

Dirk Louis P Schorkopf

Department for Apiculture and Bee Protection, AGES - Austrian Agency for Health and Food Safety

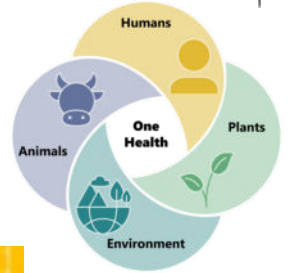
When we talk about digital tools for beekeeping (DTB), most publications focus on technological opportunities, novelties, and theoretical frameworks that may be applied to bee research, bee health, or beekeeping. There is a regrettable gap in knowledge, however, when it comes to the actual use by common beekeepers and their own attitudes, needs, and real-world experiences, including financial investment payoffs. We utilized multidirectional information/communication flow (AGES to beekeepers, beekeepers among beekeepers, beekeepers to AGES), encouraging beekeepers to define for themselves which DTB and information are useful, from their practical point of view and in light of their own reflections. To share and discuss information and thoughts regarding available or potential DTB, beekeepers were encouraged to participate in a) workshops, b) online questionnaires, c) personal discussions, as well as d) information/opinion-sharing via conventional mail or e-mail.

The Austrian beekeepers' current attitude and interest towards DTB were on average positive but varied considerably. It was influenced by age, sex, and professionalism. While conventional digital tools (e.g., software or devices used also by non-beekeepers) are used on a regular basis, beekeeping-specific tools are far less common among Austrian beekeepers. Online sharing of monitoring data for the common interest of beekeepers in a region is even less common, despite an outspoken willingness to share data for such purposes.

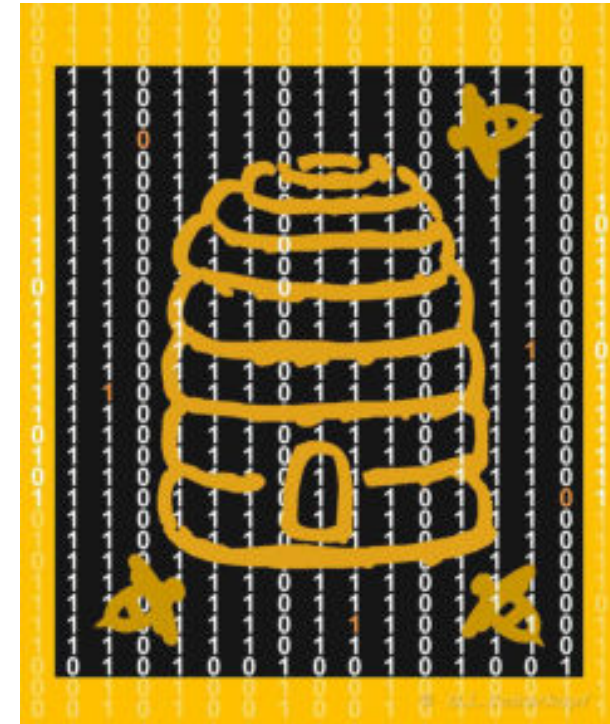
1. From what beekeepers say themselves, DTB can indeed notably support virtually everyone who wishes to use them.
2. Since every apiary and beekeeper is quite unique, the recommendable digital toolbox will be equally unique.
3. From 2) it follows that every beekeeper will substantially profit from information and advice coming from colleagues from the same region and with similar needs.
4. Beekeepers who try out DTB are notably more likely to find something with practical use and therefore correspondingly are also more positively inclined towards DTB in general.
5. Overviews on the topic and real-world solutions, coming from beekeeper-trusted organizations, will likely not only provide substantial support for beekeepers but also accelerate the positive aspects of digital transformation for beekeeping in general.

Acknowledgements

Funding was provided by the Austrian Ministry for Finances.



Austrian beekeepers' current attitudes, utilization, and feedback on **digital tools for beekeeping** and ongoing digital transformation opportunities

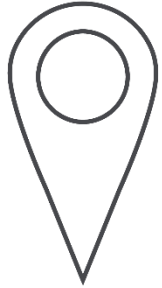


Dirk Louis P. Schorkopf

Department for Apiculture and Bee Protection

Our agency

Austrian Agency for Health and Food Safety



Locations

10 locations in
6 cities



Owner

Republic of Austria



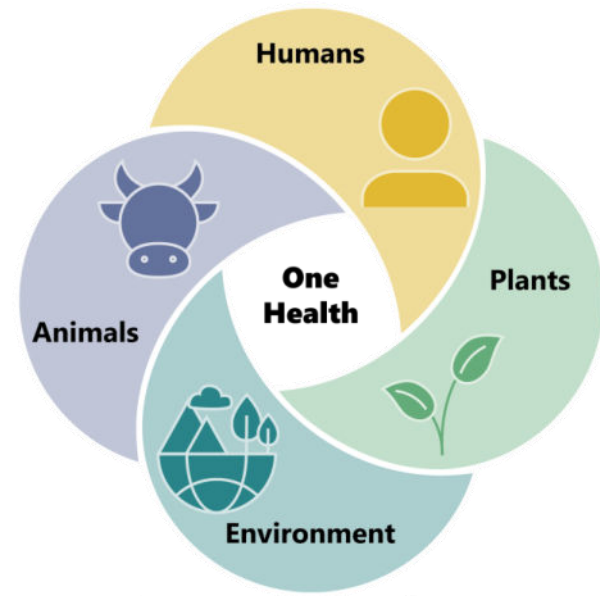
Legal basis

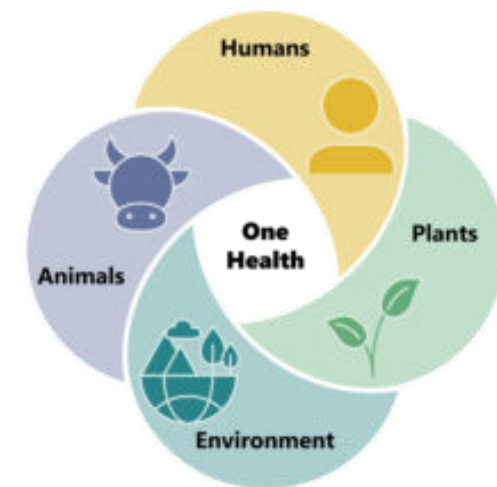
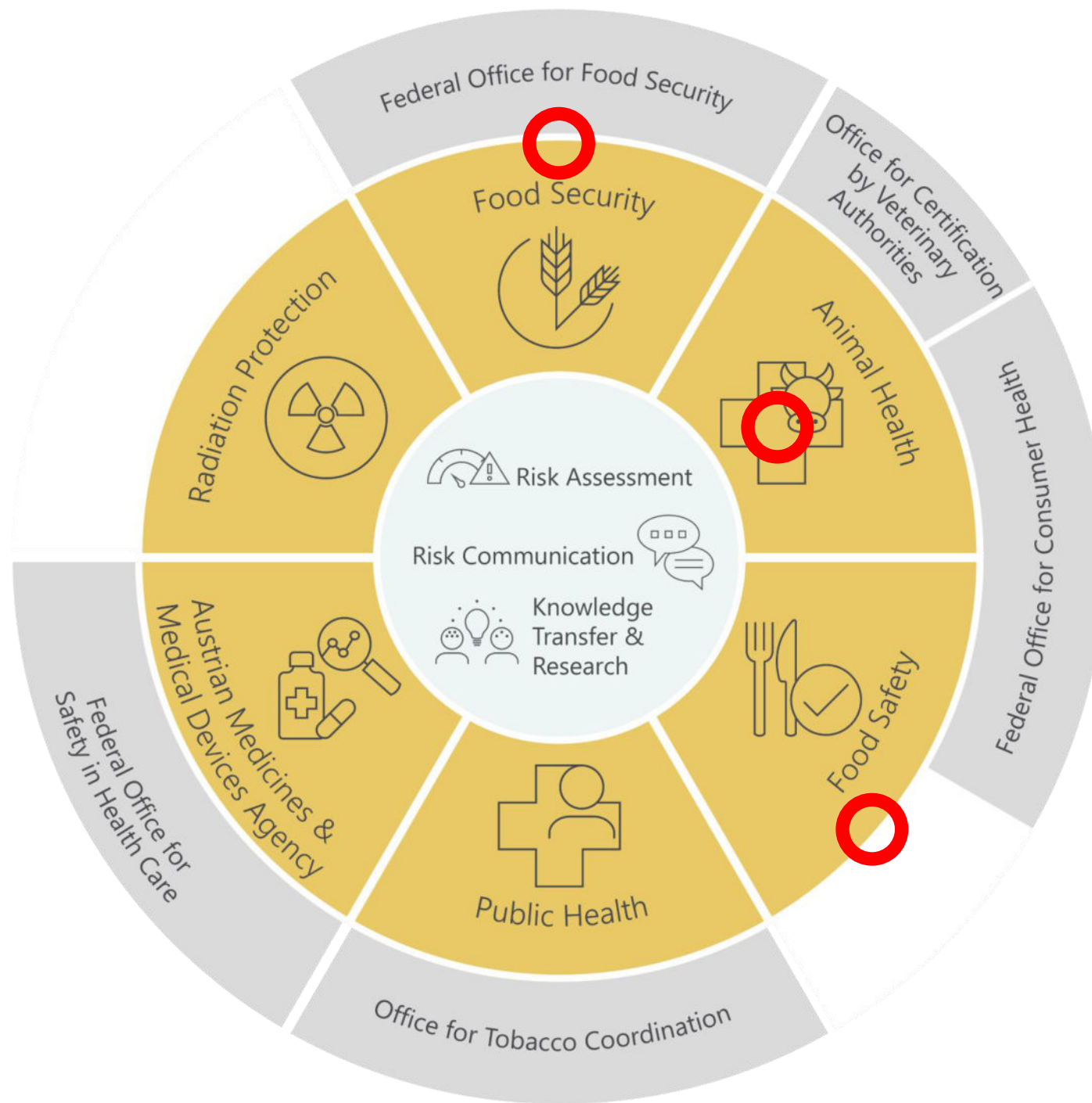
Health and Food Safety Act
(GESG)

