# LAVAN-Roll-out at MHH:
# Efficient and compliant animal facility management with modern software.

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LAVAN by Omikron Systems

# structure of today's talk

1. Part: General LAVAN introdurction

   - Why MHH chose LAVAN? LAVAN advantages

   - LAVAN user interfaces (desktop (projects), animal room (touch))

   - How do I find my animal related data in LAVAN?

   - How do I place mate requests, euthanisation tasks or transport requests?

   - What is important when I am in the animal room myself?

2. Part: Focus on experimental documentation (animals 'in experiment')

   - essential documentation requirements...

   - ...to generate reporting for the authorities

3. Part: next steps

# www.omikronsystems.com



**L/AVAN ▸**
by **Omikron Systems**

Deutsch English

**LAVAN**    Company    Services    Downloads    References    Jobs    Contact    Imprint

Our vision becomes reality: the paper-free animal room.

## LAVAN

LAVAN by Omikron Systems is THE professional management software, that will help you improve all aspects of work done in your animal facility. LAVAN is the management tool that puts you in a position to use the ressources of your research animal facility more efficiently. That's how you will have more ressources to persue the core business of your organization: Performing excellent research or providing services to your customers.

# LAVAN is in use in universities, research institutes and industry

## References



Better Vivarium Management.
Better Science.

- Fraunhofer IZI, Fraunhofer Institute for Cell Therapy and Immunology IZI, Leipzig, Germany
- DIfE, German Institute of Human Nutrition Potsdam-Rehbrücke, Potsdam, Germany
- Miltenyi Biotec, Bergisch-Gladbach, Germany
- MHH, Hannover Medical School, Hannover, Germany
- NIFE, Lower Saxony Center for Biomedical Engineering, Implant Research and Development, Hannover, Germany
- mfd Diagnostics, Wendelsheim, Germany

# Why LAVAN for MHH?

LAVAN

- promotes the lean, efficient and error-free animal facility

- helps us to fulfil legal requirements and documentation requirements

- is (relatively) easy to use and has low training requirements

- MHH has more resources to do our core business: do excellent research

- Because of LAVAN we can already provide higher service levels:

  - setting up matings, performing euthanisations (scientist places tasks via LAVAN), weaning, and more

  - e.g. breeding documentation is competely done by LAVAN automatically (no more paper based documentation required)

# modern web-application/ access / security: state-of-the-art software

Cloud-Server (Linux)

