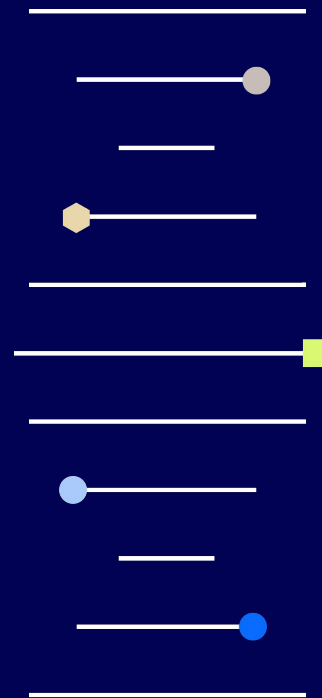




Benchling

ASM Connectors for Automating Instrument Data Capture & Analytics

In this session, Benchling will provide an overview of how Allotrope data models are being used by customers to automate instrument data capture, analytics & AI/ML to accelerate wet & dry lab workflows.



Presenters



Milton Yu

Head of Automation & Analytics
Market Strategy



Nick Floeck

Head of Automation & Analytics
Product Management



Benchling: Modern software built for biology

Background	
Privately-held company with a mission to unlock the power of biotechnology	
2012	Founding year with offices in Boston, San Francisco, & Zurich
750+	Employees globally, with more than 250 directly supporting customers
\$400M+	External capital raised from investors with >\$100B assets under management

All-in on software	
Singularly focused on building modern software for R&D teams	
40%	Of employees committed to product development
245	Shipped customer-facing features in the last 12 months
\$200M+	Investment in product development over last three years

Customer focused	
Serving the largest global biopharmas alongside emerging biotech innovators	
1,200+	Customers
200k+	Scientists using Benchling for R&D
75%	Forbes Global 2000 biopharmas using Benchling



Benchling

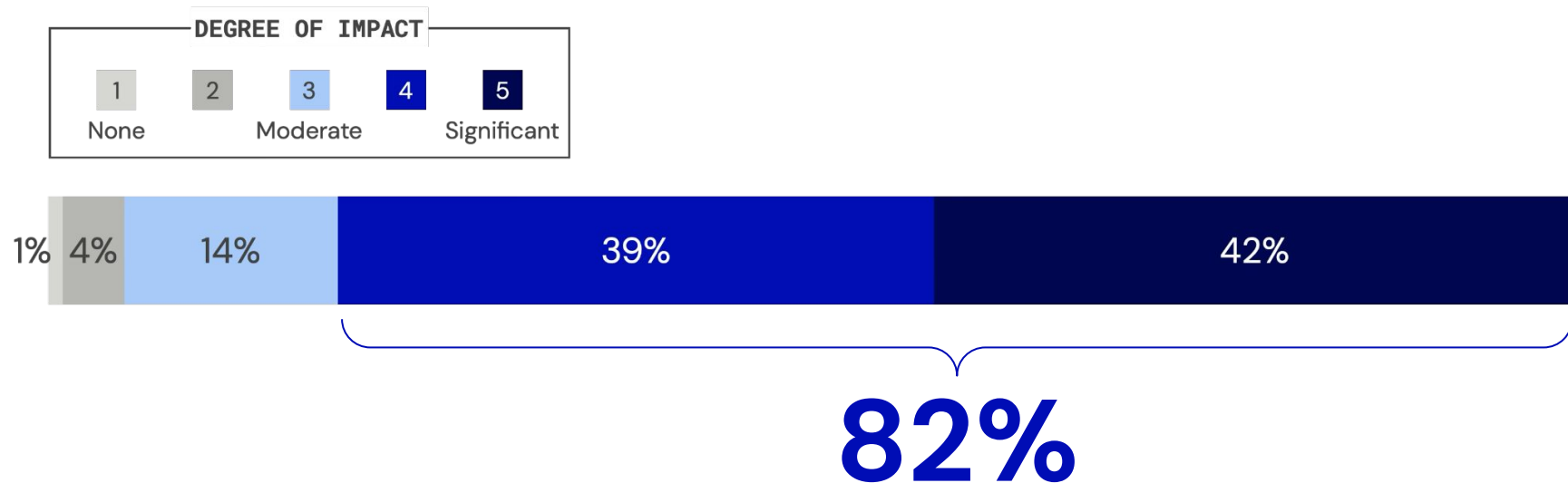
2024

State of Tech in Biopharma



Industry believes connected labs can bring significant impact

What level of organization-wide impact on speed/time to milestone do you believe can be achieved by connecting instruments/equipment and automating data capture?

