

The STEM network

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NIHERST WELCOMES NEW BOARD OF GOVERNORS TO DRIVE NATIONAL SCIENCE, TECHNOLOGY, INNOVATION AND RESEARCH AGENDA

From left: Dr. Fazal Ali, President (Ex Officio); Mr. Jerome Ramlakhan, (Governor); Ms. Nakita Patterson, (Governor); Dr. Sharmila Harry, (Deputy Chairman); Dr. Indira Rampersad, (Chairman); Ms. Usha Rampersad-Gokool, (Governor); Mr. Andre Thompson, (Governor); and Mr. Aaron A.T. Patrick, (Governor).

Minister of Tertiary Education and Skills Training, Senator Professor Emeritus, the Honourable Prakash Persad, distributed the instruments of appointment to the NIHERST Board.

The newly appointed Board, chaired by Dr. Indira Rampersad, is tasked with guiding the Institute's strategic direction for the 2026–2029 term, ensuring the sustainable development of national scientific capacity.

The NIHERST Board of Governors:

- Dr. Indira Rampersad: Chairman
- Dr. Sharmila Harry: Deputy Chairman
- Mr. Andre Thompson: Governor
- Mr. Aaron A.T. Patrick: Governor
- Mr. Jerome Ramlakhan: Governor
- Ms. Usha Rampersad-Gokool: Governor
- Ms. Nakita Patterson: Governor
- Dr. Fazal Ali: President (Ex-Officio)

NIHERST looks forward to working with the new Board to usher in a transformative era for science, technology, innovation, and research in Trinidad and Tobago.





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Charting the New Course, Aligned with the Same Mission

The appointment of the new Board of Governors marks an important moment for NIHERST and presents an opportunity to build upon a strong foundation while advancing the Institute with renewed purpose and focus.

At its core, the role of the Board is to provide strategic leadership and sound governance. This includes ensuring that the Institute remains responsive to the realities of today while positioning itself to meet the opportunities and challenges of tomorrow. The composition of the Board reflects this responsibility, bringing together expertise in education, technology, law, and labour relations; disciplines that are integral to NIHERST's mandate and future growth.

As the Board assumes the responsibility for guiding the strategic direction of the Institute, we do so with a deep appreciation for the dedication and the progress made by both management and staff. Through periods of challenge and change, the NIHERST team has remained committed to delivering impactful programmes, engaging communities, supporting national development and upholding the reputation of the organisation. This commitment has not gone unnoticed, and it provides a strong platform upon which we can continue to build.

We share a clear ambition to strengthen NIHERST's contribution to national development, particularly in areas of Science, Technology, Engineering, and Mathematics education, innovation, technopreneurship and the development of future-ready skills. These priorities are closely aligned with the national agenda and reflect a shared recognition that investment in people remains one of the most important drivers of sustainable growth and competitiveness.

There is significant opportunity to expand the reach and impact of initiatives that connect education, industry and innovation. By strengthening these linkages, NIHERST can play an even more meaningful role in shaping a workforce that is skilled, adaptable and equipped to contribute to national growth.

Underpinning these efforts is NIHERST's research function, which continues to provide the evidence necessary to inform national decision-making and identify emerging priorities. This reinforces that NIHERST is not only responding to current needs but actively preparing for the future. The Institute's research and data findings continue to be utilised by students, organisations, educators and policymakers and remain central to NIHERST's mandate.

A key area of focus for the Board will therefore be to support the continued development of NIHERST's physical and programmatic footprint, including the vision for a modern, dynamic space that brings science, technology and innovation closer to the public. This is not simply about infrastructure; it is about creating an environment that inspires curiosity, encourages lifelong learning, and fosters a culture of innovation across society.

As we embark on this new chapter, we do so with a strong sense of responsibility and optimism. The Board has full confidence in the talent, commitment, and potential that exist within the Institute and remains committed to working collaboratively with the President, management, and staff to advance the mission of NIHERST. Together, we will build on the proud legacy of NIHERST and strengthen its contribution to fostering a more innovative, resilient, and globally competitive Trinidad and Tobago.