Email-server

LAVAN JAVA web application → PostgreSQL data base

Reporting tool

HTTPS

HTTPS

- application and database on redundant servers

- automated back-ups to different location

- production- und QA-system
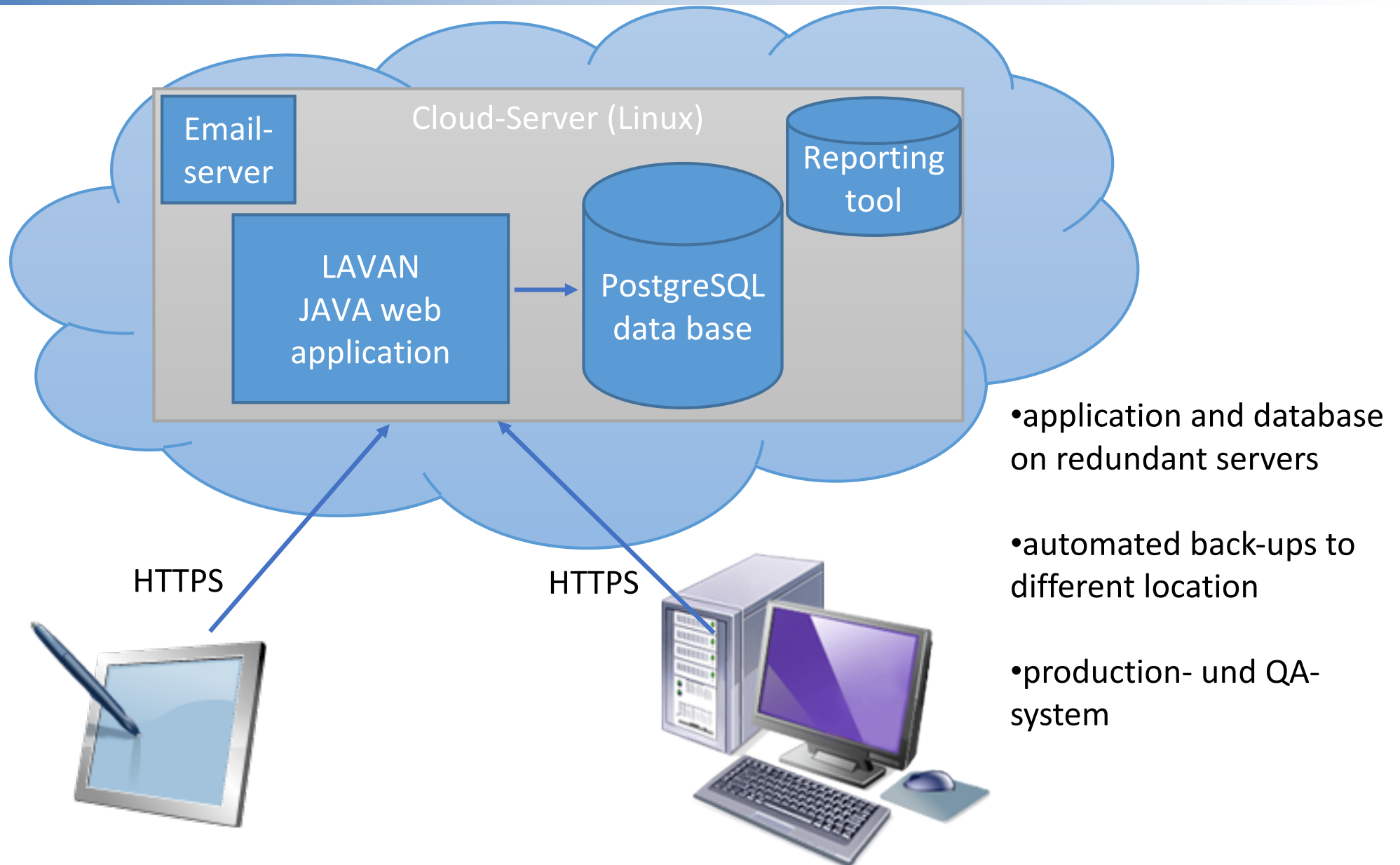
# Browsers that support full LAVAN functionality

- Google Chrome

- Microsoft Edge (comes with Windows 10)

- Apple Safari

- Opera
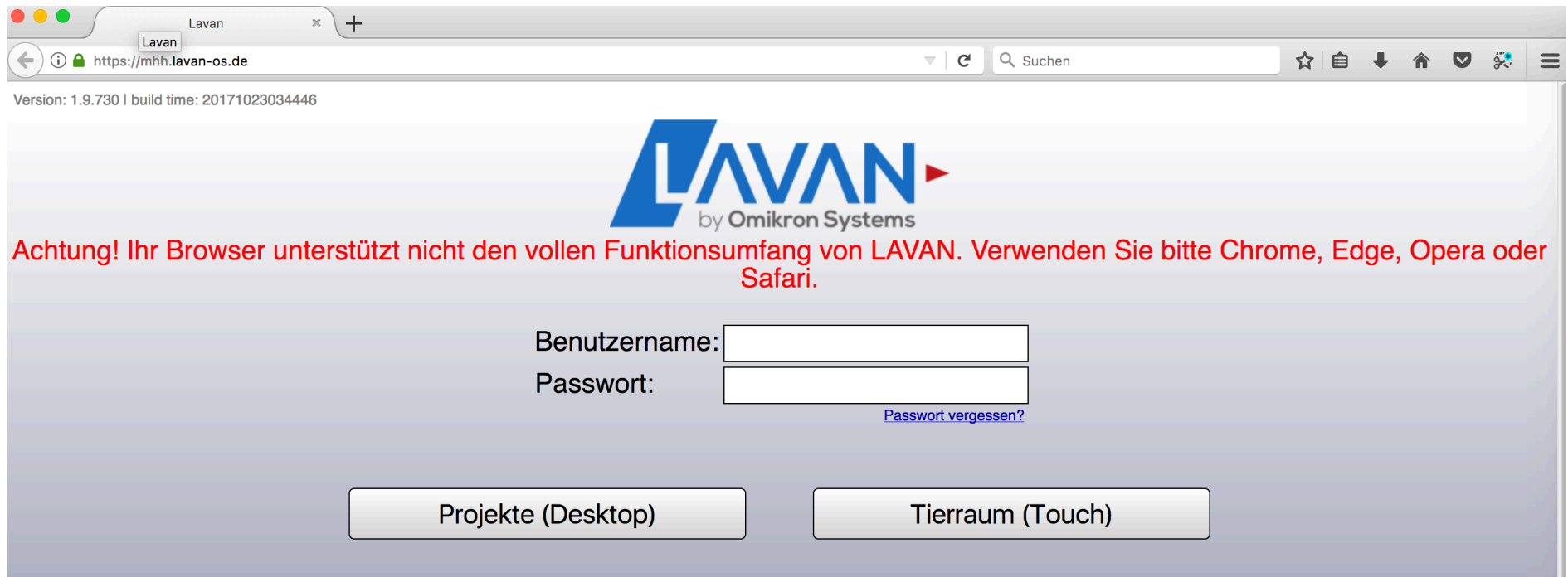
# LAVAN integrates important aspects and processes of our data management to promote efficent work flows