Our Agency

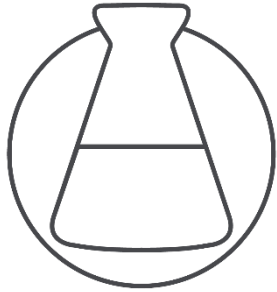
Around 1,700 employees, 60 % women

~ 480 experts in national and international committees

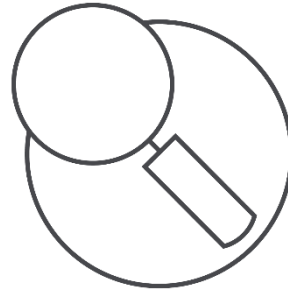




Our tasks



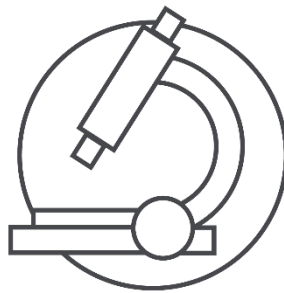
We analyse



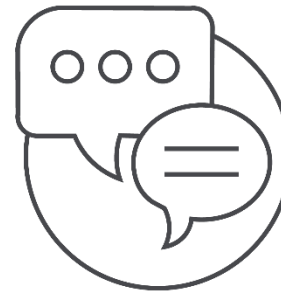
We monitor



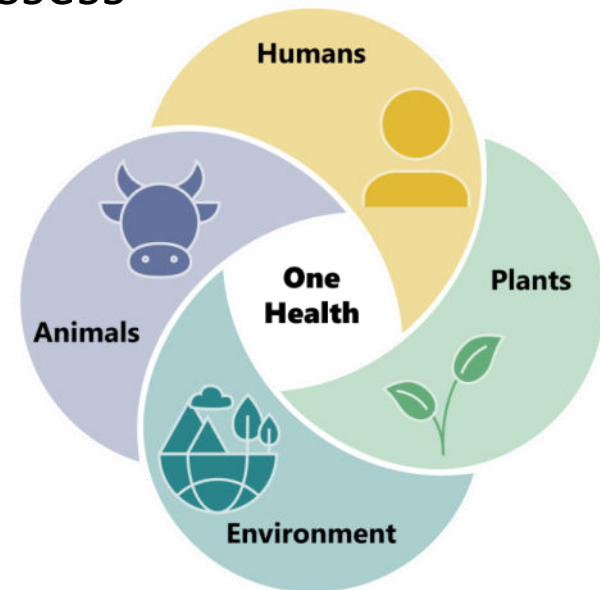
We assess



We research



We communicate



Our strategic focus

Austrian reference-laboratory for notifiable honey bee diseases



Digitisation



Crisis management



Internationalisation

Lab-analysis of honey and sophisticated pollen identification



Morawetz Schorkopf

Mayer

our project's motto is "beekeepers know best for themselves what they really need or want"

digital tools (definition)

“any digital technology that provides information, communication or other services”

examples for **general digital tools** for beekeeping
digital sensors, software (including office packages),
smartphones, electronic platforms, social media etc....

examples for **specific digital tools** for beekeeping
digital hive scales, hive monitoring, beekeeping learning,
information or reporting platforms....

digital tools for beekeeping (DTB)

most published work focuses on

- technological opportunities
- novelties
- theoretical frameworks

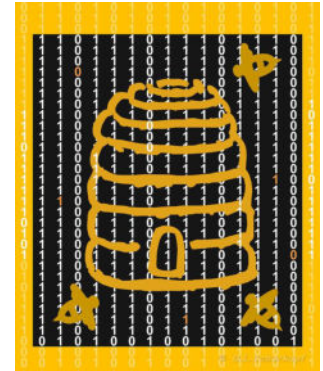
that **may/can** be applied to
bee research, bee health, or beekeeping

digital tools for beekeeping (DTB)

gap in knowledge when it comes *to*

the actual use by common beekeepers and their own

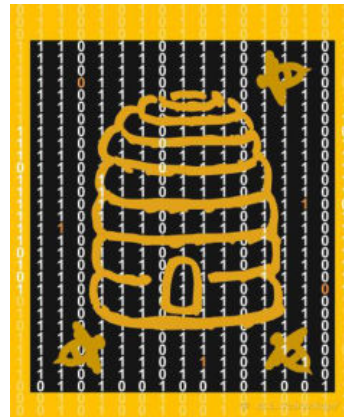
- attitudes,
- needs, and
- real-world experiences,
- including financial investment payoffs



PROJECT Imkerei-Digital (=„Beekeeping with Digital Tools“) 2022-2025



Encourages beekeepers to define or find out for themselves **which DTB** (digital tools for beekeeping) and information **are useful from their practical point of view** and **in light of their own reflections**.



AGES

Austrian Agency for Health and Food Safety

one possibility
for information
flow...



Austrian Beekeepers

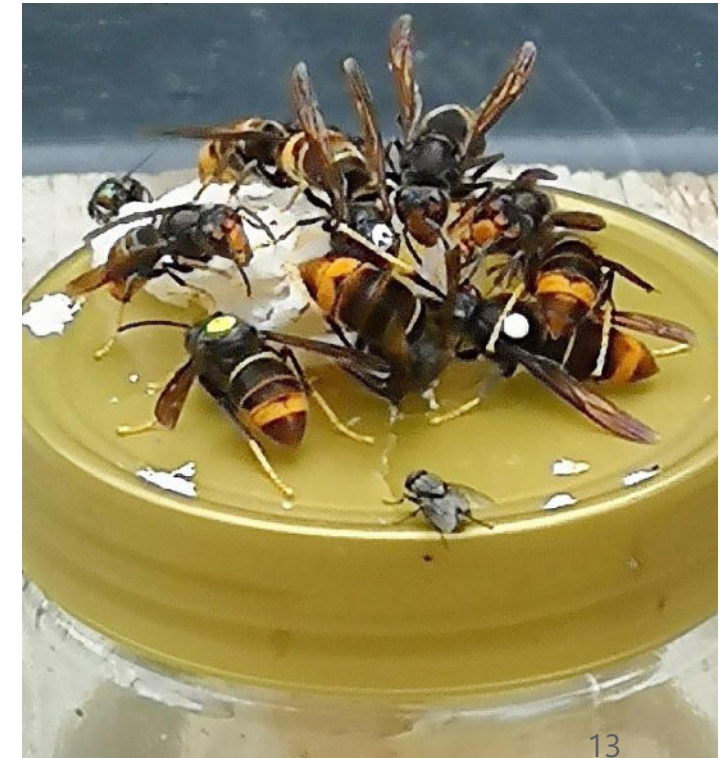
Example: Project „ZUSIMLANA“ starting later this year (2025) to prepare Austrian beekeepers for the invasion of the invasive Asian Hornet *Vespa velutina*

