

# **pRED Lab Automation Cluster**

## **The AC/DC Framework & Lab @ Arcondis Autonomous Lab event**

- how to make AI successful in R&D
- importance of Industry standards in Lab Automation
- How the AC/DC Concept boosts the speed of Implementations @ Roche
- AI applied by the Easter Bunny [customized Egg painting]

Tom Kissling | pRED Lab Automation Partner  
F. Hoffmann - La Roche Ltd.



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## AC/DC Lab, powered by the pRED Lab Automation Cluster



Alex Knaupp | Tom Kissling | Christian Stirnimann | Jonathan Müller

pRED Lab Automation Partner`s

supporting your lab automation journey

**Why**



# WHY do we need lab automation and digitalization?

Why Roche labs can profit from lab automation and digitalization

## Precision and Accuracy

- **Reliability of results**
- Reduction of human errors

## Efficiency

- faster sample processing
- quicker cycle times

## Data Management & Analysis

- **Seamless data integration**
- Informed decision making
- FAIR data by design

## Standardization & Quality Control

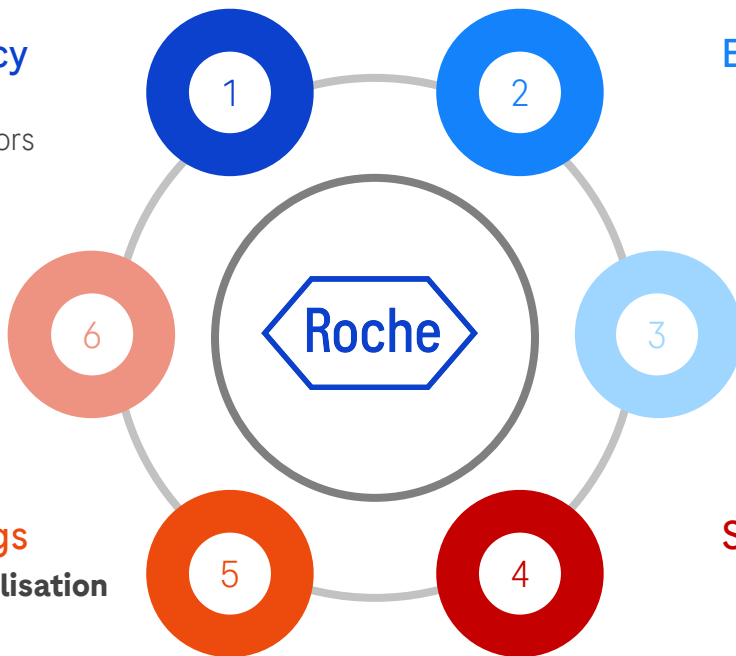
- Standardized lab workflows
- Consistent results (time/operator)

## Cost & Resource Savings

- **Optimized resource utilisation**
- Improved productivity

## Compliance and Traceability

- Clear traceability (samples/results)
- Overall quality management



=> By delivering large volumes of consistent, high-quality data, we can accelerate our portfolio and increase our understanding of science within Roche.

*We increase R&D Productivity by  
enabling, harmonizing and driving  
scalable lab automation solutions for  
pRED*

Purpose of Lab Automation Cluster

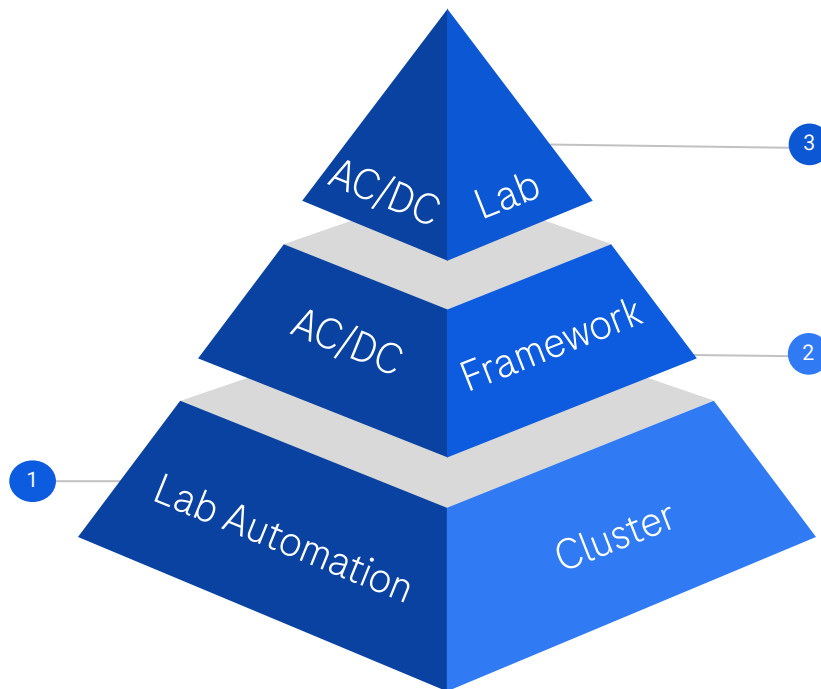
**How**



# Lab Automation Cluster with its “AC/DC Framework & Lab”

## Lab Automation Cluster

- One pRED Cluster within SPO
- Supporting Business in Lab Automation ideas and projects
- Coordination of automation between different stakeholders
- Alignment of pRED sites Basel, Penzberg, Zurich around the topic of automation
- Create infrastructure
- Connect to suppliers



