PAGE
PHARMA ACADEMY FOR GLOBAL EXCELLENCE
An IPA Initiative

IPA
INNOVATION. QUALITY. GLOBAL REACH.

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PAGE Perspectives

The latest news and updates



Dear Stakeholders

Welcome to the inaugural edition of the PAGE newsletter. This edition covers PAGE's progress since March 2026.

It explores how technology, digitalization and AI are shaping the pharmaceutical industry's growth and workforce capabilities.

Let us delve into the insights.

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FROM THE

Director's Desk



Amitava Saha
Director & Head, Pharmaceutical Academy for Global Excellence

Key initiatives included:

- Open workshops for mid- and senior-level managers;
- Structured training for fresh graduates preparing for roles in manufacturing, quality and engineering;
- Customised training programs for existing employees across multiple companies and locations; and
- Partnerships with renowned institutions to engage final-year students and faculty members in more effective industry-academia collaboration.

As India's pharmaceutical sector aspires to grow threefold over the next five years, **Manufacturing and Quality Excellence**, underpinned by a sustained **"Quality First" culture**, will be critical to achieving this ambition. The workforce of today and tomorrow must be equipped to navigate rapid technological advancements, embrace evolving global best practices, and embed a culture of quality excellence across their organizations.

PAGE, an initiative of the **Indian Pharmaceutical Alliance (IPA)**, is a unique, industry-sponsored institution dedicated to building capabilities across diverse workforce segments to address these emerging challenges. Our carefully curated programs combine real-world industry insights, hands-on experiential learning, and exposure to the latest global developments. Delivered by seasoned industry experts, including leaders who have headed global functions at reputed organizations, these programs are designed to translate knowledge into practical capabilities and drive sustained improvements in manufacturing performance, quality excellence and organizational culture.

This year marked PAGE's transition from establishing the institution to actively building capabilities.

As AI and digital transformation reshape pharmaceutical operations across the value chain, learning programs must evolve at the same pace to ensure genuine workforce readiness.

PAGE training modules use virtual reality to familiarise learners with equipment and support trainee evaluation. This approach provides an authentic shop-floor experience while building confidence with emerging technologies.

At PAGE, we believe this is only the beginning. With a continued focus on building shop-floor capabilities, we will expand our presence across multiple pharmaceutical hubs, introduce new learning modules, and strengthen and consolidate our faculty network to build a more focused and effective learning ecosystem.

We invite industry partners, academic institutions and domain experts to join us in building the workforce India's pharmaceutical sector needs to lead globally.

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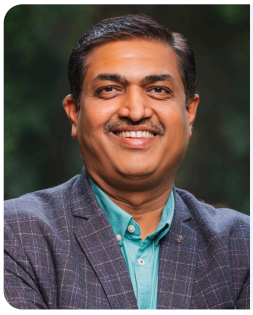
PAGE's Global Advisory Council provides independent strategic guidance and industry perspectives to shape its training offerings, address emerging capability needs and strengthen its long-term impact.



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PROGRESS

Momentum Since March 2026

650+
Participants trained

24
Programs conducted

25
Pharmaceutical companies engaged

Since March 2026, PAGE has progressed from building to active capability delivery. Today, our portfolio includes freshers training programs, employee training programs and open workshops. Technology, including VR simulations and AI-supported learning, complements our focus on practical training. We continue to refine these offerings based on industry input, participant feedback and emerging capability requirements.

Pharma Pulse

Tech-Powered Skilling: The New Benchmark for Pharma Excellence

Technology is clearing the way for operational efficiencies like never before. It can complement classroom learning through simulations and practical exposure. This works in two ways:

- Building a hands-on environment for young professionals entering the sector. For instance, Cipla uses VR headsets to offer practical skills to its team[1].
- Upskilling mid-level & senior pharma professionals to keep pace with the changing sectoral needs.

PAGE has started using VR-based training in partnership with 8chili to complement classroom learning and hands-on practice. Together with industry partners, we aim to strengthen workforce capabilities through practical, scenario-based learning that prepares participants for manufacturing and quality roles.

AI and Automation in Pharma Operations

The pharma sector is moving from manual inspection to a smart world where artificial intelligence, machine learning, and digital processes take the lead. Some of the newer innovations include:

- AI systems to automate manufacturing. For instance, Sun Pharma has deployed smart technology to count pills, detect defects, and enable efficient assembly operations[2].
- AI-led automation that bolsters productivity and helps plan earlier interventions in pharma operations. For example, Lupin saved ₹42.8 crore in costs and reclaimed 34,336 man-days by automating mundane tasks[3].

PAGE is using technology-enabled learning, including VR-based simulations, in selected programs and is exploring further digital learning applications with industry partners.