Dr. Indira Rampersad
Chairman

Acknowledgements

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PRESIDENT'S MESSAGE



Dr. Fazal Ali
President

Working together to solve real problems through Science, Technology & Innovation

At NIHERST, we continue to be guided by a fundamental principle that skills development through Science, Technology and Innovation is a lifelong continuum. From early childhood through to tertiary education and beyond, our role is to ensure that every stage of learning is connected, relevant, and responsive to the demands of a rapidly evolving world.

We see this not simply as a mandate, but as a responsibility that requires sustained engagement and meaningful opportunities for public participation. This is clearly demonstrated through the programmes offered; which enable young students, educators, entrepreneurs and industry specific professionals to receive and demonstrate innovative skills from early ages through to their professional careers.

In 2025, our outreach efforts have reflected this commitment. Notably, 46% of our engagements were conducted at secondary schools; reinforcing the importance of reaching young minds early and consistent-

ly. These activities, alongside visits to underserved communities, continue to expand access and ensure that no segment of our population is left behind in the national development process.

I take this opportunity to commend the teams across the organisation who have led and supported these efforts. Their dedication has ensured that NIHERST remains visible, relevant, and impactful in communities across the country. The work being done on the ground is a true reflection of our mission in action and the dedication of our devoted employees.

It has been particularly encouraging to witness the impact of initiatives such as the FIRST Tech Challenge. Observing students engage in robotics, problem-solving and teamwork at this level has been nothing short of inspiring. The level of curiosity, resilience, and innovation displayed especially as they navigate challenges and refine their ideas speaks volumes about the potential that exists within our young people when given the right opportunities.

As we continue to strengthen our focus on future skills, we remain committed to key partnerships that support this agenda. The renewal and expansion of the Atlantic Future Skills programme, alongside our collaboration with the International Labour Organization on the Assessment of 21st Century Skills Across Emerging Sectors, are critical in this vein. These public and private sector collaborations ensure that our interventions remain informed and futuristic. In this regard, NIHERST is empowering the workforce for and of the future.

To all staff, I extend my sincere appreciation for your continued commitment and professionalism. Your efforts have ensured that NIHERST continues to deliver on its mandate and contribute meaningfully to national development. Together, we are building the foundation for a future-ready Trinidad and Tobago.

THE IMPACT OF TEACH ME



The Teach ME (Increasing Teachers' Confidence for My Education) Programme continues to transform education in Trinidad and Tobago by strengthening STEM learning, fostering innovation, and preparing students and teachers for an increasingly digital future. Established in 2017 following the completion of the EU-funded INVOCAB project, Teach ME was designed to build capacity in Science, Technology and Innovation, while improving science education at both the primary and secondary school levels.

Rooted in experiential learning and STEM education, Teach ME addresses the growing need to equip students with the critical thinking, creativity, digital literacy and problem-solving skills required to succeed in a rapidly evolving global environment. The programme also supports educators by increasing their confidence in using innovative teaching strategies and emerging technologies within the classroom.

For Q1 and Q2 of the 2025/2026 fiscal period, Teach ME delivered two flagship initiatives: the 2025 National Students' Innovation Competition and the 2025 Teach ME Prize Giving Ceremony.

Under the theme Code the Future: Youth Innovation with AI and Digital Tools, the National Students' Innovation Competition challenged students

FROM CLASSROOM TO CAPABILITY

to develop creative, technology-driven solutions to real-world problems. Through the integration of Artificial Intelligence (AI), coding, digital tools and STEM principles, students were encouraged to think critically, collaborate effectively and transform ideas into impactful innovations. The competition provided students with valuable exposure to innovation, entrepreneurship and future-ready skills that extend beyond the classroom.

The 2025 Teach ME Prize Giving Ceremony celebrated the outstanding achievements of students and teachers who demonstrated excellence, innovation and dedication throughout the programme. The ceremony highlighted the transformative role of STEM education and recognised the efforts of educators and students across Trinidad and Tobago who continue to embrace innovation in teaching and learning.

A key strength of Teach ME is its continued investment in teachers. Educators are supported through access to STEM kits, training opportunities, collaborative engagement and access to innovative resources that enhance classroom delivery and promote hands-on, inquiry-based learning. By empowering teachers with practical tools and increased confidence in technology integration, the programme en-

THE IMPACT OF TEACH ME

FROM CLASSROOM TO CAPABILITY

enhances classroom instruction and helps create more engaging learning environments that inspire student participation and achievement.

