



The Great Experience Reset

Introduction

The workforce in the industrial sector is and will continue, over the next decade, to turnover at an alarming rate. Some estimates show that more than half of the experienced engineering professionals in industry will be retiring inside the next decade. While this loss of experience is substantial, the retirement rate is only part of the story.

Companies across industry are experiencing a generally higher level of attrition and are cycling engineers through positions at a significantly faster rate than decades past compounding the challenge of retirement. To make this even more challenging, companies are exacerbating the problem through their continued success in improving the reliability of their operations and increasing the level of automation.

All of this combined is creating a widening experience gap that is impacting the ability of companies to effectively manage production with the same degree of confidence as they had just a few years ago. Given the complex, interconnected nature of refining and chemical processes, this loss of experiential knowledge has the potential to at best negatively impact business performance and at worst significantly increase the risk for incidents impacting production, operational continuity / reliability, environmental performance, and/or even safety.

Implication: Left unaddressed, the industrial workforce's experience crisis will compromise both safety and competitiveness across the industry.

The Value of Experience in Operations

Refining and chemical manufacturing are complex processes, requiring deep understanding of both routine operations and emergency responses, as well as the associated interconnectivity of the multitude of variables impacting plant operations at any given moment in time. Much of this understanding cannot be learned in a university or traditional training program, it is gained through years—sometimes decades—of experience. Retiring employees often carry with them an intricate understanding of plant idiosyncrasies, undocumented processes, and critical troubleshooting practices.



The Great Experience Reset

In essence, the loss of experiential knowledge diminishes a team/organization's ability to quickly and effectively recognize and diagnose emerging situations and formulate an effective response. This applies equally to situations where a process could be optimized, as well as to emerging abnormal situations that could result in incidents.

Recap: The retirement wave isn't just removing people — it's erasing hard-earned instincts and troubleshooting skills that no manual can replace.

Understanding Experiential Knowledge

Before exploring ways to combat this loss of experiential knowledge, it is helpful to understand the different types of knowledge and how they interact with each other. We will not get too in-depth in this discussion as there are many other sources that discuss this topic; however, a high-level review will be helpful later as we explore ways of mitigating the impacts of experience loss.



- **Explicit Knowledge:** Information that is easily documentable and shared with others. For instance, university engineering programs or industrial operator training materials are designed around transferring explicit knowledge.
- **Implicit Knowledge:** In simplest terms, implicit knowledge is the skilled application of explicit knowledge. When blended with experience in that application across differing scenarios, implicit knowledge enables efficiency and effectiveness. Implicit knowledge is typically developed through lived application experience but can be enhanced through observations, targeted feedback, or mentorship.
- **Tacit Knowledge:** Tacit knowledge, sometimes seen as a subset of implicit knowledge, is the most difficult to describe. At its core, it represents the “artistry” or “finesse” of a skill. There are many that believe tacit knowledge cannot be transferred because it is the intertwining of expertise and skill with personal beliefs, values, and lived experience.

The Great Experience Reset

As noted above, experience alone does not allow employees to get to the “right” answer, but it can speed up the process and help avoid costly mistakes along the way. Ultimately, experience allows employees to integrate action and understanding to not only efficiently execute normal tasks but more importantly to more quickly and effectively adapt to new situations.

Question: How much of your team’s success relies on tacit knowledge that’s never been captured?

Mitigating the Experience Gap

While true experience must be lived, the acquisition and utilization of experiential knowledge does not necessarily require years of experience. The challenge now is that traditional methods for passing on experiential knowledge (e.g., coaching, mentoring, team composition) are becoming less practical as the experience gap widens and the strain on the remaining, experienced employees increases.



However, thanks to capabilities provided by newer digital tools, there are options that are much more practical for preventing this loss of experience from impacting business performance. These will require us to rethink how we train employees and more significantly automate how we provide guidance and coaching in the moment.

For simplicity sake, we think about addressing the experience loss through three separate mechanisms, although implemented solutions will be more of a blended approach with variations integrated for usability based on the targeted application.

Information Flow – Experiential Guidance – Just-in-Time Training

Opportunity: Closing the gap demands new methods — blending digital tools, automation, and targeted capture of expertise to extend the reach of today’s experts.

