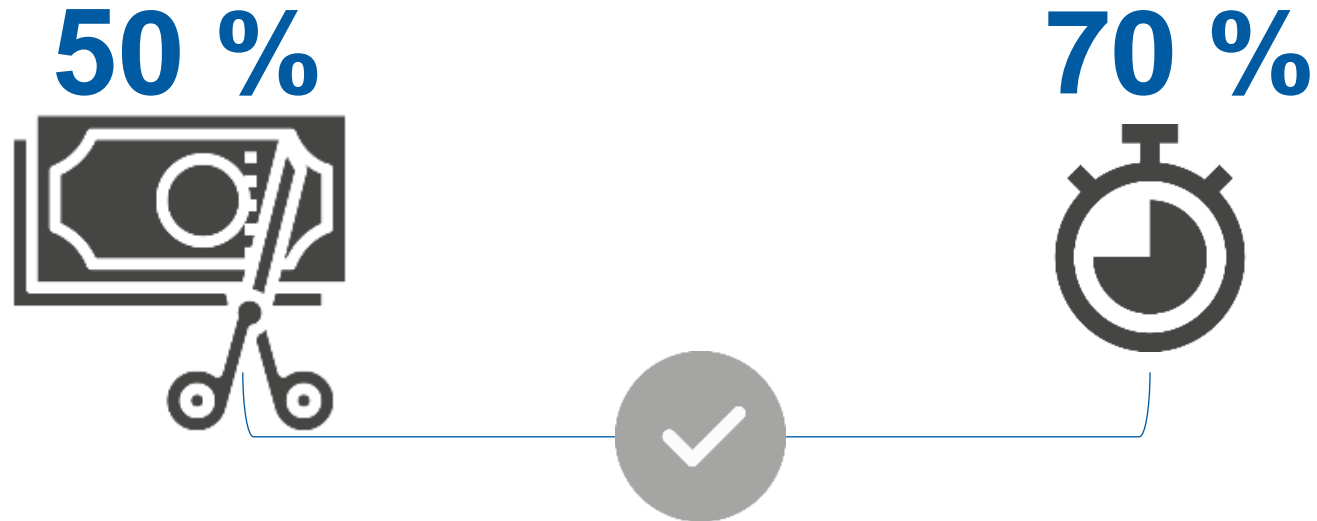


LADS: Laboratory and Analytical Device Standard

Bridging the Gap, Connecting the Lab!

Berlin| March 2022

The Benefits of LADS



¹ McKinsey&Company: [„Digitalization, automation, and online testing: The future of pharma quality control“](#)