Students benefit significantly through increased exposure to STEM education, innovation-focused activities and experiential learning opportunities. Participation in the programme helps students develop confidence, communication skills, teamwork, leadership and problem-solving abilities, while encouraging greater interest in careers related to science, technology, engineering, innovation and digital transformation.

Since its inception, the Teach ME programme has impacted over 10,000 students and hundreds of teachers throughout Trinidad and Tobago. Through competitions, training initiatives, classroom engagement and STEM-based activities, the programme continues to bridge the gap between classroom learning and real-world capability, ensuring that students are not only academically prepared, but also equipped to thrive in the future workforce and contribute meaningfully to national development.

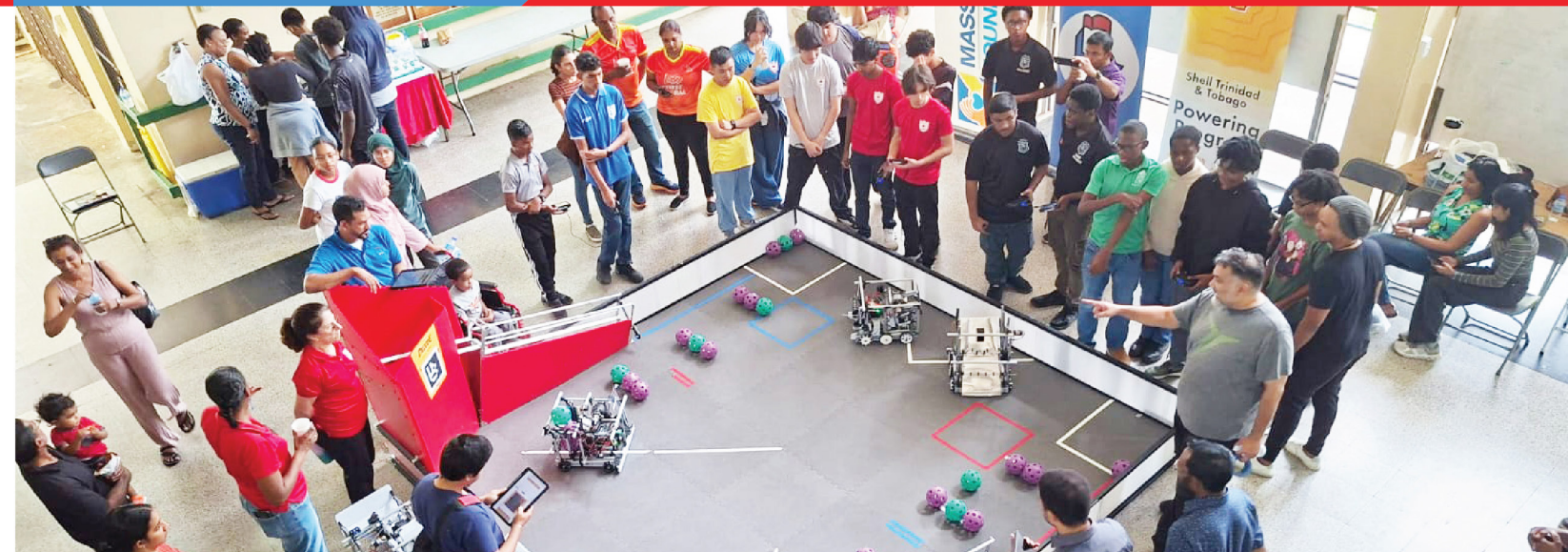
Author - Josanne Warner (Project Officer)



Teach ME Winner, Kachet Henry, chats with Minister of Tertiary Education and Skills Training Senator Professor Emeritus the Honourable Prakash Persad at the awards ceremony

ROBOTICS, TEAMWORK, INNOVATION

HOW FTC IS BUILDING FUTURE-READY STUDENTS



The demand for hands-on, experiential learning has never been greater. At the forefront of this educational shift is the FIRST Tech Challenge (FTC), a global robotics competition that challenged students to design, build and program robots for alliance-based tournaments. In Trinidad and Tobago, this initiative was proudly executed by the National Institute of Higher Education, Research, Science and Technology (NIHERST) in its role as Programme Delivery Partner, aligning with its mandate to foster a national culture of science, technology and innovation.