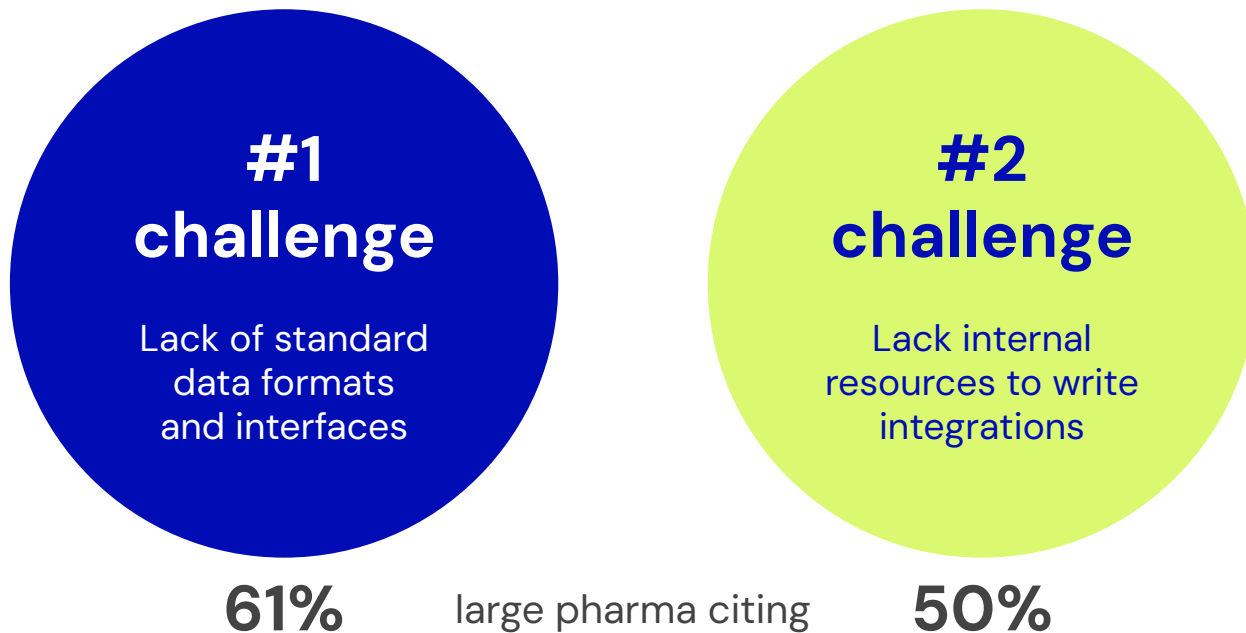


of large pharma respondents rated the **degree of impact on time to milestone from fully connecting labs** as a 4 or 5 (significant impact)