The Benefits of LADS

Open Standard

Real-time Approvals

**Documentation
Reduction**

Tests Reduction

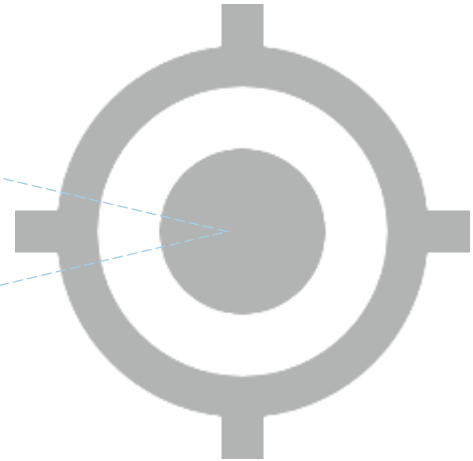
**Elimination of Human
Errors**

**Reduction of Variance in
Test Sequences**

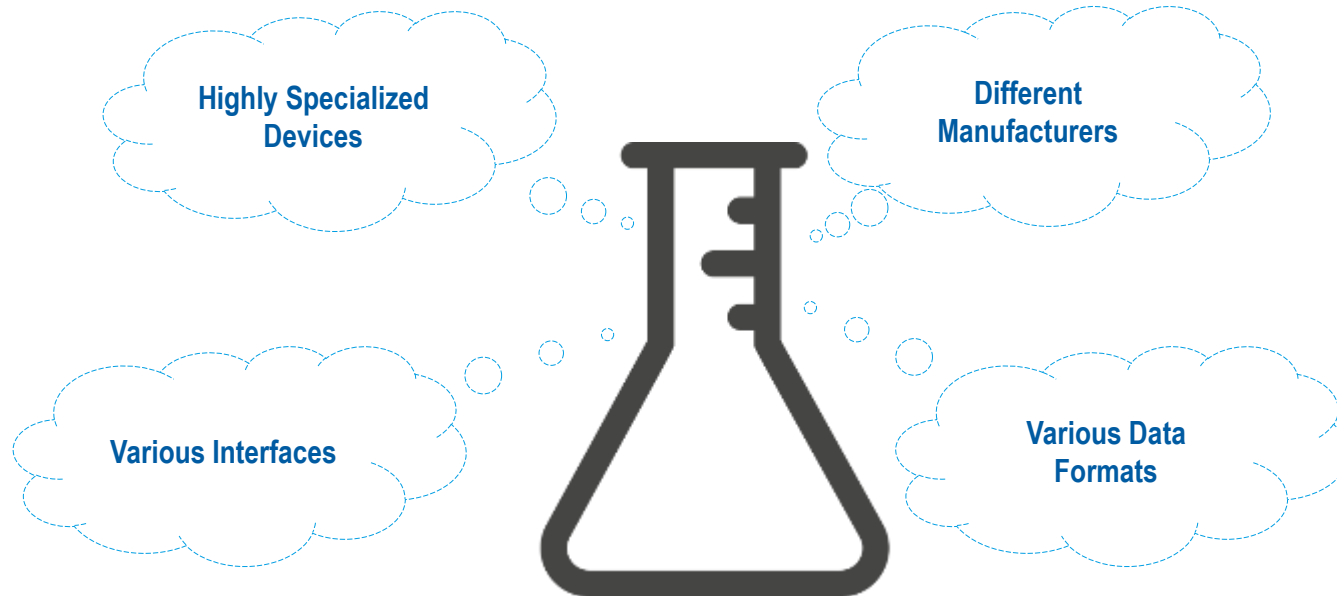
- ✓ Higher visibility in terms of planning personnel resources, processes and material consumption
- ✓ Integration of any LADS compliant device into supervisory software to orchestrate automated workflows
- ✓ LADS brings lab workflows closer to production workflows, allows for an easier transfer

The Objective of LADS

The **project objective** is the creation of a **manufacturer-independent open standard** which comprehensively takes on board the requirements of **various** branches, disciplines and business processes, and is **sustainable** and **adaptable** to future requirements in the field of **digitalisation** and **automation**.



Current Situation



Current Solutions and the Approach of LADS

Standardization Landscape



**Ethernet-based
Communication
is common**



**Standards for Data Formats,
like AnML & Allotrope are
established**



**Communication Protocols
are still very diverse**

LADS



LADS specifies a common information model on top of existing communication technology for all lab devices



LADS will be built upon OPC UA as established technology stack in the industry



LADS will focus on the common denominator of devices and be device type agnostic

Benefits of OPC UA as Technology Stack

Supports the trend of labs getting closer to process / production and thereby towards industrial automation

