Important functions and unique features

⚙ Easy setup & intuitive handling enables usage of LAVAN

▶ **Powerful & comprehensive web application**
- Hosting with Amazon Web Server (AWS) or on premise
- No local installation on end devices required
- Real-time access to all data from all devices
- Optimized interfaces for different users, devices, user groups and tasks – without any limitations in numbers

🕐 Operational efficiency - releases resources for your core business

▶ **Process-optimized workflow management**

▶ **Supports paper-free workflows in animal rooms**

▶ **GLP-ready documentation**

  With full animal history - including user, date and time

▶ **Highest cage utilization rates easily achievable throughout the entire facility (>95%)**
- Through tracking of unique cage position including visualization of racks and empty/occupied cages and therefore best navigation
- Possibility to use random cage order allowing highest cage occupancy rates
- Even highest cage utilization will not hamper workflow in animal rooms

▶ **Excellent breeding management**
- For all species including species-specific rules for mating (e.g. gestation period and period until weaning)
- Clear mating history including direct access to all litters and offspring
- Highlighting of unproductive breeders

▶ **Role-based user access**
- For animal welfare officers, veterinarians, animal techs, scientists, administrators)

▶ **Use of mobile touchpad devices in the animal rooms**
- Easy, 100% precise & intuitive documentation of all animal related work in real-time without paper
- Touchpad screens easy to sanitize by wipe disinfection

▶ **Improved internal communication**
- Send specific tasks for animal or group of animals via the system to animal care staff
- Scientists can view the status of their animals in real-time via the system without entering the animal room and without the need to contact the animal care staff
- Higher service level (e.g. full-service) in animal room possible, without the need for additional staff
- Mitigates errors within the animal facility

Important functions and unique features

▶ Low training requirements
- Through intuitive & modern user interfaces and state-of-the-art operational concept with excellent usability
- Software rollout in between 2 weeks & 6 months completed depending on the size of the animal facility

▶ Multi-language
- American English, German, additional languages can be integrated easily

Compliance is met in all aspects by LAVAN

- ▶ Administrative platform to govern IACUC protocols
- ▶ Full history tracking for each animal
- ▶ Authorization & user management
- ▶ Meets federal and local reporting requirements
  - Easily automated census & check of cage capacities
  - Intuitive & actual severity assessment
- ▶ Best in class strain/line administration for breeding and non-breeding colonies

Functional features addressing the needs of your animal facility

- ▶ Visual representation of racks and cages
  - Allows optimal navigation in animal room and quick retrieval of specific animals or groups of animals
  - Efficient prevention of mix-ups of animals
- ▶ Animal census & cage capacities easily and quickly accessible on all levels
  - For entire facility, for unit, for room, for rack
  - In absolute and relative numbers sorted by species
- ▶ Highlighting of all routine tasks that are due in animal rooms
  - Users are specifically guided to visually highlighted units, rooms, racks, cages in which specific tasks are due
- ▶ Workflow management in animal rooms for optimal communication
  - For all routine tasks
  - Assures that no tasks get forgotten and supports users while performing tasks
  - All documentation requirements are done on-the-fly
  - Minimises coordination requirements & failures when fluctuating staff works in the same unit
- ▶ All animal related data easily retrievable
  - Including easy tracking of parents and offspring
  - Including digital patient file e.g. for animals in experiments annotated with user, date and time
  - Role-based access control assures that only users with permits have the right to access animal data

Important functions and unique features

▶ **Documentation of actual severity for the individual animal**
- According to national and local legal frameworks
- With user, date and time including severity tracking over time
- Can be entered for single or multiple animals at once

▶ **Dedicated strain-/line administration**
- Fulfils all documentation requirements for genetically modified organisms (GMOs)
- Including detailed documentation of modified genes and alleles
- Documentation whether strain/line is genetically modified and/or cryopreserved
- Including direct hyperlink to MGI http://www.informatics.jax.org/ for mice and Gene-ID

▶ **Administration of IACUC protocols and support for IACUC committee**
- Approval of protocol by IACUC committee
- After approval by IACUC committee changes to protocol can only be entered by authorized staff
- Numbers of used animals are summarized by LAVAN automatically with direct link to all animal data
- Possibility to add attachments (accessible for all users on IACUC protocol, protected documents accessible for IACUC committee members and animal welfare officers only)

▶ **Project-/colony-administration**
- Dedicated administration and management of experimental projects and breeding colonies

▶ **Sampling module**
- Biopsy requests are automatically generated by the system at time points that have been configured for specific breeding projects or groups of animals after weaning or at specific age in days
- Supports all marking, biopsy and sample types
- Exact traceability of biopsies & samples
- Process-driven and dialogue-guided biopsy/ sampling procedure allows taking and handling of biopsies without the need of any paper-based animal lists
- Easy retrieval of biopsies & samples in the system (symbols and counters for sample tasks and samples)
- Visualized biopsy/sample plate view
- Documentation of genotyping results for individual animals or groups of animals at once
- Documentation of genotyping results via biopsy plate view or from any animal list

▶ **Mating module**
- Specific mate request tool lists all potential mating partners for a specific target strain and prevents irregular mating
- Breeding number: unique number for each mating pair assists in the easy management of inbreeding as well as outbreeding schemes
- Automatic due date calculation of expected pups, based on reproductive biology of respective species and mating start date
- Automatic due date calculation for weaning tasks with possibility to configure according to needs

Important functions and unique features

▶ Veterinary module
- Highlighting of sick or abnormal animals including specific status symbols
- Complete documentation of sickness and abnormality history including treatments, user, date and time

▶ Assignment module
- Free text tasks; elimination tasks; sampling tasks & shipping tasks
- Configurable request & approval workflow

▶ Reporting functions
- Report of animal and cage numbers e.g. for billing purposes
- Standard reports include animal numbers by scientific group, unit, rooms, species and distinction between breeding animals and non-breeders
- Reporting intervals are freely configurable
- Customized reports available
- Animal census at defined intervals or per diems, .e.g. for billing purposes
- Reports for animal usage available that are fully compliant with international legal frameworks and national and local requirements

Minimal technical requirements for a quick first launch of LAVAN

▶ Simple deployment and update

3 steps for the initial LAVAN deployment:
1. Server setup by Omikron Systems (hosted either with Amazon web services or on premise)
2. LAVAN deployment on server by Omikron Systems
3. LAVAN configuration workshop with customer

- Initial deployment will take less than 5 working days
- Updates are deployed through remote access (approximately 12 per year)
- No further tasks (like configuration of user devices) need to be carried out by the client!

Highest software quality. Agile, standardized development process using state-of-the-art technologies, methods and development standards. Automated deployment of new LAVAN versions.

Omikron Systems

▶ Innovation leader for efficient and compliant animal facility management
▶ Company focus is exclusively on the development, service and support of vivarium software
▶ For more information visit www.omikronsystems.com