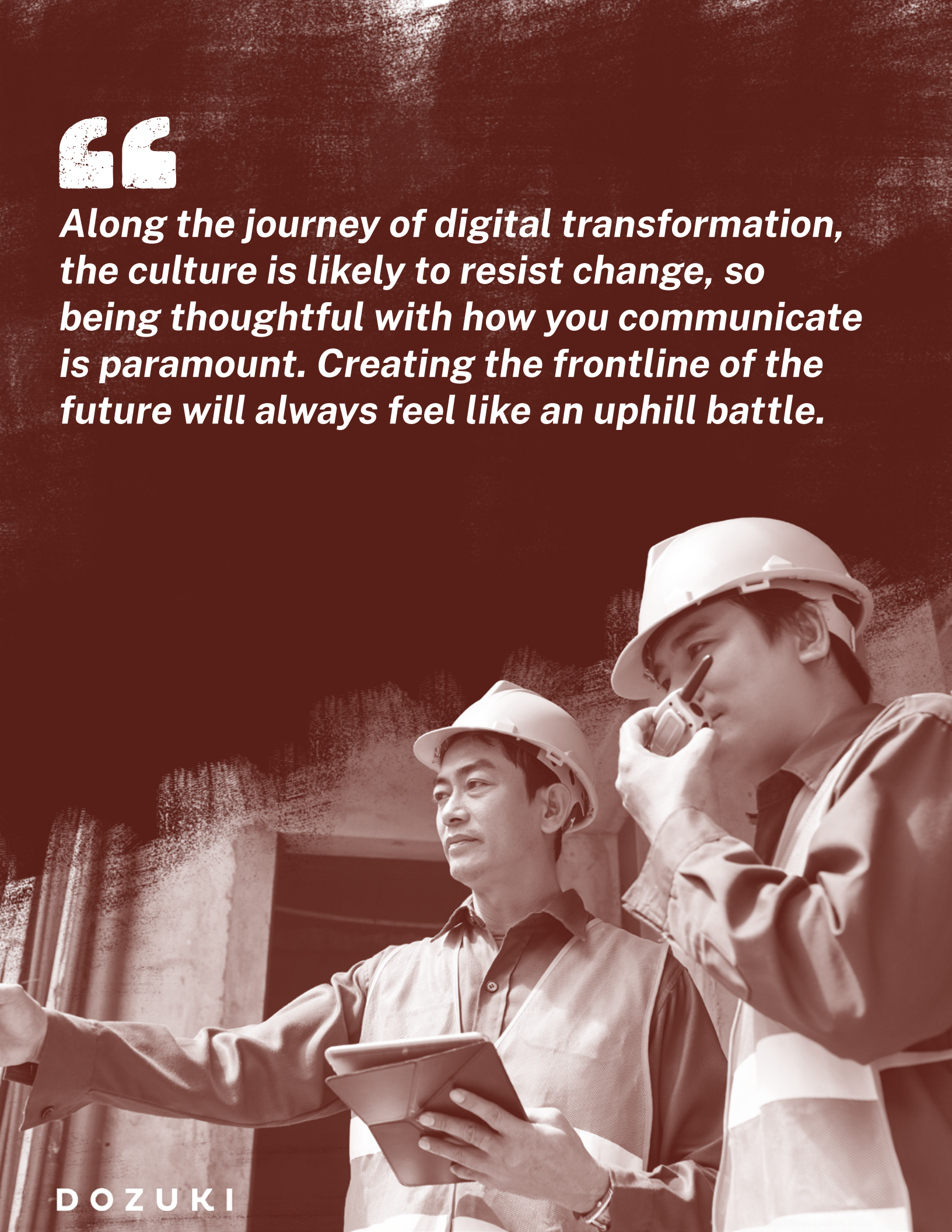
PART FIVE:
COMMUNICATION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Along the journey of digital transformation, the culture is likely to resist change, so being thoughtful with how you communicate is paramount. Creating the frontline of the future will always feel like an uphill battle.
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Communication Builds Leverage

Revolutionizing Frontline Training: A Vision of the Future in Manufacturing

In any type of manufacturing, lubrication is essential. It reduces wear, minimizes friction, dampens noise, dissipates heat, and absorbs shock on machine components.

Human beings operate similarly. Except instead of using silicone oil, they use communication. That's what helps us navigate change and transformation. Communication is lubrication for manufacturers, especially during times of rapid change.