Participation in FTC extended far beyond building robots. Students immersed themselves in a rigorous learning environment, developing technical skills in advanced coding, mechanical engineering and rapid prototyping. Equally important, the programme cultivated essential soft skills. Teams navigated complex problem-solving, managed project timelines and demonstrated outstanding teamwork. Guided by the FIRST principle of Gracious Professionalism, students competed with excellence while treating their peers and competitors with respect, integrity and kindness.

The transformation in these young innovators was remarkable. Students who entered the programme as technology enthusiasts emerged as confident leaders, effective communicators and resilient prob-

lem-solvers. The experience demystified technology, empowering participants to become creators and innovators rather than simply consumers of technology.

On a broader scale, FTC contributed to building a future-ready workforce for Trinidad and Tobago. The skills developed throughout the programme aligned directly with high-value career pathways, including:

Data Scientists and Software Engineers – through programming, automation and data analysis.

Automation Engineers and Systems Analysts – through mechanical design, assembly and systems troubleshooting.

Project Managers – through project planning, budgeting, collaboration and strategic decision-making. NIHERST also witnessed the continued success of its STEM pipeline, as alumni of its former robotics programme, FIRST LEGO League (FLL), returned as coaches and mentors to guide the inaugural FTC teams. Their commitment demonstrated the lasting impact of robotics education and the value of investing in the next generation of innovators.

On Saturday 27th June 2026, NIHERST proudly hosted the inaugural FIRST Tech Challenge Trinidad

ROBOTICS, TEAMWORK, INNOVATION

HOW FTC IS BUILDING FUTURE-READY STUDENTS

and Tobago National Tournament, marking a historic milestone for STEM education in the country. The tournament celebrated the dedication, creativity and perseverance of the participating students, coaches, mentors, volunteers and partners who made the first season a tremendous success.

We congratulate the Award and Grant Winners:

- Inspire Award: Maple Leaf Robotics
- Robot Alliance Winners & Robot Alliance Grant Presentation College Secondary School, Chaguanas & Chaguanas North Secondary School
- Robot Alliance Finalists: Maple Leaf International School & Trinity College, Moka
- Design Award: Presentation College Secondary School, Chaguanas
- Connect Award: Waterloo Secondary School
- Think Award: Tranquillity Government Secondary School

Looking ahead, NIHERST plans to host the FIRST Tech Challenge National Tournament annually, establishing it as a flagship event on the national academic calendar. Building on the success of the inaugural competition, NIHERST also aims to position Trinidad and Tobago as the premier FIRST Tech Challenge hub for the southern Caribbean, extending these transformative opportunities to neighbouring territories and strengthening regional STEM collaboration.

Ultimately, the vision extends beyond sustaining a successful national robotics programme. NIHERST is committed to preparing local students to compete on the international stage and establishing Trinidad and Tobago as a recognised force at the prestigious FIRST Championship World Festival, where the nation's young innovators can stand shoulder to shoulder with the world's brightest minds and showcase their talent, creativity and ingenuity.

Stay tuned for the next FIRST Tech Challenge (FTC) season, where a new generation of innovators will once again design, build and compete, continuing to shape the future of STEM in Trinidad and Tobago.



(L-R) Robot Alliance Grant Winners - Presentation College Chaguanas, Chaguanas North Secondary; Inspire Grant Winner Maple Leaf International School



Excited supporters look on as teams competed at the FTC Tournament



FTC Volunteers share excitement after a successful FIRST Tech Challenge Tournament 2026

Author - Rondell Liverpool (Project Officer)

THE FAB LAB INSPIRES

AGRI-INNOVATION ACROSS T&T



On April 21st, 2026, NIHERST hosted its World Creativity and Innovation Day webinar "From Farm to Fab Lab: Agri Innovation for Everyday Impact", drawing 87 participants from a diverse pool of 160 registrants. Attendees included farmers, entrepreneurs, educators, students, and industry specialists, reflecting the wide cross section of stakeholders engaged in advancing agricultural innovation.

WHAT IS THE FAB LAB?

The NIHERST Fab Lab is a digital fabrication hub equipped with advanced tools such as 3D printers, laser cutters, CNC milling machines, electronics workstations, and other prototyping equipment. It provides innovators with the capacity to design, build, and test solutions that address real world challenges.

