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**HISTORIC ADVANCEMENT IN KERALA'S EMPLOYMENT SECTOR:  
₹9,000 CRORE GERMAN INVESTMENT ANNOUNCED**

# HISTORIC ADVANCEMENT IN KERALA'S EMPLOYMENT SECTOR: ₹9,000 CRORE GERMAN INVESTMENT ANNOUNCED



14 December 2025 marked a moment of great pride for Kerala's employment and skill development ecosystem. This development stands as a strong endorsement of the Government's commitment to making skill training accessible to all and to creating world-class employment opportunities within the State.

Kerala is home to a pool of internationally reputed talent, nurtured through decades of investment in education, social development, and human capital. Recognising both the aspirations of this talent and the global opportunities available to them, the State has actively sought to cultivate and retain this potential. Under the leadership of the Labour and Skills Department, focused efforts have been undertaken to align skill development with innovation, industry needs, and global benchmarks, creating a fertile environment for high-value employment generation.

In furtherance of this objective, the Department has initiated measures to attract international investment communities to invest in Kerala and create employment opportunities for the State's talent pool.

As part of this effort, the first delegation of an international investment community was brought to Kerala by the Kerala Academy for Skills Excellence (KASE). Labour and Skills Department, marking the beginning of sustained engagement with global stakeholders and paving the way for subsequent discussions and deliberations on investment and employment collaboration. During discussions held with the delegation by the Hon'ble Minister for Labour and Skills, Shri V. Sivankutty, the Hon'ble Minister for Finance, Shri K. N. Balagopal, and senior officials, Kerala's robust industrial and employment ecosystem was clearly articulated, and the Government's full support for potential investments was assured. Those deliberations have now translated into tangible outcomes.

A consortium of five leading universities in Germany, operating under the banner "Next Gen Startup Factory (NXTGN)", has expressed readiness to make a substantial investment in Kerala. An investment corpus exceeding ₹9,000 crore (approximately one billion euros) has been earmarked for this initiative. The project is primarily focused on promoting innovation-led deep-tech enterprises.

The agreement signed on 14 December 2025 between the Kerala Academy for Skills Excellence (KASE) and the Kerala Startup Mission (KSUM) represents a significant milestone in the State's industrial and employment history. This collaboration is expected to facilitate the establishment of nearly 300 new deep-tech startups across Kerala.

The signing ceremony was graced by the presence of the Hon'ble Chief Minister of Kerala, Shri. Pinarayi Vijayan, along with the Hon'ble Minister for Labour and Skills, Shri V. Sivankutty. The German delegation representing Next Gen Startup Factory (NXTGN) included Mr. Thomas Neumann, Ms. Rubina Zern-Breuer, and Mr. Bernhard Krieger.

Senior officials and key stakeholders present on the occasion included Shri Shanavas S IAS, Special Secretary, Labour Department; Shri. Seeram Sambasiva Rao IAS, Special Secretary, Department of Electronics and Information Technology; Shri. Vinod T. V., Chief Operating Officer, KASE; and Shri. Anoop Ambika, Chief Executive Officer, Kerala Startup Mission. Actor Shri. Nivin Pauly also graced the occasion.

This initiative will enable Kerala's highly educated youth, one of the State's most valuable assets, to access internationally benchmarked employment opportunities within Kerala itself. It is also expected to significantly curb talent migration by fostering a vibrant innovation ecosystem that integrates advanced skill development, research excellence, and high-value job creation within the State.



# KASE ADVANCES GLOBAL SKILLS AND ETHICAL MOBILITY THROUGH STRATEGIC INDO-GERMAN COLLABORATION

The Kerala Academy for Skills Excellence (KASE) marked a significant milestone in its international engagement and global mobility initiatives with the visit of His Excellency Dr. Philipp Ackermann, German Ambassador to India and Bhutan, to the Goethe-Zentrum Trivandrum on 12th December 2025. The visit underscored KASE's expanding role in strengthening Indo-German cooperation in skills development, German language excellence, and ethical talent mobility.

A key highlight of the occasion was the formal signing of a Memorandum of Understanding between KASE and the Goethe-Institut, New Delhi, at the Goethe-Zentrum Trivandrum. The programme featured a special address by Dr. Maria Stuckenberg, South Asia Regional Director, Goethe-Institut, followed by the chief guest address by Ambassador Dr. Philipp Ackermann, who acknowledged KASE's pivotal role in deepening Indo-German collaboration in the domains of skills, language education, and sustainable mobility.

The MoU was signed by Mr. Vinod T. V., Chief Operating Officer, KASE, and Dr. Alexandra Mittler, South Asia Deputy Director and Head of the Language Department, Goethe-Institut, formalising a long-term institutional partnership aligned with global best practices. The event also included an address by Mr. Ajith Kolassery, Chief Executive Officer, NORKA Roots, highlighting the convergence of state-led initiatives in supporting ethical migration and overseas employment. The programme concluded with the Vote of Thanks by Mr. Liju George, Project Head, TripleWin Kerala & Telangana.

This landmark engagement reaffirms KASE's strategic vision of positioning Kerala as a global hub for skilled, language-ready, and ethically mobilised talent, while strengthening institutional partnerships that enable sustainable international career pathways for the State's youth.



# EMPOWERING THE NEXT GENERATION: DSDCs SPEARHEAD VACATION DIGITAL LITERACY DRIVE



During the recent Christmas vacation, District Skill Development Centres (DSDCs) across Kollam, Palakkad, and Kozhikode successfully conducted intensive computer training programs aimed at high school students. The initiative was designed to bridge the digital divide by equipping students with fundamental computer knowledge and practical technical skills during their holiday break.