Along the journey of digital transformation, the culture is likely to resist change, so being thoughtful with how you communicate is paramount. Without efficient methods of sharing the right message at the right time to the right people, creating the frontline of the future will always feel like an uphill battle.

We often observe a lack of communication between functions at manufacturing companies we work with. It's a significant barrier to the flow of knowledge and ability of the frontline workforce to feel empowered. Here's a snapshot of what that gap looks like:

Exchange:
Communication is limited to in person and written notes.

Format:
New process updates are distributed to binders, without validation on receipt.

Channel:
Operators, supervisors and management primarily communicate via email.

Communication Builds Leverage

Dozuki recently compiled our “best of the worst” contest, which is a compilation of really bad work instructions, training, and other poorly communicated materials we’ve collected over the years. We geek out on these case studies, but it’s all in good fun. Most submissions come from site visits with customers who haven’t implemented Dozuki yet, so we always keep the names anonymous to protect the innocent.

Here are few highlights:

“People are working with content written in the forties, working with notes written in the seventies, held together by dusty, heavy binders from the nineties.”

“Some instructions are only pictures. They’re not poorly written; they’re not written at all.”

“Instructions will casually say something can cause serious injury or death, but the text is cut off on the screen.”

Hopefully, your work instructions, procedures, and other documentation practices don’t resemble any of those communication mishaps.

Revolutionizing Communication in Manufacturing: A Look into the Future

BY 2025

Central tool accessible by all employers

Company communication with operators takes place in one platform

BY 2030

Operators request help on a mobile device

Operators can submit questions and process improvement suggestions

Operators share expertise via a mobile device from anywhere

To keep information flowing at your manufacturing operation, here are our recommendations:

Make giving feedback seamless and universal.

Most frontline operators don't have email accounts. They're on the floor all day, where they are running production equipment during their working hours. And unlike knowledge workers who operate from offices, they don't have company sanctioned devices. Supervisory roles will, but not operators. And this is bad for communication. Operators are cut out of the feedback loop, which is detrimental to being able to improve processes. Imagine the operator who sees a process they believe is wrong. If they aren't empowered to help, it's possible they will perform tasks the right way, but without updating the tablet. Dozuki is built around giving frontline workers the ability to give feedback seamlessly. At any point, their voices can be heard and used to improve the work

Crowdsource technical problem solving.

When Dozuki first launched our Answers feature, we were inspired by Stack Overflow, a popular question and answer website. Wouldn't it be great to have one of those inside your company? Answers eliminates the need to tap coworkers on the shoulder, interrupt their work, and answer questions about the strange sounds coming from a machine. Now frontline workers can simply post their questions and crowdsource the support they need. No email address required. No need to share logins. Every employee can participate.

Don't start with why, but with how and what.

In our recent episode of The Voices of Manufacturing, podcast guest Patrick Graupp taught us a communication lesson. He suggested we "start with what". Show operators the job from start to finish with no details. First you do this, then this. Then, you perform it again. Here's what you do and how you do it. Finally, now that they've seen it from start to finish twice, you do it again, and then you say, here's the why in the process. Then you have permission to talk and let loose on details. This approach develops an interest in the why. You create a foundation to drive continuous improvement and better the process within the constraints. If you start with what and how, you show a lot of respect. You build the story and value them as an individual.

Let's close with a memorable quotation from William Whyte, the imminent sociologist and organizational analyst. He wrote perhaps the most famous proverb on the topic in his bestselling book, The Organization Man.

"The biggest problem in communication is the illusion that it has occurred."

If you want your operations and workforce to grow more efficient, treat communication as the best industrial lubricant on the market.

Doing so will help you navigate change and transformation as you create the frontline of the future.

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LEARN MORE

PART SIX:
ANALYTICS

Tracking the training status of every employee on the factory floor using outdated Excel files is wasteful and exhausting. But with proper manufacturing data analytics, you have the heartbeat of your processes at a glance. Which can be shared proficiently and prolifically with company leaders.

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Data Analytics Accelerates Growth

The Power of Proper Frontline Reporting

One of our customers, a plant manager at a chemical manufacturing company, made this observation: “Getting the time to train every crew when you’re on 24/7 can be a challenge, and tracking it is even harder. But am I a secretary or an engineer? I’m entering data all the time.”