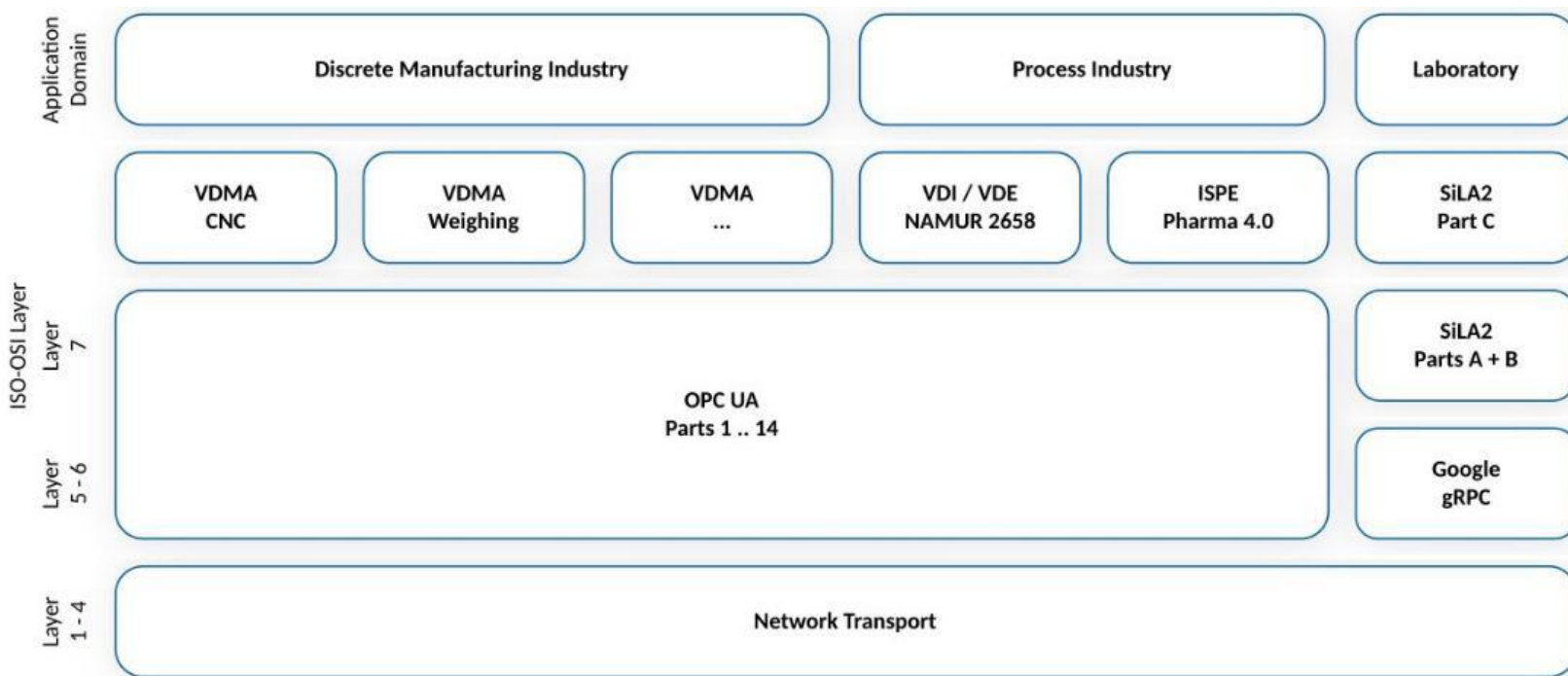


Established in the Industry for over 10 Years
(e.g. VDMA, platform Industry 4.0)

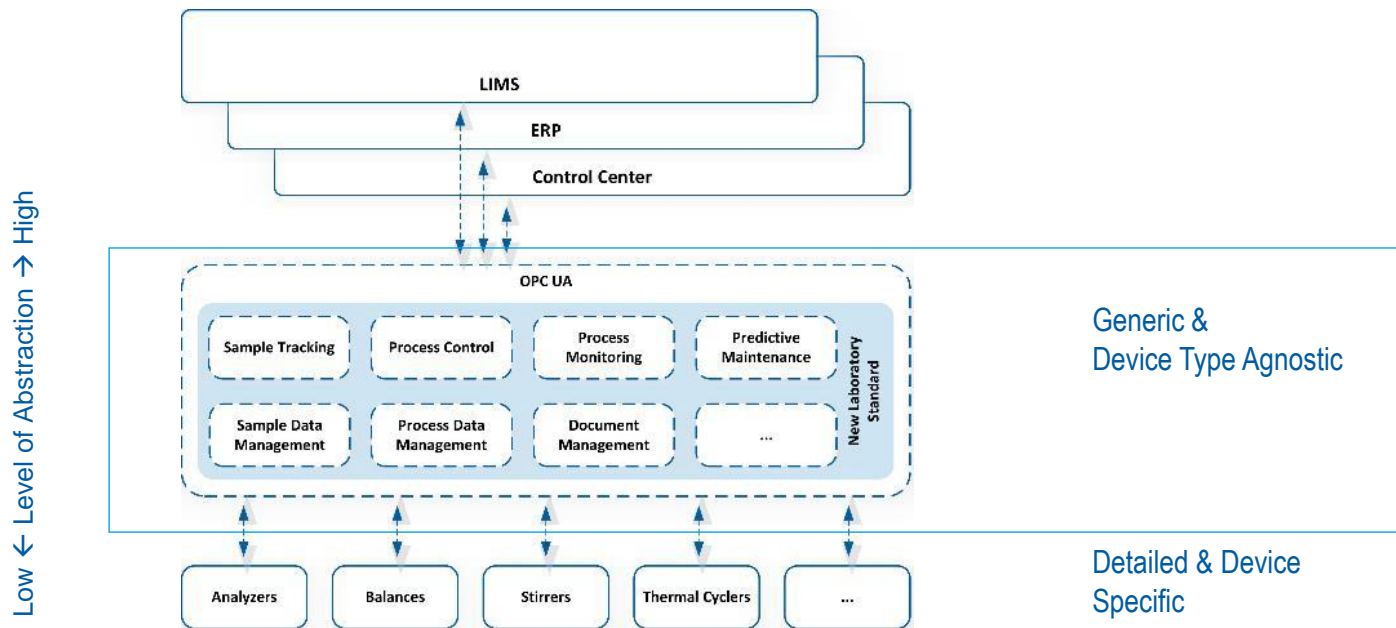
Why is OPC UA widely used?