The training modules offered a robust introduction to digital literacy. Students began with computer fundamentals and component identification before advancing to practical applications. Key areas of training included:

- **Office Automation:** Hands-on training in MS Word for document creation, MS Excel for data management and calculations, and MS PowerPoint for presentation design.
- **Internet Proficiency:** Instruction on effective web browsing, email management, and essential online safety protocols.

The special vacation batches commenced on December 29 and concluded on January 3. The programs saw successful student mobilization through a collaborative network involving Kudumbashree CDS, social media platforms, Common Service Centres (CSCs), the Public Relations Department, and local youth clubs.

The initiative received a highly positive response across all districts, reflecting a growing interest in digital upskilling among the youth. Notably, the sessions were expertly managed by Mr. Sarath S (Business Development Executive, Kollam), Mrs. Soorya KR (Business Development Executive, Kozhikode), and Mrs. Sethulakshmi M (Business Development Executive, Palakkad). By the conclusion of the course, students demonstrated enhanced confidence in their digital capabilities, marking the vacation drive as a productive and impactful educational endeavor.

# KASE CONNECTS WITH STUDENTS ON FUTURE SKILLS AND EMPLOYABILITY AT DISHA 2025



The DISHA 2025 Higher Studies Expo, organised by the Government of Kerala, was successfully conducted at Nehru Stadium, Kottayam, from 20 to 24 November 2025. The event was hosted by the Career Guidance and Adolescent Counselling Cell of the General Education Department, with the objective of providing comprehensive guidance to students and parents on higher education opportunities and future career planning.

The expo brought together more than 85 national- and state-level higher education institutions, along with an international career conclave, creating a platform for students to explore various courses, admission procedures, scholarship schemes, and emerging career pathways.

The Kerala Academy for Skills Excellence (KASE) also set up an informative stall at the expo, where

students were introduced to new-generation skill development courses and career-focused training programmes. Special emphasis was given to PMKVY 4.0 (Pradhan Mantri Kaushal Vikas Yojana), highlighting its role in equipping youth with industry-relevant skills and enhancing employability.

The stall offered guidance and counselling to help students make informed decisions about their future. The activities at the KASE stall were carried out by DSC Noble M. George, BDE Sarath S., and BDE Gokul M., who actively interacted with students and addressed their queries.

In recognition of their valuable contribution, a token of appreciation was presented to KASE by Sri Umesh N. S., IAS, Director of General Education, acknowledging their effective participation and meaningful support in making the event a success.

# OFFICIAL DELEGATION FROM BIHAR VISITS KASE

An Official Delegation from Bihar, led by Shri. Deepak Anand IAS, Secretary, Labour Resources Department, and Shri. Biswajit Das Pattnaik, PMU Representative of Bihar Skill Development Mission, visited the Kerala Academy for Skills Excellence (KASE) on November 4, 2025. The visit was specifically organized to study and understand the best practices and models adopted in Kerala for effective skill development.

A meeting was convened at the KASE Headquarters in Thiruvananthapuram. Detailed presentations on the various schemes and projects of KASE were delivered to the visiting officials, facilitating a comprehensive overview of Kerala's successful skill initiatives. The dialogue also covered ways to strengthen inter-state collaboration and foster mutual growth. The meeting was attended by Shri. Sufiyan Ahmed IAS, Managing Director, Shri. Vinod T. V., Chief Operating Officer, Dr. Vinutha H. M., Senior Consultant (Documentation), and Shri. Subin Das S, Manager (Operations & Strategy).

The interaction provided an excellent opportunity for the Governments of Bihar and Kerala to deepen their partnership in skill development and industrial growth. The exchange of ideas and experiences will undoubtedly contribute to the socio-economic development of both states.



# LIFE SCIENCES SERVICES AND THE SKILLS POWERING THEM WHY LIFE SCIENCES SERVICES MATTER NOW

India's life sciences sector – particularly Contract Research Organizations (CROs), Contract Development & Manufacturing Organizations (CDMOs), and integrated CRDMOs – is attracting significant global interest as part of the broader pharmaceutical and biotechnology value chain. According to industry projections, India's CRDMO market could reach USD 22–25 billion by 2035, reflecting the nation's increasing role in outsourced drug discovery, development, and manufacturing work.

At the BioAsia 2025 summit, the state of Telangana secured ₹11,100 crore in life sciences investments, expected to generate over 22,300 jobs in research, manufacturing, digital health, and regulatory functions. These trends show that life sciences services are evolving from traditional manufacturing toward knowledge-intensive, global service segments requiring a diverse set of skills.

### Skills in Demand: Science Meets Services

As life sciences services evolve, the focus is shifting toward knowledge-intensive and digitally enabled roles, including:

- **Clinical Research & Data Management:** Skills in clinical data handling, remote trials, and digital platforms.
- **Regulatory Affairs & Compliance:** Expertise in global regulatory standards (USFDA, EMA, CDSCO), regulatory documentation, and audit readiness.
- **Bioinformatics & Data Analytics:** Application of computational tools and analytics in drug discovery and life sciences research.
- **Business & Scientific Services:** Roles supporting partnerships, project coordination, and global client engagement within CRO/CDMO firms.



These roles combine scientific understanding with digital and regulatory capabilities, making them central to modern life sciences ecosystems.

### Skilling Initiatives & Workforce Trends

To meet growing demand, targeted skilling initiatives are emerging across India. For instance, state-led partnerships and certification programmes in regulatory affairs, clinical research, and compliance are being introduced to make graduates industry-ready and aligned with global standards. At the industry level, leading life sciences service companies continue to expand recruitment in research, regulatory, and analytical roles, signalling sustained demand for specialised skills.

