

CARISCA REPORT

CENTER FOR APPLIED RESEARCH AND INNOVATION IN SUPPLY CHAIN – AFRICA

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Out of Stock: Why Supply Chain Excellence Matters in Africa

When supply chains work well, they do not get a lot of attention, but when food staples and toilet paper are out of stock, and the roll-out of the world's largest-ever vaccination campaign is in the news every day, we start to think a lot about how we obtain life's necessities.

In addition to the challenges brought about by COVID-19, Africa has its own supply chain challenges, ranging from insufficient financing for supply chain operations to inadequate infrastructure. These barriers can have drastic consequences: A recent [USAID report](#) found that 47 percent of Ghanaian health care facilities reported being out of stock of first-line HIV/AIDS treatments, and 42 percent were out of paracetamol (which is a prime ingredient for painkillers).

To address these issues, Arizona State University (ASU) and Kwame Nkrumah University of Science and Technology (KNUST) are building the Center for Applied Research and Innovation in Supply Chain–Africa (CARISCA).

This five-year project is funded through the United States Agency for International Development's Bureau for Development, Democracy, Innovation/Innovation, Technology Research Hub as part of the Building Research and Innovation for Development: Generating Evidence and Training program (BRIDGE-Train).

CARISCA will:

1. Establish KNUST as Africa's preeminent source of supply chain management expertise;
2. Serve as a resource for researchers in Ghana and across Africa to drive innovation, research, knowledge translation through the application of research findings, and training to improve African supply chains, sustained by revenue-generating activities and a robust partner network;
3. Create the supply chain management (SCM) professionals and research that significantly improves the efficiency and effectiveness of health and agricultural supply chains; and
4. Increase inclusion and impact for women and disadvantaged supply chain practitioners.

Building a Center to Drive Supply Chain Excellence in Africa



Dale S. Rogers, PhD

*Arizona State University
W. P. Carey School of Business*

*ON Semiconductor Professor
of Business*

*Director, Frontier Economies
Logistics Lab*

*Co-Director, Internet Edge
Supply Chain Lab*

*Executive Director, Center
for Applied Research and
Innovation in Supply Chains -
Africa (CARISCA)*

Dear Colleagues,

The Center for Applied Research and Innovation in Supply Chain Africa (CARISCA) is an opportunity to improve supply chains in Ghana and across Africa and build institutions, structures, processes, and research capacity that can increase inclusion and improve the lives of Africans.

In CARISCA's first six months, we laid the operational groundwork that will drive future success. We conducted meetings with international and Ghanaian stakeholders, evaluated supply chain research capacity at KNUST, created a process to award scholarships to supply chain management students at KNUST, explored course buyouts for faculty so they have more time to carry out research, and hosted our first webinar focused on women in leadership and entrepreneurship in African supply chains.

2020 was a year like no other. But as we forecast for 2021, we are optimistic that we will continue to make great strides to reduce barriers to adopting supply chain management best practices and the inclusion of women and disadvantaged groups through rigorous research, education, and training.

A few highlights from our 2021 plans include hosting CARISCA's annual supply chain summit for academics across Africa, developing a consulting framework for working with partners and development actors, advancing the education of KNUST's SCM students through new business analytics and simulation courses as well as building supply chain apps and continuing education and certification courses for new non-traditional audiences.

I want to thank all of our partners for their expertise and guidance. Without you, CARISCA is just an idea, and we are grateful for the time and energy that everyone has contributed to help launch this center of excellence at KNUST.

We look forward to your continued collaboration and encourage you to reach out to us with any questions, reflections, or ideas for partnership.

