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ANNUAL MEETING  
& CONFERENCE  
\*\*\*\*\*  
\*\*\*\*\*  
KANSAS CITY  
09.28 - 09.30

Saturday, September 30th, 2023



# Google Glass for Food Inspections

An Italian Experience by:  
CLAUDIO GALLOTTINI DVM, PhD

[cgalloTTini@itacorporation.org](mailto:cgalloTTini@itacorporation.org)





**Claudio Gallottini DVM, PhD**  
CEO ITA Corp

[cgallottini@itacorporation.org](mailto:cgallottini@itacorporation.org)  
Miami, Florida, USA

# About Me

FSPCA ToT PC HF  
FSPCA LI HF  
FSPCA LI AF  
FSPCA LI FSVP  
FSPCA LI VA  
PSA TTT  
SSA TTT  
SHA TTT  
IHA TTT  
BPCS FDA Trainer  
NEHA Trainer  
AFSAP FSMA Regulatory Auditor

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# We are all Veterinarians like...



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In my First Life I was a  
**Veterinary Dentist**  
at the University of Camerino in Italy



But actually we work in a New Era of Smarter Services.

As a **Veterinarians** involved in different fields we need to know new Technologies and tools...

...**New Challenges and Opportunities!**





What does it mean  
**SMART?**

**S**

**SPECIFIC**

What  
specifically  
do you want  
to do?

**M**

**MEASURABLE**

How will you  
know when  
you have  
reached it?

**A**

**ACHIEVABLE**

Is it  
possible to  
achieve this  
goal?

**R**

**REALISTIC**

Can you  
realistically  
achieve it?

**T**

**TIMED**

When exactly  
do you want  
to accomplish  
it?

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In my Second Life I switch to another Vet Type:

**Consultant, Trainer and Auditor for Food Industries.**





**2018 IFTNext**, first proposal to use Remote Audit in Food Industries;

**2019 First Google Pilot** conducted in Italy in Food Manufacturers;

**2021 Second Pilot with Microsoft** Hololens II with Italian Official Veterinary Services

**2023 Third Pilot in Farming Animals** with Google Glass

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10

Worldwide, it is projected that the demand for meat will increase by 70% by 2025. AT Kearney predicts that by 2040, 60% of all meat consumed globally will come from lab-grown substitutes or plant-based alternatives.

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Super crops, selective breeding, and biofortification, where micronutrients are added to foods during the agricultural phase by crossing standard plant varieties with their wild relatives. Examples include "scuba" rice, which can survive even when submerged underwater for two weeks, and iron-rich beans that can withstand a temperature change of up to four degrees. Scientists in Dubai are modifying crops like quinoa so they can thrive in the country's salty and arid deserts.





**Bioinformatics.** Companies can use bioinformatics to better understand the connections between potential ingredients and their impact on human health. The San Francisco-based biotechnology startup employs an artificial intelligence platform to analyze millions of bioactive compounds and map their potential applications.



**Smart Manufacturing:** JBS, one of the world's largest meatpacking companies based in Colorado, USA, has employed robotic butchers within its facilities. The robots have been used to carve more challenging cuts of meat, reducing workplace injuries.







**Zume Pizza:** Zume's robots produce 372 pizzas per hour, each ordered through a mobile app. Zume's robots are five times faster than humans.

