

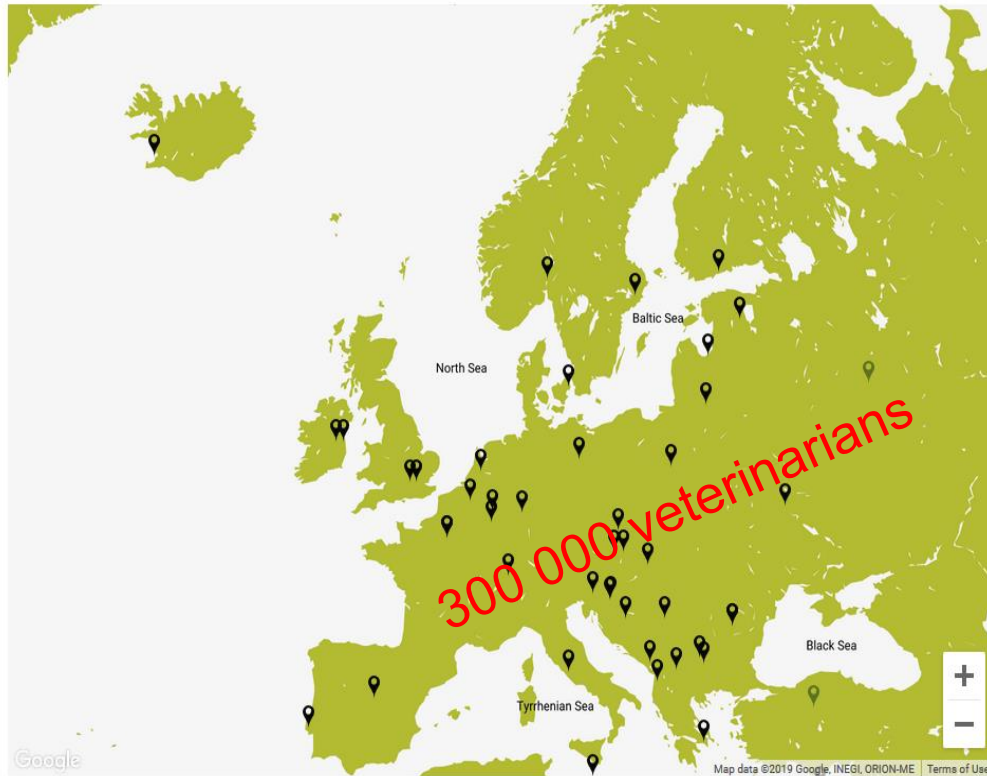
# ***Veterinary Big Data Stakeholder Forum***

The veterinary profession and big data: a growing partnership

*Nancy De Briyne, Executive Director*



Federation of  
Veterinarians of Europe



## Federation of veterinarians of Europe

47 national associations

39 European countries

4 Sections

- UEVP (*Practitioners*)
- UEVH (*Hygienists – Public Health Officers*)
- EASVO (*Veterinary State Officers*)
- EVERI (*Education, Research, Industry*)