Sincerely,

Dale S. Rogers, PhD

CARISCA's Key Components

COMPONENT 1: ADVANCING SCM RESEARCH

Strengthen culture of research
Teaching buyouts to increase research
Increase high-quality research publications
Gender-informed research
Annual research summit

COMPONENT 2: ENGAGING STAKEHOLDERS

Translate research into applied solutions
Expand and enhance stakeholder network
Create a self-sustaining consulting practice

COMPONENT 3: CURRICULUM AND TRAINING

Strengthen and expand the supply chain curriculum
Inclusive recruitment and retention
Low-cost online learning
More continuing education options
Create training apps for practitioners
Provide scholarships



Nathaniel Boso, PhD

*Kwame Nkrumah University of
Science and Technology*

*Dean, KNUST School of
Business*

*Director, Centre for Applied
Research and Innovation
in Supply Chains - Africa
(CARISCA)*

Dear Colleagues,

I warmly welcome you to CARISCA, where great minds take on significant development challenges in supply chains. The center is envisioned as a globally recognized, locally owned hub for generating and translating innovative research into positive development outcomes for Ghanaian and pan-African supply chains, driving country self-reliance, and increasing the impact of USAID investments in sub-Saharan Africa.

The center is harnessing innovative research in supply chain management, drawing on the social sciences, industrial and systems engineering, computer science, mathematics, economics, marketing, finance, and management, to take on significant development challenges and address barriers to development caused by inefficient and ineffective supply chains. The center's focus on supply chain management and innovation reflects a large body of research showing that efficient local supply chains are crucial to local, regional, and national economic development.

CARISCA is positioned to be Africa's preeminent source of supply chain management expertise. It is a resource for researchers across Africa to drive innovative research — research translation (applying research findings to policy, practice, or additional research), and training to improve African supply chains, sustained by revenue-generating activities and a robust partner network.

The center focuses on significantly improving the efficiency and effectiveness of health care and agricultural value chains with a strong commitment to increasing inclusion and impact for women and disadvantaged supply chain stakeholders across sub-Saharan Africa.

Our goal is to lead cutting-edge research in supply chain engage vital stakeholders (be they in the private or public sectors), and publish policy briefs, journal articles and case studies that advance supply chain best practices in Ghana. We have partnered with local and international networks of industry and academic partners to connect African researchers, practitioners, and businesses to global supply chain assets.

We offer diverse and internationally recognized academic programs in supply chain, procurement, logistics, and transportation management in the West African sub-region. We are the only centre of excellence in West Africa to hold the twin global professional accreditation for the Chartered Institution of Procurement and Supply (CIPS) and Chartered Institute of Logistics and Transport (CILT), making us one of the very few accredited study centers to train supply chain professionals in the sub-region.

We want CARISCA to be your globally connected partner for supply chain research, training, and policy. We provide a one-stop-shop for research capacity development, internationally accredited academic programs, and C-suite executive and professional training programs in supply chain management. We are committed to collaborating with you to advance your supply chain research, executive training, and policy development needs.

Welcome aboard!

Nathaniel Boso, PhD

LAST-MILE DELIVERY: STORIES FROM THE FIELD

From Too Small for School to Department Chair

KNUST Professor Abdul Samed Muntaka is making the most of his educational opportunities and paving the way for others.

When Abdul Samed Muntaka's mother tried to enroll him in Aboabo Local Authority elementary school in Kumasi, the capital city of the Ashanti region of Ghana, the school told her that Muntaka (who was six years by then) could not start classes because he was too small and short – he couldn't raise one of his arms over his head and touch his ear on the opposite side of his head.

"I was not only too short and small to start school on time, but I also had 40 siblings when my father ran out of money – the odds were really stacked against me to succeed," said Muntaka.

Thirty-seven years later, and standing 5'8" tall, Muntaka has defied the odds: he now leads Kwame Nkrumah's University of Science and Technology Supply Chain Department and serves as a senior technical advisor for CARISCA.

"So many of my peers couldn't touch their ears, so they were raised to learn a trade, and that was it. If my mother had not enrolled me in a private school and pushed me to succeed, I would not have had a lot of the opportunities I have had in life," said Muntaka.

Muntaka's father valued education, but he was usually too overwhelmed to help him follow through on his homework. However, his mother was a strong influence in his life. "My mom is a tigress, and even though she was illiterate, she did the legwork, walking to school to ask



Muntaka (right) with his sister (left) at her graduation from KNUST. (Photo courtesy of Abdul Muntaka.)

my teachers questions. She made sure that her children were doing their homework and succeeding."