AGES

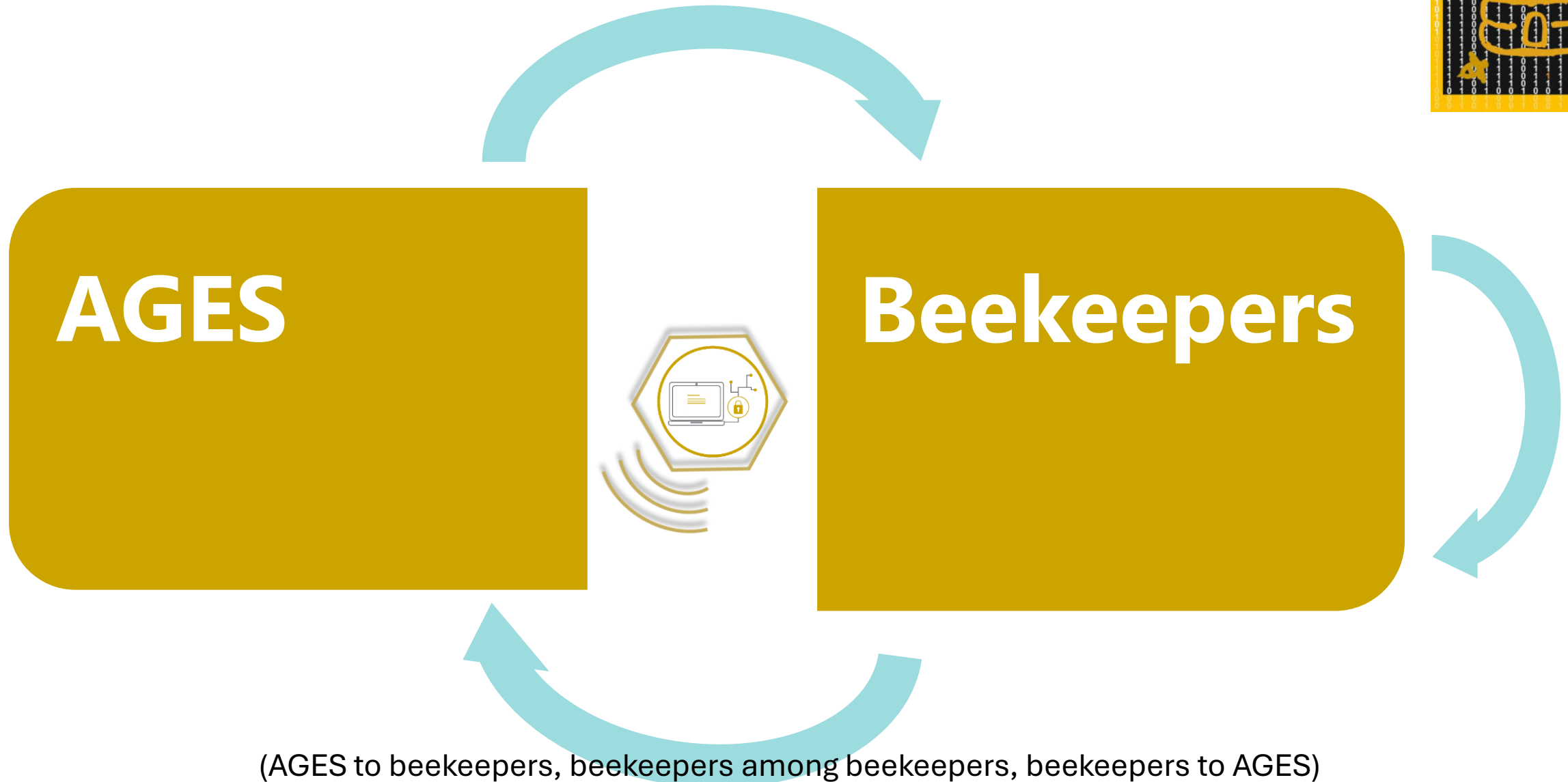
Austrian Agency for Health and Food Safety

INFORMATION
FLOW

*Austrian
Beekeepers*



INFORMATION FLOW



METHODS FACILITATING INFORMATION FLOW

(in total $N > 500$ beekeepers)

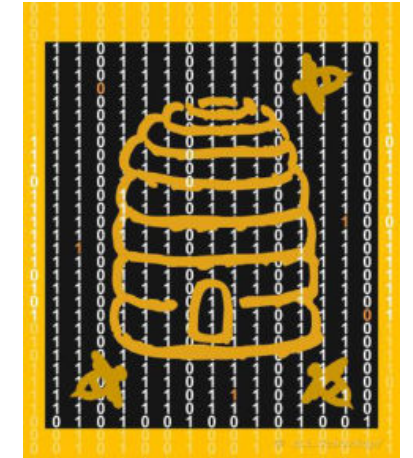


i) **workshops**

ii) **online-questionnaires**
($N = 303$)



iii) **personal discussions** (on site or via the phone or video-communication platforms)



iv) **test for themselves** beekeepers could choose freely among commercially available apps or small items of digital technology (e.g. monitoring devices <50 Euro) they would both find and test for themselves regarding usability etc.

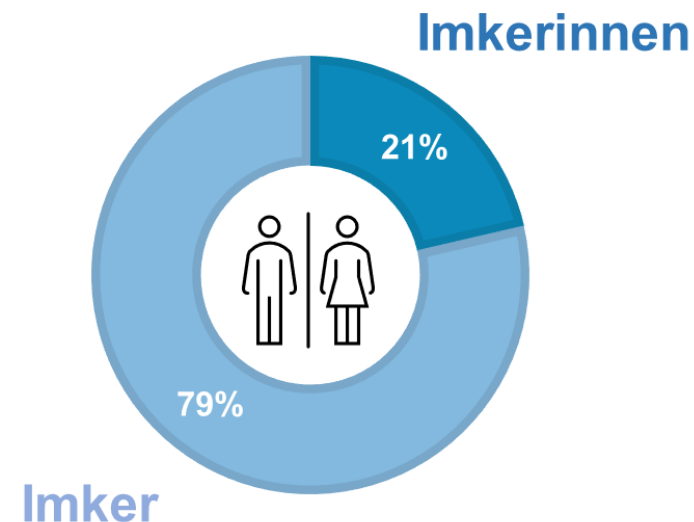


average Austrian respondent was...

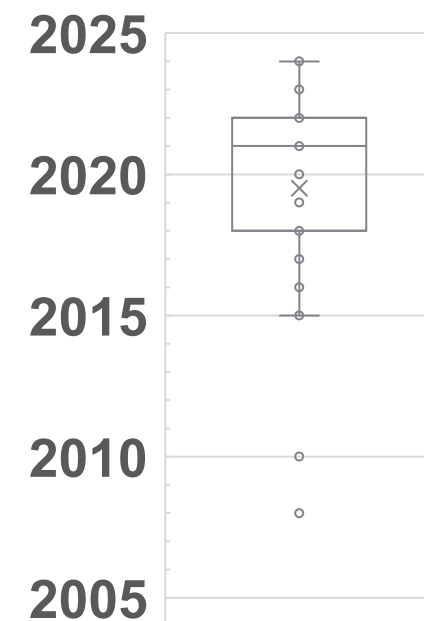
- **55 years** old
- kept bees for 11 years
- is responsible for **10-20 hives** on **1-3 different locations**

among Austrian users of digital technologies...

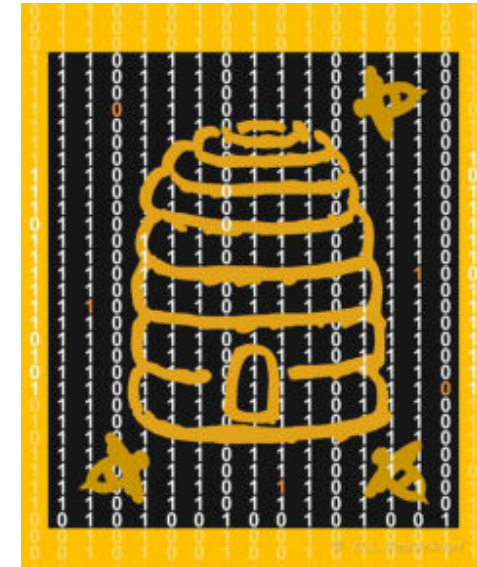
- uses **general digital technologies** for 9 years
- uses **specific beekeeping dig. technology** for 4 years



specific tools



**The Austrian beekeepers' current attitude
and interest towards DTB were on average
positive...**



...but varied considerably.