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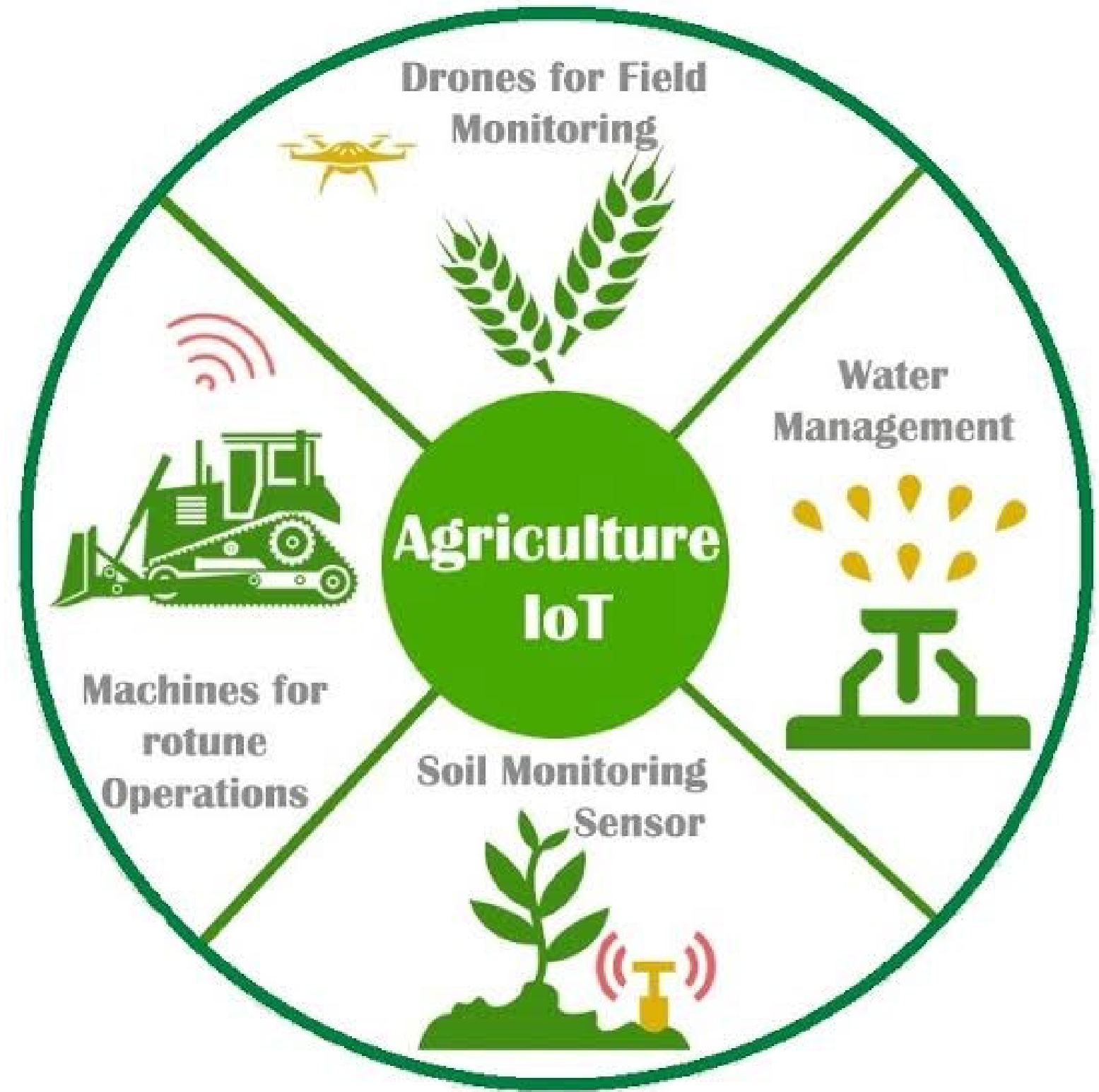
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**And much more:**

- Weather forecasting with Big Data...
- Automatic Pest Management...
- AI for Hazard Assessment...
- Automatic transport...
- Intelligent Packaging...
- Etc....





# Smarter Prevention

## 1° Pilot 2019-2020 – Google Glass



Veterinary Services of Parma, Italy

Local Health Unit of Parma  
Emilia Romagna Region

Marco Pierantoni DVM

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# Smarter Prevention

## 1° Pilot 2019-2020 – Google Glass



Veterinary Services of Parma, Italy

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# Smarter Prevention

## 1° Pilot 2019-2020 – Google Glass



P2-28 Smart Food Safety: Remote Audit Using Smart Glass in EU Food Industries - Results, Limitations and Opportunities

*Claudio Gallottini<sup>1</sup>, Chiara Pellicciari<sup>2</sup>, Ferruccio Marelllo<sup>2</sup>, Franco Rapetti<sup>3</sup>, Andrea Gentili<sup>2</sup>, Giovanni La Rosa<sup>2</sup> and Enrica Alberti<sup>2</sup>, (1)ITA Group Italia Srl, Milan, FL, Italy, (2)ITA Corporation, Miami, FL, (3)ESI Srl - Partner ITA Group, Rome, Italy*

P2-29 Food Safety 2020: New Trend, New Fashion. Smarter Is Better!

*Noemi Trombetti<sup>1</sup>, Franco Rapetti<sup>2</sup>, Andrea Gentili<sup>2</sup> and Claudio Gallottini<sup>3</sup>, (1)ITA Group UK Ltd, London, United Kingdom, (2)ESI Srl - Partner ITA Group, Rome, Italy, (3)ITA Group Italia Srl, Milan, FL, Italy*