- Agnostic Communication Standard for M2M and for sensor to IT Enterprise/Cloud communication
- Platform and vendor independent
- Fulfils basic requirements of device communication
 - Buffering (no data lost when communication is interrupted)
 - Heartbeat (server and client detect interruptions)
 - Security (e. g. Signatures and encryption)

OPC UA as Established Technology Stack



LADS Information Model



LADS Use Cases

Application-centric, value-based prioritization of epics & use cases



Remote Monitoring, Alarms & Notifications



Remote Control



Program Management & Orchestration



Results Management



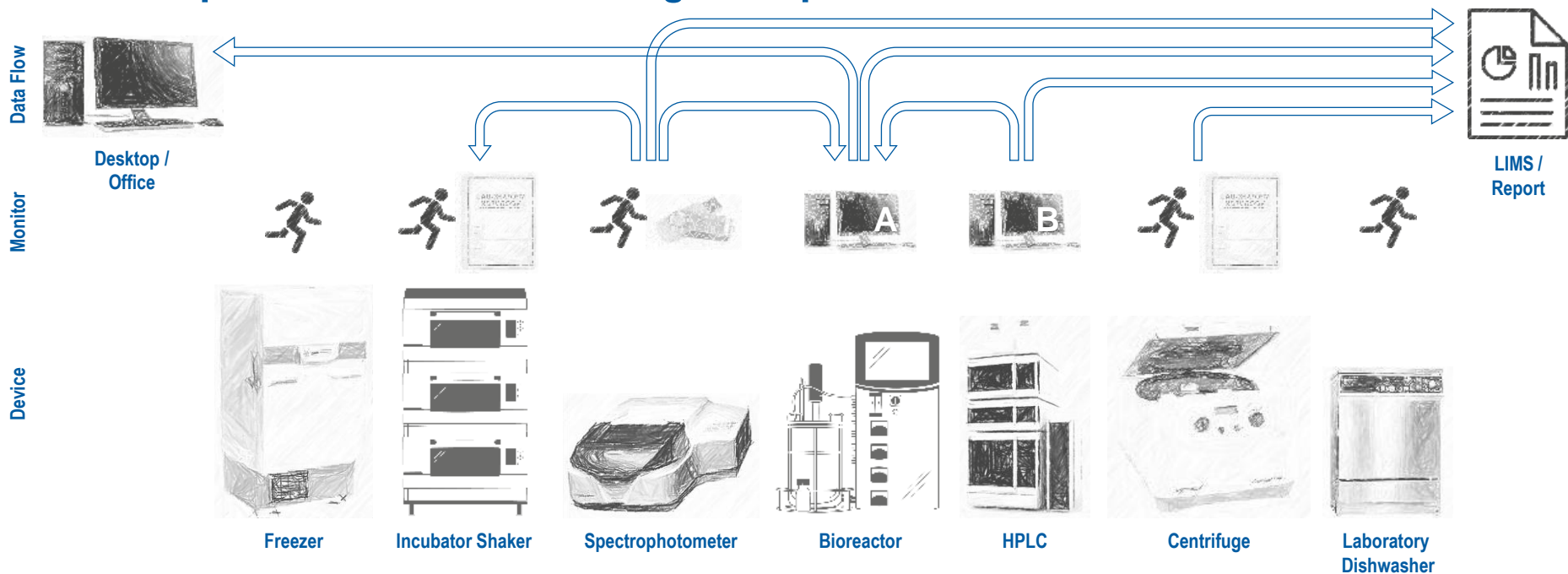
Preventive & Predictive Maintenance



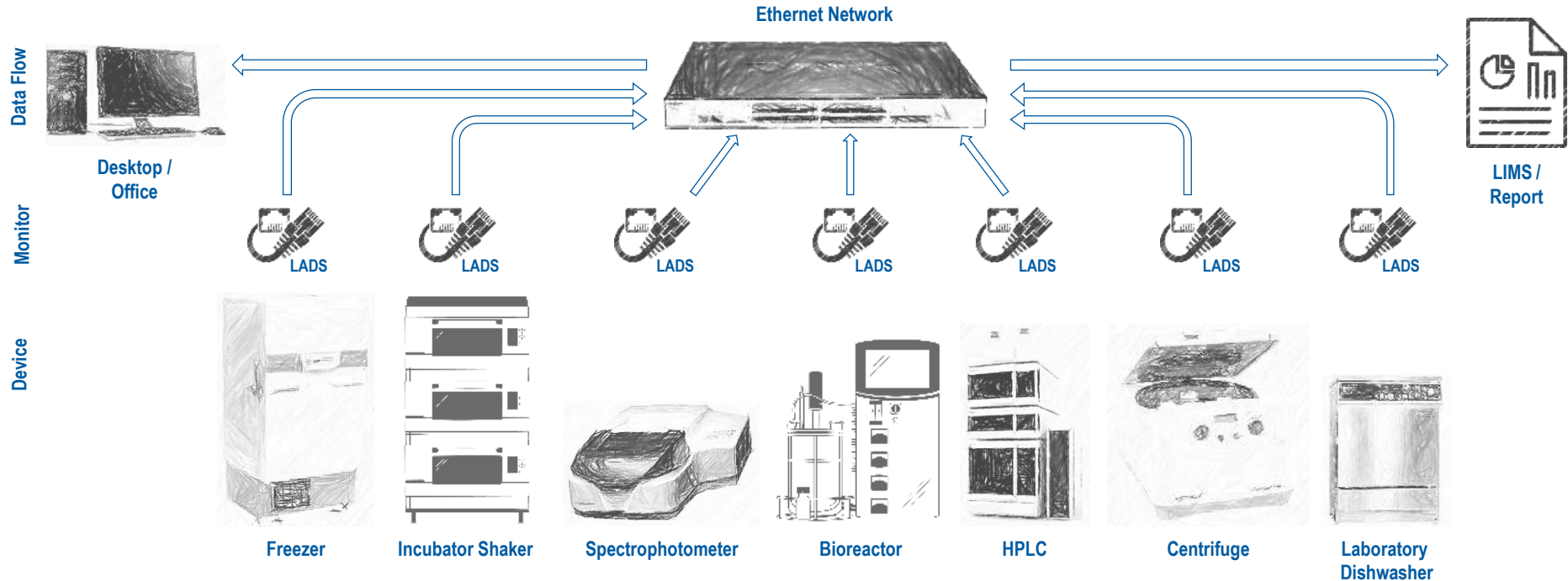
Device & Fleet Management

Iterative & agile Approach, always listening for Customer's input

Example Use Case: Monitoring A Bioprocess Lab – Current Situation

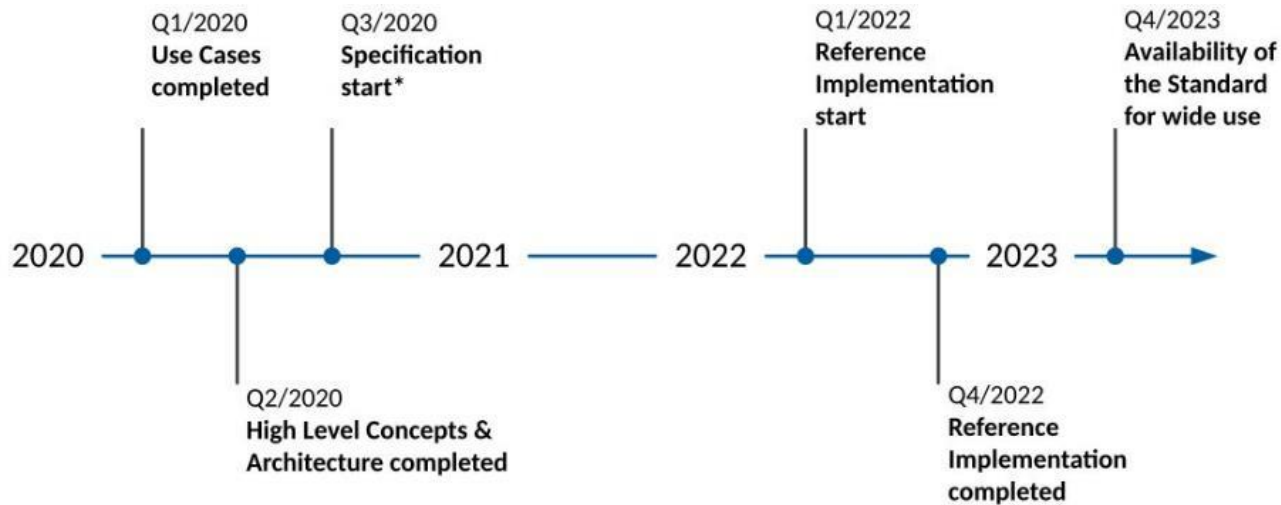


Example Use Case: Monitoring A Bioprocess Lab – The LADS Way



LADS Roadmap

Timeline



* SPECTARIS members are included from this point onwards.

Who is behind LADS?



- We are organized & represented by **SPECTARIS**
- We build on the support of **400 members**
- We have a formed **core group** pushing the development of the standard
- We are looking for further **contributing** and **observing members**
- We ask for input from **customers**

Who is behind LADS?



The LADS OPC-UA Companion Specification will be jointly developed by SPECTARIS, VDMA, OPC Foundation, JAIMA, GAMBICA, Labmas and FHI