## AC/DC Lab

- Physical space: RICB Building 5/Room D.042
- Open for colleague visits
- Elaborate Lab Automation requirements
- Demo-space for new technologies
- FAT/SAT

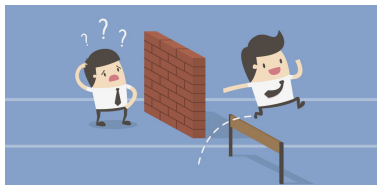
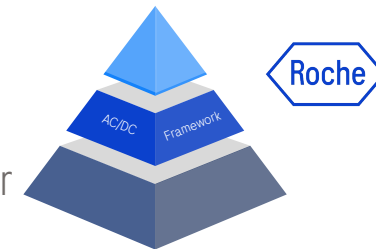
## AC/DC Framework

- Enables and drives scalable lab automation solutions for pRED
- Expert knowledge to support ongoing projects - no decision making
- Service time is paid by the project
- Prioritisation based on business case and importance for the pRED molecule portfolio

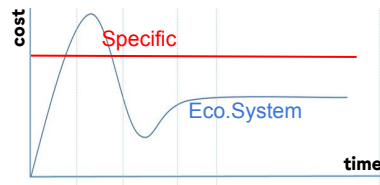
# **What AC/DC Framework & AC/DC Lab**

# AC/DC Framework for Roche R&D

The **A**utomation **C**onnectivity & **D**igitalization **C**oncept powered by Lab Automation Cluster



**Easy Entry into Lab Automation**



**Strategic Investments for Long-Term Efficiency**



**Synergies and Automation Optimization**



**Modular and Standardized Automation**

We provide a **cost-efficient, flexible lab automation portfolio** to accelerate and simplify the execution of lab automation projects, which defines the **roadmap towards a pRED-wide strategic aligned Lab Automation Eco.System that drastically reduces cycle times**. → Plug & Play Automation

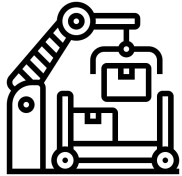
# The dance partners

Secret of success: treat Digitalization & Automation sequentially



Get prepared: **Digitalization** first.

Historically we entered projects and initiatives as “Automation Project” right from the beginning. A clear focus on its “digitalization” dramatically reduces the complexity and the challenges associated with.



Propel to the next level: **Automation** second.

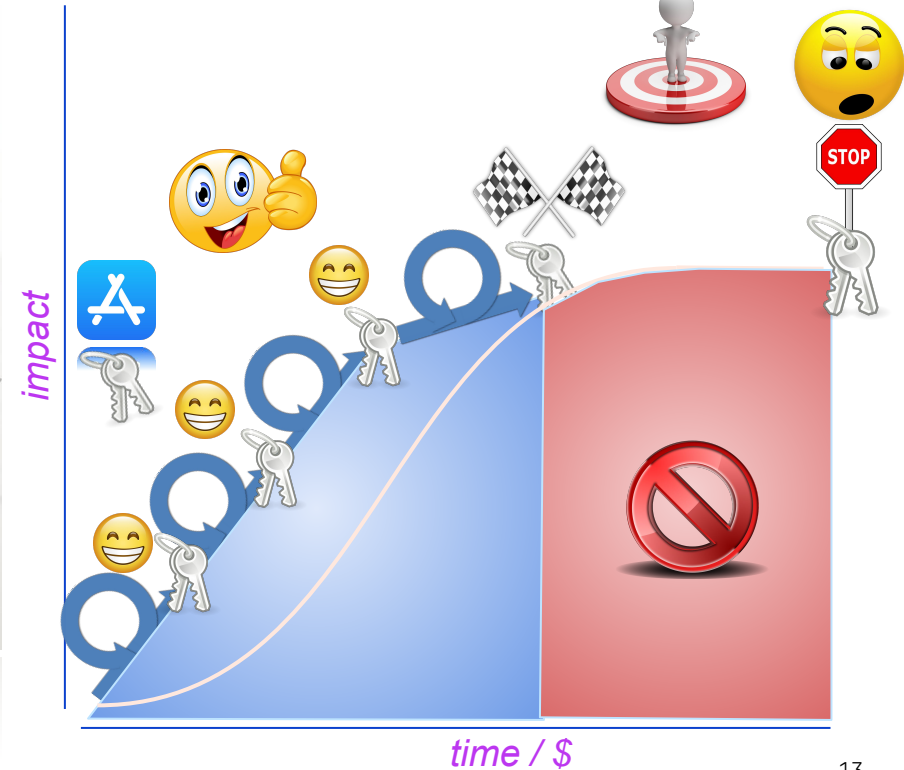
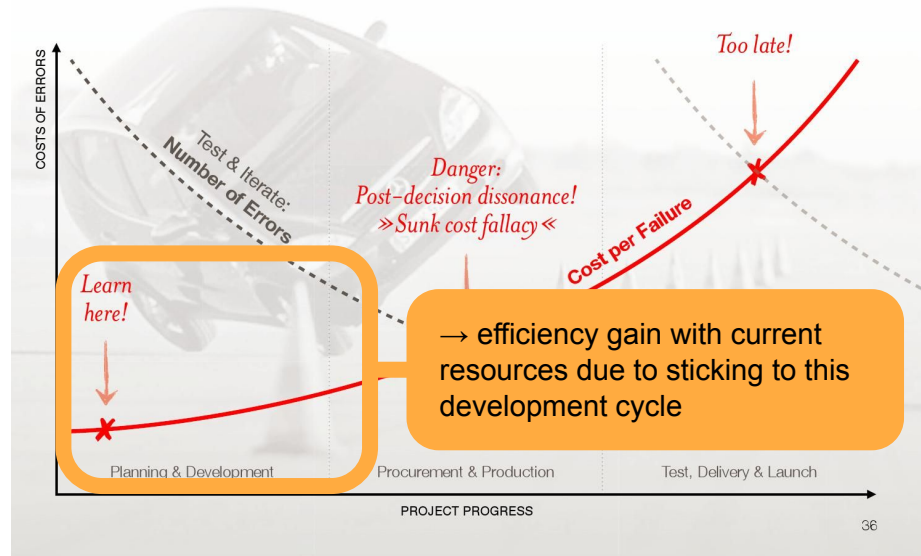
Finally It's only “logistics”!