The Great Experience Reset

Predictive, Prescriptive Information Flow



One of the things experience gives us is the ability to discern what data or information is truly descriptive for a situation vs what is just noise or filler information. This allows experienced professionals to quickly home in on data sets or trends that tell them a story and point them in the right direction. Through an elicitation process, information sources can be identified and manipulated based on the context of the situation or process conditions to create intuitive visual displays that help new employees more quickly and effectively assess situations and determine a course of action. This is one of the easiest mechanisms for capturing and transferring experiential knowledge, and perhaps one of the most pervasive in industry at the moment. However, you need to be careful not to confuse simple data visualization with true experience transfer. Visualization itself, while powerful, does not necessarily capture the needed data manipulation or presentation methods that helps paint the picture that an experienced practitioner sees.

Recap: Smart information flow only works when it reflects how experts interpret data — not just how charts display it.

Pushed Captured Experiential Guidance

One of the most powerful mechanisms for mitigating the experience gaps is the provision of experiential guidance that is contextual in the moment. This is the equivalent to having an expert coach sitting with you, helping you to accurately assess a situation and decide on a course of action. However, extracting relevant contextual guidance from an expert can be difficult. When true experts are posed with a situation they assess and respond with unconscious competence, meaning that while there is reason behind their actions, they will likely have difficulty explaining all of the considerations that informed their course of action. In simple terms, this type of guidance moves squarely into the realm of implicit and sometimes tacit knowledge. This is where many companies would benefit from engaging or employing individuals with expertise in eliciting and capturing this type of experiential guidance. To be effective and in order to be able to link the guidance to a specific set of conditions, guidance must be captured with the relevant contextual information.



The Great Experience Reset

Implication: Without structured elicitation, critical decision logic remains locked inside experts' minds, vanishing the moment they leave.

Short Format, Just-in-Time Learning

Short format, just-in-time training is not new, and thanks to YouTube, it has become the default mechanism for many individuals when acquiring a new or refreshing an old skill. In an industrial setting, the key is to ensure relevance and accessibility, and thanks to the increased proliferation of mobility, the just-in-time aspect is becoming increasingly easier. While exceptionally effective for targeted skills and routine tasks, popular methods are not as effective at developing and reinforcing the more foundational understanding of complex processes. However, by blending targeted situational exercises with captured experiential guidance, engaging training programs can be built that develop true competency over time that provide quick, targeted refreshers in the moment to support situational analysis and decision making while encouraging critical thinking.

Opportunity: Blended with experiential guidance, just-in-time learning can transform quick refreshers into lasting competency.

Moving Forward

One of the biggest challenges to capturing and transferring experiential knowledge is simply taking the first step. Many individuals and companies can get overwhelmed by the seeming enormity of the task because of the vast expanse of potential knowledge to capture. However, the key is learning to identify and focus on the most significant bits of guidance that point people in the right direction or help narrow the focus to the most likely issues during emergent situations. When designed right, experience capture and transfer programs can mine and vet experiential guidance from experts and teams that can be leveraged to support a myriad of transfer mechanisms, thereby reducing the support burden from your already overtaxed experts. The key then is picking a specific application that has an immediate benefit to the business, which in turn will make it easier to dedicate the time to the effort and help focus those involved to more specific types of experiential knowledge. This will reduce the scope of the capture exercise to something that does not feel as daunting.





The Great Experience Reset

The question is not whether your organization will be significantly impacted by the profound loss of experiential knowledge happening now and on through the next decade; but to what extent will that impact affect the performance of your business. Regardless of where you start, the most important thing is that you start somewhere and soon because this is a challenge that will only get harder the longer you wait and the larger the experience gap becomes. If managed well, this experience reset can be turned into a positive by providing a catalyst for not just institutionalizing the experiential knowledge of your workforce but providing a platform for ensuring that organizational learning accurately reflects reality helping to minimize the amount incorrect “tribal knowledge” being passed down.

Question: Will your organization treat the experience reset as a risk to the business — or a catalyst to advance?

About the Author

Kevin Smith



Kevin is the Founder and President of KES Global Advisors, LLC, and has spent more than 25 years driving business transformations for both his clients and with his own teams. His industry experience spans the globe, with direct work experience in over 40 countries across six continents.

Kevin can be reached at ksmith@kesglobaladvisors.com.