Digital Tools for Beekeeping

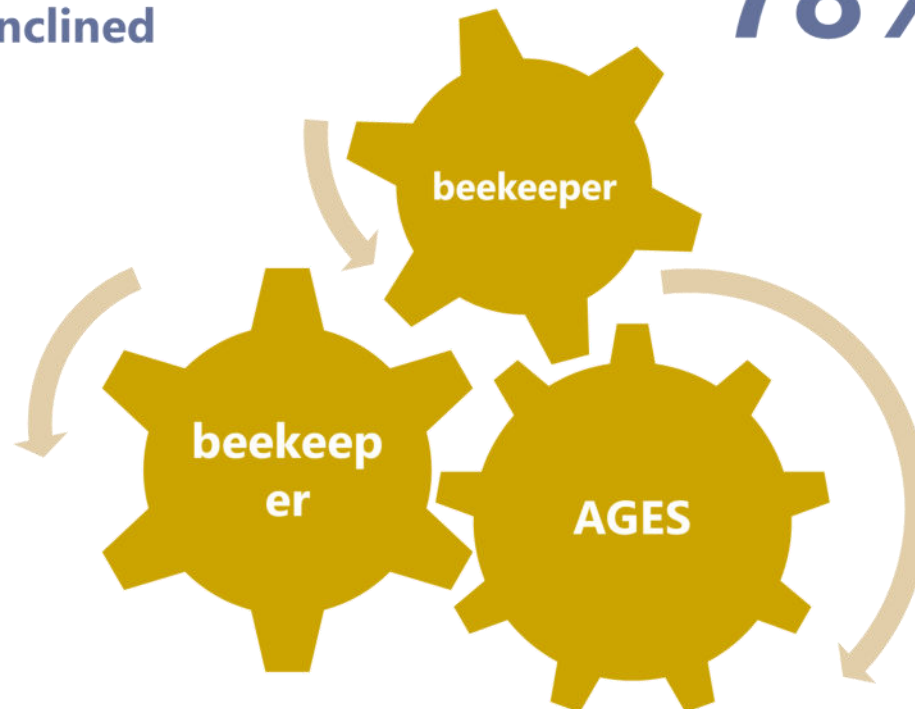
83% of beekeepers are positively inclined

78% rather had positive experience

>30%
reported negative experiences

68% felt they were rather poorly informed about the topic

>90%
would gladly share digital data/information



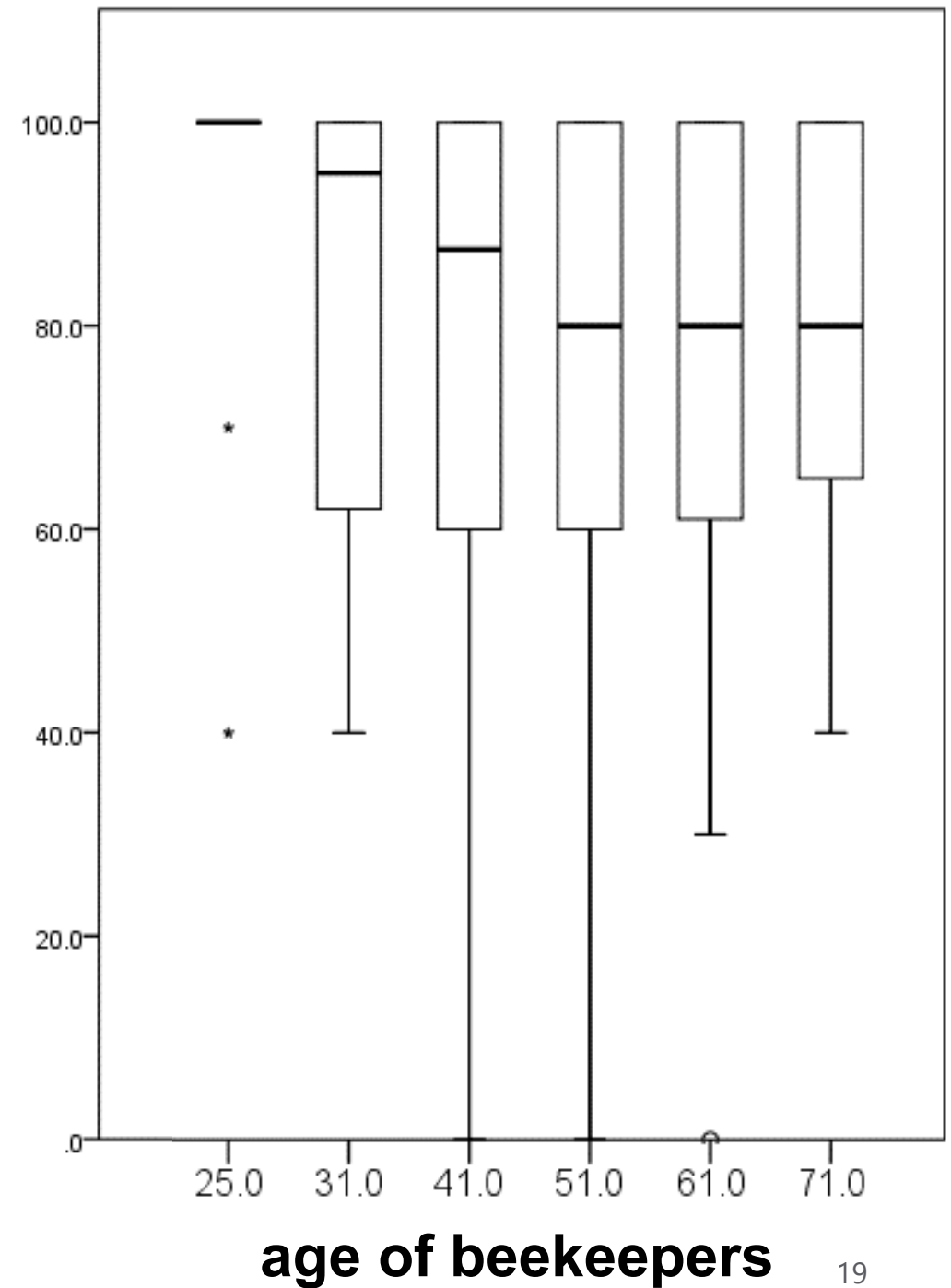
<16%
rather avoid using them



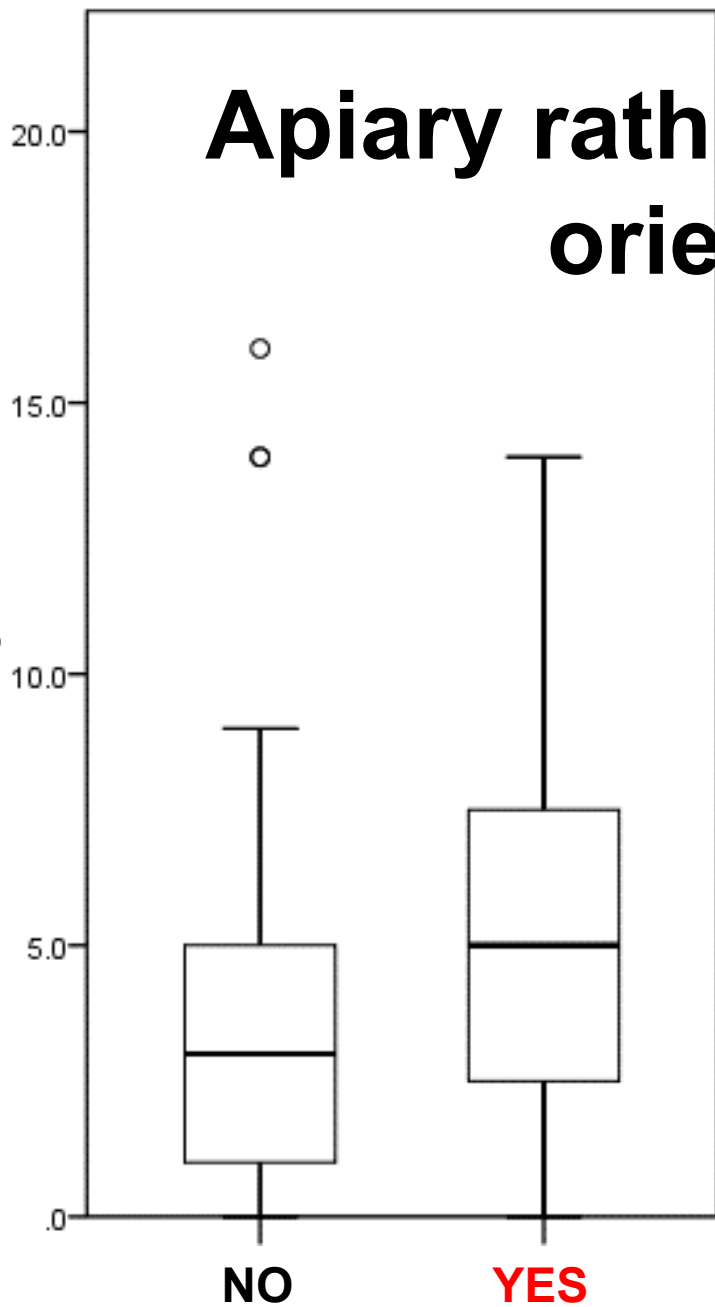
Age of beekeepers?