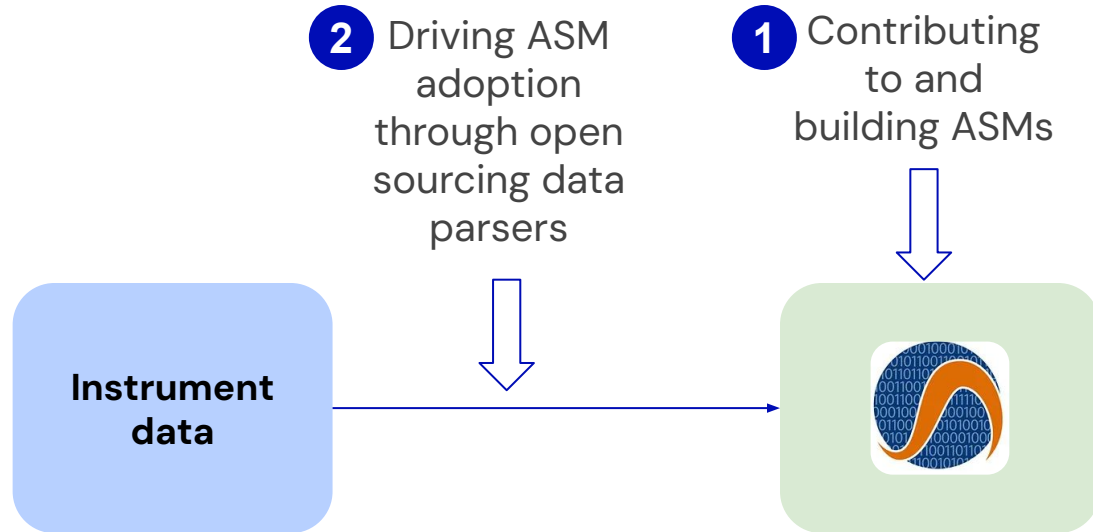


But challenges remain with connecting labs

What is limiting your organization from adopting or growing its adoption of connected devices with automated data capture?



Benchling invests in Allotrope partnership in two ways



1

Contributing and building ASMs



9

ASMs that we
initiated or
contributed to

- Binding Affinity Analyzer
- Solution Analyzer / Cell Culture Analyzer
- Electrophoresis
- Spectrophotometry/Electronic-Spectrometry
- Digital PCR (dPCR)
- Multi-Analyte Profiling (xMAP)
- Flow Cytometry
- Liquid Chromatography
- Plate Reader

2

Building and open sourcing data parsers



35

Instrument data
parsers open
sourced

The screenshot shows the GitHub repository page for 'allotropy' under the 'Benchling-Open-Source' organization. The repository is public and has 30 forks and 55 stars. The current view is the 'parsers' directory on the 'main' branch. A recent commit by 'slopez-b' is visible, titled 'fix: Molecular Devices Softmax Pro - add check for expected rows...'. Below the commit information is a table listing the sub-directories and their commit history.

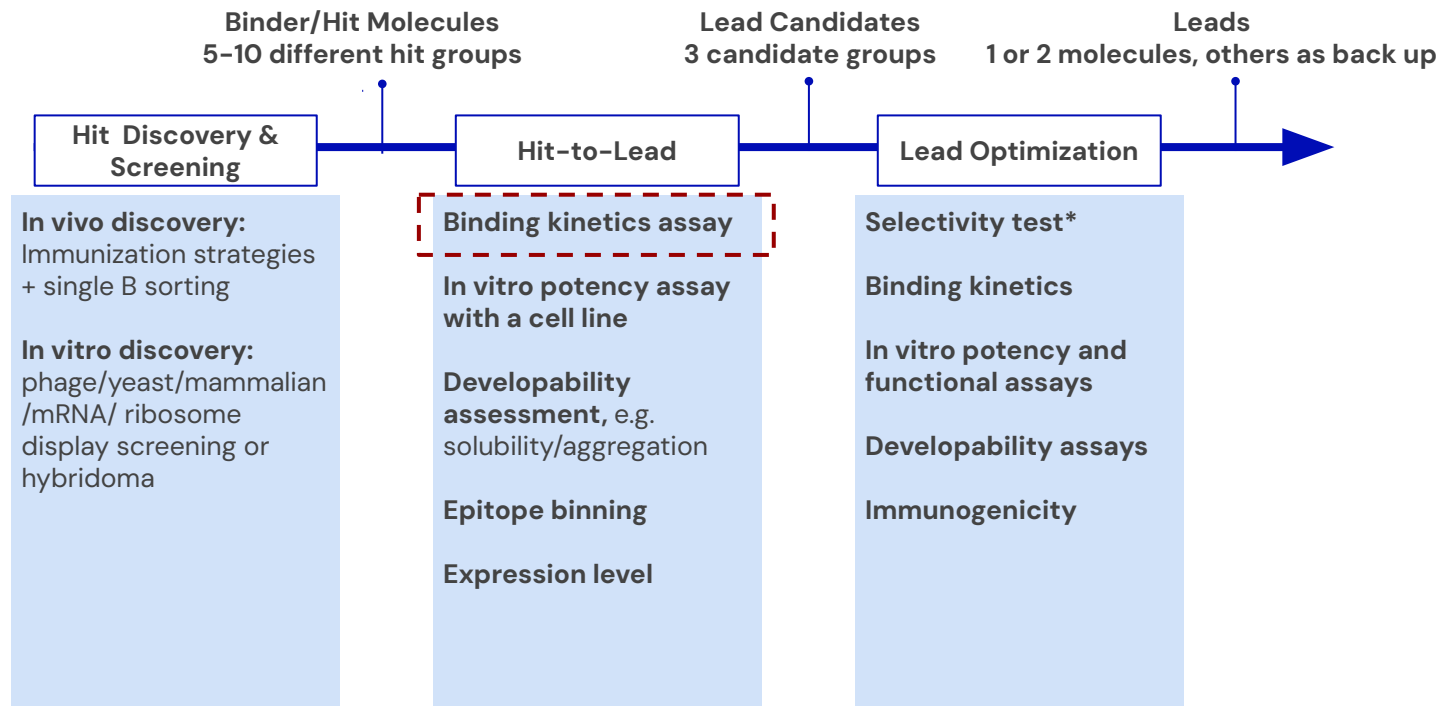
Name	Last commit message	Last commit date
..		
agilent_gen5	feat: Agilent Gen5 - Support results not grouped ...	last week
agilent_gen5_image	feat: Agilent Gen5 - Support results not grouped ...	last week
agilent_tapestation_analysis	feat: Global - include unc path in all existing adap...	3 weeks ago
appbio_absolute_q	feat: Global - include unc path in all existing adap...	3 weeks ago
appbio_quantstudio	feat: AppBio QuantStudio RT-PCR - handle forma...	5 days ago
appbio_quantstudio_designandanalysis	feat: AppBio QuantStudio Design & Analysis - up...	2 weeks ago
beckman_pharmspec	feat: Beckman PharmSpec - update adapter to u...	5 days ago
beckman_vi_cell_blu	feat: Global - include unc path in all existing adap...	3 weeks ago
beckman_vi_cell_xr	feat: Global - include unc path in all existing adap...	3 weeks ago
biorad_bioplex_manager	feat: Global - include unc path in all existing adap...	3 weeks ago
bmg_mars	feat: BMG MARS - Added support for Luminesce...	2 weeks ago
cfxmaestro	feat: Global - include unc path in all existing adap...	3 weeks ago
chemometec_nc_view	chore: Update adapter display names for vendor ...	2 weeks ago
chemometec_nucleoview	feat: Global - include unc path in all existing adap...	3 weeks ago
ct_immunospot	chore: Clean up VendorParser class now that all ...	last month
example_wexland_sutani	feat: Global - include unc path in all existing adap...	3 weeks ago



