



# Advanced Research Center for One Welfare

**TUAT** Tokyo University of  
Agriculture and Technology



# Happiness Is Interconnected

~Toward a Better Future for People, Animals, and the Planet~

“Our well-being,” “the welfare of animals,” and “the health of the planet” are not separate concerns; they are fundamentally linked.

Today, the world faces complex challenges—such as climate change and the emergence of new infectious diseases—that no single discipline can solve alone. In response to these issues, the concept of One Welfare has emerged.

The society in which we live is deeply intertwined with animals and the natural environment.

One Welfare provides an integrated framework that brings together three inseparable elements: human well-being, animal welfare, and environmental protection. Rather than a system in which one party bears the burden, it approaches animal health and welfare, human health and welfare, and environmental integrity as a unified whole. Veterinarians, medical professionals, researchers, and citizens work collaboratively to address shared challenges.

One Welfare is more than just a set of practical measures; it is a guiding framework for a sustainable future where all life can coexist and thrive.

## Advancing One Welfare Knowledge Beyond Disciplinary Boundaries

Leveraging its distinctive strengths in veterinary–engineering collaboration and deep tech in science and engineering, Tokyo University of Agriculture and Technology promotes interdisciplinary research in the field of One Welfare, which integrates human, animal, and environmental well-being as a unified whole.

Through excellence in education, research, and the development of highly skilled professionals, the University aims to become a global research hub dedicated to addressing the increasingly visible global challenges of our time.



# Overview of the Research Institute

## ● Message from the Director

In April 2025, Tokyo University of Agriculture and Technology established the Advanced Research Center for One Welfare as an international research hub centered on the concept of One Welfare, which integrates the health and well-being of humans, animals, and the environment.

The University has long promoted interdisciplinary research grounded in veterinary-engineering collaboration and deep tech in science and engineering. Through the Institute of Global Innovation Research, we have also built international research networks and fostered the next generation of researchers. In addition, we host one of the largest veterinary medical complexes in Japan, comprising two Animal Medical Centers, and have developed a cross-disciplinary framework for research and technological innovation.

Building on the achievements of the Global Research Hub (GRH) initiative advanced under the Institute of Global Innovation Research, the Center is structured around four core research domains: Animal Symbiosis Informatics; Nutrient Management Science; Innovative Medicine; and One Health Infectious Disease Control. By strengthening international collaborative research through overseas hubs established for each domain and promoting the global circulation of talent through the overseas placement of early-career researchers, we aim to enhance the international presence of TUAT's One Welfare research.

Through integrated efforts in research and human resource development across veterinary medicine, engineering, and agriculture; through social implementation in collaboration with industry; and through the expansion of international initiatives, we are committed to advancing research activities both in Japan and abroad and to contributing to the realization of a sustainable society. We sincerely hope that this Center will serve as a foundation for creating new value, and we respectfully ask for your continued understanding and support.



Director of Advanced Research Center for One Welfare  
Masaharu Kameda

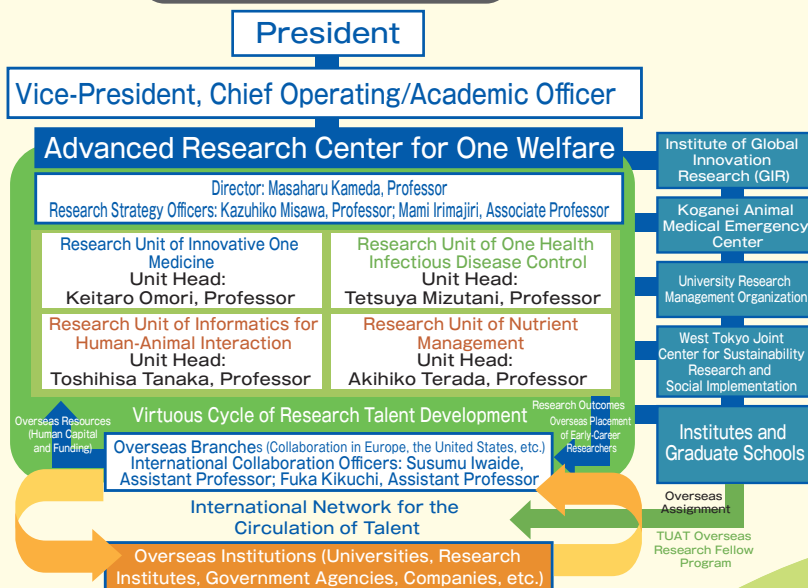
## ● Overview

The Advanced Research Center for One Welfare at Tokyo University of Agriculture and Technology serves as an international hub for the global circulation of knowledge and talent in the field of One Welfare, which integrally addresses human, animal, and natural environmental health and welfare from the perspectives of medicine, health, and well-being.