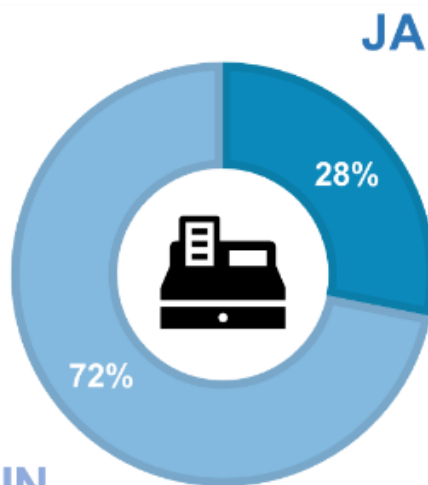
Interest towards DBTs



if yes - uses
specific beekeeping dig. tools
for X years

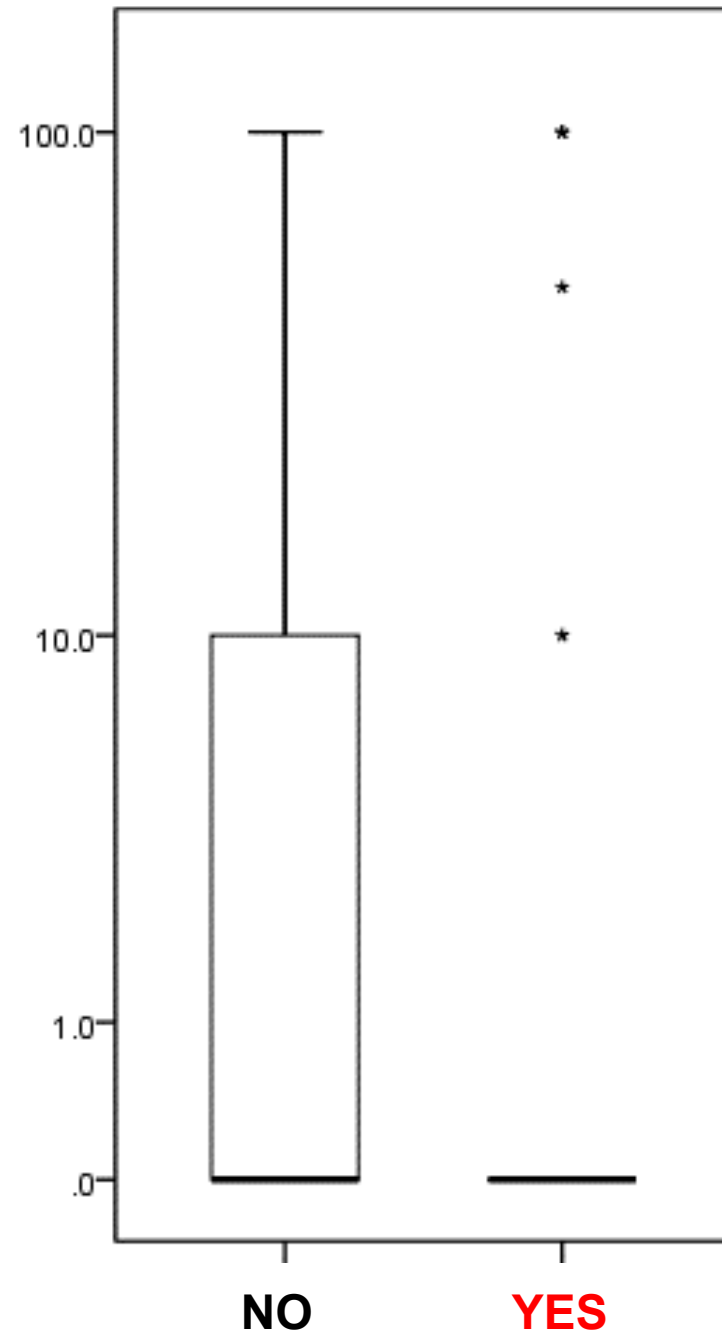


Apiary rather business – oriented?



*Imkerei
betriebswirtschaftlich
ausgelegt*

Rather avoids using any DBTs



in comparison to men women showed...

significantly higher

avoidance using DBTs

(delta: 38%)