### Ecosystem Growth Signals Wider Skill Demand

Regional developments also signal expanding opportunities in life sciences services:

- Hyderabad and Telangana are emerging as major hubs, with significant investment inflows, job creation, and strategic life sciences policies that promote research, innovation, and workforce development.
- Kerala's own BioConnect summit has been established as a platform to bring together industry, researchers, startups, and policymakers to explore collaborations and partnerships in biotechnology and healthcare innovation, strengthening Kerala's engagement with the broader life sciences community.

These developments reflect a broader shift in India's life sciences landscape — from traditional manufacturing to services and innovation-led segments, necessitating a new generation of skilled professionals.

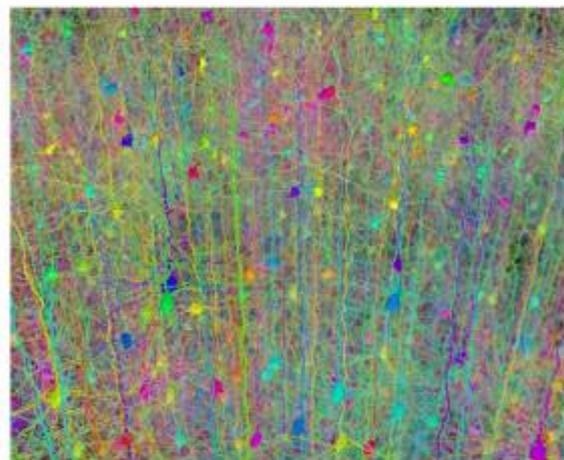
### The Skill Takeaway

The growth of CROs and CDMOs highlights a clear shift: life sciences careers are no longer limited to laboratories or manufacturing floors. Instead, they increasingly depend on scientific services, regulatory expertise, and digital capabilities. Building skills at this intersection will be critical for regions and professionals seeking to participate in the next phase of global life sciences growth.

## SKILL TERM

### In-Silico Validation Science :

In-Silico Validation Science refers to the use of computational models, simulations, and digital datasets to predict, validate, and optimise biological and pharmaceutical outcomes without physical experimentation. It supports drug discovery, safety assessment, and regulatory documentation by enabling faster, cost-efficient, and environmentally sustainable research. This skill is increasingly critical in CRO and CDMO operations where digital evidence complements wet-lab and clinical data.



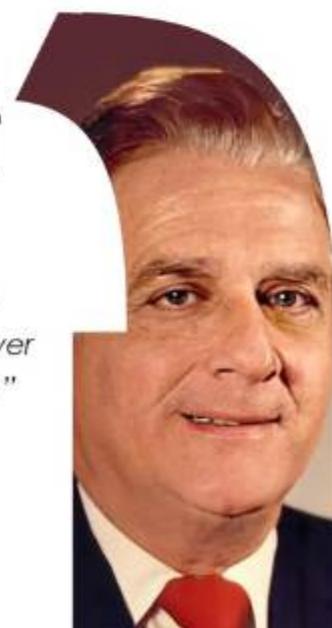
Sector: Life Sciences sector

## SKILL THOUGHT

*"Develop a passion for learning. If you do, you will never cease to grow"*

**Anthony J.  
D'Angelo**

*Author and  
Motivational  
Speaker*



# മേക്കപ്പ് ആൻഡ് ബ്യൂട്ടിഷ്യൻ വർക്ക്ഷോപ്പ്: സൗന്ദര്യ പരിപാലന രംഗത്തെ അവസരങ്ങളുമായി കോഴിക്കോട് ഡി.എസ്.ഡി.സി.

കോഴിക്കോട് ജില്ലാ സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ (ഡി.എസ്.ഡി.സി.), ഐ.എം.എ.സി. ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് കോസ്മറ്റോളജി, കോഴിക്കോട്, എന്നിവയുടെ സംയുക്ത ആഭിമുഖ്യത്തിൽ മേക്കപ്പ് ആൻഡ് ബ്യൂട്ടിഷ്യൻ വർക്ക്ഷോപ്പ് വിജയകരമായി സംഘടിപ്പിച്ചു. 2025 നവംബർ 1-ന് രാവിലെ 10:00 മുതൽ വൈകുന്നേരം 3:30 വരെ ഡി.എസ്.ഡി.സി.യുടെ ആസ്ഥാനത്ത് വെച്ചാണ് ഈ പരിശീലന പരിപാടി നടന്നത്. സൗന്ദര്യ പരിപാലനവും കോസ്മറ്റോളജി മേഖലയിലെ അടിസ്ഥാനപരമായ അറിവും പ്രായോഗിക പരിശീലനവും പരിശീലനാർത്ഥികൾക്ക് നൽകി അവരെ ശാക്തീകരിക്കുക എന്ന ലക്ഷ്യത്തോടെയാണ് ഈ വർക്ക്ഷോപ്പ് രൂപകൽപ്പന ചെയ്തത്. നൈപുണ്യാധിഷ്ഠിത പഠനം പ്രോത്സാഹിപ്പിക്കുക, സൗന്ദര്യ വ്യവസായത്തിലെ വർദ്ധിച്ചുവരുന്ന തൊഴിൽ, സംരംഭക സാധ്യതകൾ എടുത്തു കാണിക്കുക, പ്രത്യേകിച്ച് വനിതകളെ സ്വയംതൊഴിൽ കണ്ടെത്താൻ പ്രോത്സാഹിപ്പിക്കുക തുടങ്ങിയവയും ഈ വർക്ക്ഷോപ്പിന്റെ പ്രധാന ലക്ഷ്യങ്ങളിൽ ഉൾപ്പെട്ടിരുന്നു. വർക്ക്ഷോപ്പിൽ പങ്കെടുത്ത 42 പരിശീലനാർത്ഥികളെ മികച്ച പ്രായോഗിക പഠനം ഉറപ്പാക്കുന്നതിനായി രണ്ട് ബാച്ചുകളായി തിരിച്ചിരുന്നു.