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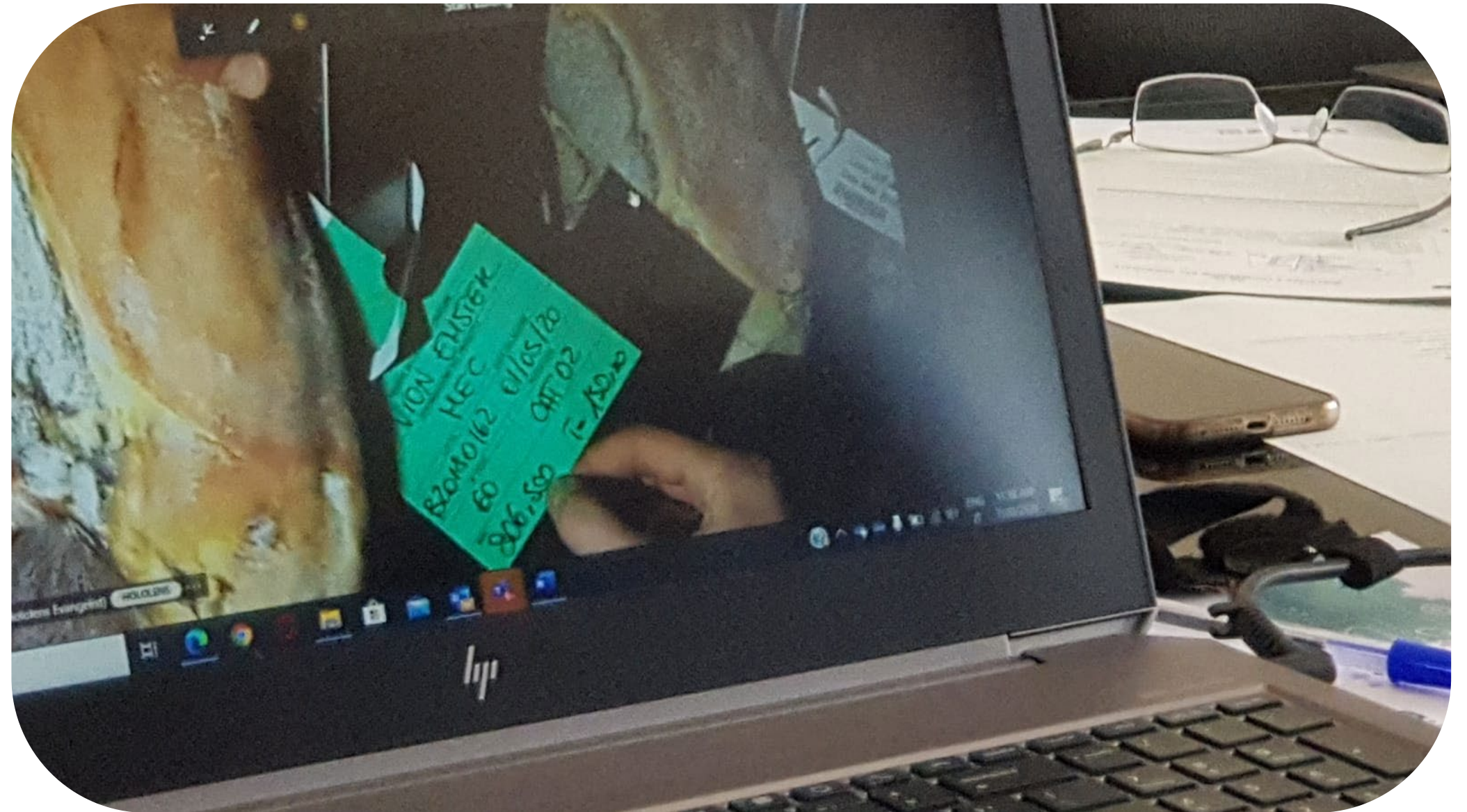
## 2° Pilot 2021 – Microsoft Hololens II





# Smarter Prevention

## 2° Pilot 2021 – Microsoft Hololens II





# Smarter Prevention

## 2° Pilot 2021 – Microsoft Hololens II



P3-09 - (v) Food Safety Smart Tools: Big Data, from Hazard Analysis to Weather Forecasting for a Revolutionary Future Smart Food Safety Management

*Claudio Gallottini, ITA Corporation, Miami, FL, Fabio Mannarino, ITA Group Canada Inc., Montreal, QC, Canada, Franco Rapetti, ESI Srl - Partner ITA Group, Rome, Italy and Noemi Trombetti, UK ITA Group Ltd, London, United Kingdom*

T6-01 - (v) Remote Inspection and Audit: First Pilot Project in the World That Uses Augmented Reality to Conduct Remote Inspections on Food Safety with the Official Italian Authority in Italy

*Marco Pierantoni, AUSL Parma, Regione Emilia Romagna Italy, Parma, Italy, Noemi Trombetti, UK ITA Group Ltd, London, United Kingdom, Fabio Mannarino, ITA Group Canada Inc., Montreal, QC, Canada, Franco Rapetti, ESI Srl - Partner ITA Group, Rome, Italy and Claudio Gallottini, ITA Corporation, Miami, FL*

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# Smarter Prevention

## 3° Pilot 2023 – Google Glass – Animal Health and Behaviour Assessment





# Smarter Prevention

## 3° Pilot 2023 – Google Glass – Animal Health and Behaviour Assessment





# Smarter Prevention

## 3° Pilot 2023 – Google Glass – Animal Health and Behaviour Assessment



P2-13 - Using Smart Glasses in Veterinary Inspections in Cows Farm for Animal Welfare and Diseases Prevention and Control: An Italian Pilot Experience in 2022

*Claudio Gallottini, ITA Corporation, Miami, FL and Luca Gallottini, Euroservizi Impresa SRL, ROMA, Italy*

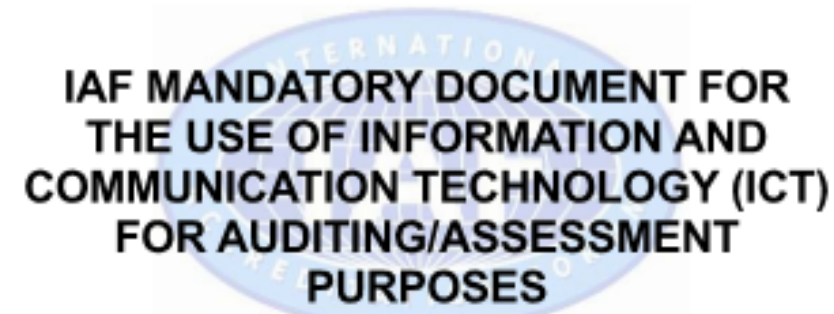
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# REMOTE AUDIT A SCREENSHOT FROM THE WORLD