Even after finishing secondary school, Muntaka's road to success was not straightforward, and he had several setbacks. He wanted to serve in the army, but his mother told him this was not an option because he could die, so he applied for and was denied entry into a computer science program. "I still hate computers to this day because I didn't get in," he said, "but I'm always trying to improve my skills because I know they're important."

Muntaka graduated with a bachelor of arts degree from KNUST before going on to get two master's degrees in the United States: a master's in public administration from John Jay College of Criminal Justice and a master's of science in urban affairs from Hunter College, both in New York.

When the job he had lined up at graduation fell through, he found a role teaching algebra and operations management science at KNUST. "I was lucky because KNUST was starting a supply chain department, and since they were understaffed, I had the opportunity to teach management science."

Muntaka eventually enrolled in KNUST's Ph.D. program in Logistics and Supply Chain Management to help build capacity in the department. "One of the things I'm most proud of is being the first person in my family, and in the area where I was born, to complete a Ph.D."



Abdul Muntaka (right) with Ghana's current Minister of Education, Hon. Matthew Opoku Prempeh (left). (Photo courtesy of Abdul Muntaka.)

Now, Muntaka is the most senior faculty in the department, and he has been the head of the supply chain department since 2018 and a member of KNUST's governing council.

"The 'if you can't touch your ear policy' was a way for the government to control costs and the number of people seeking to enter the schools. But, things have improved, almost two-thirds of the people in my area were illiterate when I was growing up, and now it's only about 20 percent. I think the future is very bright; we have the opportunity to shape the future of education in Ghana. One of the biggest things I'm working on now is reducing cheating. We've created a group called "achieve it clean" to show students there are lines you can't cross. Fortunately, politicians are beginning to agree with us, and they want to make positive changes."



Muntaka (center) with his family at the Kakum National Park in Cape Coast Ghana. (Photo courtesy of Abdul Muntaka.)

Muntaka and his colleagues are dedicated to establishing CARISCA as the leading knowledge hub for supply chain management research and education in Africa.

"We are committed to continuous improvement and learning from our partners at Arizona State University to make our curriculum and research better."

"Looking back, I am incredibly fortunate to be where I am. Most children who don't get to go to school don't get second chances. I want to be sure that we lead the next generation of students in Ghana by giving everyone opportunities to succeed."

BY THE NUMBERS Data Snapshot

60+ Scholarships

In its first year, CARISCA awarded over 60 Ph.D. and master's scholarships to bright Ghanaian students with financial need.

Stakeholder Engagements with 200+ Partners

CARISCA hosted 75 stakeholder meetings and engaged over 200 potential partners to better understand their needs and collaborate on research projects that can enable innovative solutions to supply chain problems.

Advisory Board Launched

CARISCA launched its first advisory board meeting with about 50 business and nonprofit executives from around the world.

Supply Chain Seminars

CARISCA engaged over 300 students, organizations and stakeholders in online convenings to discuss best practices in warehousing and advancing women in the workplace.

Engaging Stakeholders

As part of CARISCA's strategic partnership outreach, team members convened 75 meetings with key stakeholders across multiple supply chain sectors, including 32 meetings with groups from disadvantaged regions in the North of Ghana, 12 professional supply chain organizations, and an impressive list of international business partners.

In October 2020, CARISCA's senior technical advisors Matilda Kokui Owusu-Bio and John Frimpong, conducted six days of meetings and interviews in Ghana's Northern Region. The CARISCA team found that many supply chain practitioners there contend with inadequate resources and information. CARISCA hopes to address these gaps through new modes of education, including digital trainings and toolkits that can bolster local knowledge and development and spur long-term improvements.



First Faculty Workshop: Building Local Capacity to Solve Global Development Challenges

On October 7, 2020, faculty from the supply chain department at ASU and KNUST hosted a virtual research workshop to learn more about what KNUST's 18 supply chain management faculty and nine Ph.D. students need to be successful in addressing future goals.