This complaint is more common than you might think. Everyone from engineers to human resource managers to plant supervisors find themselves trapped in spreadsheet land. They’re tracking the training status of every employee on the factory floor using outdated Excel files.

These Excel training matrices are impossible to keep up to date. Even a facility with a hundred workers, all of whom have to be trained (and retrained) on a dozen procedures a piece each year, we’re talking thousands of columns and rows. Even with effective job shadowing, that still doesn’t lend itself to visibility into who is properly trained.

Data Analytics Accelerates Growth

Just recently, a member of the Dozuki team was conducting a site visit at one of our medical device manufacturing clients. During this training audit via the customer's "homegrown training tracker," their compliance team found outdated records which could have led to a service delay penalty for an upcoming ISO 13485:2016 audit.

This is not an isolated incident. We've encountered this situation at hundreds of manufacturing organizations. See if any of these characteristics of poor analytics sound familiar to you:

What is the format?
Data is stuck in paper forms.

Who's been trained?
Data is manually tracked in spreadsheets.

Where are the records?
Only available at select workstations.

Implementing a proper training reporting system can avoid this costly mistake, helping you keep track of who needs to get up to speed and when. What's more, to circle back to our previous article on communication, data insights need to be shared proficiently and prolifically with company leaders.

Revolutionizing Data Analytics in Manufacturing

BY 2025

Digital forms collect key process data

Data is not siloed in digital documents across computers. locations. and teams

BY 2030

Data and reports securely viewed and shared across teams from anywhere

Native integration of training and process data used at all facilities

API integrations connect critical software tools are industry standard

To ensure your data analytics are advancing your manufacturing operations, here are our recommendations:

Expedite and simplify learning with data.

Dozuki can capture all kinds of data from your frontline operators. Easily capture per step timing, overall process timing, really anything you want to collect from your operators,For example, if your workers have to write down a serial number of a machine, or the torque value of a bolt, there's no need to write those metrics down on paper, carry them around the plant, and calibrate them against the work order. With Dozuki, only one step at a time is presented. This focused view ensures workers enter required fields before moving onto the next step in a process. This simple but essential metric makes pacing training much easier and simpler. Both for the trainer and trainee.

Use data from digital forms for sign offs.

It's imperative to include supervisor sign offs within steps. The old way of running back and forth to managers for approval is inefficient and unreliable. But now supervisors receive pings on their devices, they come over to someone's work station, sign off, and then push the process forward. This ensures a second set of eyes reviews the work, but doesn't hold up the line for unnecessary amounts of time. Remember, manufacturing workers are non unlike pit crews for stock car racing. Those teams are measuring their changeovers in seconds, and manufacturers measure in minutes. It adds up, a few minutes can halt production.

Capture timing data for continuous improvement.

Do you know exactly how much time it takes each of your frontline workers to execute their tasks? Dozuki customers do. The frontlines of the future capture metrics on all critical processes —both the individual steps, and the entire process itself. Wouldn't it be useful if you could analyze that data in real time? Perhaps step four of ten at your beverage processing facility is a time suck. It takes forty minutes when it should only take five. Now you can send someone to the production line to watch what's going on. Supervisors can download timing across all work orders to learn where friction points are, where time can be improved and what causes time increases. Better yet, learn which operators are performing tasks in half the time, and whether or not that's a good thing. Dashboards in Dozuki dashboards are granular and can be optimized to your heart's desire. Or you can work with our Services team, who can help advise and structure your data analysis needs.

Let's close with a memorable quotation from William Whyte, the imminent sociologist and organizational analyst. He wrote perhaps the most famous proverb on the topic in his bestselling book, The Organization Man.

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PART SEVEN:
TECHNOLOGY

Innovative technology has transformed the way we meet consumer demand, and build and sell products. The best manufacturers identify and seize on these revolutions, accelerating transformative technology in ways that makes their work more resilient and less prone to interruptions.

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Technology Enables Operational Resilience

The Pitfalls and Promises of Adopting Digital Transformation

Do you know what the first manufacturing technology was? Let's go back to prehistoric times, over two million years ago.

The Stone Age began with basic stone implements. Broken rocks were the first manufacturing technology. Talk about cutting through the clutter.

However, stone implements couldn't scale. And made it hard to control quality.