Issue 2, Version 3

(IAF MD 4:2022)

## IAF Mandatory Document for the Use of Information and Communication Technology (ICT) for Auditing/Assessment Purposes

### 0. INTRODUCTION

0.1 As information and communication technology (ICT) becomes more sophisticated, it is important to be able to use ICT to optimize audit/assessment effectiveness and efficiency, and to support and maintain the integrity of the audit/assessment process.

0.2 ICT is the use of technology for gathering, storing, retrieving, processing, analysing and transmitting information. It includes software and hardware such as smartphones, handheld devices, laptop computers, desktop computers, drones, video cameras, wearable technology, artificial intelligence, and others. The use of ICT may be appropriate for auditing/assessment both locally and remotely.

0.3 Examples of the use of ICT during audits/assessments may include but are not limited to:

- Meetings; by means of teleconference facilities, including audio, video and data sharing
- Audit/assessment of documents and records by means of remote access, either synchronously (in real time) or asynchronously (when applicable)
- Recording of information and evidence by means of still video, video or audio recordings
- Providing visual/audio access to remote or potentially hazardous locations

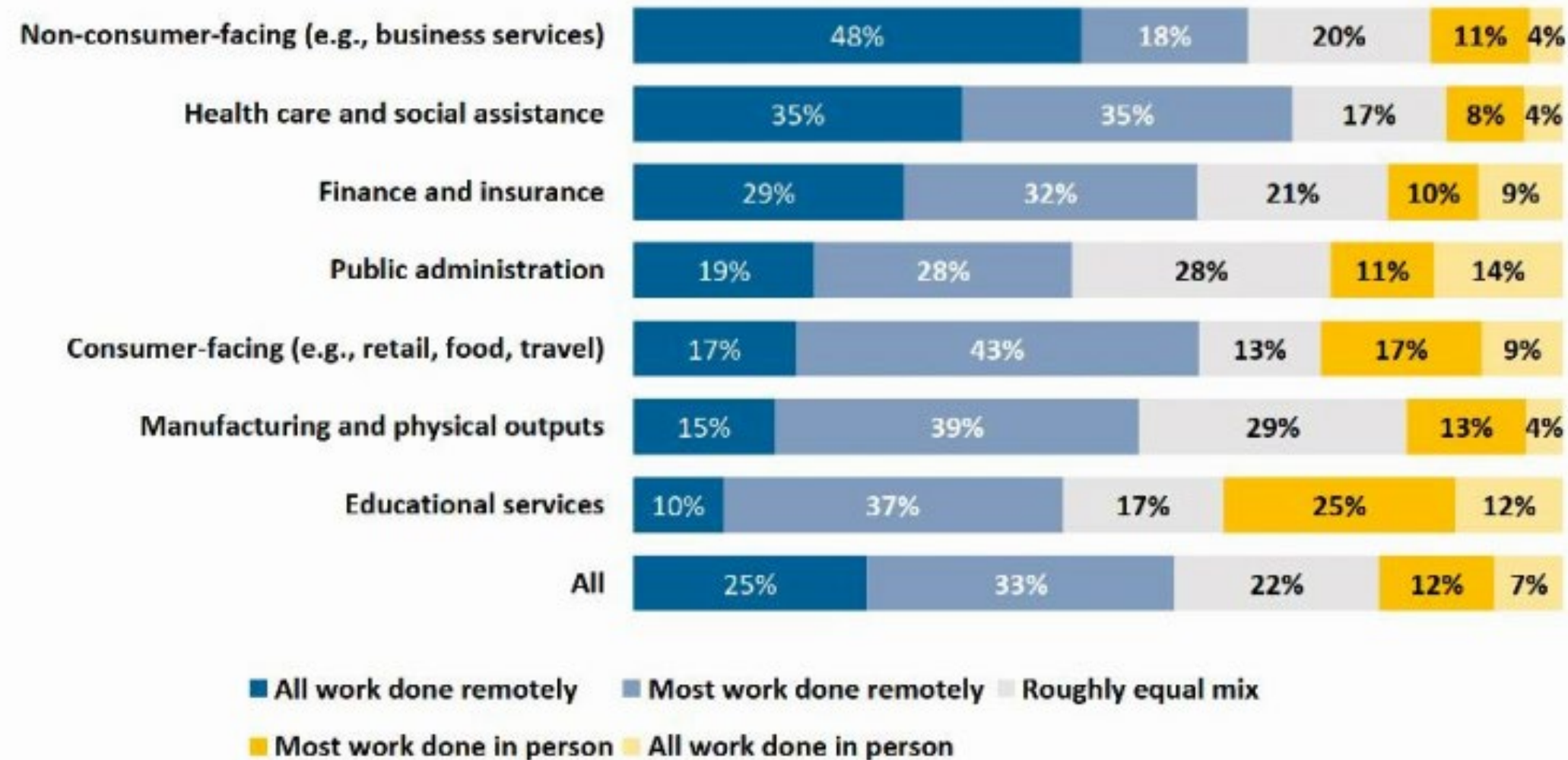
0.4 The objectives for the effective application of ICT for audit/assessment purposes are:

- i) To provide a methodology for the use of ICT that is sufficiently flexible and non-prescriptive in nature to optimize the conventional audit/assessment process
- ii) To ensure that adequate controls are in place to avoid abuses that could compromise the integrity of the audit/assessment process
- iii) To support the principles of safety and sustainability



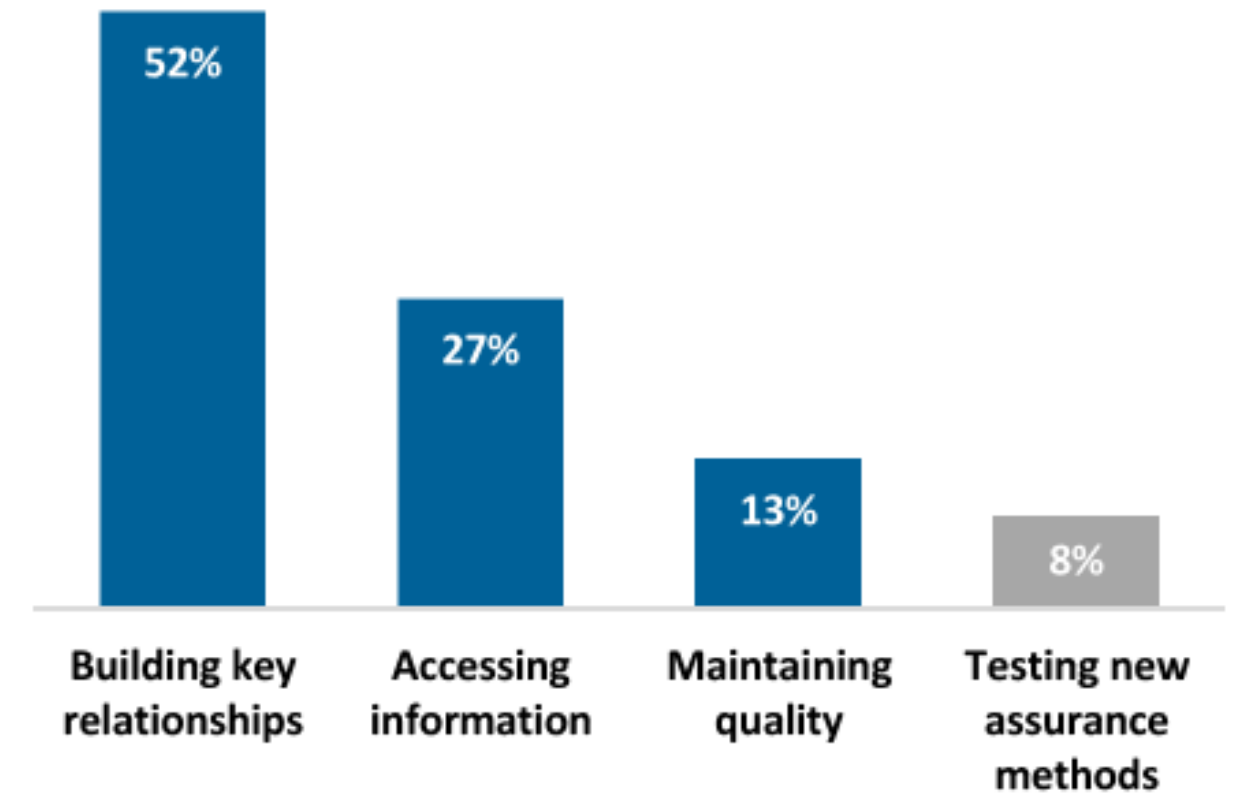
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Exhibit 1: Internal Audit Remote Work Compared to Industry Types



Note: North American Pulse of Internal Audit survey conducted October 5, 2021, to November 9, 2021. Q18: In terms of working remotely vs. in-person, how is your internal audit function currently operating? CAEs and directors only. *n* = 505.

Exhibit 2: Biggest Challenge for Auditing Remotely



Note: LinkedIn Poll through The Institute of Internal Auditors. Question: Which of these is the biggest challenge for auditing remotely? September 16, 2021. *n* = 1,890.