After ASU faculty presented their findings from a baseline evaluation, consisting of interviews with faculty and a review of their resumes and publications, breakout groups discussed KNUST faculty motivations to conduct and publish their research, identify barriers and catalysts to research productivity, discuss priority research topic areas, and list the skills that faculty want to gain at future research capacity workshops.

Since the event, both teams have been working together to co-create new opportunities to advance KNUST publications through developing:

A working paper series for faculty members to submit their “work-in-progress” for internal feedback before high-impact journals.

Additional one-on-one interactions between ASU and KNUST senior faculty to better understand local challenges in Ghana and to build the personal connections necessary to facilitate ongoing feedback and collaboration to foster improvement.

Personal commitment to aspirations: CARISCA's Director of Operations Professor Robert Abaidoo advised participants to have short-term plans that will enable them achieve their long-term aspirations in research. He added that CARISCA provides an excellent opportunity to address their research capacity gaps.

New partnerships that enable KNUST faculty to access and build quality datasets that can be analyzed to improve Ghanaian supply chains.

A research community that facilitates the advancement of collaborative projects.

WHERE'S THE WAREHOUSE?

Warehousing and Inventory Management, Challenges and Solutions: A CARISCA Framework

On November 18, 2020, CARISCA hosted its first semi-annual Supply Chain Action Labs for Engagement (SCALE) meeting with African, U.S., and international partners to discuss emerging trends and best practices for warehousing goods. Over 150 attended the event, representing organizations ranging from large and small Ghanaian firms as well as multinational Fortune 500 companies from the U.S.

Guest speakers included:

- Samuel Donkor, President, Pharmaceutical Importers and Wholesalers Association
- Abdul Muntaka, department chair, KNUST, and CARISCA senior technical advisor, presented on behalf of Alhaji Abdul-Hanan Wahab Aludiba CEO, Ghana National Food Buffer Stock Company
- Karl Siebrecht, CEO and Co-Founder, FLEXE
- Afolayan Seyinde, CEO, Haul 247

Moderator Matilda Owusu-Bio, KNUST faculty member and CARISCA senior technical advisor, led the panel discussion, covering topics ranging from the nature and extent of warehousing and inventory challenges and possible solutions, and discussing the role of women and disadvantaged groups in warehousing and inventory management.

Key takeaways:

1. It is vital to reduce the cost of logistics through software/tracking systems in Ghana.
2. Capacity-building of personnel in warehousing and inventory is critical to future success.
3. Job creation for women and disadvantaged groups is an ongoing challenge — and opportunity — for sector growth.
4. Cold chain transportation in Ghana and Africa is an area ripe for future exploration.

A lively chat indicated that participants were excited about CARISCA and eager to learn more. In the post event survey, several participants said they were planning on making changes to their organizations. One participant said they would actively work to ensure a good supply chain link between all their suppliers, whether in the upstream or downstream.

Feedback from participants and ongoing stakeholder engagement activities will inform future webinars. The next event is planned for April 2021.



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Global Development: Advancing the Discussion and Success of Women in African Supply Chains

CARISCA will host quarterly women-focused webinars to promote gender inclusion in supply chain management.

CARISCA hosted its first webinar, Navigating the Gender Maze in Procurement and Supply Chain Management: An Expert View, on November 26, 2020.

This webinar is the first in an ongoing series designed to foster a community of women in procurement, logistics, and supply chain management, to share insights, knowledge, and opportunities in an open forum.

“The goal of the webinar is to identify and elevate the principal and crucial roles played by women and other disadvantaged groups in advancing development across Africa through the supply chain profession,” said Nathaniel Boso, Executive Director of CARISCA at KNUST, and Dean of KNUST’s business school.

Over 145 attended the webinar, and many participants are excited about future supply chain educational opportunities.

The moderator, Matilda Owusu-Bio, faculty member and senior technical advisor on gender and humanitarian supply chains for CARISCA, indicated that the involvement of women in all aspects of management can help boost the productivity of any business entity up to 30 percent. For this reason, she added that CARISCA seeks to engage women and other disadvantaged groups, especially those in procurement, logistics, and supply chain management, to empower them to pursue top leadership positions.