ഐ.എം.എ.സി. ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് കോസ്മറ്റോളജിയിലെ പരിചയസമ്പന്നരായ പരിശീലകരാണ് സെഷനുകൾക്ക് നേതൃത്വം നൽകിയത്. കോസ്മറ്റോളജി പരിചയപ്പെടുത്തൽ, പ്രൊഫഷണൽ ഗ്രൂമിംഗിന്റെ പ്രാധാന്യം, കൂടാതെ നിത്യോപയോഗത്തിനും പ്രൊഫഷണൽ ആവശ്യങ്ങൾക്കുമുള്ള മേക്കപ്പ് രീതികൾ പരിചയപ്പെടുത്തിക്കൊണ്ടുള്ള രണ്ട് തത്സമയ സെൽഫ്-മേക്കപ്പ് ഡെമോൺസ്ട്രേഷനുകൾ എന്നിവ വർക്ക്ഷോപ്പിലെ മുഖ്യ ആകർഷണങ്ങളായി. ഈ പ്രായോഗിക പരിശീലനം പരിശീലനാർത്ഥികൾക്ക് വിലപ്പെട്ട അനുഭവം നൽകുകയും, പലരെയും ഉയർന്ന നിലവാരമുള്ള നൈപുണ്യ പരിശീലന കോഴ്സുകളെക്കുറിച്ച് ചിന്തിക്കാൻ പ്രേരിപ്പിക്കുകയും ചെയ്തു. നൽകിയ പരിശീലനത്തിന്റെ ഗുണനിലവാരത്തെക്കുറിച്ചും പ്രായോഗികതയെയും പരിശീലനാർത്ഥികൾ അഭിനന്ദിച്ചു. കോസ്മറ്റോളജി രംഗത്തെ അവസരങ്ങളെക്കുറിച്ച് പരിശീലനാർത്ഥികൾക്ക് പ്രായോഗിക വൈദഗ്ദ്ധ്യവും അവബോധവും നൽകുക എന്ന ലക്ഷ്യം ഈ വർക്ക്ഷോപ്പ് വിജയകരമായി പൂർത്തിയാക്കി. കോഴിക്കോട് ജില്ലാ സ്കിൽ ഡെവലപ്മെന്റ് സെന്റർ ഇനിയും കൂടുതൽ തൊഴിലധിഷ്ഠിത വർക്ക്ഷോപ്പുകൾ സംഘടിപ്പിക്കാൻ പദ്ധതിയിടുന്നതായി അറിയിച്ചു.



# സ്വയംതൊഴിൽ പ്രോത്സാഹനം: 'SELL FROM HOME' എന്ന വിഷയത്തിൽ വനിതാ സംരംഭകത്വ വർക്ക്ഷോപ്പ് വിജയകരം



കോഴിക്കോട് ജില്ലാ സ്കിൽ ഡെവലപ്മെന്റ് സെന്ററിന്റെ (ഡി.എസ്.ഡി.എസ്.) ആഭിമുഖ്യത്തിൽ, ട്രൂട്ടർ അക്കാദമിയുമായി സഹകരിച്ച് "Sell From Home" എന്ന വിഷയത്തെ അടിസ്ഥാനമാക്കി വനിതാ സംരംഭകത്വ വർക്ക് ഷോപ്പ് സംഘടിപ്പിച്ചു. 2025 നവംബർ 15-ന് രാവിലെ 10:30 മുതൽ ഉച്ചയ്ക്ക് 1:30 വരെ ഡി.എസ്.ഡി.സി. കേന്ദ്രത്തിൽ വെച്ച് നടന്ന ഈ പരിശീലന പരിപാടി, വീടുകൾ കേന്ദ്രീകരിച്ചുള്ള ബിസിനസ് സംരംഭങ്ങൾ ആരംഭിക്കുന്നതിന് ആവശ്യമായ അറിവും നൈപുണ്യവും വനിതാ പരിശീലനാർത്ഥികൾക്ക് ലഭ്യമാക്കുക എന്ന സുപ്രധാന ലക്ഷ്യത്തോടെയാണ് നടപ്പിലാക്കിയത്. വീടുകളിൽ നിന്നുള്ള സംരംഭകത്വ സാധ്യതകളെക്കുറിച്ച് അവബോധം നൽകുക, ചെറുകിട ബിസിനസ്സുകൾ തുടങ്ങാനുള്ള പ്രായോഗിക വൈദഗ്ധ്യം പകരുക, കൂടാതെ ബിസിനസ് വളർച്ചയ്ക്ക് അത്യാവശ്യമായ ഡിജിറ്റൽ ഉപകരണങ്ങളും വിപണന തന്ത്രങ്ങളും പരിചയപ്പെടുത്തുക തുടങ്ങിയവയും ഈ പദ്ധതിയുടെ പ്രധാന ലക്ഷ്യങ്ങളായിരുന്നു. വിവിധ വിദ്യാഭ്യാസ-സാമൂഹിക പശ്ചാത്തലങ്ങളിൽ നിന്നുള്ളവരും 18-നും 35-നും ഇടയിൽ പ്രായമുള്ളവരുമായ 25 വനിതാ പരിശീലനാർത്ഥികൾ വർക്ക്ഷോപ്പിൽ പങ്കെടുത്തു. പൊതുജനസമ്പർക്ക വകുപ്പ് (പി.ആർ.ഡി.), കുടുംബശ്രീ ശൃംഖലകൾ, സാമൂഹ്യമാധ്യമ പ്രചാരണങ്ങൾ, റെസിഡൻസ്

അസോസിയേഷനുകൾ, യൂത്ത് ക്ലബ്ബുകൾ, കോമൺ സർവീസ് സെന്ററുകൾ എന്നിവയുൾപ്പെടെയുള്ള വിവിധ മാർഗ്ഗങ്ങളിലൂടെയാണ് പരിശീലനാർത്ഥികളുടെ പങ്കാളിത്തം ഉറപ്പുവരുത്തിയത്.