**billing**

- automated reports with animal and cage numbers
- per working group and room

**animal location**

- unit, room, rack, cage
- cage occupancy
- animal transfers between cages are tracked

**experimental documentation**

- protocols
- tasks
- easy documentation
- GLP-ready

**communication/ tasks**

- real time
- documentation of all relevant events
- user with specific access rights

**animal welfare/licenses (TVA)**

- license management
- animal numbers
- projects linked to licenses
- prospective/acutal severity

**breeding management**

- easy, transparent
- species-specific logic
- promotes efficient breeding

**strains/genotyping**

- detailed strain info
- e.g. genetically modified, stressed, cryostock
- genes/alleles

**vet module**

- sick animals
- abnormal animals
- treatments…



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# With LAVAN we always know where animals are and what tasks are due



Stellplatz 554

Animal code, e.g. 41b 1_  Animal code search  Advanced search

Buildings  I5  E5_Zuchtbarriere (SPF)  E5_1510  Stellplatz 554

## Position 554

|   | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 04391 0/2/0 546H | 04392 empty | 04393 empty | 04394 empty | 04395 empty | 04396 empty | 04397 empty | 04398 empty | 04399 empty |
| 2 | 04400 empty | 04401 empty | 04402 empty | 04403 empty | 04404 empty | 04405 empty | 04406 empty | 04407 empty | 04408 empty |
| 3 | 04409 empty | 04410 empty | 04411 empty | 04412 empty | 04413 empty | 04414 empty | 04415 empty | 04416 empty | 04417 empty |
| 4 | 04418 empty | 04419 empty | 04420 empty | 04421 empty | 04422 empty | 04423 empty | 04424 empty | 04425 empty | 04426 empty |
| 5 | 04427 empty | 04428 empty | 04429 empty | 04430 empty | 04431 empty | 04432 empty | 04433 empty | 04434 empty | 04435 empty |
| 6 | 04436 empty | 04437 empty | 04438 empty | 04439 4/0/0 170Bf | 04440 4/0/0 170Bf | 04441 2/0/0 223Bf | 04442 2/0/0 184Br | 04443 0/2/0 184Br | 04444 4/0/0 223Bf |
| 7 | 04445 1/2/0 223Bf | 04446 empty | 04447 0/4/0 130Bf | 04448 5/0/0 587Bf | 04449 4/0/0 170Bf | 04450 0/2/0 209Bf | 04451 3/0/0 209Bf | 04452 0/3/0 209Bf | 04453 4/0/0 209Bf |
| 8 | 04454 0/4/0 230Bf | 04455 0/2/0 184Br | 04456 4/0/0 230Bf | 04457 0/4/0 230Bf | 04458 empty | 04459 0/2/0 138Bf | 04460 0/3/0 587Bf | 04461 1/0/0 209Bf | 04462 0/1/0 184Br |
| 9 | 04463 3/0/0 203Bf | 04464 3/0/0 587Bf | 04465 1/0/0 130Bf | 04466 0/3/0 209Bf | 04467 3/0/0 209Bf | 04468 0/1/0 587Bf | 04469 4/0/0 223Bf | 04470 1/1/0 587Bf | 04471 0/1/0 170Bf |