significantly lower

average number of colonies

later start in using DBTs

*received/applied for less
financial support for DBTs*

less business-oriented

general interest for DBTs

felt less informed about DBTs

felt less use for DBTs

delta

23,8%

20,0%

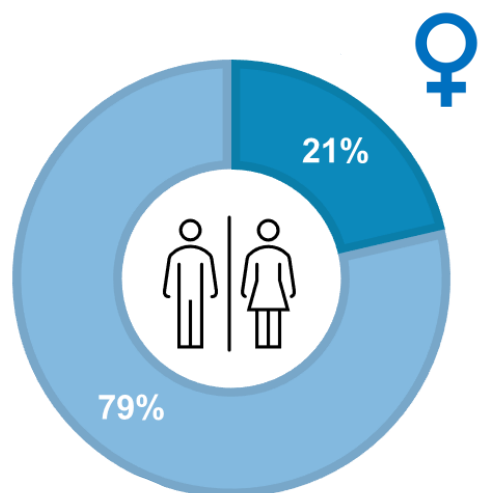
17,7%

21,7%

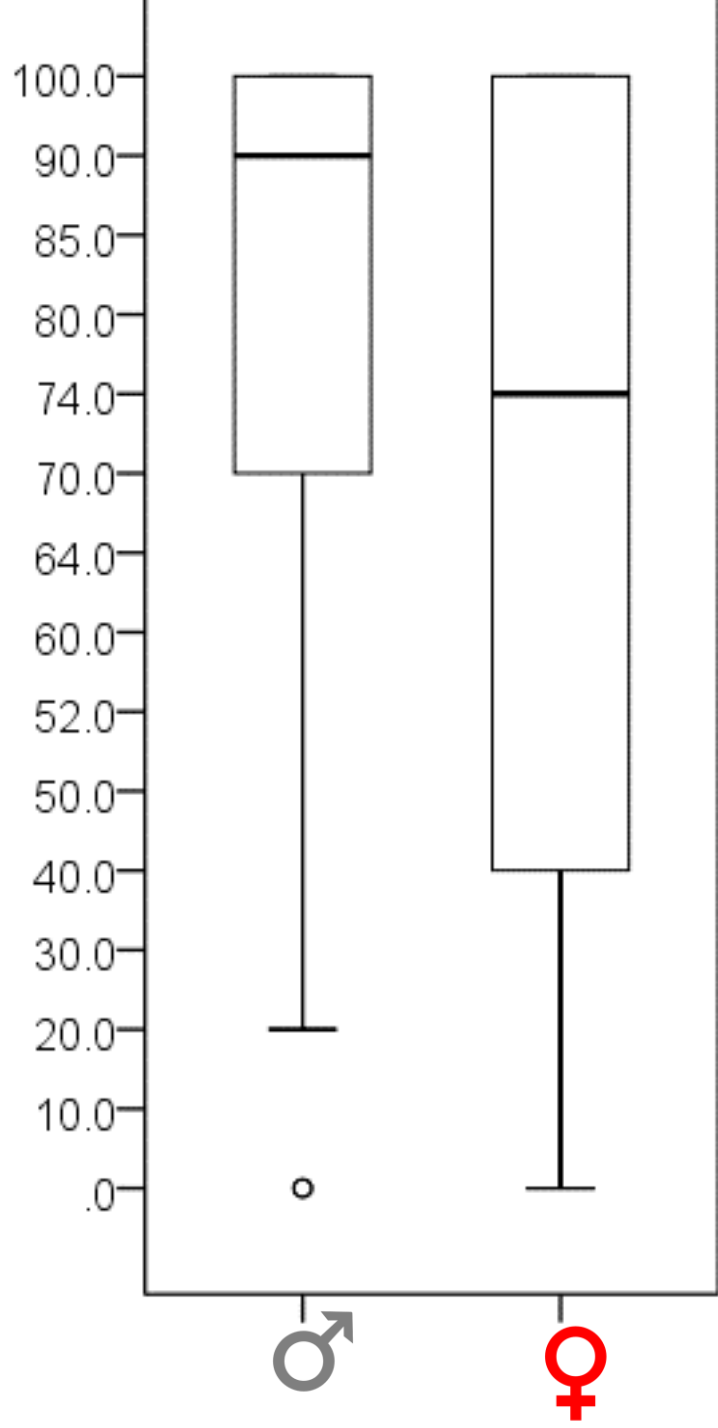
20,7%