CAPABILITIES, CAPACITY & EXPERTISE

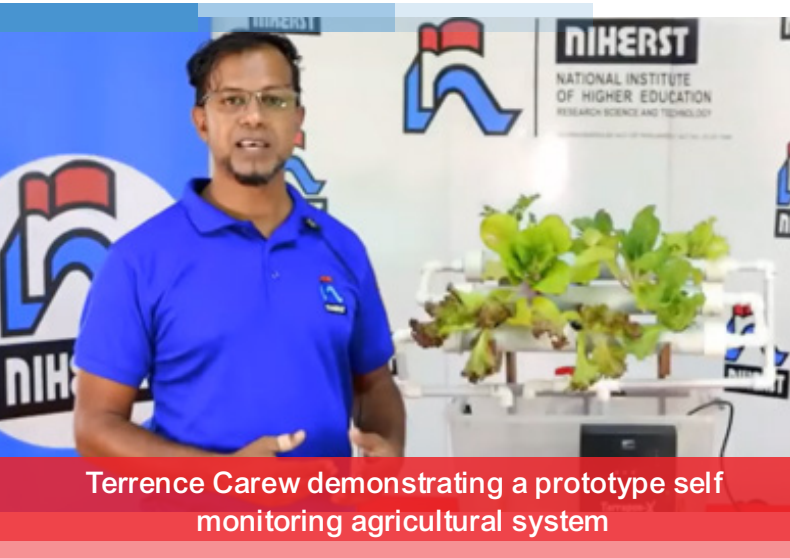
- Technical expertise: Innovation Technicians skilled in electronics, microcontrollers, and prototyping.
- Facilities: Access to design software, fabrication machinery, and testing environments.
- Capacity building: Training modules tailored to innovators, researchers and students, hobbyists, entrepreneurs, including as agri-entrepreneurs.

HOW THE FAB LAB SUPPORTS AGRICULTURE & ENTREPRENEURSHIP

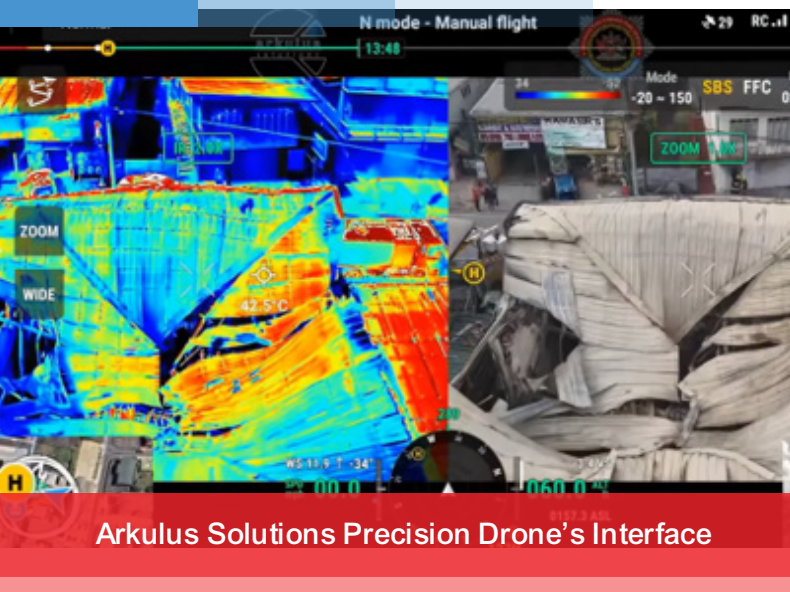
- The webinar showcased practical applications of agri-innovation. The use of Fab Lab technologies was showcased through the design and creation of a smart farming prototype.
- Food solutions: Mr. Larry Holder, Public Relations Executive at Life Novo presented agri products transformed into ready to use food items.



Life Novo's Innovative Food Products at the Grocery



Terrence Carew demonstrating a prototype self monitoring agricultural system



Arkulus Solutions Precision Drone's Interface

These innovations illustrate how digital fabrication can improve crop yields, enhance efficiency, and strengthen climate resilience, while also opening pathways for entrepreneurship and new business opportunities.