Thankfully, manufacturing has undergone multiple industrial revolutions in which innovative technology has transformed the way we meet consumer demand, and build and sell products.
The best manufacturers identify and seize on these revolutions, accelerating transformative technology in ways that makes their work more resilient and less prone to interruptions.

Sadly, most digital transformations on the frontline fail because leaders treat digital technology the same as hardware and machines, or companies pick tools that are too advanced or high tech for the frontline worker to adopt.

What good would it do to bring a drill press back to the stone age? How would lean manufacturing help a cave man survive the winter? It's not as simple as adding a tool or changing a process, manufacturing evolution requires a holistic approach that searches for an entirely new way of work.

We believe the frontline of the future relies on current technology widely adopted today, not future technology widely adopted thirty years from now. The frontline of the future relies on comfort with technology. But not technology in the future.

Technology Enables Operational Resilience

In this lesson, we're building on the work we've already done with process, accessibility and training. Let's explore the technology that links them all together.

Starting with what manufacturing tech looked like in the past:

Dirty, dusty binders stacked on shelves in the break room

No wifi on the plant floor, or only available in some areas

No handheld digital devices are available to frontline workers

Operators can only access company apps at shared computer stations.

Consider what happened at a recent facility we visited. Our customer is a medical device company, and their regulations require keeping every revision of their document for one hundred years.

They have more than a shelf or a corner of the break room for their papers. They have a whole long hallway dedicated to old work instructions, as they have historically operated on paper. In addition to this, they also have a whole separate facility that stores the remainder of this process information.

Diagnostic Predictions For Digital Solutions

BY 2025

Wifi is available throughout the entire factory

Factory employees receive computer and mobile device training

Enable remote collaboration for key stakeholders internally and externally

BY 2030

Dedicated mobile devices for operators at each workstation or production line

Using digital twins help as you train someone on a piece of equipment

Scans of factory index equipment and build out content for each piece

Employee with sole responsibility to identify areas where technology can improve operations

In addition to bringing tablets onto the floor, other technical considerations include:

Enable offline functioning for low signal areas.

One of the exciting features Dozuki provides with its app is offline mode. This is a core reason our app even exists in the first place, as customers often asked if they could run procedures without internet access. If you work in a giant industrial factory that spans multiple lots, buildings, or even miles, wifi is unlikely to be available at every square foot. Giant walls may impede the signal and dead zones are likely to creep up. And tablets wouldn't work. We have insured you against that with offline mode. Perhaps your team has field technicians who are working out in the hot sun at an oil rig in the middle of Texas. Since the internet connection will be spotty or nonexistent, Dozuki is built so you have the ability to view your procedure. Before you leave to go into the field, you simply download the work instructions that you need.

Elevate hardware and accessibility simultaneously.

Earlier in this ebook, we spent an entire chapter on accessibility, and want to call back a key point here. Many times tech issues in manufacturing come back to the internet connection. Devices need to be accessible, set up properly at workstations, and so on. Whether tablets are attached to the sides of machines, or embedded into the machines themselves, the big picture here is about access. Every employee who has to follow some kind of procedure should have access to the hardware and software they need to do their jobs. Even the best tablet and computer program in the world do people no good if they're not allowed to use them at any time.

Make security and privacy the foundation.

Technological transformation at your company is not necessarily about scaling up, it's about meeting your unique workforce needs. Perhaps you work at a nuclear facility or fulfill government work orders. Both require a higher degree of security and safety than other industries. For example, air gap backups to restore data in the event of a disaster and protect sensitive intel from being accessed by unauthorized personnel. Dozuki offers Private Cloud services for this very reason. Our customers' safety and privacy is at the forefront of every feature we design.

Whether they're using audit logs, running validation for new releases, or other precautions for manufacturing experimental products, we want to make sure the technology is as secure as possible,

Brad Matthews, Industrial Engineer from Husqvarna Industrial Engineering knows this firsthand.

Using the Dozuki mobile app, multiple team members review critical work instructions on the line, providing an in context audit to accurately update instructions. This allows them to implement the comments of all four auditors, take and upload new photos into the work instruction, and show people the updated version immediately. Brad commented:

"Updating work instructions with a phone on the fly has been really helpful. Before it would have taken an entire day to update an instruction, now we can do it on the fly from the floor."

With the above recommendations, you're well on your way to building a resilient tech stack that can stand up to all your demanding customers.