Last but not least: the real magic comes with the right approach:

**People -> Process -> Technology**

# New Ways of Working | Lab Automation Projects

7: Fail early, Fail often – But: Fail smart!

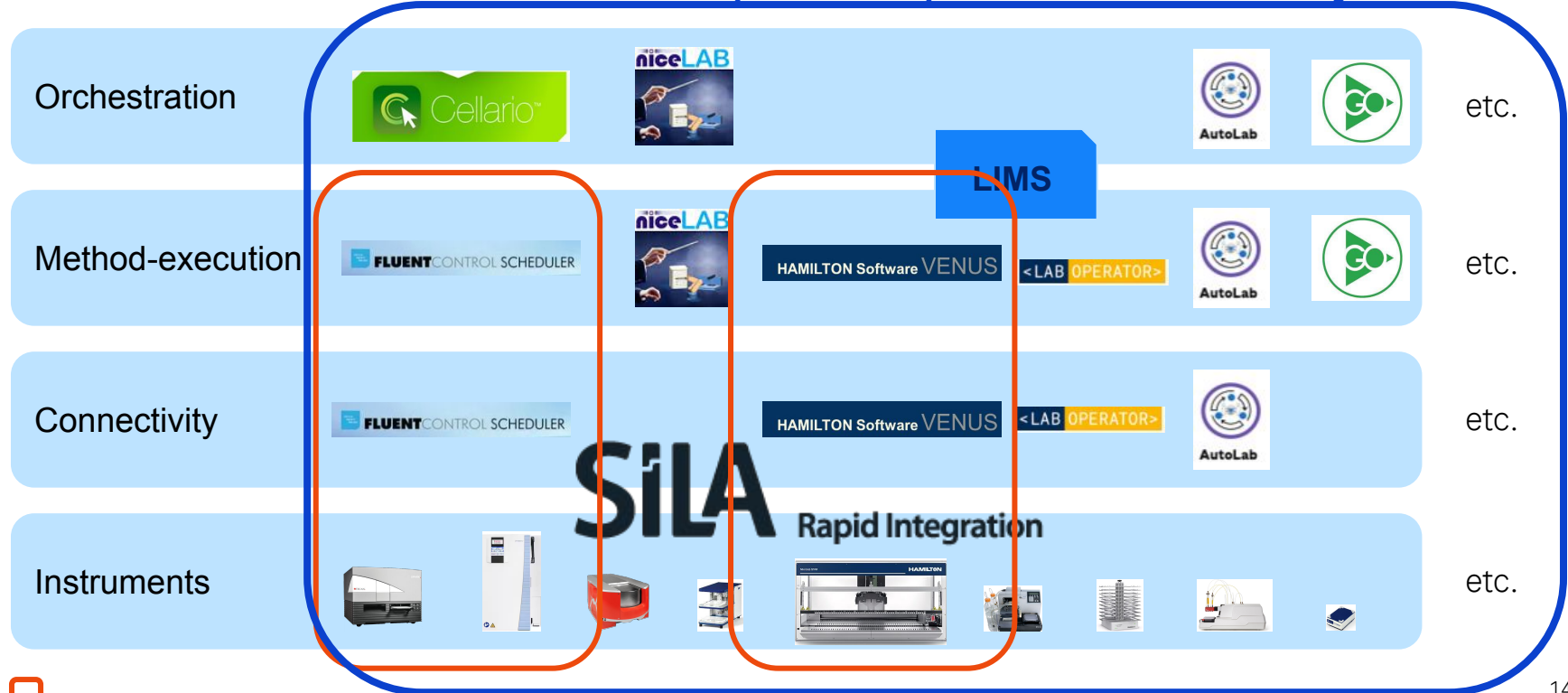





# The ultimate architecture

distinct, flexible & scalable

## Independent & Open Lab Automation Eco.System

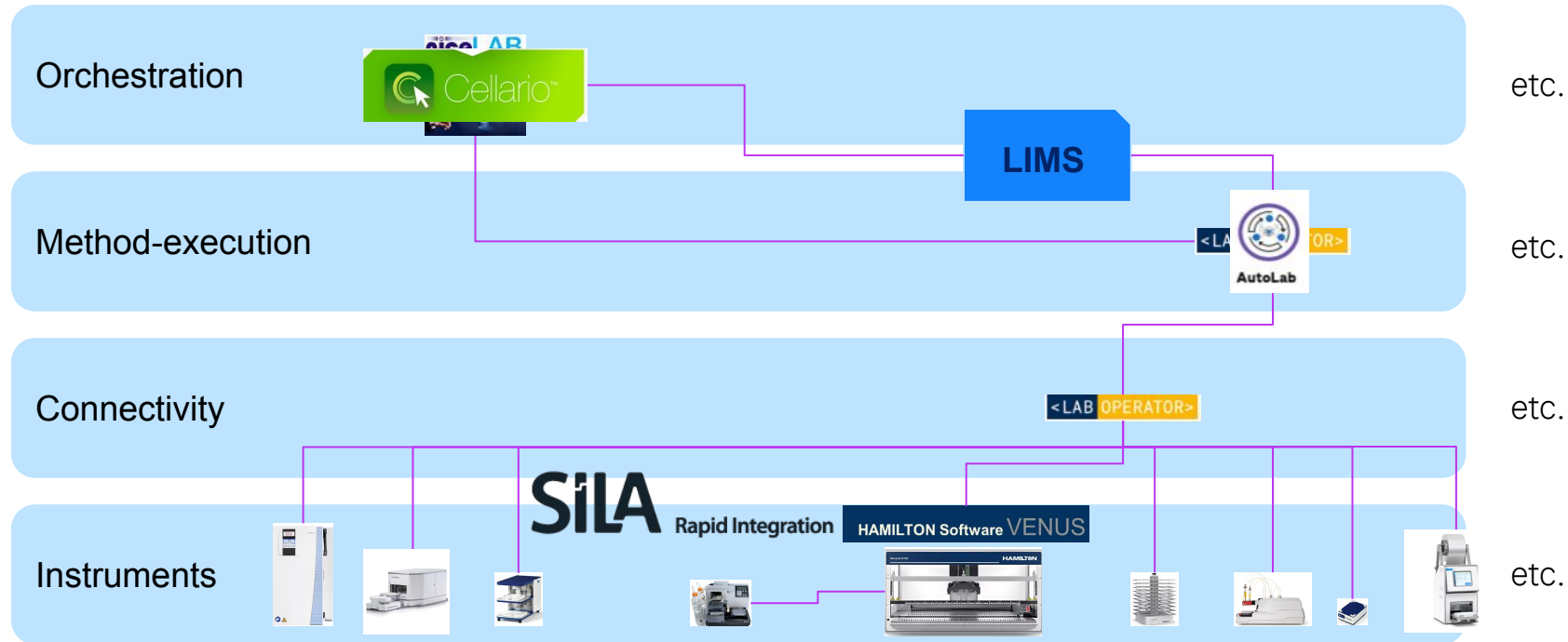


 = Vendor lock-in (instrument <-> Software)