ട്രൂട്ടർ അക്കാദമിയിലെ വിദഗ്ദ്ധർ നയിച്ച സെഷനുകളിൽ വീട്ടിലിരുന്ന് ചെയ്യാവുന്ന സംരംഭകത്വത്തിന്റെ സാധ്യതകൾ പരിചയപ്പെടുത്തുകയും, ബിസിനസ് ആസൂത്രണം, ഉൽപ്പന്ന വികസനം, ഡിജിറ്റൽ മാർക്കറ്റിംഗ്, സാമൂഹ്യമാധ്യമ ഉപയോഗം എന്നിവയെക്കുറിച്ചുള്ള പ്രായോഗിക മാർഗ്ഗനിർദ്ദേശങ്ങൾ നൽകുകയും ചെയ്തു. കൂടാതെ, വിജയകരമായ സംരംഭകരുടെ അനുഭവങ്ങളും പ്രചോദനാത്മകമായ ഇടപെടലുകളും സെഷനുകളുടെ ഭാഗമായി. ഈ വർക്ക്ഷോപ്പിനോടുള്ള പരിശീലനാർത്ഥികളുടെ പ്രതികരണം മികച്ചതായിരുന്നു. വിജയകരമായ ബിസിനസ് ആശയങ്ങൾ കണ്ടെത്തുന്നതിനും വീടുകൾ കേന്ദ്രീകരിച്ച് സംരംഭങ്ങൾ ആരംഭിക്കുന്നതിനും ആത്മവിശ്വാസം ലഭിച്ചതായി പലരും അഭിപ്രായപ്പെട്ടു. യുവ വനിതകൾക്കിടയിൽ സംരംഭകത്വ മനോഭാവം വളർത്തുന്നതിൽ ഈ വർക്ക്ഷോപ്പ് ഫലപ്രദമായി എന്ന് തെളിയിച്ചു. സമാനമായ പരിശീലന പരിപാടികളിലൂടെ വനിതകളെ തുടർന്നും പിന്തുണയ്ക്കാൻ ഡി.എസ്.ഡി.സി., കോഴിക്കോട്, ട്രൂട്ടർ അക്കാദമിയുമായി ചേർന്ന് ലക്ഷ്യമിടുന്നു.

# WHERE SKILLS MEET SCIENCE: KERALA'S NEXT GROWTH STORY

ARTICLE

## Kerala's Life Sciences Leap: Building a Skill-Driven, Green, and Globally Connected CRO/CDMO Ecosystem

Kerala stands at a decisive point in its economic journey. As Contract Research Organizations (CROs) and Contract Development and Manufacturing Organizations (CDMOs) reshape the global pharmaceutical and biotech landscape, regions with specialized skills and digital readiness are fast emerging as preferred destinations.

While India's CRO/CDMO clusters have traditionally grown around manufacturing-heavy ecosystems in Gujarat, Maharashtra, Karnataka, Telangana, and Andhra Pradesh, Kerala offers a differentiated proposition — one anchored in human capital, digital capability, and quality driven skilling.

With one of India's most educated workforces, strong healthcare institutions, and a robust IT backbone, Kerala is uniquely positioned to build a talent-led life sciences services economy — without replicating capital-intensive industrial models.

*"Kerala can export high-value life sciences services to the world — without exporting its people."*

### A Foundation Waiting to Be Activated

Every year, Kerala produces thousands of graduates in biotechnology, life sciences, pharmacy, and data science. Yet, limited local industry absorption forces many of these skilled professionals to migrate to other states or overseas.

This challenge now presents a strategic opportunity. By developing dry labs and digital life sciences services, Kerala can convert surplus talent into a high-value economic engine—anchored within the state and connected globally.

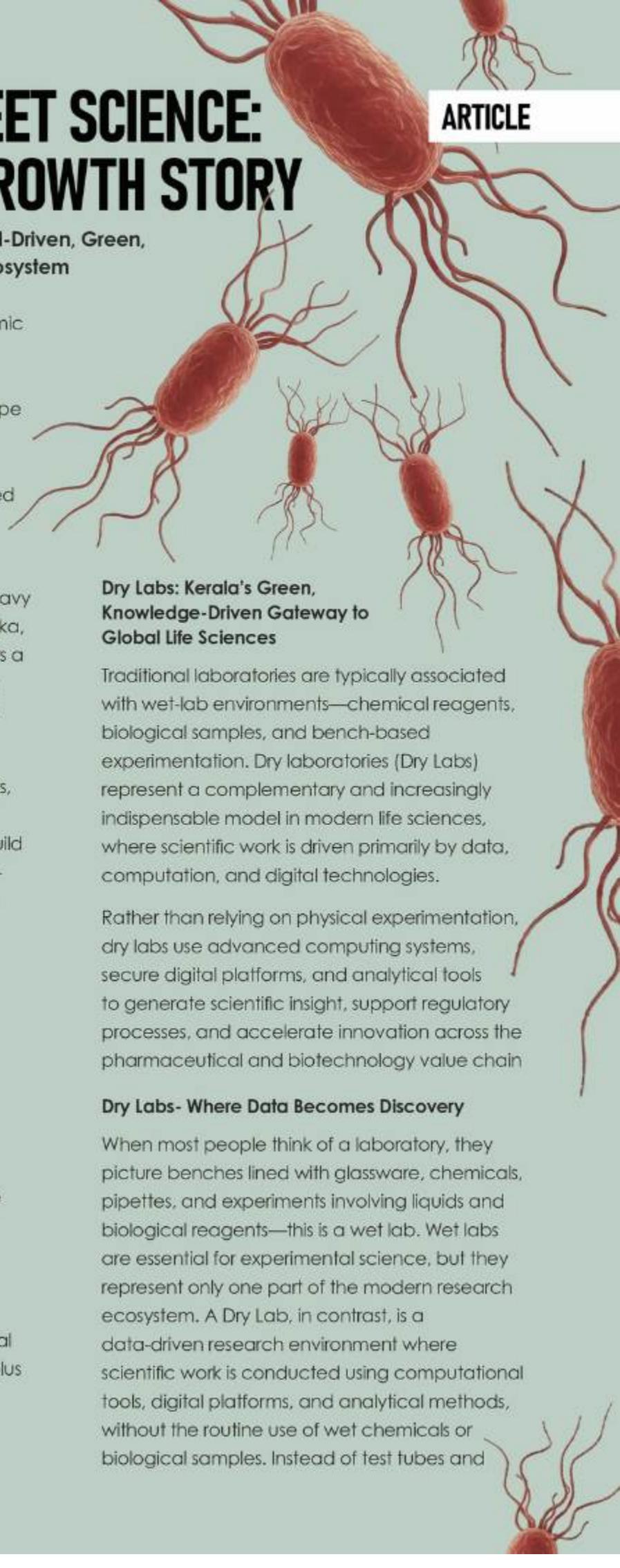
### Dry Labs: Kerala's Green, Knowledge-Driven Gateway to Global Life Sciences