LADS OPC-UA Joint Workgroup

Exchange with foundations in the Lab & Analytical domain encourages alignment on data-formats, ontologies, ..



The LADS OPC-UA Companion Specification will be jointly developed by SPECTARIS, VDMA, OPC Foundation, JAIMA, GAMBICA, Labmas and FHI



Harmonization with related workgroups in the OPC Foundation avoids redundancy and fosters synergies, compatibility & reuse

Be the next!



The LADSurc (user review committee) provides valuable feedback with regards to requirements, prioritization, applications, use-cases, ...

Core Group Members



Dr. Matthias Arnold (AixEngineer)



Alexander Brendel (infoteam Software AG)



Dr. Dirk Hebel (Infors AG)



Kai Kress (2mag AG)



Mathis Kucejda (Schmidt + Haensch GmbH & Co)



Dr. Felix Lenk (SmartLab Solutions GmbH)



Heiko Oehme (Analytik Jena AG)



Matthias Schuh (essentim GmbH)



Günter Stein (InProcess Instruments GmbH)



Frank Heutger (Miele)




































































Luca Zappaterra (Thermo Fisher Scientific)



Kok Hien Gan (Thermo Fisher Scientific)

Ways to Contribute

Group	Core Member	Contributing Member	Observing Member	Review Committee	Users
Use Cases/ Requirements	    	  	  	  	 
Architecture	    	  	 	 	 
Specification	    	   			 
Reference-Implementation	    	   	  	  	 
SPECTARIS LADS					




 Release
 Creation

 Change Request
 Comment



 Usage

Next Steps For You





Vendor

-  Become contributing member, actively driving development!
-  Become observing member, stay updated and comment development!