### FVE's mission

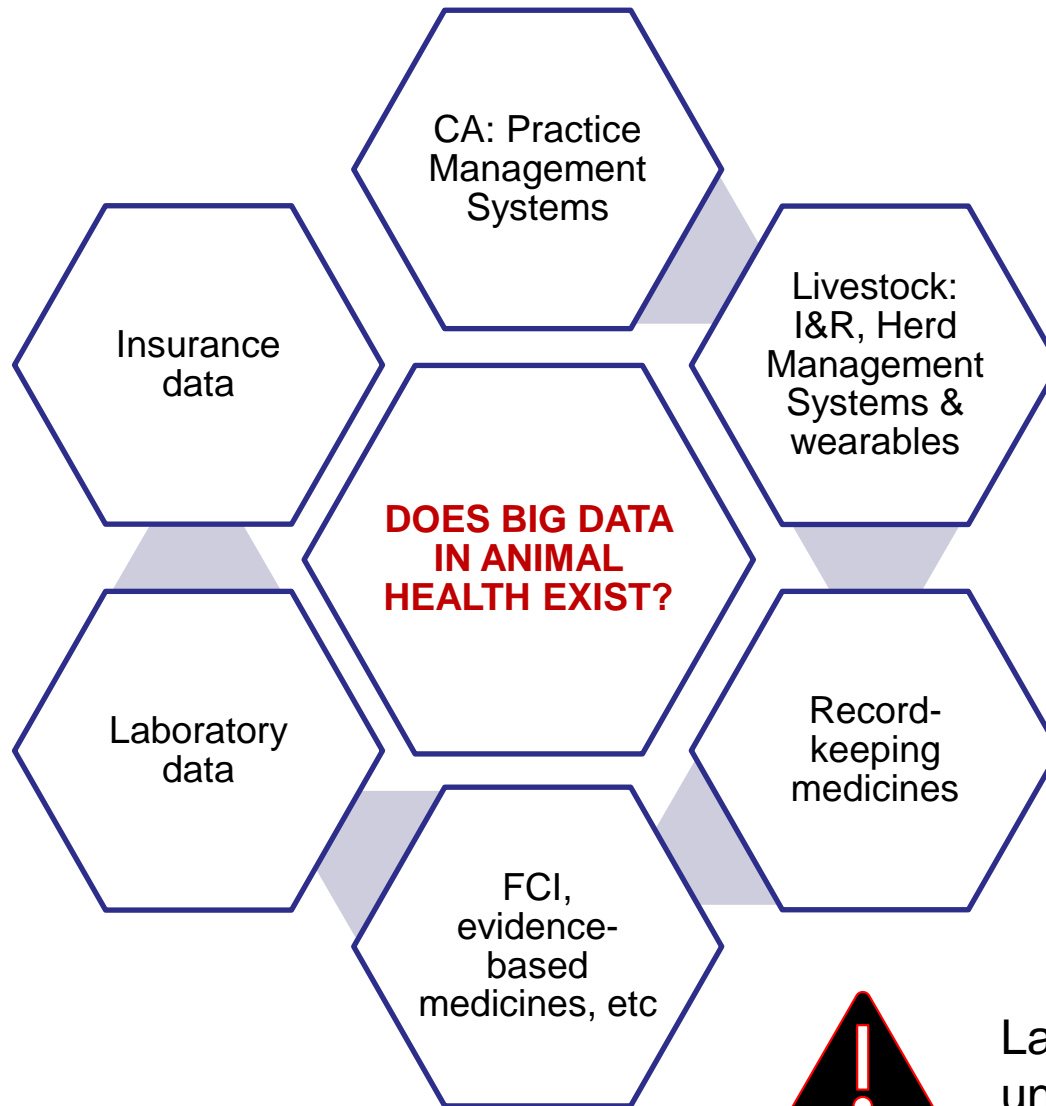
**FVE enhances animal health, animal welfare, public health and protect the environment** by promoting the veterinary profession.

Together with our members, we support veterinarians in delivering their professional responsibilities to the best possible standards and ensure that veterinary expertise is recognised and valued by society.



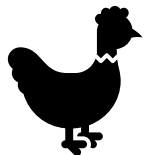
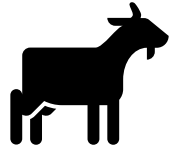
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# SOURCES OF BIG DATA IN ANIMAL HEALTH



Largely  
unconnected

Less data



More data

# Growing INTEREST IN BIG DATA IN ANIMAL HEALTH

- ✓ Precision Livestock Farming (PLF)
- ✓ EU projects: ClearFarm, TechCare, Compare, VEO, ...
- ✓ Large pharmaceutical companies going into tech
- ✓ Genome sequencing, Vetology AI, ..



# Precision Livestock Farming (PLF) - limited but increasing

- Focus on production data: milk production, movement data, feed data, changes in 'normal' behaviour, etc.
- Livestock precision farming, especially for cattle, is increasing
- Collection is done on farms. Veterinarians use data mostly on the farm when doing farm visits, seldom remotely
- Need to make sure that veterinarians have access to the data, so they can utilise them