[1] Sanjivani Sadani, "Technical capability in virtual reality and the future of learning," LinkedIn, November 5, 2025,

[2] Jitesh Jadhav, "How AI enhanced the quality of pharma packaging in the last two years," Express Pharma, February 13, 2026,

[3] Ramesh Swaminathan, "Lupin's AI-led transformation delivers ₹428 million in savings, reclaims 34,336 man-days in FY26," Lupin, August 29, 2026,

CXO PERSPECTIVES:

Geena Malhotra, CTO, Torrent Pharmaceuticals



Geena Malhotra
Chief Technology Officer, Torrent Pharmaceuticals Limited
Member, Board of Directors, PAGE

The workforce transformation is: Operator → Technician → Process owner → Digitally and Scientifically capable problem solver. The leadership challenge is to build that capability before the technology arrives. Ultimately, our competitive advantage will be the capability of the people who extract its full value—safely, scientifically, and consistently.

How do you see the Indian pharma industry evolving over the next five years, and how will that change the workforce profile on the shop floor?

Indian pharma is moving from scale-led to technology- and science-led manufacturing. India supplies one-fifth of global generic medicines, and the industry is targeting $120–130 billion by 2030, shifting from volume to value with complex generics, biosimilars, and innovation.

The shop floor of the future will move towards automation, connected equipment, real-time data, AI, and advanced process controls. Therefore, the biggest change will be in the person standing next to the machine. We must move from the traditional machine operator to a digitally fluent manufacturing technician who understands the process, equipment, data, and underlying science. This aligns with Pharma 4.0 thinking: ISPE identifies digital literacy, data fluency, automation, AI/ML, and process optimisation as critical workforce capabilities.

However, the future shop floor cannot be built around one discipline. We need multidisciplinary capability at the point of manufacturing—pharmaceutical scientists working alongside industrial, automation, electrical, mechanical, and data engineers. Progressive companies are moving in this direction because optimising a highly automated process requires an understanding of both the formulation and the machine.

Our workforce transformation cannot stop with Operations. If Manufacturing becomes Pharma 4.0 but Quality largely remains Pharma 2.0, we create a capability mismatch. Quality must understand automation, process capability, data science, equipment, scale-up and risk-based process control—not simply review SOP compliance. Both functions must understand what the process is scientifically capable of doing and how that capability is controlled.

As AI, automation, analytics, and rapid digitalization transform the Indian Pharma industry, what would be the critical skills necessary for success on the shop floor?

When we established India's first pharmaceutical Fourth Industrial Revolution Lighthouse facilities, we learned technology is only 20% of the equation; the other 80% is capability, operating model, and mindset. While digital solutions can unlock up to 50% productivity gains, we must transition frontline teams away from gut-feel decision-making towards data-backed, prescribed operations. This requires three critical skills:

CXO PERSPECTIVES (CONTINUED)

Human-AI integration: Rather than memorising procedures, operators must leverage digital tools on the go—retrieving SOPs, synthesising manuals and logs for live troubleshooting, and analysing batch records to auto-draft deviation narratives and CAPA reports in real time.

Predictive data interpretation and insight: With advanced analytics creating digital twins of manufacturing lines, technicians must interpret predictive dashboards and intervene when a model warns of an impending batch variance.

In-line quality understanding: As we adopt real-time release testing, frontline teams must understand the science behind automated process alerts. Technology gives them a digital compass to ensure we get things right the first time.

How should PAGE position itself to help the industry in building a future-ready workforce and a sustained culture of manufacturing and quality excellence?

PAGE is a vital initiative backed by a $50 million commitment from the Indian Pharmaceutical Alliance. With nearly 70% of manufacturers reporting that fresh graduates are not job-ready on day one, PAGE should act as the industry's hands-on training ground rather than a traditional classroom.

First, PAGE must bridge the gap between academic theory and shop-floor reality, including upskilling in digital technologies & AI. At its upcoming Ahmedabad campus, full-scale simulator suites will allow students and employees to practice sterile line clearances, handle digital batch execution, and troubleshoot automated systems in a risk-free environment.

Second, PAGE must shape a proactive quality culture. Compliance is built through behavior, not policing. PAGE should train the future workforce to see quality as an intrinsic part of design, creating an environment where proactive flagging is the norm.

Finally, PAGE can act as a hub to scale proven solutions, serving as a platform to share and democratise digital and operational best practices across the entire Indian pharma ecosystem.

If you were to choose 3 critical investments in people which would have the greatest impact for the Indian pharma industry in the next 5 years, what would they be?

If Indian pharma wants to maintain global leadership, our investment in human capability must match our investment in facilities, technology, and automation. ISPE's Pharma 4.0 framework explicitly highlights that digital transformation requires new organisational capabilities, identifying lack of competence, validation complexity, and technology readiness as major challenges.

My three priorities for investment in people are:

Frontline Digital, Automation, and AI Academies: Take digital capability right to operators and supervisors—MES, automated systems, AI, data integrity, and digital batch execution. Beyond technology, build ethical judgment and the confidence to speak up.