38,4%

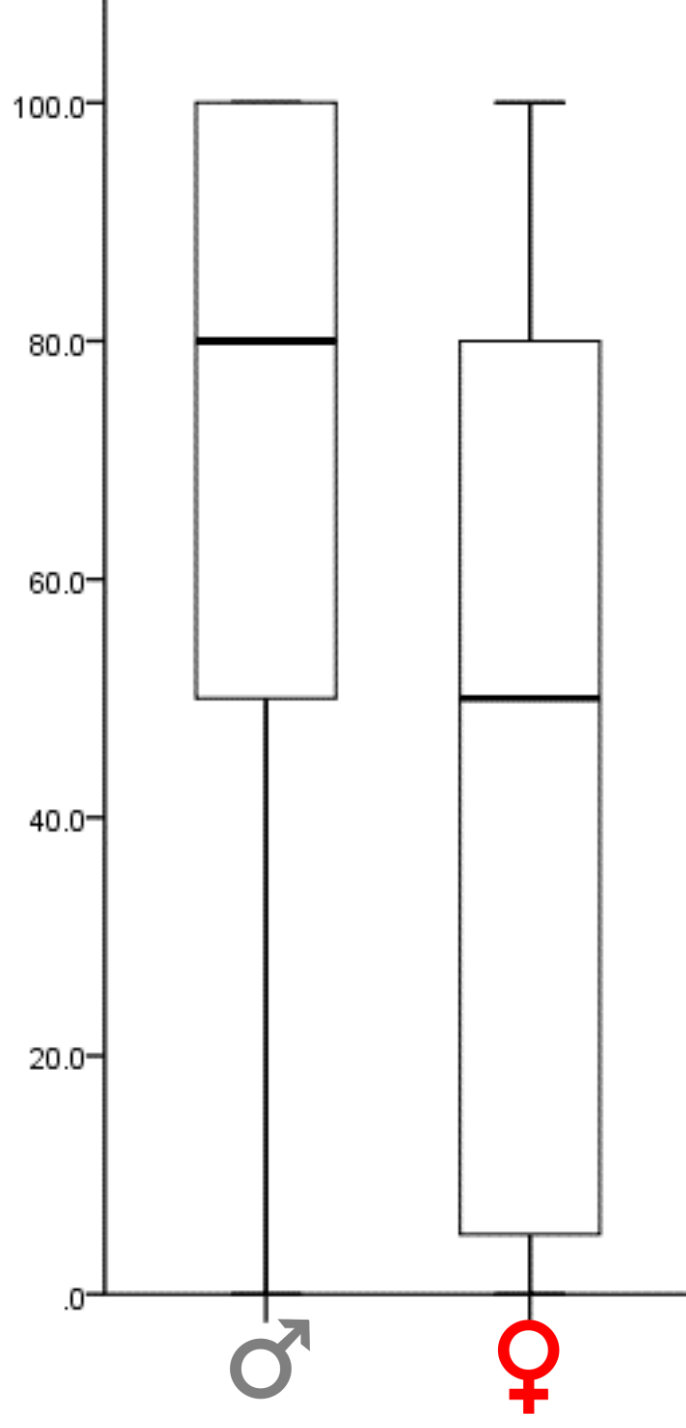
20,0%



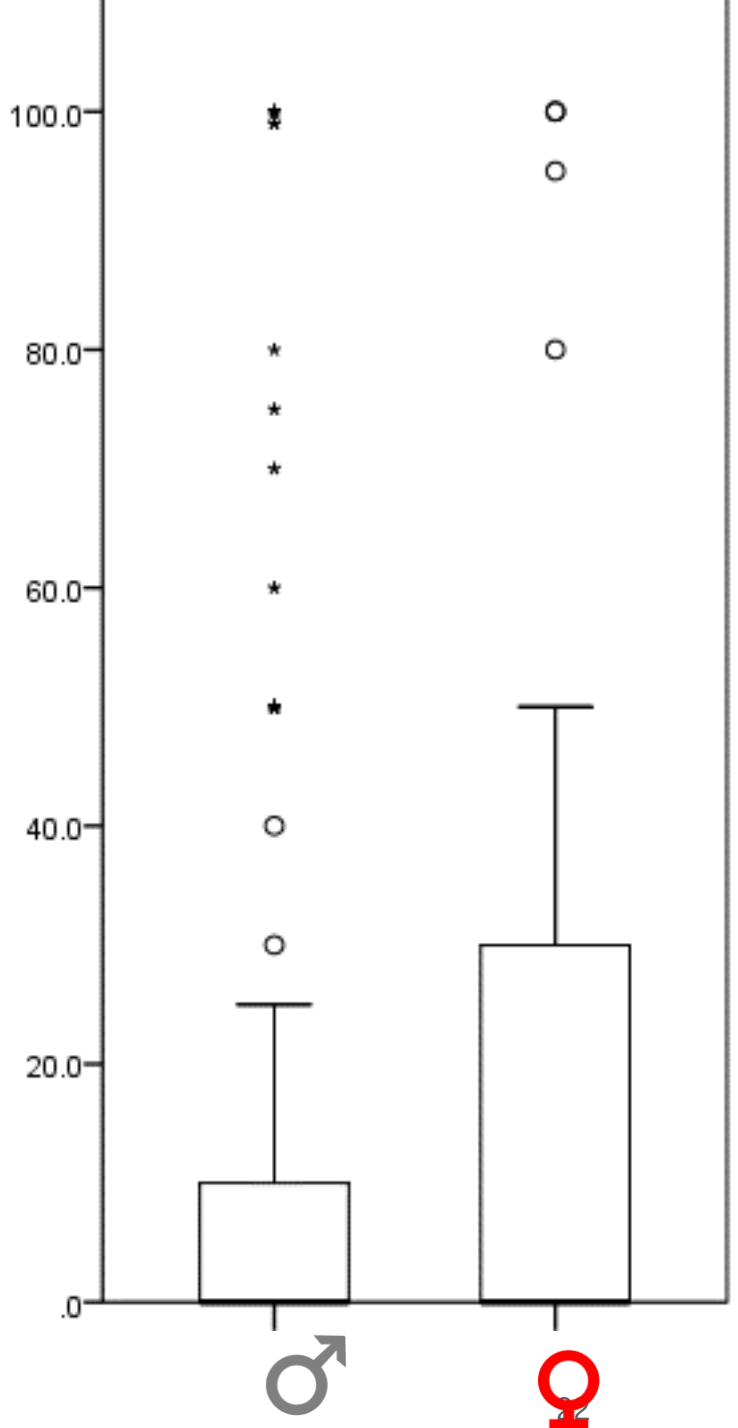
Interest towards DBTs



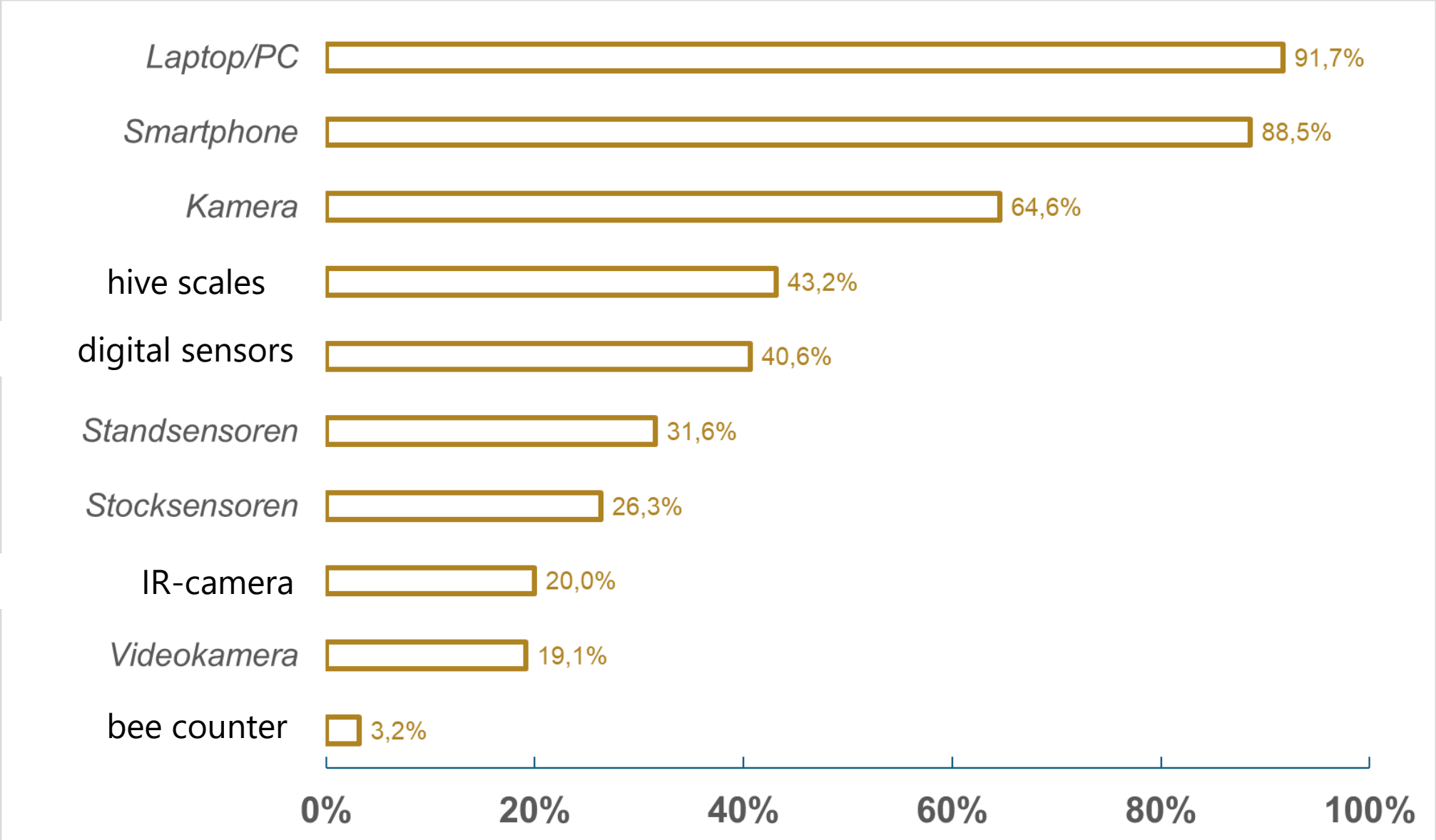
Sufficiently informed regarding DBTs



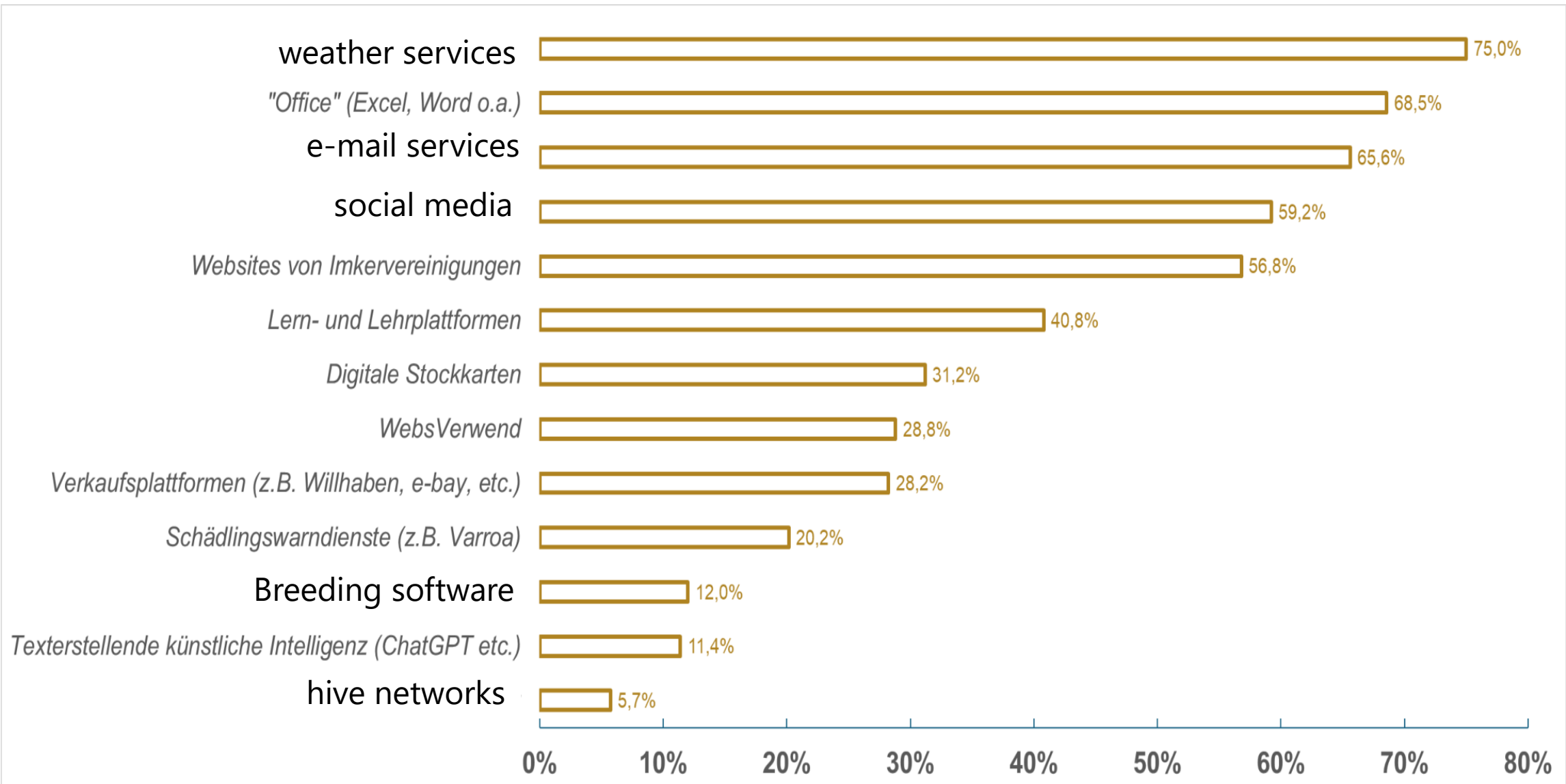
Avoid any use of DBTs

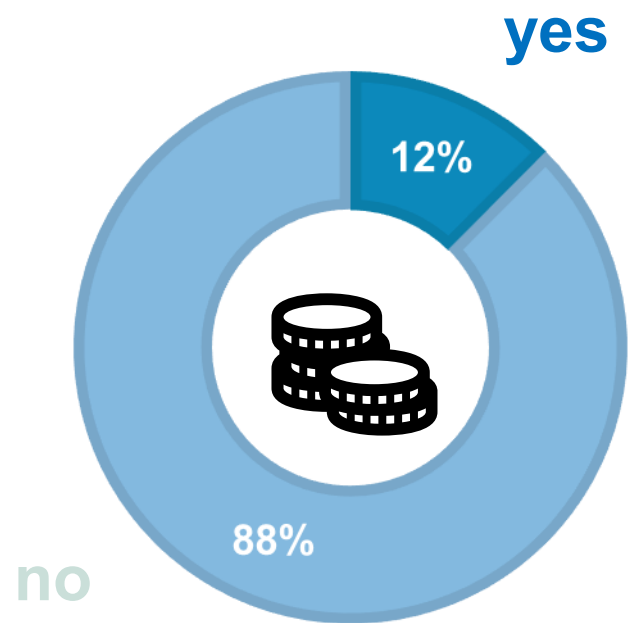


among beekeepers reporting to use DTBs ...