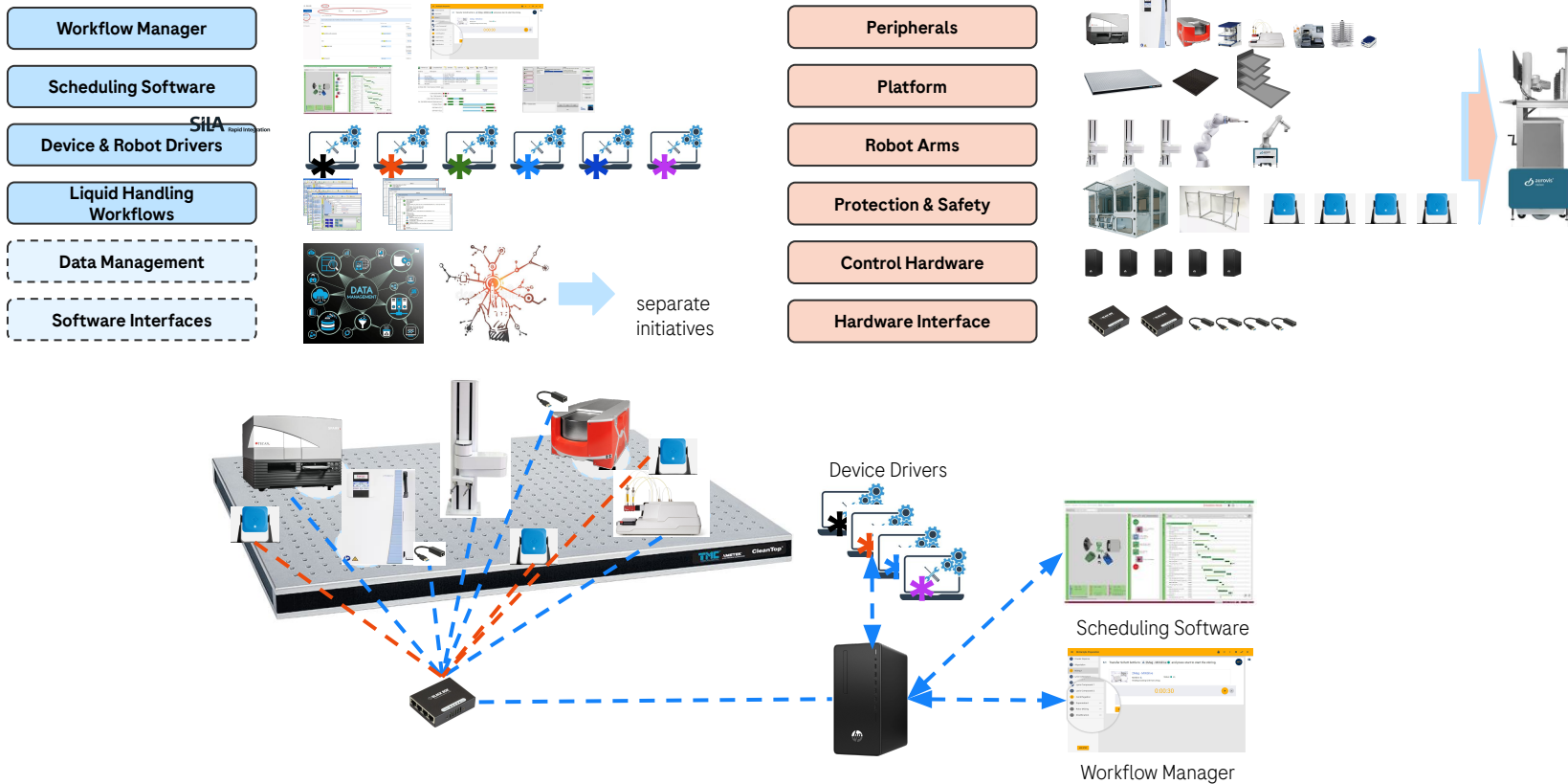
# The ultimate architecture

An example of using the independent and heterogen Lab Automation Eco.System



# Toolbox | Digitalization “AppStore” and Automation Hardware

Inventory to download relevant drivers and software tools to drive intercompatible tools and devices