OUTCOMES & NEXT STEPS

Feedback from participants was positive, with 95% indicating that the webinar increased their awareness of opportunities within the agri-sector. Interest in continued engagement also remains strong: 58% reported they are very likely to attend, and 21% likely to attend, the upcoming Agri-Innovation Workshop. Notably, three attendees expressed interest in collaborating directly with the Fab Lab, including a representative from the Inter-American Institute for Cooperation on Agriculture (IICA).

- Smart farming: Mr. Terrence Carew, Technician at NIHERST's Fab Lab demonstrated a proto-type self monitoring agricultural system.

- Precision agriculture: Mr. Mark Baldeo, Creative Director at Arkulus Solutions highlighted drone technology for efficient resource use.

PROPOSED WORKSHOP

Building on this momentum, NIHERST is planning a five week Agri Innovation Workshop (venue to be confirmed), structured into one, half-day module per week:

- Complete Prototyping Experience – 17.5 contact hours
- Electronics Module – 3.5 contact hours
- 3D Design – 3.5 contact hours
- 3D Design & Printing – 7 contact hours

This workshop will empower participants to design, prototype, and test agricultural innovations, strengthening the ecosystem of agri entrepreneurship across Trinidad and Tobago.

The Fab Lab is more than a facility, it is a catalyst for innovation, bridging creativity with practical solutions to transform agriculture and beyond.

Stay tuned for details.

Author - Joanne Leong Poi (Research Officer)





A NATIONAL EFFORT TO SHAPE THE FUTURE OF WORK

Trinidad and Tobago is at a critical stage of economic transformation—driven by innovation, digitalisation, and diversification. As global industries continue to evolve at a rapid pace, reshaped by artificial intelligence, automation, and data-driven technologies, the demand for a more adaptable and future-ready workforce has intensified. Recognising this, NIHERST, in collaboration with the International Labour Organization (ILO), undertook a comprehensive study titled Assessment of 21st Century Skills Across Emerging Sectors in five priority sectors—Maritime, Aviation, Tourism, Software Design and Applications, and Agro-processing. This landmark study provides evidence-based insights into workforce readiness, skills gaps, and future labour demand— supporting the development of targeted policies and strategic workforce planning for national development.

THE BIG PICTURE: A SKILLS-DRIVEN ECONOMY

Across all five sectors, a consistent message emerges: The future workforce must combine strong STEM competencies with critical 21st century skills.

Employers overwhelmingly identified:

- Communication, teamwork, and problem-solving as essential
- Significant gaps in emotional intelligence, strategic thinking, and adaptability
- Graduates as largely “somewhat prepared”, not fully work-ready
- These findings highlight an urgent need to align education, training, and industry demand.

SECTOR HIGHLIGHTS

AVIATION: MODERNISING A MATURE SECTOR

- Long-established industry with significant technical capacity
- Strong demand for engineering, IT, and environmental expertise
- Transitioning toward AI, automation, and sustainability systems

Largest gaps: problem-solving, decision-making, emotional intelligence

Challenge: Bridging gaps in higher-level cognitive and social skills

Future roles: Engineers, digital designers, environmental specialists

AGRO-PROCESSING: INNOVATION FOR FOOD SECURITY

- Dominated by micro and small enterprises
- Increasing use of automation, robotics, and data systems
- Strong emphasis on green skills and sustainable production

Largest gaps: communication, negotiation, self-reflection and learning-to-learn

Challenge: Limited availability of specialised STEM talent

Future roles: Food scientists, agricultural technicians, environmental experts

TOURISM: DIGITAL AND EXPERIENCE ECONOMY

- Major employer with strong service orientation
- Rapid adoption of AI, virtual reality, and online platforms
- Growing need for innovation and digital capabilities

Largest gaps: critical thinking, emotional intelligence, problem-solving

Challenge: Shortages in technical and innovation-driven roles

Future roles: Digital designers, software developers, sustainability specialists



Dr. Indira Rampersad, NIHERST Chairman (centre), Dr. Fazal Ali, NIHERST President (left), Mr. Joni Musabayana, ILO Director (right)