She emphasized the importance of building a strong network between young professionals and women in supply chain positions through subsequent webinars, mentorship programs, and other activities.

The first distinguished speaker, Mrs. Stella Addo, Country Manager for the Chartered Institute of Procurement and Supply (CIPS), believes that “the gender maze is the complicated unequal treatment of people based on gender, sexuality, height, etc., in their profession.”

Addo also noted that more female role models in supply chain management will embolden more women to pursue leadership positions. To solve this recurring problem, she presented essential tools needed to navigate this gender maze.

Madam Alice Zu, President of Procurement and Supply Chain Management Association (PROSMA) Ghana, encouraged women to be focused, determined, self-actualizing, and focus on building strong networks to advance their careers in a presently male-dominated profession. She further encouraged women to educate and familiarize themselves with the Public Procurement Laws and Regulations that govern the profession. She emphasized the need for women to be united and promote solidarity to push them to top leadership positions.



Matilda Owusu-Bio, CARISCA senior technical advisor and faculty in the Supply Chain and Information Systems Department at KNUST. (Photo courtesy of the KNUST School of Business.)

What We Are Building: Key Project Deliverables for CARISCA, 2020-2025

1. **Foster a robust professional network at KNUST.** This professional network will be built through the CARISCA Advisory Board, Partnership Coordination Committee (PCC) and stakeholders from all sectors intersecting with supply chain management in Ghana.
2. **Increase research capacity.** Evaluate current KNUST research capacity and address identified gaps with workshops and mentoring for junior faculty and PhD students. Create CARISCA-specific case studies.
3. **Develop Mentoring programs:** Mentoring for faculty, PhD students and SCALE teams.
4. **Host Annual Supply Chain Research Summit.** An annual research summit will bring together supply chain researchers from higher education institutions in Ghana and the subregion along with public, private and civil society organization stakeholders to source challenges that inform the research and provide insights into innovations emerging in the field.
5. **Create a course buyout program for KNUST faculty.** A course buyout program will help to reduce teaching loads and enable increased research activity at KNUST.
6. **Create the Supply Chain Action Lab for Engagement (SCALE).** Modeled after ASU's Frontier Economies Logistics Lab, SCALE will translate CARISCA's research into solutions, policy changes, and new research. SCALE will convene practitioners (supply chain challenges and opportunities), researchers (expertise to address practitioner challenges), local, national and international companies (access to networks, technology, and best practices).
7. **Support SCALE research projects.** Create a SCALE support fund to provide funding and technical assistance to projects identified via SCALE.
8. **Develop a consulting service.** A revenue-generating consulting service for local and regional governments, higher education institutions, private companies, and civil society organizations will translate CARISCA research into approaches for solving client problems.
9. **Develop new curricula, hire additional faculty.** Strengthen KNUST's undergraduate, master's, PhD, and post-doctoral programs through curricular enhancements, hiring new teaching faculty and creating mentoring opportunities for women and disadvantaged groups.
10. **Offer master's and PhD scholarships.**
11. **Seek accreditation and reaccreditation** for professional certification programs and prepare new and existing programs for accreditation or reaccreditation.
12. **Expand online education.** Enhance KNUST's online learning platforms for continuing and professional development, executive education, and master's degree programs.
13. **Create mobile apps.** Digital or mobile-enabled training can effectively reach a wide range of supply chain practitioners including those who might not enroll in traditional university programs.

IN-PROCESS INVENTORY

CARISCA's Upcoming Events

- Continued engagement and formalization of a stakeholders group in Ghana, the Partnership Coordination Committee, or PCC, that will identify priority supply chain management areas of importance to the community.
- Host next women-focused webinar in March and a SCALE Meeting in April.
- Host first annual Supply Chain Research Summit later this year.

Stay connected

Visit the CARISCA project website for news and updates and to sign up for this newsletter.

research.wpcarey.asu.edu/carisca

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