Traditional laboratories are typically associated with wet-lab environments—chemical reagents, biological samples, and bench-based experimentation. Dry laboratories (Dry Labs) represent a complementary and increasingly indispensable model in modern life sciences, where scientific work is driven primarily by data, computation, and digital technologies.

Rather than relying on physical experimentation, dry labs use advanced computing systems, secure digital platforms, and analytical tools to generate scientific insight, support regulatory processes, and accelerate innovation across the pharmaceutical and biotechnology value chain

### Dry Labs - Where Data Becomes Discovery

When most people think of a laboratory, they picture benches lined with glassware, chemicals, pipettes, and experiments involving liquids and biological reagents—this is a wet lab. Wet labs are essential for experimental science, but they represent only one part of the modern research ecosystem. A Dry Lab, in contrast, is a data-driven research environment where scientific work is conducted using computational tools, digital platforms, and analytical methods, without the routine use of wet chemicals or biological samples. Instead of test tubes and



reagents, dry labs rely on datasets, algorithms, simulations, and secure computing infrastructure. Dry labs play a critical role across the pharmaceutical and biotechnology value chain. They support a wide range of scientifically intensive, high-value activities, including:

Clinical data analysis and management, including the processing and interpretation of clinical trial datasets

- Computational modelling and simulation, such as in-silico prediction of drug behaviour and biological interactions
- Regulatory science and documentation, including preparation of dossiers for global regulatory agencies
- Pharmacovigilance and drug safety monitoring, using real-world data and digital surveillance systems

Bioinformatics and artificial intelligence applications, enabling data-driven insights in genomics, proteomics, and systems biology. Collectively, these functions transform complex scientific data into actionable knowledge, making dry labs an essential component of contemporary Contract Research Organizations (CROs) and Contract Development and Manufacturing Organizations (CDMOs).

### **Dry Labs: A Smarter Path to Growth**

Globally, dry labs are gaining prominence as a preferred operational model due to several structural advantages:

- Lower capital intensity, as operations rely primarily on computing infrastructure rather than physical laboratories
- Rapid deployment timelines, enabling facilities to become operational within months
  - High dependence on skilled human capital, particularly in science, data analytics, and regulatory domains
  - Seamless integration into global

workflows, allowing teams to support international projects through digital collaboration

By enabling participation in high-value research and development activities without extensive physical infrastructure, dry labs allow regions to integrate into global life sciences value chains efficiently and competitively.

### **Kerala's Natural Suitability for Dry Lab Ecosystems**

Kerala possesses a distinctive set of structural and socio-economic advantages that make it particularly well-suited for the establishment and scaling of dry lab operations.

### **Human Capital Advantage**

The state consistently produces graduates in life sciences, pharmacy, biotechnology, information technology, and data science, forming a multidisciplinary talent pool that aligns directly with dry lab skill requirements.

### **Digital and IT Readiness**

Dry lab operations depend on secure data environments, advanced analytics, and high-performance computing. Kerala's established IT ecosystem and digital connectivity provide a robust foundation for such knowledge-intensive activities.

### **Environmental Sustainability**

From an environmental perspective, dry labs represent a low-impact scientific model:

- Minimal use of hazardous chemicals
- Negligible generation of laboratory waste
- Very low water consumption
- Reduced energy intensity compared to wet-lab or manufacturing facilities

This alignment with Kerala's ecological priorities positions dry labs as a sustainable pathway for scientific and economic growth.

## Quality of Life and Workforce Retention

The digitally enabled nature of dry lab work supports flexible and hybrid work models, enabling highly skilled professionals to engage in global scientific initiatives while remaining within the state. This contributes to talent retention, reduced migration, and improved workforce stability.

In short, dry labs do not replace traditional laboratories; they complement wet-lab and manufacturing ecosystems by strengthening data-driven research, regulatory science, and digital innovation. For Kerala, they offer a scientifically sound, environmentally responsible, and economically scalable pathway into the global CRO and CDMO landscape.