SOFTWARE DESIGN & APPLICATIONS: POWERING THE DIGITAL ECONOMY

- Young, fast-growing sector with over half of firms under 10 years old
- Entire workforce depends on STEM talent, especially IT
- Key driver of digital transformation and innovation
- AI, cloud computing, blockchain, AR/VR, and low-code platforms are reshaping the industry

Largest gaps: problem-solving, innovation, analytical thinking, teamwork

Challenge: Shortages in qualified applicants and insufficient work experience, along with widespread gaps in appropriate attitudes and soft skills

Future roles: Software developers, cybersecurity specialists, AI developers and digital designers

MARITIME: A STRATEGIC ECONOMIC BACKBONE

- Contributes significantly to national output, with the ocean economy linked to major economic activity
- Sector composed largely of small, established firms
- Undergoing transformation through digitalisation and green technologies
- Autonomous vessels, AI, Blockchain and Green energy and emissions reduction systems are some of the emerging technologies reshaping the industry

Largest gaps: cognitive skills and socio-emotional skills

Challenge: Limited availability of skilled candidates, low interest in maritime careers, uncompetitive com-

pensation, and gender imbalance in technical roles
Future roles: Electrical engineers, marine surveyors and marine engineers

CROSS-SECTOR INSIGHTS: WHAT THE DATA TELLS US

1. PERSISTENT SKILLS GAPS

Across all sectors:

- High demand for analytical thinking, communication, and adaptability

Key shortages in:

- Emotional intelligence
- Strategic thinking
- Creativity and innovation

2. GROWING IMPORTANCE OF STEM

Growing demand across sectors for:

- IT
- Engineering
- Environmental Sciences

Emerging sectors increasingly depend on digital and data-intensive capabilities.

3. TECHNOLOGY IS RESHAPING EVERY INDUSTRY

From aviation to agriculture:

- AI, automation, and digital systems are transforming operations
- Businesses must continuously adapt to remain competitive



4. EDUCATION-INDUSTRY MISALIGNMENT

A key challenge identified:

- Graduates are not fully meeting employer expectations

Need for:

- More practical training
- Stronger industry partnerships
- Integrated work-based learning

A CALL TO ACTION

This research provides a clear pathway forward.

Priority Actions:

- Align education and training with industry demand
- Expand internships, apprenticeships, and work-based learning
- Strengthen STEM education at all levels
- Integrate 21st century skills into curricula
- Increase the visibility of TVET
- Promote STEM careers to youth
- Deepen collaboration across government, academia, and industry
- Support technology adoption, especially in MSEs

LOOKING AHEAD

Trinidad and Tobago's economic future will be shaped by its ability to develop a skilled, agile, and innovative workforce.

"This research is not just a snapshot—it is a blueprint for building a resilient, future-ready workforce." By investing in people, skills, and partnerships, the country can build a more competitive, sustainable and innovation-driven economy.

ACKNOWLEDGEMENTS:

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the Vice President, Science & Technology (Ag), Ms. Lovaan Superville; the invaluable technical support and guidance provided by Ms. Ilca Webster, Specialist on Skills and Lifelong Learning at the ILO; and the dedication and collaborative efforts of the project team, including:

- Ms. Sharon Parmanan, Senior Economist & Project Lead
- Mr. Akeem Timothy, Economist I
- Ms. Yolanda Spence, Research Assistant
- Mr. Eugene Martin, Project Assistant (former)
- Ms. Taahira Wilson, OJT (former)

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Ms. Sharon Parmanan, Senior Economist (L-R) and Ms. Ilca Webster, Skills and Lifelong Learning Specialist - ILO Caribbean



- Outreach Activities - Confirmed STEM outreach for schools and corporate organizations
- Future Leaders Internship Programme (FLIP) 2026 - July / August
- Teach ME STEM Enrichment Camps - August 2026
- Fab Lab Agri-Innovation Workshop October 2026
- Assessment of 21st Century Skills Across Emerging Sectors, Shaping the future Webinar Series - Commencing Thursday 20th August 2026.

FACTS VERSUS MYTHS



Fact or Myth?

- If you drop a heavy object and a light object at the same time, the heavy one will always hit the ground first.

Fact or Myth?

- Lightning never strikes the same place twice.

Fact or Myth?

- Goldfish only have a 3-second memory.

Fact or Myth?

- Artificial Intelligence can think exactly like humans.

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