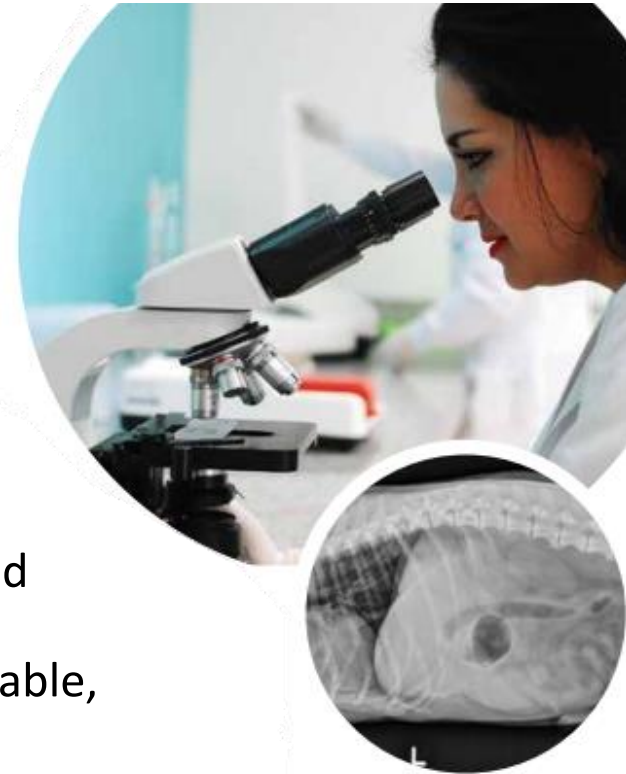
# Big data challenges



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## Challenges

- Inaccuracies, noisy, missing, unstructured data
- Logistics around collection, storing and making accessible quality data
- Ownership and right to access
- Closed ecosystems, danger 'locked-in'
- Costs involved, especially for livestock
- Overreliance on technology versus stockmanship
- Privacy (GDPR)
- Cybersecurity
- Potential usage outside primary goals, e.g. targeted advertising
- High stakes decisions can be based on uninterpretable, black box Machine Learning models -) need for authorisation and transparency algorithms



