arbor biotechnologies

DATA	INSIGHT	ACTION	VALUE CREATED
Usage data from BSC & cenrifuge	BSC @ 85% capacity compared to lab scheduling	Avoid purchasing additional BSL2 BSC	$200K

Arbor Bio leverages Elemental Machines usage data to reallocate $200K in the lab

Background

Arbor Bio is a Cambridge, MA-based bio-discovery company leveraging CRISPR-based genomic editors to develop next-generation genomic medicines. The company has 100 employees, operates about 30,000 square feet of lab space, and is rapidly expanding.

Problem

As a fast-growing organization, the Arbor Scientific Operations (SciOps) team is constantly fielding purchase requests from scientists claiming that equipment is never available when they need it. In this case, the scientists requested that the SciOps team establish a second biosafety level 2 (BSL2) area, including a new tissue culture biosafety cabinet (BSC), to support the already existing BSL2 space, reserved for lentiviral work. This expansion would involve a highly-regulated construction project with an estimated cost of around $200,000.

Before making this investment, the SciOps team needed a way to validate usage data. Although the team uses a lab scheduling software to reserve lab equipment, this user-generated data only accounts for submitted reservations. Therefore, a solution that would measure actual equipment usage would guide data-driven purchasing decisions and improve lab efficiency.

Solution

Arbor Bio installed several Element-U devices throughout its facilities. The Element-U device senses the electric current of any piece of lab equipment reporting its real-time status and historical usage to continuously record the time and hours delivering equipment insights anytime anywhere to optimize operations.

Devices were installed on:

- A BSC with maximum throughput in a high traffic area of the lab near other integral equipment such as an automated pipetting mechanism and two other hoods
- A BSC in a small BSL2 tissue culture room
- A centrifuge in a shared lab space

The team measured the impulse voltage of BSC sashes, indicative of usage based on when the door opens and closes. The centrifuge usage was also monitored as an indicator of the frequency of support processes in the lab. The SciOps team manually compared data from its lab scheduler software (reservations) and the Elemental Machines Cloud Dashboard, a visualization tool for Element-U data.

Results

TAKE CONTROL

Usage data from BSC in combination with scheduling reservations, inventory tracking, and monitoring of support equipment provided real insight into expected versus real equipment usage.

ALIGN CAPEX & OPEX

The team avoided making a capital investment in a new BSL2 space because the usage data showed their current space still has capacity. The actionable insights helped the organization prioritize other expenditures (i.e. hiring) over instruments.

IMPROVE TEAM EFFICIENCY

Resolved discrepancies between reservations and actual equipment usage on teams.

> "[Lab Scheduler] has a system where you can plot data points by marking utilization and then seeing exactly when they reserved it for how much time they reserved it. That is not accurate -- that is just your reservation type. So, combining that with an Element-U where you can actually see and track the time from sash open and close. That helped our team get a clear picture of actual usage; [a team member] did reserve for this time, but [they] did not use it for the entire time."

Asiem Bhaskar
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