Line-Level Quality Engineering and Error Prevention: Bring Quality, Engineering, and Manufacturing together at the machine to design errors out of the process through automation, interlocks, sensors, and better process design. Leaders should ask, "Why was the mistake possible?" rather than "Who made the mistake?"

Cross-Disciplinary Talent and Ethical Leaders: Build leaders who understand science, engineering, data, and AI, while possessing the human leadership skills to listen, challenge hierarchy, handle bad news, and create psychological safety.

In summary:

Digital capability, Quality by Design, and human leadership. Our competitive advantage will come from people who know how to use smart machines responsibly—and leaders who create an environment where people feel safe to do the right thing.

IN THE SPOTLIGHT

PACE Expands Across Pharmaceutical Hubs

PAGE's Active Classroom Education (PACE) initiative made its Hyderabad debut with a session on regulatory inspection readiness, steered by Dr. Rajiv Desai, senior technical advisor at the Indian Pharmaceutical Alliance. More than 40 professionals from six pharmaceutical companies worked through inspection preparedness, compliance gaps, and recent regulatory observations in a case-led format designed to build year-round readiness, rather than just pre-inspection scrambles. A useful reminder that compliance culture cannot be switched on overnight.



Growing PACE: *Dr. Rajiv Desai led PAGE's Hyderabad session on year-round regulatory inspection readiness.*

Hands-On OSD Training Takes Off

PAGE developed a pilot Oral Solid Dosage laboratory at LM College of Pharmacy for practical, hands-on OSD training. PAGE has conducted two fresher training batches for Ajanta Pharma at the laboratory under the KAUSHAL program. The laboratory complemented classroom sessions with hands-on learning using live machinery, application based activities & workplace-focused assessments.

The Goal: Strengthen shop-floor readiness through practical exposure to equipment, processes and workplace requirements.





Applied Mastery: *Inside the PAGE pilot plant at LM College of Pharmacy, connecting OSD theory with shop-floor practice for participants.*

IN THE SPOTLIGHT (CONTINUED)

NIRMAAN With Mankind Pharma

PAGE conducted the NIRMAAN program at Mankind Pharma's Paonta Sahib site, introducing fresh graduates to quality culture, quality management systems, laboratory techniques, and workplace behaviours across oral solid dosage and sterile manufacturing. VR-enabled learning and practical discussions helped participants connect technical concepts to real compliance and patient safety requirements, grounding new entrants in operational fundamentals before they reach the shop floor.





Virtual Reality: *NIRMAAN participants and VR-enabled learning at Mankind Pharma's Paonta Sahib site.*

Visits and Industry Discussions

PAGE strengthened its industry engagement through visits to manufacturing plants of pharmaceutical companies, laboratories and centres of excellence, and participation in industry events. PAGE also hosted a Discussion over Dinner in Hyderabad with pharmaceutical training heads to explore capability needs, training priorities and developments in automation and AI. These interactions offered perspectives on shop-floor requirements, practical learning and workforce readiness, helping PAGE shape its future programs around the pharmaceutical sector's evolving skill and competency needs.





Industry Connect: *PAGE's industry engagement through discussions with pharmaceutical training leaders and visits to industry facilities.*

ON THE HORIZON

PACE Footprint Over the Next Six Months



Upcoming PACE locations

- Hyderabad
- Indore
- Vizag
- Vadodara
- Baddi
- Goa

The programs will address current topics in pharmaceutical quality, manufacturing, compliance and operational excellence through case-based discussions and practical industry perspectives. As inspection scrutiny intensifies, timely learning delivered close to the workplace has never mattered more.

Operator Capability Development In Focus

Operator training remains a priority for PAGE. Upcoming programs will combine hands-on equipment practice, workplace behaviour development and structured assessments. Participants will practise following standard operating procedures, recording work accurately and identifying when to escalate a deviation. The aim is to help operators connect classroom learning with the tasks and decisions they face on the shop floor.

Focused Employee Capability Building

PAGE is developing company-specific employee programs focused on manufacturing, quality culture, regulatory readiness and operational efficiency. These programs emphasise skill development and competency-based learning, alongside equipment-specific learning in collaboration with original equipment manufacturers (OEMs). The content is tailored to each company's capability needs and operating context.

ABOUT

About PAGE

PAGE
PHARMA ACADEMY FOR GLOBAL EXCELLENCE
An IPA Initiative

The Pharmaceutical Academy for Global Excellence was formed to establish a worldclass, cutting-edge institute that provides state-of-the-art training to fresh graduates, operators and existing employees of pharmaceutical companies, promoting a culture of manufacturing and quality excellence. It is an initiative of the Indian Pharmaceutical Alliance (IPA) and promoted by 14 leading pharma companies.

Enjoying PAGE Perspectives?

PAGE works with pharmaceutical companies, institutions, and subject-matter experts to create industry-relevant learning programs for fresh graduates, operators, and seasoned teams.

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Website

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