### Key Initiatives

- Advancing education and research through four core domains:  
Research Unit of Innovative One Medicine, Research Unit of One Health Infectious Disease Control, Research Unit of Informatics for Human-Animal Interaction, Research Unit of Nutrient Management
- Promoting international collaboration through overseas branches
- Contributing to the resolution of global-scale challenges through cross-disciplinary research

### Organizational Chart





# Overview of the Research Units

## ● Research Unit of Innovative One Medicine

The Research Unit of Innovative One Medicine integrates diverse disciplines—including veterinary medicine, animal science, life sciences, and engineering—to create next-generation medical and veterinary technologies. Challenges related to human and animal health and welfare are becoming increasingly complex, driven by population aging, the rise of intractable diseases, and emerging and re-emerging infectious diseases. Addressing these multifaceted and advanced issues requires an interdisciplinary approach. This Unit brings together expertise across fields to establish a research framework that generates new knowledge and innovative technologies.

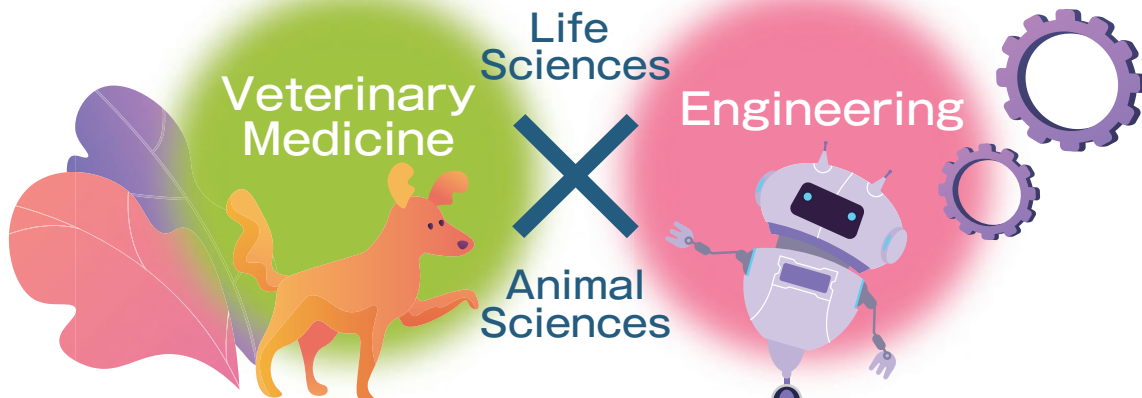
The Unit advances research on novel diagnostic and therapeutic methods directly applicable to clinical settings, while promoting translational research that benefits both humans and animals. Particular emphasis is placed on establishing a cyclical research model in which findings from basic research are translated into clinical practice, and their effectiveness and safety are continuously evaluated and refined. Centered on the Koganei Animal Medical Emergency Center, the Unit has developed a system to implement research outcomes in clinical practice and to feed clinical insights back into research. This close integration of research and clinical application is a defining feature of the Unit.

As an international hub for the circulation of expertise, the Unit actively collaborates with leading researchers worldwide, incorporating cutting-edge knowledge and technologies to further enhance its research capacity. Through these efforts, it contributes to advancing the quality of veterinary medicine, while also fostering the broader application of its findings and technologies to human healthcare. The Research Unit of Innovative One Medicine is committed to shaping the future of veterinary medicine and delivering innovative knowledge and technologies that support the health and welfare of both humans and animals.