# Big data opportunities

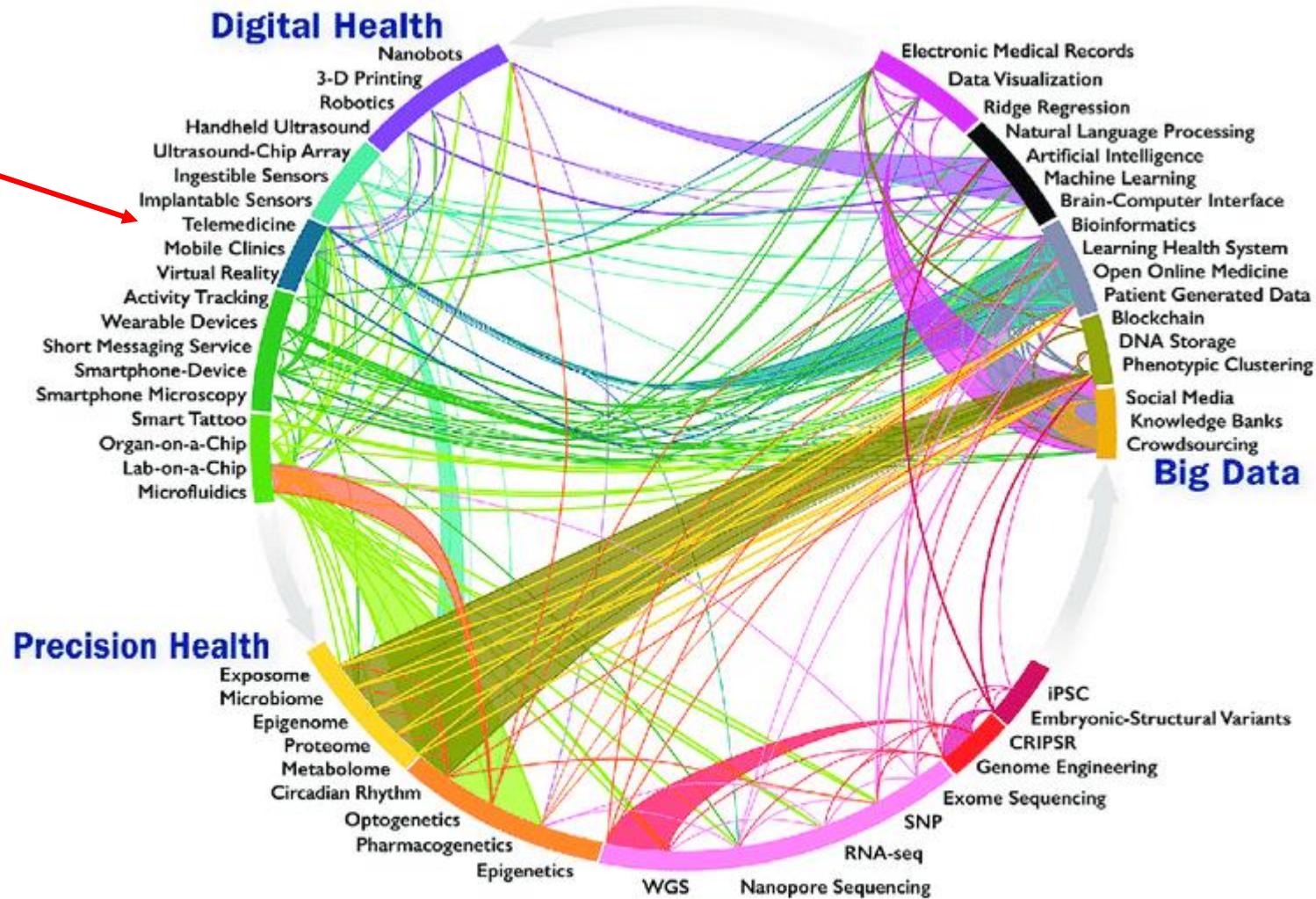


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## Opportunities

- Contribute to diagnosis and disease case detection
- More reliable predictions and reduced errors
- Clinical decision support
- Improves accuracy in risk analyses
- Better targeted interventions and anticipated negative effects.
- Allows for better preventive care
- Used already in medical imaging
- Monitor and increasing drugs effectiveness
- Improved detection of adverse effects
- Genomics research
- Better use of telemedicine