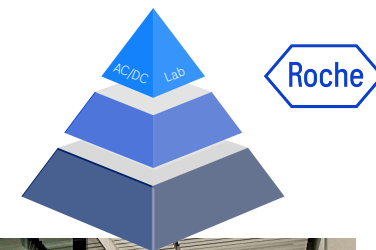






# in the Basel pRED Center

Powered by Lab Automation Cluster



**Developing**



**Consulting**



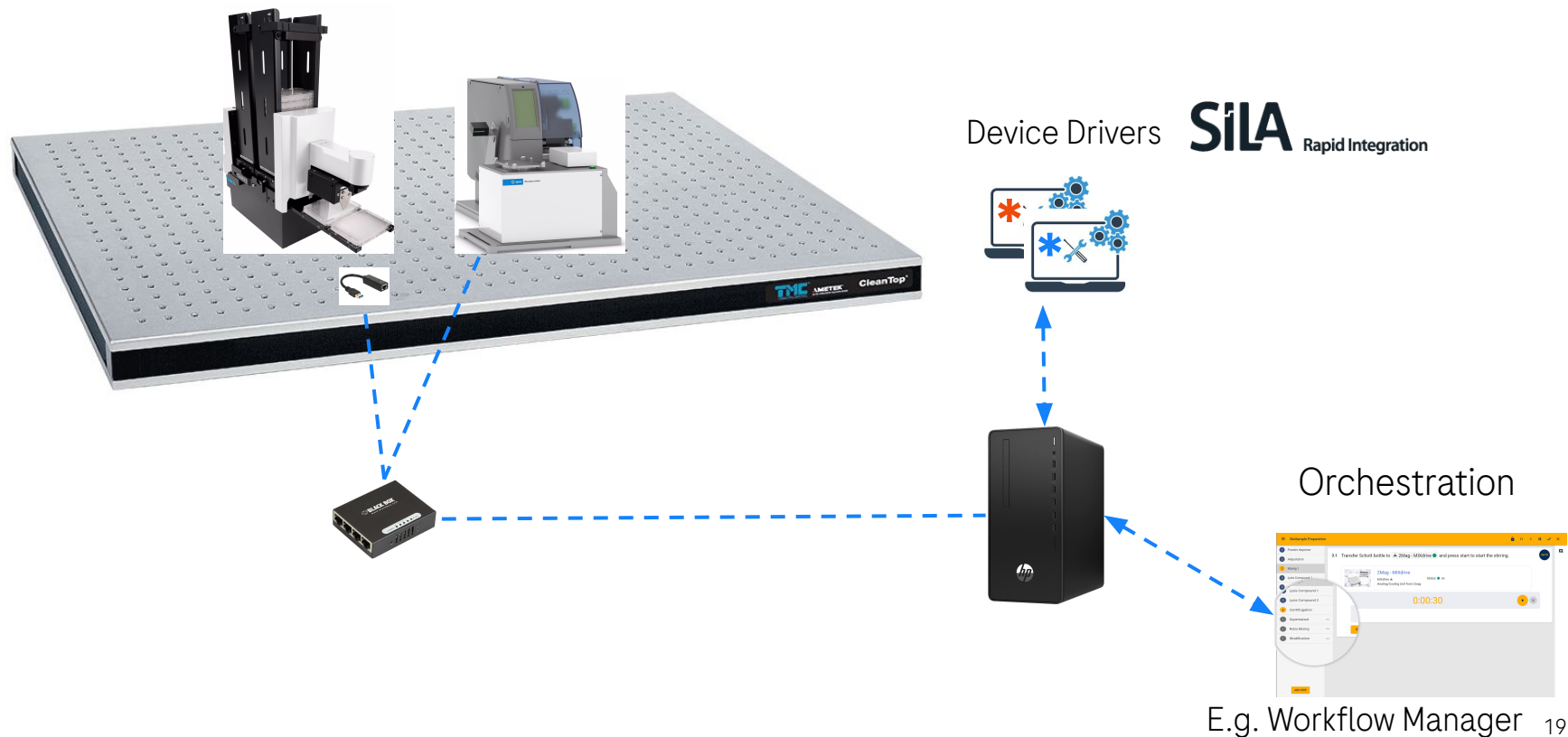
**Test new  
devices**



