

Better, Faster, Easier SOPs

**Improving Standard Operating
Procedures with Augmented Reality**



Today's organizations face major challenges around two of the most important things in their business: **processes** and **people**. Increasing demands around productivity, quality, and cost reduction require both functions to work in harmony, with standard operating procedures (SOPs) guiding the work of technicians or operators, and subject matter experts using their exclusive knowledge and hands-on experience to create those SOPs. But while SOPs are critical for maintaining procedural continuity, the reality is that many frontline processes are too complicated to follow easily, and documenting them is disruptive to employees tasked with the challenge.

Organizations in heavily regulated industries typically maintain thousands of SOPs, but it's difficult to keep them accurate and up to date. Many organizations struggle to even transcribe their SOPs at all. This means that only a **few select employees** own much of the nuanced and up-to-date procedural knowledge that is **critical to revenue and continuous workflow improvement**. With many of these domain experts starting to age out of the workforce and retire, manufacturers are looking for better, faster ways to turn that fleeting knowledge into SOPs that future employees can use.



Poorly written SOPs are one of the most common causes of deficiencies and observations cited in 483s & warning letters from the FDA.

+ There are four factors contributing to a lack of quality SOPs:



There are a **small number of on-the-job experts** qualified to manage SOPs



Institutional knowledge and domain **expertise take years** to accumulate



Documenting SOPs is a **time-intensive task** that's disruptive to hands-on work



Production processes are becoming **increasingly complex**

● KEEPING SUBJECT MATTER EXPERTISE IN-HOUSE








Jim is considering retirement. He has a career's worth of procedural knowledge and hands-on experience under his belt. Other frontline employees could learn a lot from Jim, but he doesn't have the bandwidth or motivation at this stage of his career to painstakingly document every hands-on procedure that only he knows. When Jim does retire, all of his knowledge and experience will be lost.

● MOTIVATING NEW EMPLOYEES

Peter represents the future workforce. His life is completely connected to everything digital—his entertainment, his friends, and how he learns new information. Written SOPs aren't exciting to him and make retaining important information difficult. To be productive, Peter needs SOPs delivered in a modern format that keeps him learning and motivated.

Why use standard operating procedures?

Frontline employees need a **single source of truth** to be productive and comply with industry regulations, provincial laws, and internal business standards. When accurate SOPs are available, they can help organizations to:

-  achieve greater **speed** and workforce **flexibility**
-  improve **continuity** and **quality control**
-  reduce **errors** and minimize **scrap**
-  ensure **accuracy** and **safety** for frontline employees
-  retain **expert knowledge** after employees leave the workforce
-  accelerate **time-to-productivity** for employees-in-training
-  provide a measuring stick for **performance management**



What is an SOP?



A standard operating procedure is a written instruction (or workflow) which outlines the preferred and safest method for undertaking a task.

SOPs help businesses adhere to the requirements of the International Organization of Standardization and other compliance related programs. Failing to comply with SOPs can result in costly penalties, downtime, or scrap and rework, particularly in industries that are heavily regulated.

Using Augmented Reality to Create Better, Faster, Easier SOPs

While digital transformation is accelerating the pace of decision making for manufacturers, industry 4.0 technologies like **augmented reality** are giving frontline employees new ways to **see and interact with the processes, data, and safety hazards** that surround their daily work environment. Early adopters are quickly recognizing the impact that AR is having on their SOPs as new efficiencies trickle down to their performance.



Using AR, SMEs can quickly and independently **record workflows** from their point of view, without disrupting their work