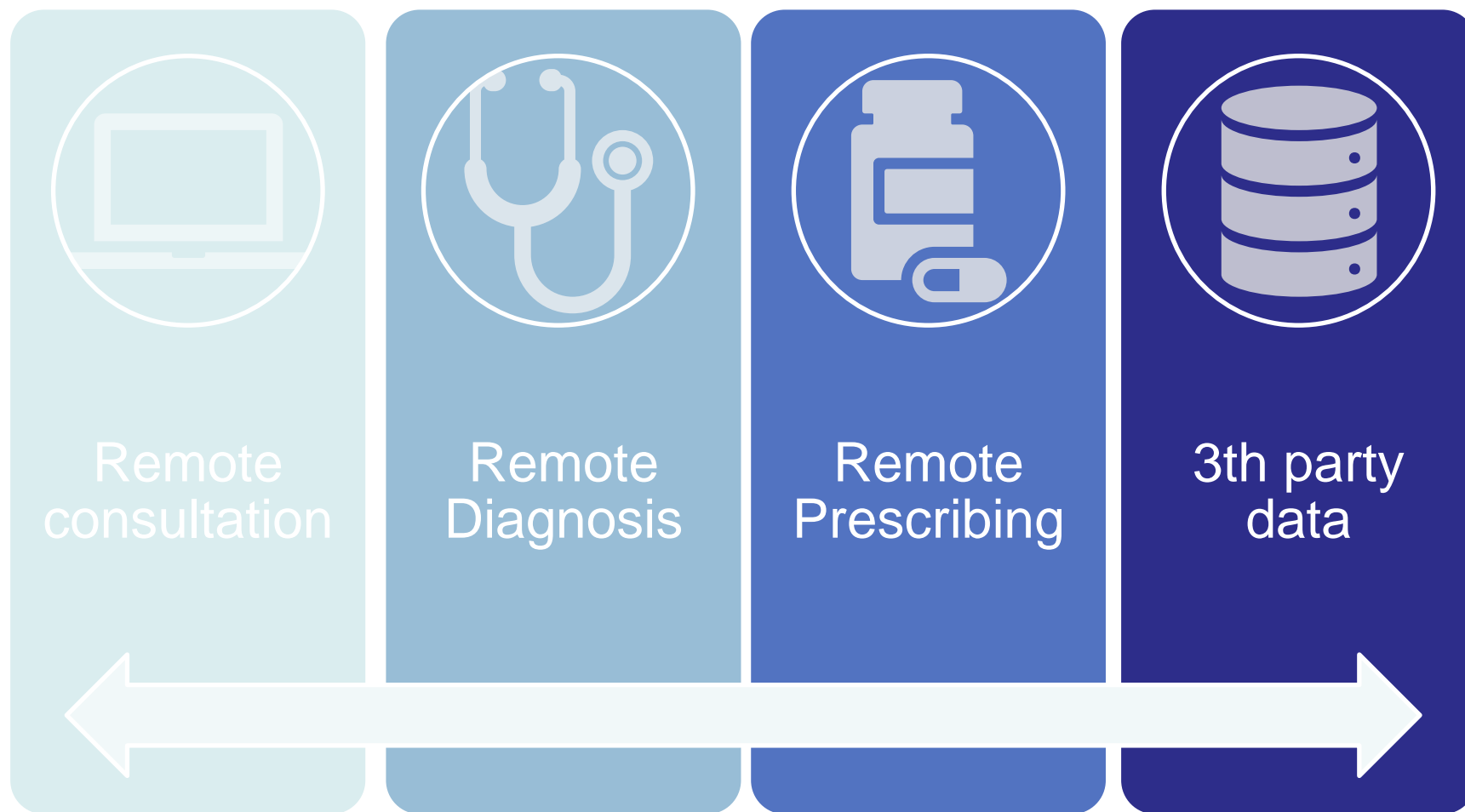




Infographic of emerging innovations and developments in digital health (14-32), big data (33-51), and precision health (52-78) and their intraconnections and interconnections. 3d indicates 3-dimensional; CRISPR, clustered regularly interspaced short palindromic repeats; DNA, deoxyribonucleic acid; iPSC, induced pluripotent stem cells; RNA, ribonucleic acid; SNP, single nucleotide polymorphism; WGS, whole genome sequencing.



# Veterinarians' focus on telemedicine is growing accelerated by COVID



# Not all veterinarians are convinced about benefits of telemedicine.



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Telemedicine in the future will facilitate the provision and access to veterinary services



VET **SURVEY**  
2018

Replies from **14,559**  
**veterinarians** 2018



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# FVE position paper on telemedicine (adopted Nov 2020)



FEDERATION OF VETERINARIANS OF EUROPE

FVE/2020/pos\_papers/049  
Adopted in November GA

## FVE position and recommendations on the use of telemedicine

### Members

Albania  
Austria  
Belgium  
Bosnia-Herzegovina  
Bulgaria  
Croatia  
Cyprus  
Czech Republic  
Denmark  
Estonia  
Finland  
France  
Germany  
Greece  
Hungary  
Iceland  
Ireland  
Italy  
Latvia  
Lithuania  
Luxembourg  
Malta  
Montenegro  
Netherlands  
North Macedonia  
Norway  
Poland  
Portugal  
Romania  
Serbia  
Slovak Republic

### Introduction

This paper presents an overview of veterinary telemedicine together with recommendations to the Veterinary Regulatory Bodies for supporting advantages of telemedicine whilst preventing or mitigating risks that telemedicine will affect the quality of the services provided or the independent position of the veterinarian.

Telemedicine is a tool to support veterinarians. It can complement other methods to do a consultation or to make a diagnosis. Telemedicine is not meant to replace veterinarians. Whatever tools are used, veterinarians are always personally and fully responsible for the professional services they provide. FVE believes that physical consultation and examination plus prescription & dispensing of veterinary medicines to animals are preferable over electronic ways.

The veterinary profession is one of the liberal professions. The word 'liberal' refers to the professionally independent position veterinarians shall maintain in the exercise of veterinary medicine. The words 'profession' is connected with the promise or oath that is made when new graduates are 'professed' and licensed to practise. In the EU legislation, liberal professions are defined as those practised based on relevant professional qualifications, in a personal, responsible and professionally independent capacity, by those providing intellectual and conceptual services in the interest of the client and the public.



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# FVE Position: Telemedicine is just an extra tool



- ✓ Telemedicine is an **extra tool**.
- ✓ Can **complement** other methods to do a consultation or to make a diagnosis.
- ✓ Whatever tools used, veterinarians are always **personally and fully responsible for the professional services they provide**.
- ✓ **Physical consultation & examination are preferable** over electronic ways.
- ✓ Most importantly: needs to be regulated!