F A I R

Industry needs to solve data interoperability and reusability for AI/ML progress

Antibody discovery assay cascade example





Standardization accelerates industry growth



Mobile subscriptions grew from 500M in 2000 to 7.5B in 2020¹



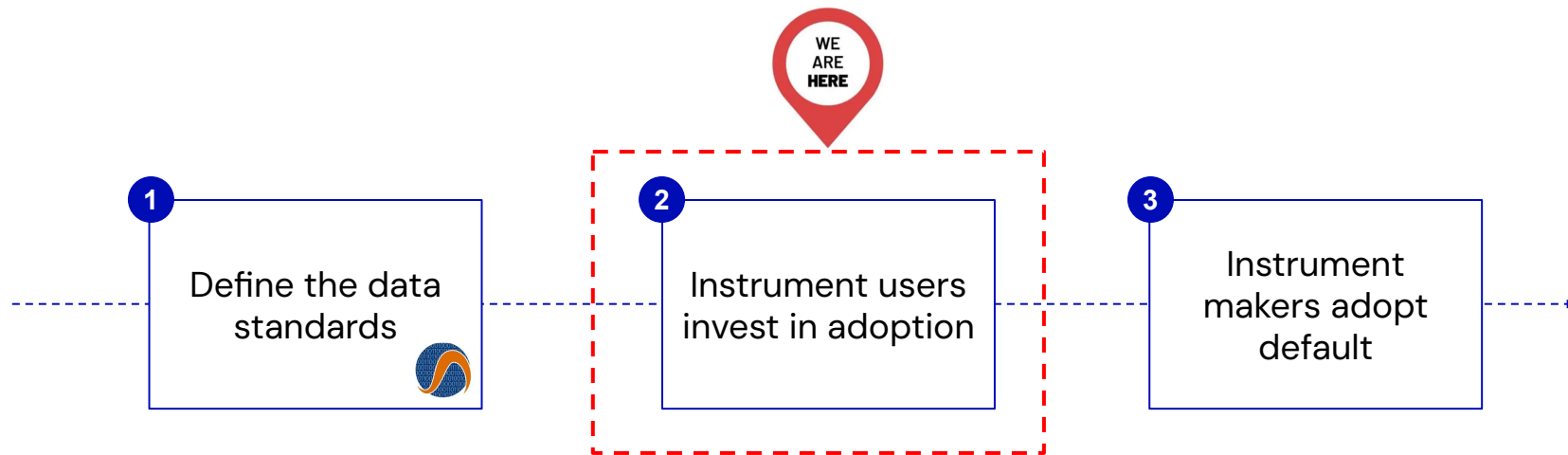
Open data initiatives for finance data sharing increases GDP by 1-5%²