Unit Head: Keitaro Ohmori

## Research Unit of Innovative One Medicine



### Creation of Next-Generation Medical and Veterinary Technologies

- Promotion of "Translational Research" Benefiting Both Humans and Animals
- establishment of a Cyclical Academic Hub Centered on the Koganei Animal Medical Emergency Center
- Establishment of an International Hub for the Circulation of Expertise

### Research Unit Members

(as of April 2026)

- Unit Head:** Keitaro Ohmori, Professor, Koganei Animal Medical Emergency Center
- Kentaro Nagaoka, Professor, Institute of Agriculture
  - Daisuke Yoshino, Professor, Institute of Global Innovation Research
  - Tatsuya Usui, Associate Professor, Institute of Agriculture
  - Tomoaki Murakami, Associate Professor, Institute of Agriculture
  - Yuta Kurashina, Associate Professor, Institute of Engineering
  - Susumu Iwaide, Assistant Professor, Advanced Research Center for One Welfare



# Overview of the Research Units

## ● Research Unit of One Health Infectious Disease Control

The Research Unit of One Health Infectious Disease Control creates a new paradigm for innovative infection control by integrating two leading-edge disciplines: veterinary medicine and engineering. Infectious diseases spread within complex networks in which humans, animals, and the environment interact. A One Health perspective—integrating these elements—is therefore essential for effective prevention and response.

This Unit advances a range of technologies, including AI-driven real-time infectious disease surveillance systems, high-sensitivity biosensors, environmental virus detection devices, and integrated data analysis platforms. In addition, we are developing novel virus isolation methods and highly efficient virus inactivation technologies. Together, these innovations enable prevention, ultra-early detection, and rapid, precise response to infectious threats.

The impact of these technologies extends beyond veterinary medicine to public health, environmental protection, food safety, and industrial hygiene, contributing to the development of a sustainable and secure social infrastructure.

We actively promote collaboration with veterinarians, researchers, and engineers worldwide, addressing global health challenges through partnerships that transcend national borders and disciplinary boundaries. We warmly welcome new collaborations and invite those interested in joint research and technological partnerships to contact us.

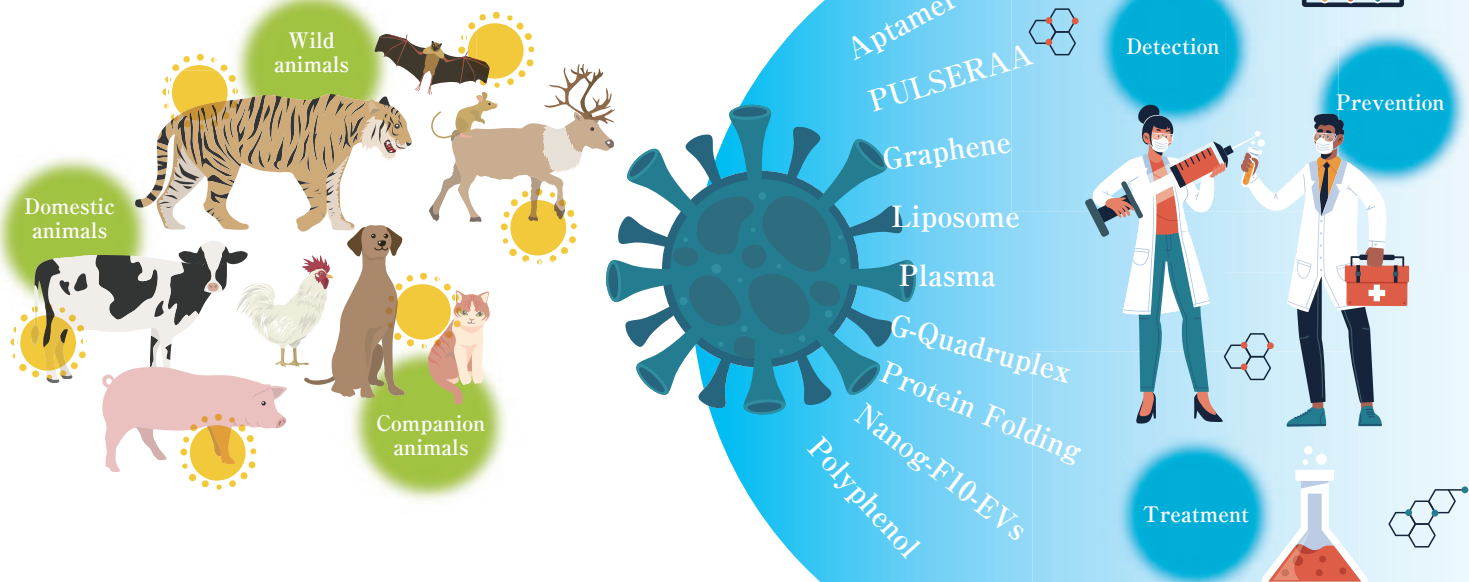
By uniting veterinary medicine and engineering, we aim to dramatically enhance the speed and precision of infectious disease control, supporting a healthier future for people, animals, and the planet.