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## Remote Audits

Brazilian Experience

Jean Felipe Celestino Gouhie

International Audits Division, Animal Origin Products Inspection Department  
Ministry of Agriculture, Livestock and Food Supply, Brazil

(MAPA)

MINISTÉRIO DA AGRICULTURA, PECUÁRIA E ABASTECIMENTO



Jean Felipe Celestino Gouhie  
jean.gouhie@agro.gov.br

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## INTERNATIONAL AUDITS CARRIED OUT IN BRAZIL

2018 – 2022\*

Per animal origin food industries



COVID19 = Consolidation of the "tool"

\* up to June 2022

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## Singapore's experience in remote audits

SPS Thematic Session on the Use of Remote (Virtual) Audit

21 June 2022

**Ms Jenny LOI**

*Deputy Director (Risk Management & Surveillance Department)*

*Joint Operations Division, Singapore Food Agency*

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## Singapore's experience in use of remote audits



### Benefits

- ✓ Reduced costs and time from travelling
- ✓ Opportunity for more participants to be involved
- ✓ Availability of simultaneous interpretation

### Challenges

- Network / connection issues
- Differences in time zones between importing and exporting countries
- Limited span of vision compared to on-site audits (only able to view what the camera shows, dependent on operator of camera)
- Unable to use all senses (e.g. smell, reading of body languages)

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*Remote auditing of the operation of official control systems in the SPS domain – experience of the European Commission's Health and food, audits and analysis Directorate*

**Dr John McEvoy**

European Commission

Directorate General for Health and Food Safety

Health and food, audits and analysis Directorate



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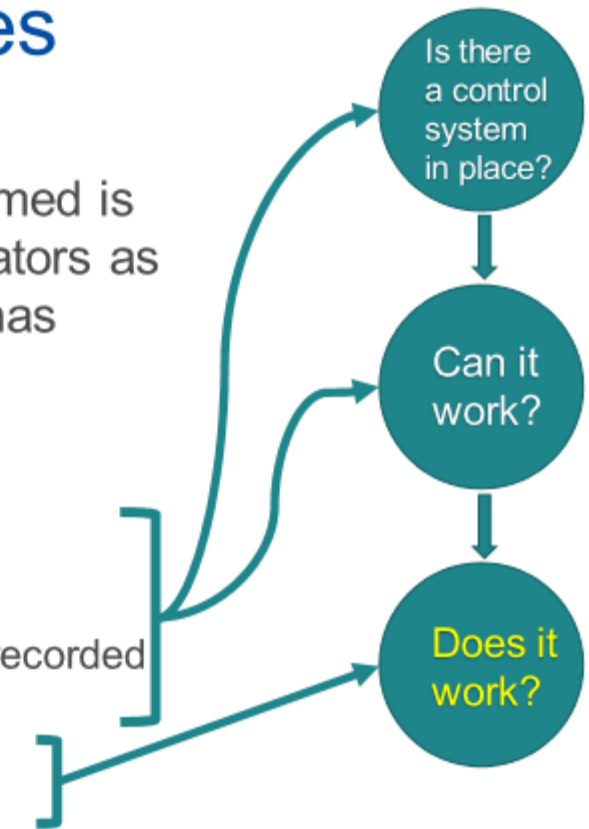
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## Remote audits - differences

- Possibility to verify *how* controls are performed is limited – we are NOT virtually visiting operators as examples of how the competent authority has verified their compliance with EU rules
- More emphasis on:
  - control framework
  - legal basis, structure, staffing
  - documentary evidence of controls and what is recorded
  - competence of control staff (on paper)
- Indirect evidence (e.g. RASFF alerts)



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## Commission remote audits – reports

- 154 **fully remote** audits (SPS) between 31/3/2020 and 31/12/2021 – 107 in EU Member States; 47 in third countries
- 70 reports published to date - [https://ec.europa.eu/food/audits-analysis/audit\\_reports/index.cfm](https://ec.europa.eu/food/audits-analysis/audit_reports/index.cfm)
- 11 **partially remote** (4 to be completed on-site in 2022)
- Since Jan 2022, have moved to a **hybrid audit model** as the default



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*Use of remote audit by a UK voluntary third party assurance (vTPA) scheme, approach and lessons learned ...*

**Jim Moseley**  
CEO, Red Tractor Assurance  
SPS Thematic Session on  
remote audit  
21 June 2022



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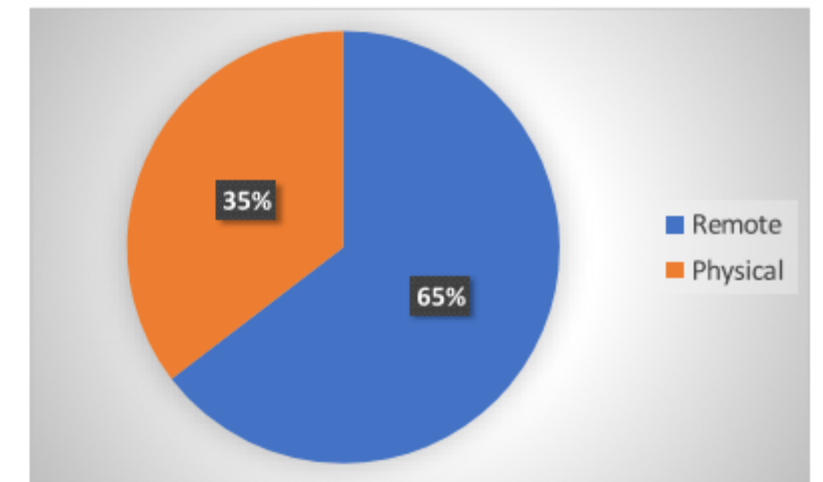
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## RESULTS APRIL 2020 – MARCH 2021