Consumer access to health information grew from 38% in 2017 to 70% in 2021³



Three steps we can take to standardize instrument data





Today: Duplicated efforts, siloed approach

Company 1

- Plate reader parsers
- Cell counter parsers
- Cell culture analyzer parsers
- DSP parsers
- SPR parsers
- BLI parsers
- HPLC parsers
- Blood gas analyzer parsers
- Particle counter parsers
- ...

Company 2

- Plate reader parsers
- Cell counter parsers
- Cell culture analyzer parsers
- DSP parsers
- SPR parsers
- BLI parsers
- HPLC parsers
- Blood gas analyzer parsers
- Particle counter parsers
- ...

Company 3

- Plate reader parsers
- Cell counter parsers
- Cell culture analyzer parsers
- DSP parsers
- SPR parsers
- BLI parsers
- HPLC parsers
- Blood gas analyzer parsers
- Particle counter parsers
- ...

Company 4

- Plate reader parsers
- Cell counter parsers
- Cell culture analyzer parsers
- DSP parsers
- SPR parsers
- BLI parsers
- HPLC parsers
- Blood gas analyzer parsers
- Particle counter parsers
- ...

Files

main

Go to file

- > .github
- > .github
- > .idea
- > .vscode
- > docs
- > scripts
- src/allotropy
 - > allotrope
 - parsers**
 - > agilent_gen5
 - > agilent_gen5_image
 - > agilent_tapestation_analysis
 - > appbio_absolute_q
 - > appbio_quantstudio
 - > appbio_quantstudio_designand...

allotropy / src / allotropy / parsers /

slopez-b fix: Molecular Devices Softmax Pro - add check for expected rows in p...

4913fc8 · 5 days ago History

Name	Last commit message	Last commit date
..		
agilent_gen5	feat: Agilent Gen5 - Support results not grouped in a single table (#768)	last week
agilent_gen5_image	feat: Agilent Gen5 - Support results not grouped in a single table (#768)	last week
agilent_tapestation_analysis	feat: Global - include unc path in all existing adapters (#721)	3 weeks ago
appbio_absolute_q	feat: Global - include unc path in all existing adapters (#721)	3 weeks ago
appbio_quantstudio	feat: AppBio QuantStudio RT-PCR - handle format where only Results se...	last week
appbio_quantstudio_designandanalysis	feat: AppBio QuantStudio Design & Analysis - update primary analysis ...	3 weeks ago
beckman_pharmspec	feat: Beckman PharmSpec - update adapter to use Solution Analyzer sch...	last week
beckman_vi_cell_blu	feat: Global - include unc path in all existing adapters (#721)	3 weeks ago
beckman_vi_cell_xr	feat: Global - include unc path in all existing adapters (#721)	3 weeks ago
biorad_bioplex_manager	feat: Global - include unc path in all existing adapters (#721)	3 weeks ago