Unit Head: Tetsuya Mizutani

## Research Unit of One Health Infectious Disease Control

Eradicating infectious diseases and saving animals through the integration of veterinary medicine and engineering



### Research Unit Members

(as of April 2026)

**Unit Head:** Tetsuya Mizutani, Professor, Center for Infectious Disease Epidemiology and Prevention Research  
 Kenzo Maehashi, Professor, Institute of Engineering  
 Kazunori Ikebukuro, Professor, Institute of Engineering  
 Mami Oba, Associate Professor, Center for Infectious Disease Epidemiology and Prevention Research  
 Fuka Kikuchi, Assistant Professor, Advanced Research Center for One Welfare



# Overview of the Research Units

## ● Research Unit of Informatics for Human-Animal Interaction

The Research Unit of Informatics for Human-Animal Interaction is a new interdisciplinary field that seeks to elucidate and design relationships in which humans, animals, and AI mutually understand, learn from, and grow with one another. From an informatics perspective, the Unit integrates three forms of interaction—Human-Animal Interaction, Human-Computer Interaction, and Animal-Computer Interaction—aiming to establish theories and technologies for symbiotic interaction that are neither exclusively human-centered nor animal-centered.

Drawing organically on agriculture, engineering, veterinary medicine, and information science, the Unit addresses a wide range of subjects, from livestock and companion animals to working animals and wildlife. Grounded in animal welfare, it tackles challenging themes such as behavioral understanding, emotion estimation, learning support, and interspecies communication. To this end, the Unit actively employs advanced information technologies, including AI and machine learning, data science, cloud computing, wearable sensing technologies, IoT, and multimodal data analysis, creating innovative technological platforms applicable to real-world settings.

The Unit emphasizes a research framework that connects fundamental and applied research in a continuous cycle, promoting social implementation in fields such as agriculture and animal production, healthcare and welfare, the pet industry, and service robotics. In addition to actively securing external funding, it fosters international research networks through semiannual workshops and initiatives to establish overseas research bases.

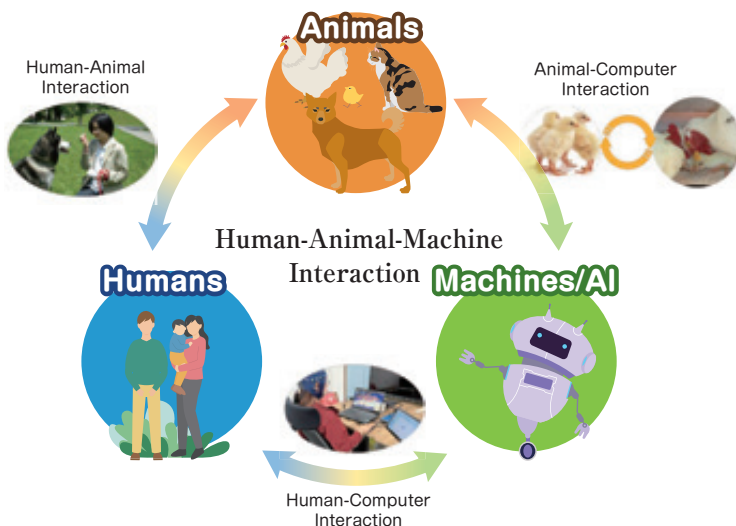
Through these activities, the Unit provides a research and educational environment in which students and early-career researchers engage in cross-disciplinary collaboration, developing integrative perspectives and practical expertise. It aims to become a globally leading hub for advancing the science and technologies that enable humans and animals—mediated by AI—to deepen mutual understanding and realize a sustainable and harmonious symbiotic society.