	Number remote	% of total
Crops	8,534	64%
Fresh Produce	1,572	86%
Dairy	3,599	48%
Beef & Lamb	9,343	62%
Pigs	1,933	84%
Poultry	2,134	95%

**28,000 remote audits**



Non-conformities continued to be identified (although at slightly reduced levels)

e.g. Dairy Farms Remote 48% members = 61% > 0 non-conformities

Physical 52% members = 73% > 0 non-conformities

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## POSITIVES AND NEGATIVES

### POSITIVES

- Pre-assessment document review allows assessor to scrutinise in depth and prepare areas to focus during the live stream
- Continue to assess conformity against all standards
- Assessor to continue to lead the assessment and probe where required
- Portal resulted in business being more prepared
- Non-conformities still identified

### NEGATIVES

- No sense of smell
- Limited peripheral visibility
- Body language and staff dynamics more challenging to interpret
- Connectivity in some scenarios
- Levels of non-conformities identified slightly lower

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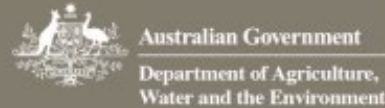
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Australian Government  
Department of Agriculture,  
Water and the Environment

## Codex Alimentarius CCFICS

*Developing guidance on  
the use of remote audit  
and verification in  
regulatory frameworks*

Ms Nicola Hinder PSM  
21 June 2022



## CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

Viale delle Terme di Caracalla, 00153 Rome, Italy - Tel: (+39) 06 57051 - E-mail: [codex@fao.org](mailto:codex@fao.org) - [www.codexalimentarius.org](http://www.codexalimentarius.org)

Agenda item 10

CRD 6  
May 2021

### JOINT FAO/WHO FOOD STANDARDS PROGRAMME CODEX COMMITTEE ON FOOD IMPORT AND EXPORT INSPECTION AND CERTIFICATION SYSTEMS

Twenty-Fifth Session

Virtual, 31 May – 8 June 2021

### USE OF ICT TOOLS IN REGULATORY FRAMEWORKS

Prepared by Australia

#### Introduction

1. At its 20<sup>th</sup> Session in 2013, the Codex Committee on Food Import and Export Inspection and Certification Systems (CCFICS20) recognised that emerging global challenges were impacting approaches and technologies relating to food safety controls and these trends were likely to continue.
2. The COVID-19 pandemic has accelerated the development and utilisation of alternative verification measures (for example, remote inspection, audit and assurance) in the food supply chain. Information and communication technologies (ICT) are essential tools for both the current implementation and future evolution of these alternative verification measures.

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## Global Food Safety Initiative

GFSI and the use of Information and Communication Technologies (ICT) in food safety supply chain for third party audits: learnings and challenges

The Consumer Goods  
FORUM

GFSI

## GFSI latest survey on use of ICT



### PROS

- **Auditor Preparedness:** Requires more preparation from the auditor
- **Less audit fatigue:** Requires less logistics, travel and audit time
- **Environmental Impact:** Less travel = less environmental impact
- **Costs:** Less costly
- **Flexibility:** Maximizes flexibility for short harvest windows

### CONS

- **Critical Factor Assessment Lacking:** Visual, hands-on assessment not possible. Food safety and company culture difficult to assess and encouraged for manufacturers and farms
- **Technology Investment Required:** Technology not fully developed or compatible with manufacturer capabilities. Cost incurred
- **Corporate IT Policies:** Confidentiality and interoperability with exchange of data
- **Human resources:** Lack of skill and training and transition to use of ICT