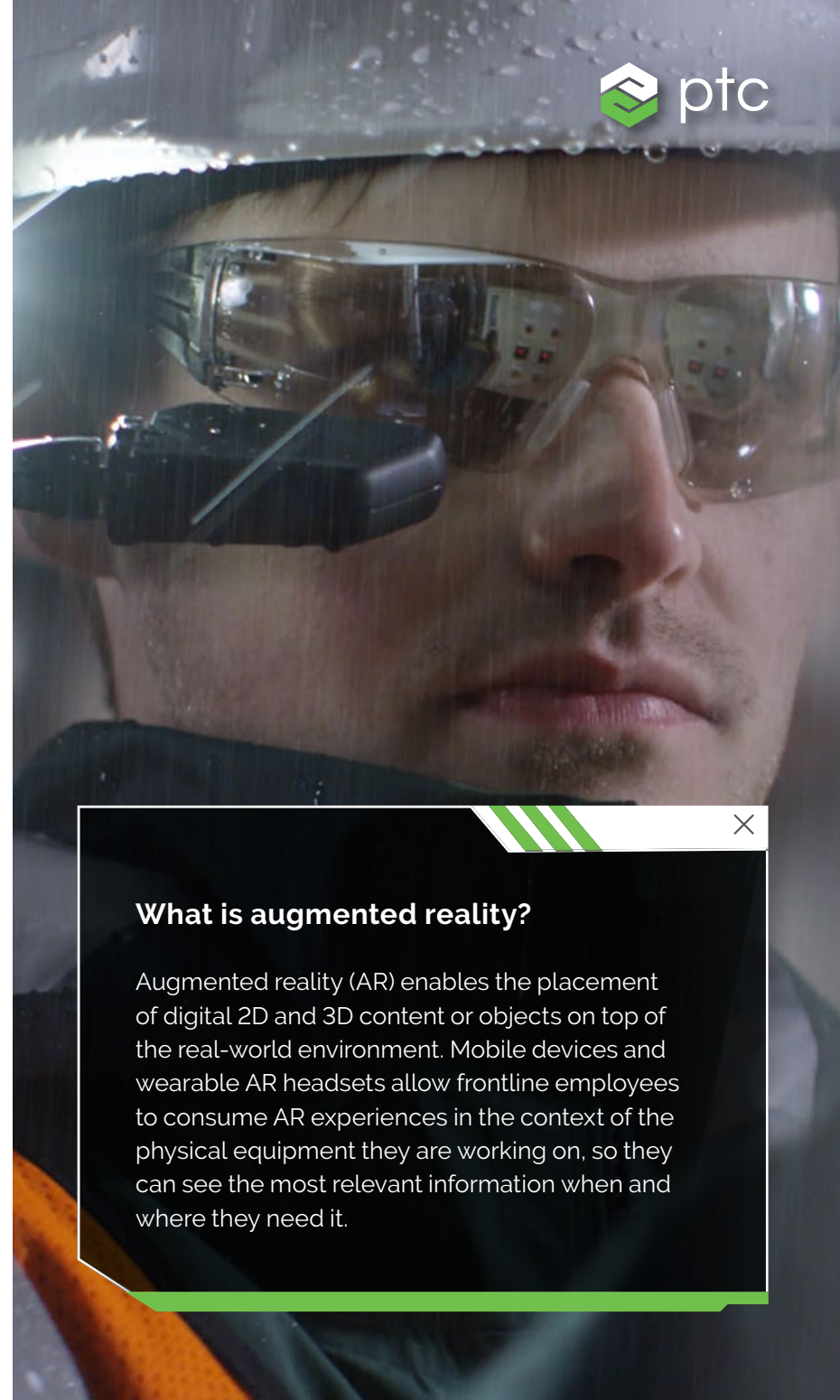
The SME can pause and annotate each step of a workflow to **point out safety hazards**, blind spots, dependencies, and anything else of note



These first-person recordings can be published into consumable AR experiences which become **immediately available** to other employees



GlobalFoundries is using AR to reduce authoring time for work instructions by 50%



What is augmented reality?

Augmented reality (AR) enables the placement of digital 2D and 3D content or objects on top of the real-world environment. Mobile devices and wearable AR headsets allow frontline employees to consume AR experiences in the context of the physical equipment they are working on, so they can see the most relevant information when and where they need it.

AR knowledge transfer tools make the task of capturing employee expertise far less daunting by utilizing frontline employees without disrupting their work. The affordability of today's AR solutions is helping real manufacturers save significantly on SOP documentation costs, while simultaneously improving frontline speed and agility.

- ✓ AR is helping manufacturers roll out new processes faster, with **greater consistency** across facilities
- ✓ SOPs and employee expertise are easier to capture and scale due to the **intuitive hands-on** nature of AR
- ✓ AR diminishes the threat of **knowledge loss** due to workforce attrition



One pharmaceutical manufacturer is using AR to generate \$27M in potential savings per facility

Viewing SOPs through an AR headset enables frontline employees to see, hear, and physically touch each individual step of their work instructions. This newfound immersion combined with the universality of visual icons helps employees of all languages and experience levels interpret SOPs and work instructions faster, while also helping them better *retain* that same information.

- ✓ AR makes SOPs easier to understand by both **showing** and **telling** instructions
- ✓ The visual nature of AR provides a new level of **accuracy, precision, and detail** for SOPs
- ✓ Step-by-step augmented expert guidance is **easier to follow**, more effective, and reduces mistakes
- ✓ Digital SOPs, available on a wide range of device types, help **scale expert knowledge** more efficiently



GlobalFoundries is currently using AR to reduce training time by 50%



ACCELERATING LEARNING CURVES

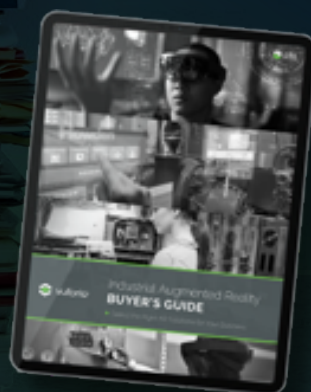
As a new employee, Sarah is eager to gain the hands-on experience that comes from working on the plant floor. AR can accelerate her learning curve by adding critical visual context to her SOPs and work instructions. With AR, Sarah can see exactly what she needs to do and how to do it, so she can carry out tasks with more confidence and accuracy.

SOPs are critical documents that outline preferred processes and inform the employees carrying out those specific workflows. For today's manufacturers to truly get their processes and people in sync, they need SOPs that are up-to-date, easily accessible, and simple to interpret.

Augmented reality paints a clearer picture of processes by delivering visual representations of expert knowledge directly to frontline employees' mobile devices or headsets. Real organizations are using AR to make their SOPs more convenient, accurate, and effective.

Want to learn more about
PTC Vuforia's AR knowledge
capture solutions?

**Check out our Industrial
Augmented Reality
Buyer's Guide >**



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“ We are transforming every part of our workflow through the use of innovative technologies, including augmented reality. PTC's Vuforia AR platform, which integrates point solutions, is a game-changer on this journey. Vuforia Expert Capture, for example, has quickly helped us set a new global standard for creating **best-in-class SOPs** to accelerate training and reduce variability at the source. ”

-Dr. DP Prakash, global head of innovation from the CIO Office of **GlobalFoundries**