Our goal is to help customers automate their analysis

Lab 1

Gen5

Spectramax

Lab 2

Soft max pro

Envision

Example: Quantitative ELISA

Analysis Automation

Results



Labs using different instrument brands impacts analysis automation

Lab 1

Gen5

Spectramax

Lab 2

Soft max pro

Envision

Example: Quantitative ELISA



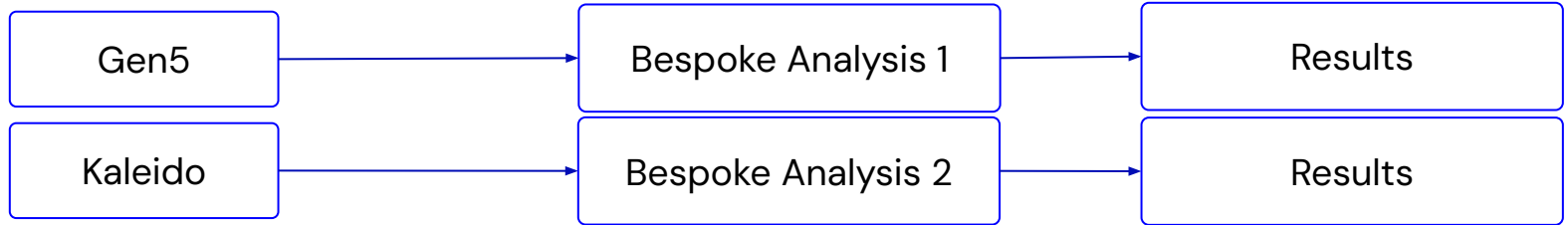
Analysis Automation

Results

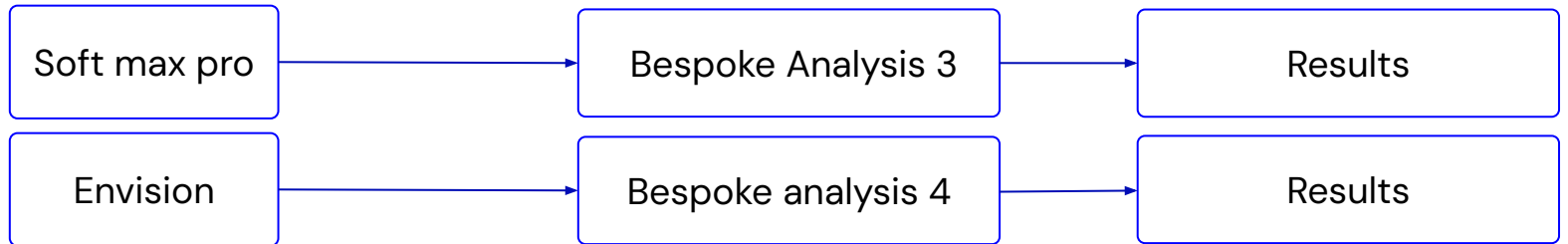


Analysis & results become bespoke for each team/instrument

Lab 1



Lab 2



Today you will learn how Allotrope helps automate analytics

Analysis Automation
Quantitative ELISA

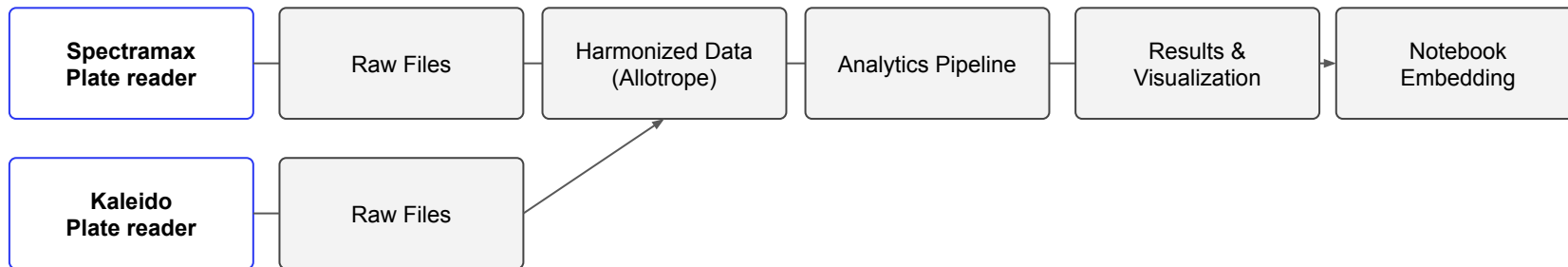
Analysis harmonization
Quantitative ELISA across
plate readers

AI/ML automation
For optimizing parameters





Demo: Analysis across plate readers using ASM





What's stopping you from contributing to Allotropy?



More data parsers enable more automated analyses



Scientists save on average 5–8 hrs / wk on data logistical tasks



Join us to accelerate ASM adoption