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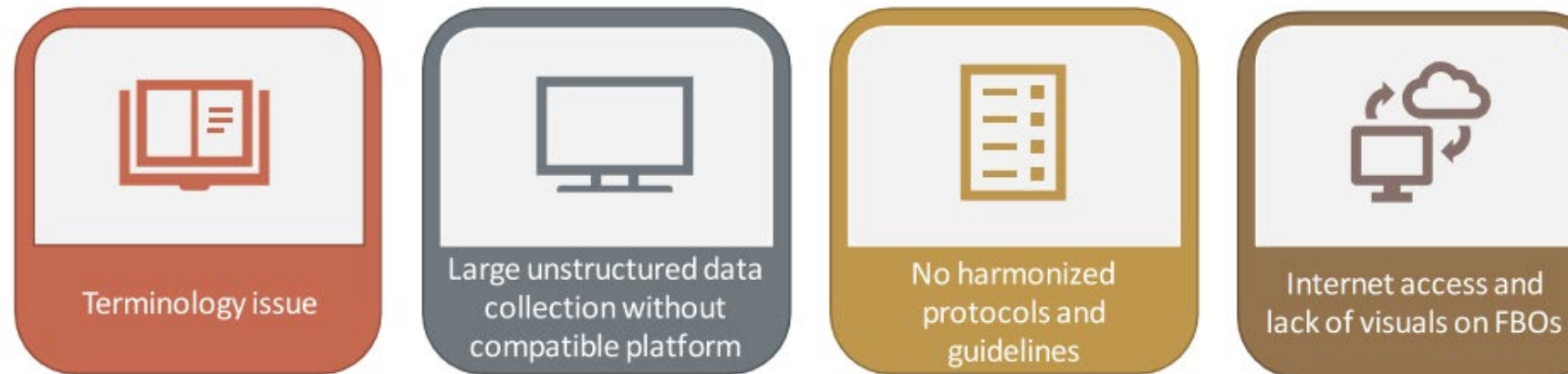
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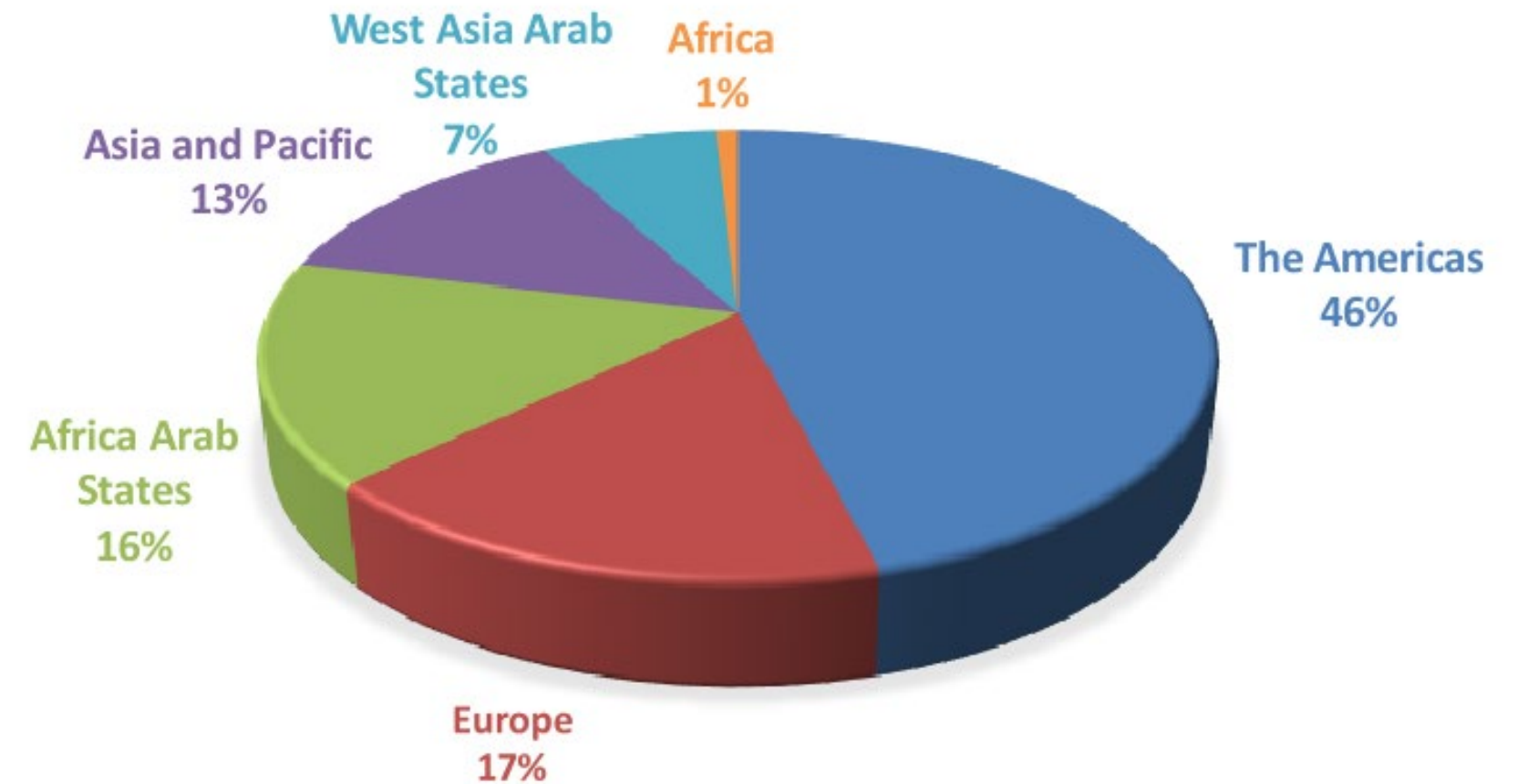
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## Preliminary findings on current barriers



## Composition of respondents by continent



# CONCLUSION



TECHNOLOGY  
IS A USEFUL  
SERVANT BUT A  
**DANGEROUS MASTER**

“With technology,  
we can achieve  
the unimaginable.”

- Anonymous



The technology you use  
impresses no one. The  
experience you create with it  
is everything.

SEAN GERETY

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There are no morals about technology at all. Technology expands our ways of thinking about things, expands our ways of doing things. If we're bad people we use technology for bad purposes and if we're good people we use it for good purposes.

(Herbert Simon)

izquotes.com

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## CONCLUSION

*Smart tools and technologies have become indispensable in both private and official veterinary activities, including inspections and audits for various purposes in our professional lives.*

*These technologies<sup>41</sup> serve as powerful tools in the hands of highly skilled professionals.*

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