## Tasks  ✖ Cancel

Mating tasks

Biopsies

Free text tasks

Cages to be emptied

Reduction tasks

Resolve conflicts

Wean pups

Pups expected (2)

Husbandry

Mark animals (without biopsy)

Find ill animals

Find abnormal animals

Tasks  Running processes  Utilization





Rack 554 / 1 E

## 4395   Room E5_1450

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# LAVAN functional interfaces

- admin

- projects (desktop)

- animal room (touch)


- leading principle: all work with animals is documented immediately when work is performed!

# unique animal code is automatically generated

permanent

**0678_17_0151_F_51**

strain identifier
ZTL-Code

year of entry into LAVAN

unique number per strain and year

sex (F, M, U)

mark (if animal is marked)

# LAVAN project definition

- ‚projects' in LAVAN: group of animals for a specific purpose
  - projects without license (husbandry, breeding-no license required)
  - projects with license (experiment, breeding-with license)

# LAVAN animal status 'in experiment'

- in projects that require a licence experimental animals get the status ‚in experiment' by the scientist
  - after that, these animals can only depart as §4 or §7 animals dependent on the linked license
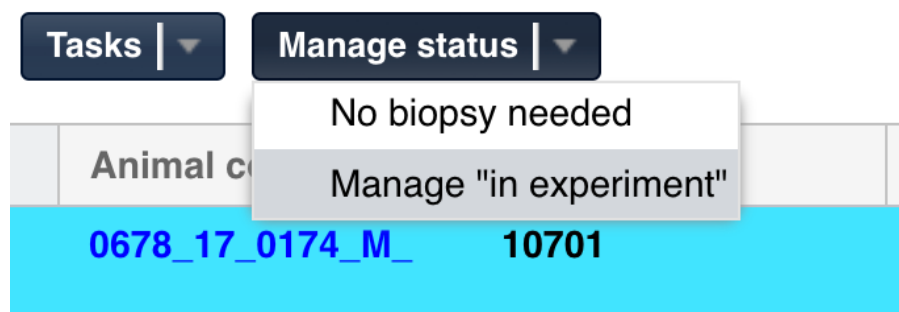


  - §4 and §7 animals can only depart from projects with linked license. Departed animals are then counted on that license for reporting.
  - §7 animals (experimental animals) must get a severity assessent of actual severity at least once (usually by the scientist): mild/moderate/severe

# logic link from licence to project to animal

## license (e.g. §7 only)

| | Antrags-ID ↑ | Titel | Abga... | Org. Einheit | Genehmigungsnr. | Abkürzung | Versuchsleiter |
|---|---|---|---|---|---|---|---|
| 📝 | 1 | Z: Zucht belasteter Stämme §8 Abs.1 … | §7 | AG Bleich (8601),ZTL (8600) | 33.12-42502-04-14/1730 | 14/1730 | André Bleich |

Projekte:
2: B6 IL10ko_M4
5: B6.CD14 IL10 DKO_M4
6: C.CD14 IL10 DKO_M4

- project(s) is(are) linked to **one** license

0678_17_0051_M_   **5: B6.CD14 IL10 DKO_M4**
5.3: Linie 3   V ⚠ ∿

0678_17_0054_F_   **5: B6.CD14 IL10 DKO_M4**
5.3: Linie 3   V J16 ⚠ ∿

- animals are always in exactly one project
- experimental animals get the status 'in experiment' when the experiment starts

| 27.07.2017 - 11:36:52 | Sabine Dreyer | SV2 (Gering/Mild) |
| 13.07.2017 - 13:23:01 | Sabine Dreyer | SV2 (Gering/Mild) |
| 07.07.2017 - 10:01:11 | Sabine Dreyer | SV2 (Gering/Mild) |