# Success stories

# Toolbox | our AC/DC Lab framework went live!

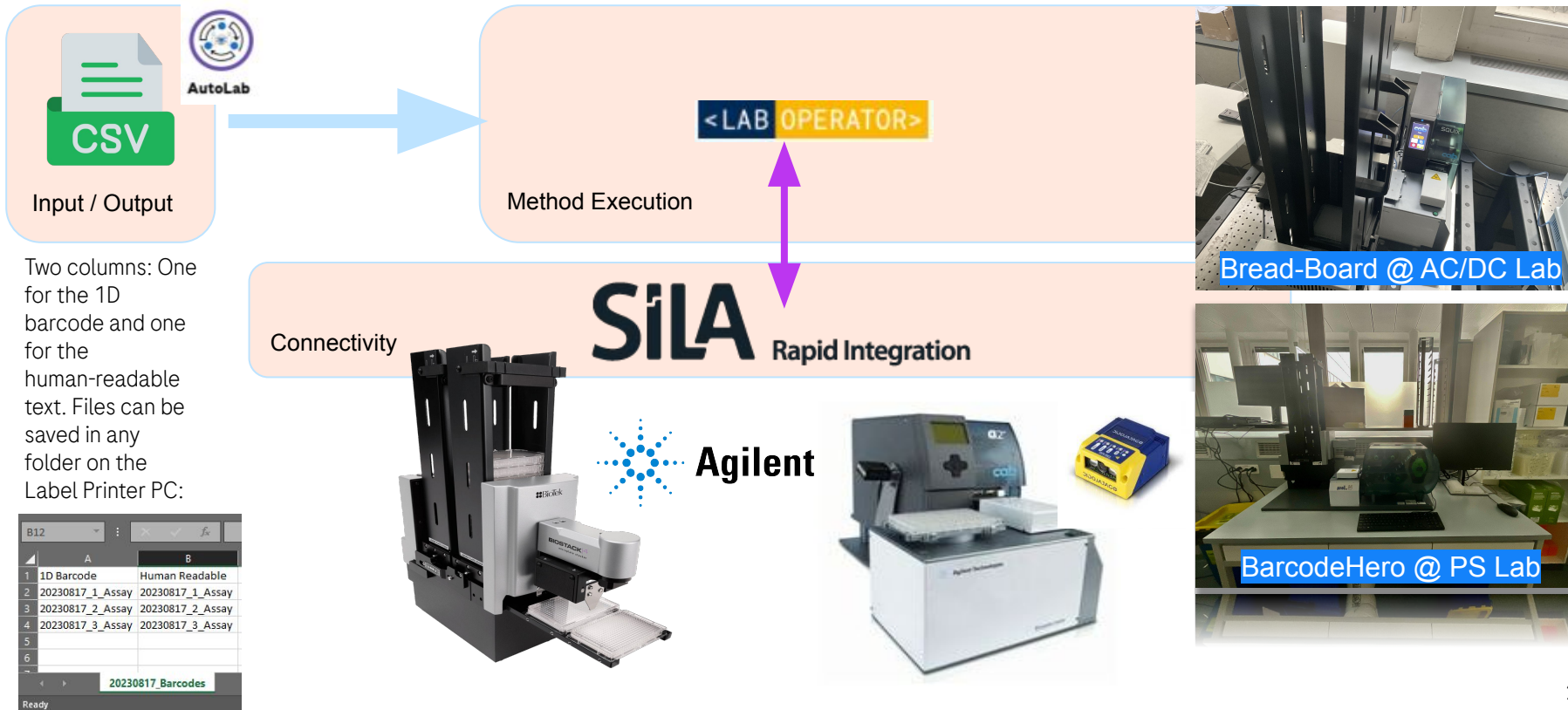
BarcodeHero a modular solution as shared economy & democratization of Lab Automation