Unit Head: Toshihisa Tanaka

## Research Unit of Informatics for Human-Animal Interaction

~Establishing Technologies through which Humans, Animals, and AI Learn and Grow Together~  
Creation of a New Academic Framework Integrating Three Interactions by an Interdisciplinary Team in Agriculture and Engineering



**Keywords** Animal Welfare, AI and Data Science, Cloud Computing, Wearable Sensing, Multimodal Data, Animal Behavior Science, Companion Animals, Livestock, Interspecies Interaction, Hyperscanning

### Activities of the Unit

- Promotion of Interdisciplinary Research**  
— Agriculture, Engineering, Veterinary Medicine, and Informatics —  
Semiannual Workshops on Informatics for Human-Animal Interaction  
Promotion of Active Cross-Disciplinary Exchange and Collaborative Research among Students and Early-Career Researchers
- Active Acquisition of External Funding**  
JSPS KAKENHI (Grant-in-Aid for Scientific Research A), JST CRONOS, Ministry of Agriculture, Forestry and Fisheries, etc.
- Invitation of Overseas Researchers and Establishment of Overseas Bases** (in preparation)



### Research Unit Members

(as of April 2026)

**Unit Head:** Toshihisa Tanaka, Professor, Institute of Engineering  
Tsuyoshi Shimmura, Professor, Institute of Global Innovation Research  
Toshiyuki Kondo, Professor, Institute of Engineering  
Kaori Fujinami, Professor, Institute of Engineering  
Katsuhide Fujita, Professor, Institute of Global Innovation Research  
Kohei Yatabe, Associate Professor, Institute of Engineering  
Mami Irimajiri, Associate Professor, Advanced Research Center for One Welfare  
Ingong Chanpornpakdi, Assistant Professor, Institute of Global Innovation Research



# Overview of the Research Units

## ● Research Unit of Nutrient Management

The well-being and survival of all living organisms—including humans, animals, plants, and microorganisms—rely on a healthy and sustainable environment. Cells need not only carbon but also nutrients like nitrogen and phosphorus, which are incorporated and transformed into vital cellular components. However, global nutrient cycles are increasingly being disrupted. Rapid population growth, expanded food production, and intensified industrial activities have resulted in excessive nutrient accumulation on Earth's surface. Consequently, the imbalance in nitrogen and phosphorus cycles across environmental, agricultural, and fisheries systems has led to significant food security and environmental challenges worldwide.

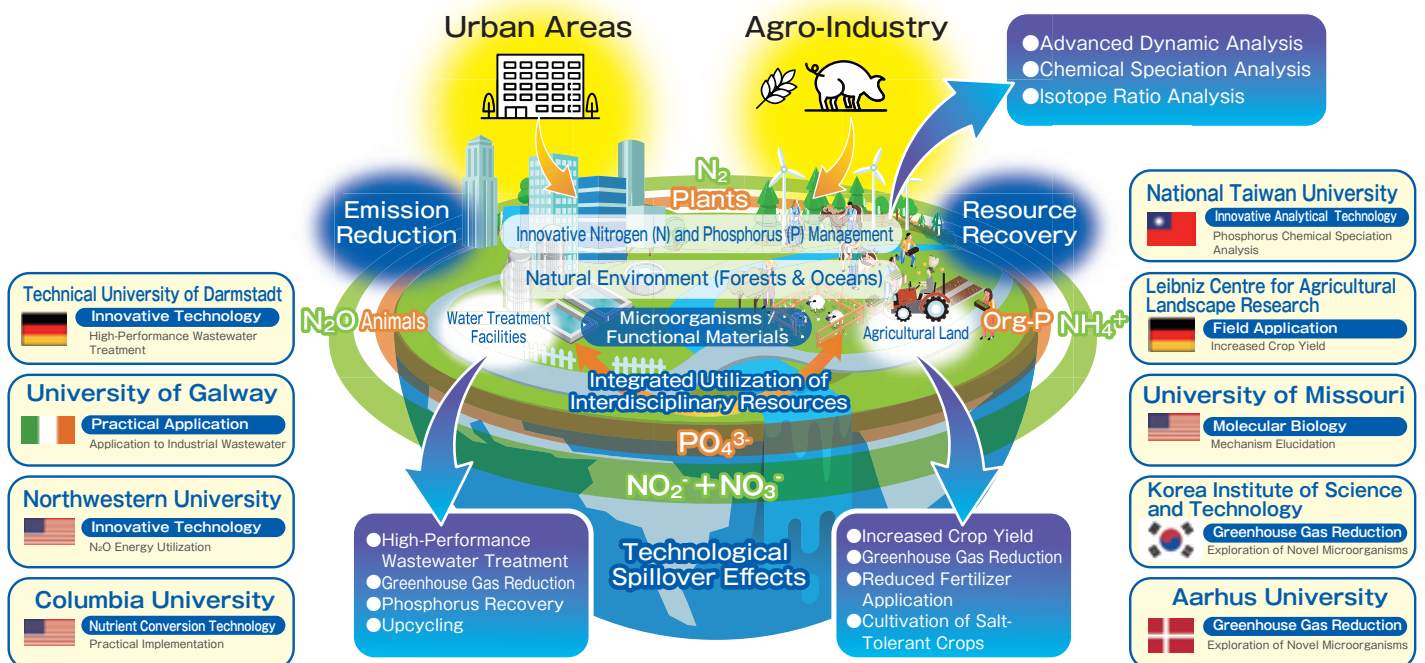
Addressing the rising challenges associated with nitrogen and phosphorus requires restoring and maintaining their healthy circulation. To do so effectively, it is essential to clarify the roles of microorganisms and plants in facilitating the complex processes of transformation and cycling of these nutrients, and to develop efficient nutrient management strategies. This effort demands interdisciplinary collaboration among researchers in environmental engineering, earth science, environmental chemistry, chemical engineering, microbiology, plant physiology, nutrition science, and related fields, fostering research that connects agriculture and engineering.