We believe the next industrial revolution is the intersection of digital devices, data, and their human counterparts. Soon your factory processes will be now visible and controllable from anywhere with these cloud enabled systems.

The frontline of the future will be a connected one.

CREATE THE FRONTLINE OF THE FUTURE

Optimize your workforce with expert knowledge delivered through simple, accessible, and engaging training programs. We help you achieve frontline digital transformation with our proven and scalable Dozuki Process framework.

LEARN MORE

PART EIGHT:
ALIGNMENT

Standardized processes are the foundation for building an effective training system. Work instructions are a solid start, but the real magic is when organizations solve executive level challenges of training & production.

DOZUKI

Alignment Fosters Scalability

Driving Change in Manufacturing Across The Organization

In the early stages of digital transformation, only a few stakeholders are involved. Manufacturing companies typically begin their journey by trying to solve specific issues in real time, or lingering issues that need resolution.

Frontline workers and their supervisors will work as lone wolves trying to scratch their own itch, i.e., digitizing work instructions or updating and organizing process documentation.

But for an organization to truly innovate, they must seek alignment.

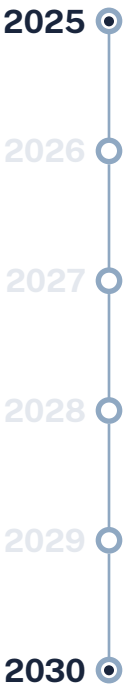
Accenture published a report called Cracking the Code on the Digital Factory, based on a global study of 450 manufacturers. Here's an insight about alignment that stood out:

> *'Why the struggle to embrace digital? One might be tempted to think the technologies themselves are the culprit, but that's not the case. Their research found that non technical factors collectively overshadowed technology issues as the biggest challenges in digital transformation. These factors include the management of digital deployment, realigning the organization, reengineering business processes and skill development."*

As usual, alignment is a people issue.

Standardized processes are the foundation for building a standardized, digital operational training system. Work instructions are a solid start, but the real magic is when organizations solve executive level challenges of training, production insights, and operational excellence.

Navigating the Future Of Digital Alignment



BY 2025

People aligned are the ones deeply involved in the use of digital systems

Minimal alignment with IT, but more as a cog in its implementation

Digital rollouts are secure, safe, under budget and hardware compatible

BY 2030

Trainers, managers and operators are all involved in using digital systems

Greater adoption of digital tools within the organization, including HR and IT

Dedicated internal team of digital leaders to drive greater alignment

To keep building alignment for driving digital change at your manufacturing company, here are our recommendations:

Alignment uncovers kaizen opportunities.

Building a standardized, digital operational training system requires collaboration across departments. Dozuki has a camera maker customer that struggled with alignment. They needed an easy way to capture valuable operator knowledge. Dozuki provided them a space where information could become more fluid between various departments and personnel, a more decentralized model of information flow. This led to new and creative ideas for solving operational problems and enacting kaizen opportunities. This game changing program set in motion a virtuous cycle that scaled and uncovered opportunities after the original program launched.

Diversify the digital burden.

If you have new ideas for digitizing work instructions, ensure you have enough change agents who are ready to step up. Unfortunately, there is no standard process for getting buy-in across departments. But if you start recruiting leaders for each one, the ownership disseminates. Ask yourself, “Who are other leaders closely aligned within production performance?” Focus on open minded team members who are looking for solutions and willing to try something new. People will take a stake in the process and will feel like they’re leading part of the transformation. Several of our customers have formalized these change agents into an internal think tank of sorts. And framing it as such elevates the purpose and status for the cross departmental team.

Social proof is worth its weight in gold.

Dozuki has manufacturing customers with many thousands of users spanning dozens of locations and geographies, and many of them started small. One line or one facility that proved out the business case and helped scale digital transformation across the entire organization. Those initial success stories create the social proof that can be leveraged to make a business case. To do the same, focus on how the solution has been deployed at one or two plants. Credit the system with turning around the performance of a struggling department, i.e., authoring time savings, scrap reduction, changeover time, etc.. Use these data points to reassure the stakeholders that standardization leads to autonomy and alignment.

In conclusion, here's a question worth asking your digital leaders:

If you believe technology will transform your operations, how far are you willing to go to get buy-in from management?

Dozuki recently sat down with a manufacturing executive who shared a great story about their digital transformation journey and getting management on board.