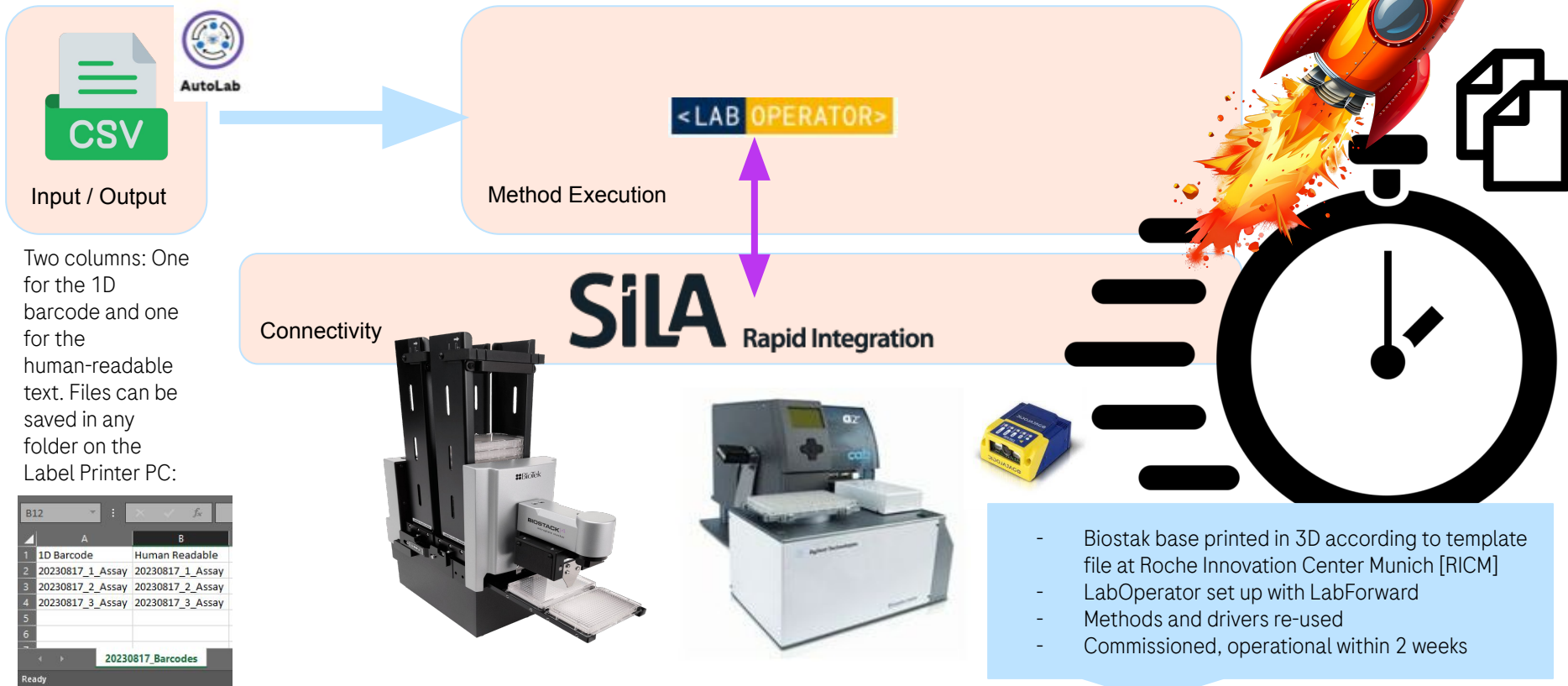
# BarcodeHero I - successful POC

Standardized Approach with known & existing devices



# BarcodeHero I - PoC Replica @RICM

Proofing the democratization of LabAutomation by AC/DC Lab





# How does the future look like

A glimpse of our visionary outlook



# The “Power of Standards” Podcast

Powered by AI [notebooklm]

Opinion | industry expertise

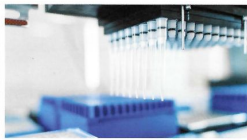
## The AC/DC Concept: A milestone for lab automation under SiLA2 that rocks!