*"Kerala's human capital can become its biggest export — not through migration, but through high-value digital services anchored within the state."*

## STRATEGIC SKILLING & CAREER OPPORTUNITIES

### Strategic Skilling: The Core Enabler

The CRO/CDMO sector demands a blend of scientific expertise, regulatory insight, and digital fluency. By aligning skills with these industry needs, Kerala can offer investors a plug-and-play human capital advantage.

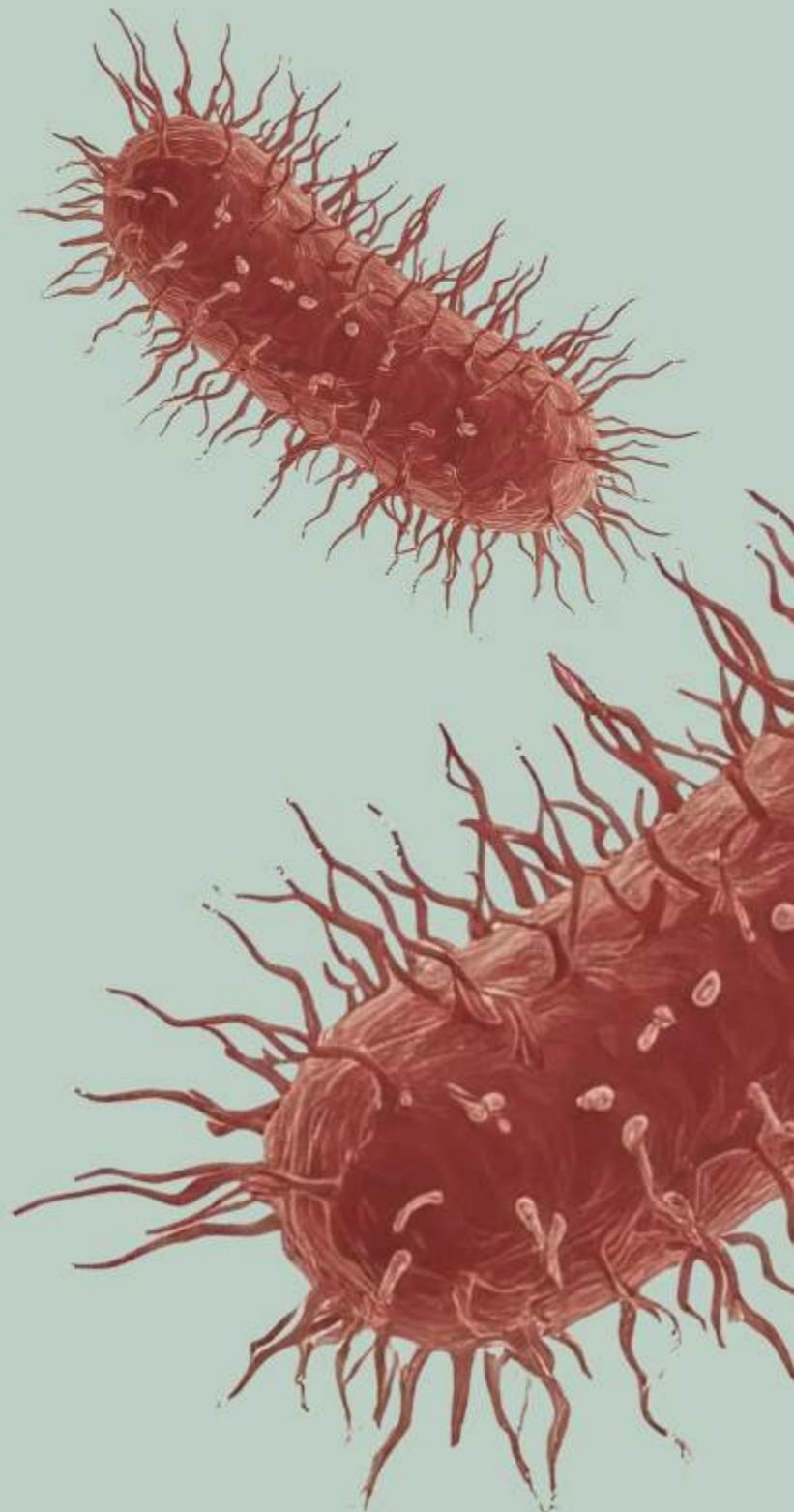
### Priority skill domains include:

- **Clinical Research & Trials:** Protocol design, site management, regulatory submissions, pharmacovigilance, and medical writing.
- **Bio manufacturing & Process Development:** GMP operations, bioprocessing, quality assurance, and tech transfer.
- **Regulatory Affairs & Compliance:** Understanding of global standards (USFDA, EMA, CDSCO), data integrity, and audit preparedness.
- **Digital Health & Data Management:** EDC systems, data analytics, AI applications in clinical trials, and cybersecurity.

- **Laboratory Skills:** Cell culture techniques, analytical testing, instrumentation handling, and documentation practices.

Short-term certification programs, embedded within universities and Centres of Excellence, can quickly make graduates industry-ready. Targeted policy incentives can further encourage companies to recruit this local talent base.

*"The future of life sciences careers lies at the intersection of science, regulation, and data."*



## BIO 360, ECOSYSTEM & POLICY ALIGNMENT

### Bio 360 Life Sciences Park: The Anchor Institution

Bio 360 Life Sciences Park at Thonnakkal Kerala's flagship 200-acre life sciences hub can act as the nerve centre for CRO/CDMO and dry lab growth.

Potential roles:

- Host dry lab operations such as regulatory writing, modeling, simulation, and bioinformatics.
- Act as an anchor cluster linking academia, startups, and industry.
- Enable policy incentives and incubation facilities to attract CRO/CDMO firms.
- Leverage Kerala's digital backbone to support secure, global operations.
- House Centres of Excellence for regulatory affairs, clinical research, and data analytics.