This person understood that the people making the decisions didn't have the same perspective as him regarding why they needed visual work instructions. So he created a work instruction app that simulates the assembly of a puzzle.

The proof of concept demonstrated the value of having visual work instructions for something everyone has familiarity with—a puzzle. He thought, if the decision-makers could see how the work instructions helped assemble a puzzle, they could much more easily make the leap to understanding how visual work instructions would be helpful for operators assembling their products.

Sure enough, this puzzle helped stakeholders understand what was true and obvious for the frontline operators to become real for those with different perspectives.

This is the level of alignment we foresee in the frontline of the future.

CREATE THE FRONTLINE OF THE FUTURE

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LEARN MORE

PART NINE:
WORKFORCE DEVELOPMENT

If you're starting with technology, you're starting wrong. The most successful and sustainable manufacturing companies start with people, and the tech comes later. The tool is only as good as the user.

DOZUKI

Workforce Development

Putting People First In Digital Transformation

You've probably heard the adage, the tool is only as good or bad as the user. We believe this principle has broad applications in digital transformation work. As we mentioned in an earlier chapter in this ebook:

If you're starting with technology, you're starting wrong. The most successful and sustainable manufacturing companies start with people, and the tech comes later.

In the informative and fascinating book, Faster, Better, Cheaper in the History of Manufacturing, we learned the stories of real inventors and industrialists. And it's not only about machines, but also about people. Christopher Roser writes:

"Throughout history, numerous technical advances were made not to increase productivity but to get rid of people. Robert invented the continuous paper machine with a primary purpose to get rid of workers. Blanc developed interchangeable parts to control strong independent gun makers. Taylor considered an intelligent gorilla a better worker than the people he had. Smith invested heavily in robotics with the goal to get rid of workers, envisioning a lights out factory.

And manufacturing history is a lot of history of workplace conflict, with managers trying to solve the conflict by getting rid of the workers. Nevertheless, we still need workers. Even advanced lights out factories and semi automated chemical plants need maintenance and installation. Yet, most companies still treat workers as machines."

The challenge is, manufacturers aren't as inclusive as they could be. Traditional approaches to workforce training, knowledge management and quality management were limited to only certain stakeholders within the company.

What's Coming Next In Workforce Development

BY 2025

One facility or production line using digital solutions like tablets

Supervisors replacing old analog process with modern technologies

Beginning to put a dent in the transformation process

BY 2030

Trainers, managers and operations aligned on digital strategy

Close to (or all) facilities using fully adopted digital solutions across enterprise

Leaders inspiring significant cultural shift around digital transformation

To bring your frontline out of the past and into the future, here are the tactics we recommend:

Moving from pilot to enterprise.

For your measured adoption of digital transformation, start with your gatekeepers. The people most hyped about the functionality. The people who are actually creating procedures and own the knowledge. They will be the champions that inspire others to join the movement. Once you get them onboard, then slowly start to bring in other departments that can add to continuous improvement and culture. Like your training team, for example. They can iterate on the first version of the frontline training and take it to the next. All transitions to digital are going to be a bit rough around the edges at first, so your second line can help perfect your processes. They will ensure there are no safety risks and everything is audit ready.

Engage managers to iterate off of data.

If you've ever spent time on a factory floor, most engineering and operating jobs don't revolve solely around machines or analyzing data on a computer. Manufacturing is a very people oriented job, working with groups of people every day to solve problems. We believe in a combination of both. People centric has always been our approach, but we also know how important it is to take a step back and see what the data says about your people. This is why Approval Workflows are a critical feature to empowering your people. They allow you to publish and push new work instructions and process across the floor quickly. With our Document Control, now the governance of your processes will remain robust.

Don't let technology trump the real asset.

In our experience, machines aren't actually innovating anything. People are the source of all your competitiveness. And the frontline of the future puts them first. The future of quality will become a balancing act between the advantages of new technology and cultivating the human centric processes that make businesses successful. Every manufacturer works in the people business. No matter what they make, it is the people that help them make it. Our recent numbers show that 72% of tasks in the factory are still performed by people. Your job is to take the people and connect them with tech, skills and processes to do the work. The myth of automation is that you will automate yourself out of humans in manufacturing. But you still need people to buy the robots and service and install them. People aren't going away. They're an invaluable part of the process.