-  Stay updated on releases and use it in your devices for free

End User

-  Make your expectations and use cases known
-  Apply for spot in review committee

Summary

-  **The Laboratory Agnostic Device Standard (LADS) will provide an open, industrial standardization of interfaces in laboratories across different manufacturers based on OPC UA as an established technology stack.**
-  **LADS compliant devices can easily be integrated into supervisory software, e.g., for monitoring and to orchestrate automated workflows.**
-  **LADS will enable R&D laboratories to save costs, reduce delivery / development time and prepare for a faster transfer to production workflows using digitalization and automation.**
-  **A successful standard must fulfil application requirements and be widely accepted.
→ Continued close collaboration of vendors and end users required.**

Further Information to the LADS-Standard

- You are interested to get more details on the LADS-Standard?
 - ... take a look on our Website, Flyer and White Paper below!
 - [Website \(EN\)](#)
 - [Website \(DE\)](#)

Flyer (EN)



Flyer (DE)



White Paper (EN)



White Paper (DE)



We thank our supporters

Platin-Supporter



Silber-Supporter



SARTORIUS



Gold-Supporter



Bronze-Supporter



Contact

Andrea Hideg
SPECTARIS e.V.
Head of Analytical, Bio and Laboratory Technology
E-Mail: hideg@spectaris.de
Tel.: + 49 (0) 30 41 40 21-31

Franziska Dorf Müller
SPECTARIS e.V.
Project Manager Analytical, Bio and
Laboratory Technology
E-Mail: dorfmueller@spectaris.de
Tel.: + 49 (0) 30 41 40 21-30