With focused investment, Bio 360 can evolve into a national hub for preclinical and regulatory services, encouraging reverse migration of skilled professionals and stimulating biotech entrepreneurship.

### Ecosystem Enablers: Turning Potential into Policy

To convert this opportunity into a sustainable growth story, Kerala needs a targeted ecosystem strategy. Key enablers include:

- Aligning academic curricula with CRO/CDMO requirements
- Offering clear regulatory pathways and fiscal incentives
- Encouraging reverse migration of skilled professionals
- Leveraging secure digital infrastructure for global service delivery
- Positioning Kerala as a national hub for preclinical and regulatory services

*"Where talent thrives, global science follows."*

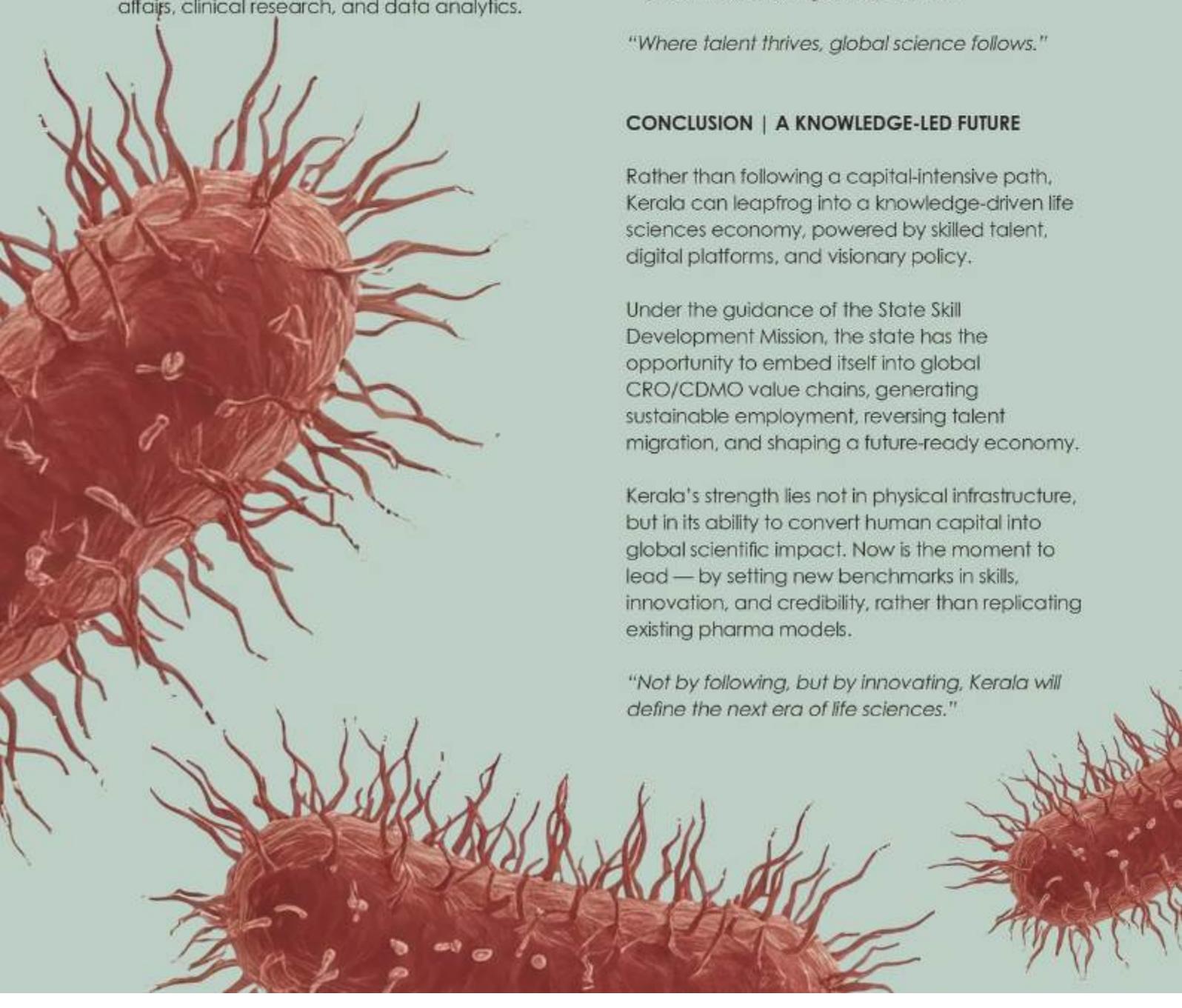
## CONCLUSION | A KNOWLEDGE-LED FUTURE

Rather than following a capital-intensive path, Kerala can leapfrog into a knowledge-driven life sciences economy, powered by skilled talent, digital platforms, and visionary policy.

Under the guidance of the State Skill Development Mission, the state has the opportunity to embed itself into global CRO/CDMO value chains, generating sustainable employment, reversing talent migration, and shaping a future-ready economy.

Kerala's strength lies not in physical infrastructure, but in its ability to convert human capital into global scientific impact. Now is the moment to lead — by setting new benchmarks in skills, innovation, and credibility, rather than replicating existing pharma models.

*"Not by following, but by innovating, Kerala will define the next era of life sciences."*





Department of Labour and Skills  
Government of Kerala



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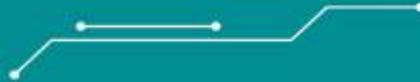
**KASE**

KERALA ACADEMY FOR SKILLS EXCELLENCE

Skill Development Mission of Government of Kerala

കേരള അക്കാദമി ഓഫ് സ്കീൽസ് എക്സലൻസ്

# KERALA ACADEMY FOR SKILLS EXCELLENCE



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