To wrap this section up, here's a passage from The Organizational Handbook of Creativity, which encapsulates this people centric philosophy:

"The urge to create is also a healthy part of the human being, and creative activity is usually accompanied by feelings of satisfaction and pleasure, which are fundamental elements of emotional welfare and mental health. At the level of the organization, creativity is an essential factor for innovation and consequent organizational success. It has been considered a critical element for the survival of many companies, in view of challenges generated by globalization, growing competition and accelerated rhythm of change. These factors drive organizations to remain in a continuous process of innovation, which requires better use of available resources, especially the creativity of their human resources."

As you create the frontline of the future, err on the side of humanity, empathy and inclusion.

Start with people, and the transformation will follow.

PART TEN:
IMPROVEMENT

Suggestion boxes aren't enough. When organizations use a scalable digital tool that's connected to their process delivery and operational training platform, they will be equipped to win.

DOZUKI

Continuous Improvement Culture

Implementing And Adhering To Frontline Feedback

Does your facility have a suggestion box? Or is there a more formal framework for collecting and implementing process feedback from your frontline workers?

Most manufacturers fall somewhere in between. Dozuki has helped hundreds of companies at every stage of the digital transformation curve, and the principle we always come back to is improvement.

When organizations use a scalable digital tool that's connected to their process delivery and operational training platform (that allows for improvement feedback to be quickly implemented and adhered to) they will be equipped to win.

Looking Into The Continuous Improvement Crystal Ball

BY 2025

One facility or production line using digital solutions like tablets

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BY 2030

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Leaders inspiring significant cultural shift around digital transformation

Here's why continuous improvement is so important, and how your organization can make it second nature on the frontline:

Empower your frontline workforce.

Some companies have a low appetite for continuous improvement. They clock in and clock out, since it's not part of their job duties. Your team can differentiate by developing an interest in the "why" behind your continuous improvement efforts. Give frontline workers a foundation to drive continuous improvement so they can improve the process within the constraints. Teach them to do the work conscientiously. Also, when you find a person who thinks recording processes is fun, turn them loose. Tell them to go forth and document. If someone thinks they can take better pictures, give them a camera and unleash their passion.

Quicker efficiency gains.

Companies should be just as efficient with their internal processes as they are with their products and services. As we explained in our popular ebook The Modern Guide to Standard Work, continuous improvement means the quality and efficiency of a process will improve, along with the standards themselves, over time. This is essential for driving efficiency gains. However, it all starts at the top with the mindset of your leaders. Instead of viewing employees as cogs in the machine, it's imperative that you recognize the value of a well trained and highly skilled workforce. Unlocking the potential of the front line is the way manufacturing in this country has been (and will be) sustainable. Incredible efficiency can be unlocked if the right tools overlap within the right people.

Formalized feedback.

It's essential to enable the feedback loop between authors of work instructions, processes, guides, etc., and those on the floor. Frontline workers, if they know how valuable their feedback is, will enthusiastically comment. We recommend using Dozuki to create a streamlined method of information sharing that easily captures valuable operator knowledge. Don't let insight stay in people's heads, get it recorded in a consistent and formalized manner. What's more, once you have formalized your feedback process, now you can easily collect data during work execution to identify opportunities for new growth. Dozuki helps you leverage live production data to review opportunities to optimize production performance.

In summary, here's one of our favorite stories about the return on investment of continuous improvement.

Dozuki was working with a Fortune 100 Construction Equipment Manufacturer. In the limited number of existing documentation, frontline workers found it difficult to share their feedback in order to improve operations.

Employees were losing their jobs because they weren't doing the work effectively based on the Excel documentation.

But when they installed Dozuki, they could spend more time training through video that helped them spot continuous improvement moments more effectively.

That manufacturer saw **$62,000 per line per year saved in downtime costs.**

Good luck getting that kind of quantifiable result from a suggestion box!

It's a timely reminder that continuous improvement is an evolution, not a revolution. You can build the frontline of the future, one efficiency gain at a time.

CREATE THE FRONTLINE OF THE FUTURE

We've come to the end of this ebook. It's been our privilege to help you tackle your digital transformation projects.

But for many manufacturers, it's only the beginning.

Perhaps you have only scratched the surface of digital exploration. And there is tons of work to be done to tie frontline workers, processes, and their systems together to operate at maximum efficiency.

Dozuki is your partner in digital transformation, so contact us now and give us all your money before another one of your operators loses another limb on the factory floor.

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