- documentation of animal controls by documenting severity assessment

| Zucht belasteter Stämme (§7) |
| §7 Abbruchkriterien erfüllt (§7) |
| §7 geplant euthanasiert (§7) |

- departure with departure reasons according to category §7

animal will be counted onto the linked license

# based on these data LAVAN generates comprehensive reports for reporting to the authorities

# Report nach Versuchstiermeldeverordnung 2013

Verordnung über die Meldung zu Versuchszwecken verwendeter Wirbeltiere oder Kopffüßer oder zu bestimmten anderen Zwecken verwendeter
Anlage (zu § 1 Absatz 2) Meldung von in Tierversuchen verwendeten Wirbeltieren oder Kopffüßern oder nach § 4 Absatz 3 des
Wirbeltieren für das Jahr:      2017

(Fundstelle: BGBl. I 2013, 4147 -

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|   |   |   | T1 | A1 | - | 274 | Nein | O1 | - | - | GS3 | Nein | (PG43) | - | - | - | - | SV2 | 33.12-42502-04-14/1730 | 1 |
|   |   |   | T1 | A1 | - | 1 | Nein | O1 | - | - | GS3 | Nein | (PG43) | - | - | - | - | SV3 | 33.12-42502-04-14/1730 | 1 |
|   |   |   | T1 | A1 | - | 1 | Nein | O1 | - | - | GS3 | Nein | (PG43) | - | - | - | - | SV4 | 33.12-42502-04-14/1730 | 1 |

# change of documentation from cards to LAVAN

- from cards (white ‚Tierschutzkarten') and manual counting to complete reporting via LAVAN

- in the year of transition numbers have to be aggregated by hand

- very important: exact date of transition for individual research group
  - until this date: old system (Tierschutzkarten)
  - from that date on: correct and complete registration of departures of §4 and §7 animals via LAVAN from exerimental projects only

## to be able to document in real-time in the animal room and to get access to your animal data you need access to LAVAN

- Laptops are possible

- recommendation for animal room:
  - **Apple iPad (current generation), cheapest version ok**
  - cost: approx. Euro 370,-
  - please contact Branko Jandric for offer ([jandric.branko@mh-hannover.de](mailto:jandric.branko@mh-hannover.de); Tel 3708)
  - **on the MHH order: ‚iPad für LAVAN'**
  - once the device arrived:
    - go to Branko Jandric
    - needs to be inventarized at MHH
    - WLAN access at ZTL

# Next steps

- for all scientific groups until introduction until end of 2017

- scientific groups that already have all animals in LAVAN: no change

- scientific groups that have no animals/ part (e.g. breeding) of their animals in LAVAN: roll-out for all animals incl. experimental animals

- for each scientific group/ or department: main contact person at ZTL in charge. This person either has contacted your group already of will do so very soon.

- always necessary (please prepare in advance):

  1. In which rooms are you animals?
  2. List per room: strains/lines with lab name and ZTL-strain code
  3. List of actively used licenses (TVAs) (with authorisation number, e.g. 17/1234)
  4. List with all persons in group that will work with animals (incl. email and phone number). We need this to set up user accounts.

# current contact persons at ZTL

- **Martina Dorsch:**
  - clarification or novel strain identifiers (ZTL-Codes)
  - verify strain information and set up strain in LAVAN (M. Dorsch, M. Ottinger, I. Brüsch)

- **Nadine Held/Andrea Krüger (Tierschutzbüro):**
  - verify licenses (TVAs)  and administrate them in LAVAN

- **Branko Jandric:**
  - Hardware/WLAN/iPads
  - 1. contact person with problems that likely have tecnical reasons, e.g.. connectivity issues, WLAN, (Tel. 3708)

- **Nadine Held/Matthias Ottinger:**
  - general introductions

- **different persons:**
  - first contact person during the roll-out process for your scientific group
  - person from ZTL will contact your group
  - coordination in detail for your scientific group/department

- **Matthias Ottinger:**
  - coordination
  - contact me with general questions/issues (Tel. 17-3954)