# Remote prescribing in only allowed in a few countries



- Survey April 2021 replied by 20 FVE member organisations
- Telemedicine is more used for companion animals
- Mostly used/allowed for animals that have previously been physically examined by the veterinarian as part of the **VCPR** (veterinary client patient relationship).
- Rules often not yet adapted to changing reality -) confusion
- Prescribing medicines based on a teleconsultation is only allowed in some countries and usually in based on a VCPR or an initial diagnosis being made previously.

# Telemedicine: opportunity but challenges remaining



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## Opportunities:

- Animal care for reluctant owners
- More easy access
- Behaviour consultations

## Challenges:

- Legal challenges
- Deontological problems





# Embracing technology is a priority area in FVE Strategy 2021- 2025

[www.fve.org/new-fve-strategy-2021-2025/](http://www.fve.org/new-fve-strategy-2021-2025/)



# FVE aims to prepare vets to embrace technology

[www.fve.org](http://www.fve.org)

- Monitor technology developments & evaluate impact
- Reflect on ethical and deontological issues
- Interdisciplinary collaboration
- Promote education in the field of new technology:
  - Analyse necessary competences future veterinarians
  - Promote postgraduate education





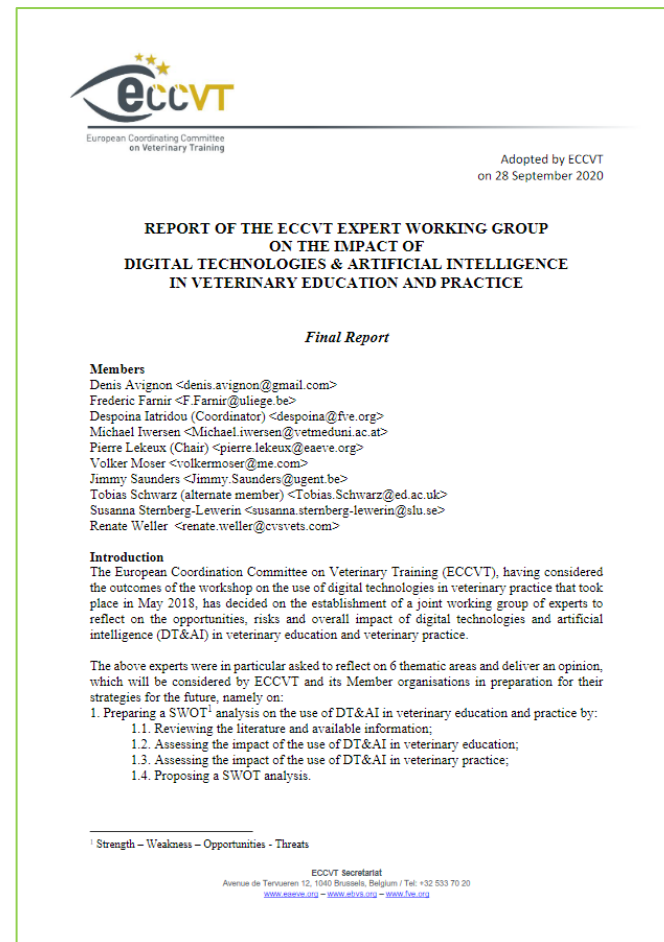
# Working Group on Digital Technologies & Artificial Intelligence in Veterinary Education

[www.fve.org](http://www.fve.org)

Conference May 2019

**Report** Oct 2020 on the impact of digital technologies & artificial intelligence on veterinary education and practice

Made by



# Conclusions



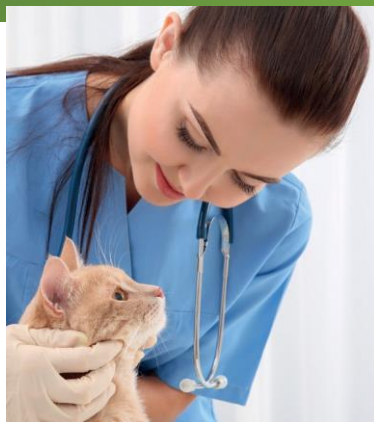
- Big data is limited in Animal Health, but growing
- Many opportunities, but also challenges to overcome
- Important to define structure data, ownership and access to data
- Telemedicine is topic of growing interest within veterinary profession with need for further regulation
- The profession is increasing under and postgraduate training in these topics.



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THANK YOU FOR YOUR ATTENTION



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