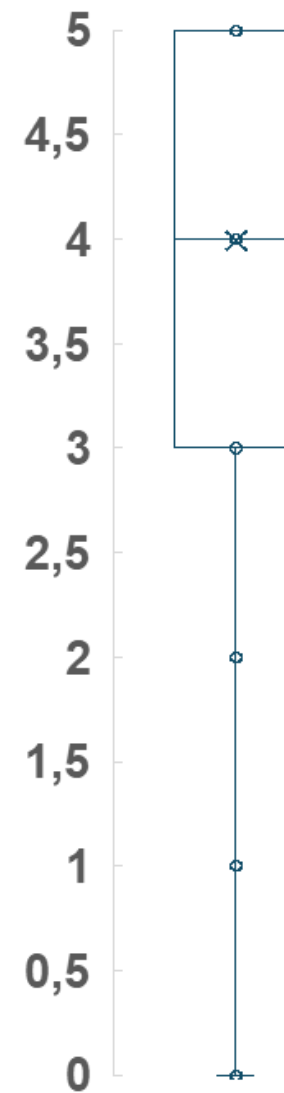
Frequent to highly frequently used last year...





Did you receive funding for any DTB in the past?

Inclination towards sharing Information through platforms



Findings that should be taken seriously into account 1

From what **beekeepers** (who already used digital beekeeping tools previously) **say themselves, DTBs can indeed notably support virtually everyone who wishes to use them.**

Findings that should be taken seriously into account 2

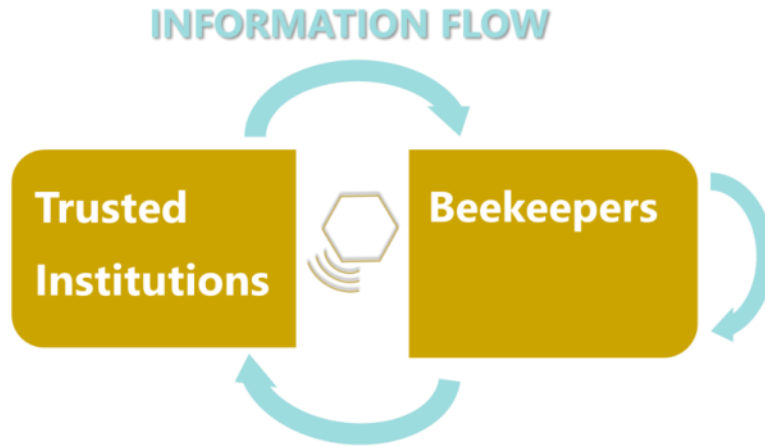
Since every apiary and beekeeper is quite unique, the **recommendable digital toolbox will be equally unique.**

every beekeeper will substantially profit from information and **advice coming from colleagues from the same region and with similar needs.**

Findings that should be taken seriously into account 3

Beekeepers who try out DTB are notably more likely to find something with practical use and therefore correspondingly are also **more positively inclined towards DTB in general.**

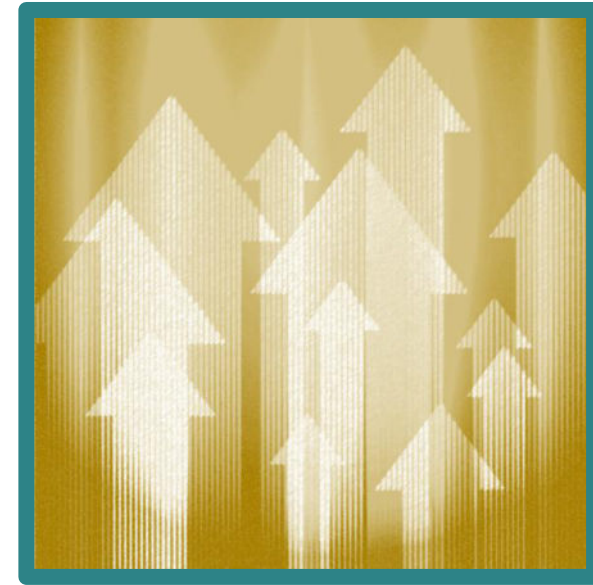
general recommendation



Overviews on the topic and well-informed **real-world** digital tool **solutions, coming from beekeeper-trusted organizations** (rather than only from advertisers), will likely **not only provide** substantial **support for beekeepers but also accelerate the positive aspects of digital transformation** for beekeeping in general.

ongoing Transformation opportunities for Austria

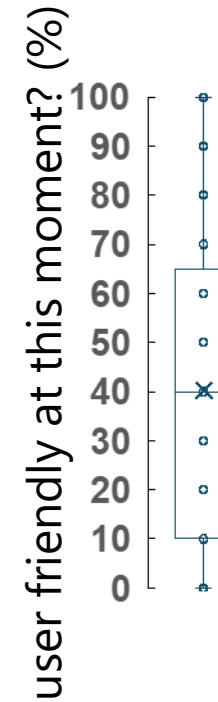
Example Nr 1



Countermeasures against the invasive Hornet *Vespa velutina* through a **centralized** (national or even international), and well documented and connected **reporting site for sightings, which allows fast and efficient national or even internationally coordinated countermeasures** against these invasive hornets.

ongoing Transformation opportunities for Austria

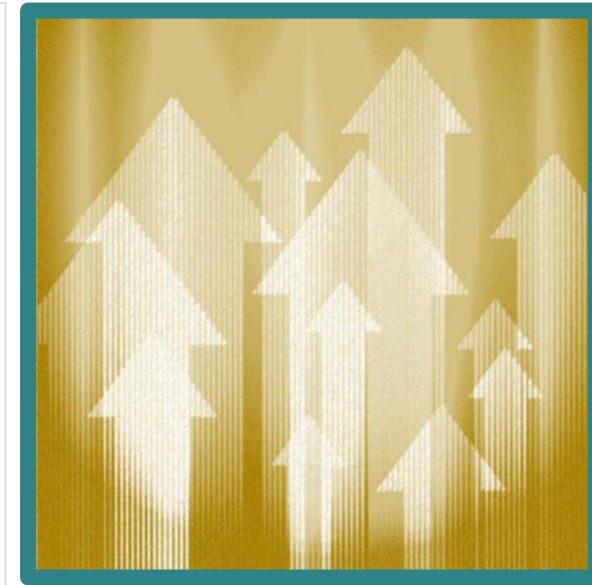
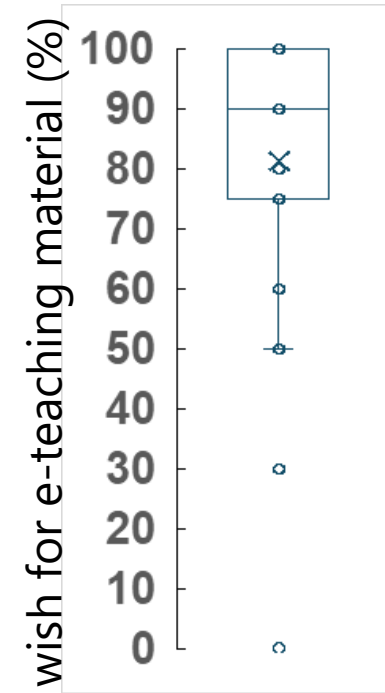
Example Nr 2



Further development of the already electronically existing but currently very poorly used and serviced **Austrian beekeeping registration platform to its full potential** (at least to standards as already shown e.g. in the Czech Republic) => **benefiting both sides** (beekeepers and e.g. the veterinary health system)

ongoing Transformation opportunities for Austria

Example Nr 3



Regularly evaluated further development of beekeeper's association websites and platforms, including online teaching material support for validated and regularly updated information flow to support both the beekeepers and the local to national bee health situation

Contact us for more information!

Austrian Agency for Health
and Food Safety



Dirk Louis Schorkopf

Department for Apiculture and Bee Protection

Dr. Dirk Louis Schorkopf
Department for Apiculture and Bee Protection
AGES - Austrian Agency for Health and Food Safety
Spargelfeldstraße 191 | 1220 Vienna
Tel.: +43 (0)5 0555-33135



Acknowledgements

*"IMKEREI-DIGITAL" was funded by the
Austrian Ministry for Finances*

 **Bundesministerium
Finanzen**

Copyright © 2026 AGES/



Pictures: Christina Fink, Asvola, Monkey Business Images, malshkoff/Shutterstock.com