To address nutrient-related challenges that threaten ecosystems and biological survival, the Nutrient Management Science Research Unit conducts research that goes beyond traditional disciplinary boundaries. We bring together resources, materials, concepts, and processes related to nitrogen and phosphorus from agricultural and engineering sciences. Our main research areas include analyzing environmental dynamics, developing innovative nutrient recovery technologies, and creating advanced functional materials. Additionally, we encourage international collaboration by supporting the development of early-career researchers and aim to establish a new interdisciplinary field called "Nutrient Management Science." By pursuing innovative research and education based on emerging theoretical frameworks, we aim to help solve global environmental and food security issues.



Unit Head: Akihiko Terada

## Research Unit of Nutrient Management



### Research Unit Members

(as of April 2026)

**Unit Head:** Akihiko Terada, Professor, Institute of Engineering

Naoko Otsu, Professor, Institute of Agriculture

Shin Okazaki, Professor, Institute of Agriculture

Yu Umezawa, Professor, Institute of Agriculture

Chihiro Fushimi, Professor, Institute of Engineering

Shinsuke Koike, Professor, Institute of Global Innovation Research

Yohei Hashimoto, Associate Professor, Institute of Agriculture

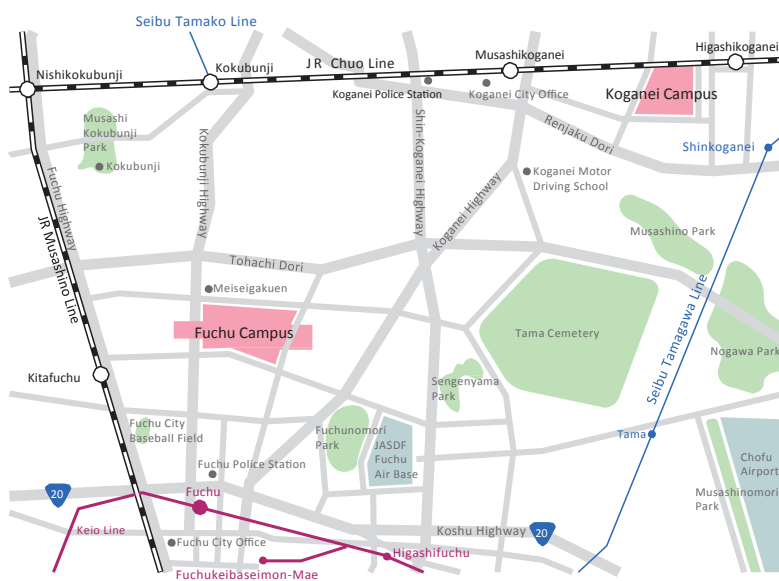
Shinji Kanehashi, Associate Professor, Institute of Engineering



# T-One

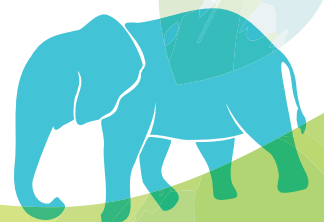
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