**Tom Kissling**, pRED Lab Automation Partner at Hoffmann-La Roche, explores how seamless integration and standardisation of lab devices is essential to automation success.

This year marked a transformation as we moved most of our R&D labs in Basel, Switzerland, into some of the most modern research buildings in the world. This relocation was driven by a clear ambition: to propel our ways of working to a new level. These facilities were designed to foster innovation and efficiency, creating a foundation for the next generation of scientific research. As part of this advancement, the introduction of the AC/DC Concept (Automation Connectivity & Digitalization Concept) represents a leap in lab automation, enabling seamless transitions to paperless labs while boosting shared environments and promoting economic efficiency.

The AC/DC Concept has been meticulously crafted to align with the purpose of these advanced buildings, ensuring that they support not just the current generation of scientists but also those who will shape the future of research. This enduring belief is underpinned by the belief that the digital age requires a bold reimagining of traditional lab practices, combining automation, connectivity, and digitalisation to redefine what is possible in research.

At the heart of this groundbreaking concept is the SiLA2 standard, a recognised framework for automation in life sciences. By leveraging SiLA2, the AC/DC Concept enables seamless integration and control of lab devices through standardised drivers. This eliminates many barriers



associated with adopting new technologies, ensuring cost and time efficiency while maximising the value of both existing and new equipment.

We are convinced that the AC/DC Concept is poised to revolutionise automation and digitalisation within the life sciences industry. To put this into perspective, its impact could be likened to the introduction of the SBS Plate Format (Micro-Titer Plate) for hardware several years ago, which transformed how laboratories handled high-throughput screening. The parallels are clear: just as the SBS Plate Format standardised and streamlined processes, the AC/DC Concept provides a unifying framework for automation and connectivity that will shape the ecosystem of many of R&D labs in the industry.

### Pioneers of innovation

This concept was developed by Christian Stimmler and me. Our journey towards creating the AC/DC Concept was not straightforward – it was shaped by numerous trials and lessons learned from earlier,

less successful attempts to build monolithic, automated facilities. These experiences, often based on promises from vendors, highlighted the need for a more agile and supplier-agnostic approach.

The AC/DC Concept emphasises flexibility and adaptability in an environment where rapid change is the norm. Central to its success is the adoption of industry standards, with SiLA (Standards in Laboratory Automation) being the cornerstone of the approach. I am a founding member of the SiLA consortium and serve on its board, representing the user community. My leadership has involved driving the momentum and adoption of SiLA, cementing



R&D Automation and Operations.

### About the author:

Tom Kissling is a skilled professional known in the life science industry for his expertise in Lab Automation & Robotics. With a career spanning over 23 years at F. Hoffmann - La Roche, Kissling has established himself as a leader in the field of

its status as the most advanced standard in the field.

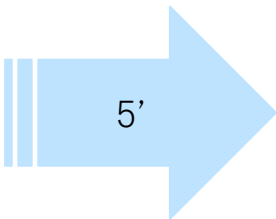
### Driving collaboration and innovation

The Lab Automation Cluster (LAC) at F. Hoffmann-La Roche has played a pivotal role in spearheading this strategy. By promoting collaboration and knowledge sharing within the company and across the broader life sciences industry, the LAC is fostering a culture of innovation. The key elements of the AC/DC Concept – modularity, efficiency, and standardisation – minimise isolated solutions and create a cohesive and powerful network of integrated systems.

### A vision for the future implemented today!

The AC/DC Concept is a forward-thinking solution that propels pRED (Pharma Research and Early Development) labs into the digital era. By embracing this innovative framework, we can enhance scientific impact, accelerate the development of new molecules, and ultimately improve outcomes for patients. This aligns perfectly with our overarching mission: **Doing now what patients need next.**

NotebookLM



Feedback Input Consideration



[global.automationcluster@roche.com](mailto:global.automationcluster@roche.com)



**Doing now what patients need next**

# SiLA[2]

The power of standards...



FROM:



TO:



## Please let me make some general statements:

- ❖ The SiLA efforts on the application (scheduler) implementation side are very similar for all SiLA compliant devices (initial effort) independent of how many such devices will be integrated.
- ❖ Standard Interfaces will enable an **increased implementation speed** mid- and long term
- ❖ Standardization solutions are clearly a **risk mitigation** strategy
- ❖ Standardization will dramatically **decrease the vendor dependency** and protect the investment (e.g. developed BioSero/GBG Drivers can not be used in HighRes/Cellario Environment)
- ❖ In most cases, already the second integration will lead to **reduced expenses**
- ❖ independent SiLA driver developers enable a **parallel development**
- ❖ Enables an **independent debugging Option** to find root cause (e.g. Universal SiLA Client)