Energy Exchange℠ | Better Buildings® SUMMIT

AUGUST 21-23, 2018 • CLEVELAND, OHIO

Smart Labs Partner Meet-Up

Partner Updates and Discussion

- ~5 minutes
- How is your Smart Labs roadmap organized?

- What is the status of your main projects and how do they fit in your Smart Labs roadmap?
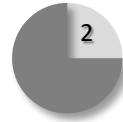
- What barriers or issues are you struggling with?

Throughout the Toolkit

- Training

- Partner Case Studies

- Resources

Assess

Develop a Laboratory Ventilation Risk Assessment

- Control Banding
- Laboratory Ventilation Risk Assessment
- Training Resources
- Other Resources

Conduct other Laboratory Assessments and Testing

- How to Prioritize
- Training Resources
- Other Resources

Develop Improvement Measures

- Determining KPIs
- Importance of Baseline
- Other resources

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Optimize

Develop Engineering Design Specifications

- Guidelines
- New technology

Funding and Bidding Process

- Design Build
- Other resources

Conduct Testing and Balancing and Commissioning

- Other resources

Setup Benchmarking

- Monitoring Plan

Web Mock Up

- Possible Design

- Scrolling

- Resources

PLAN
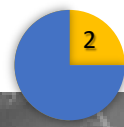
Creating a Smart Labs program takes coordination, planning, testing, exploration and a strong team effort. This section provides resources for the beginning of your Smart Labs program development or this can be a great resource to revisit as your program grows and matures.

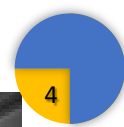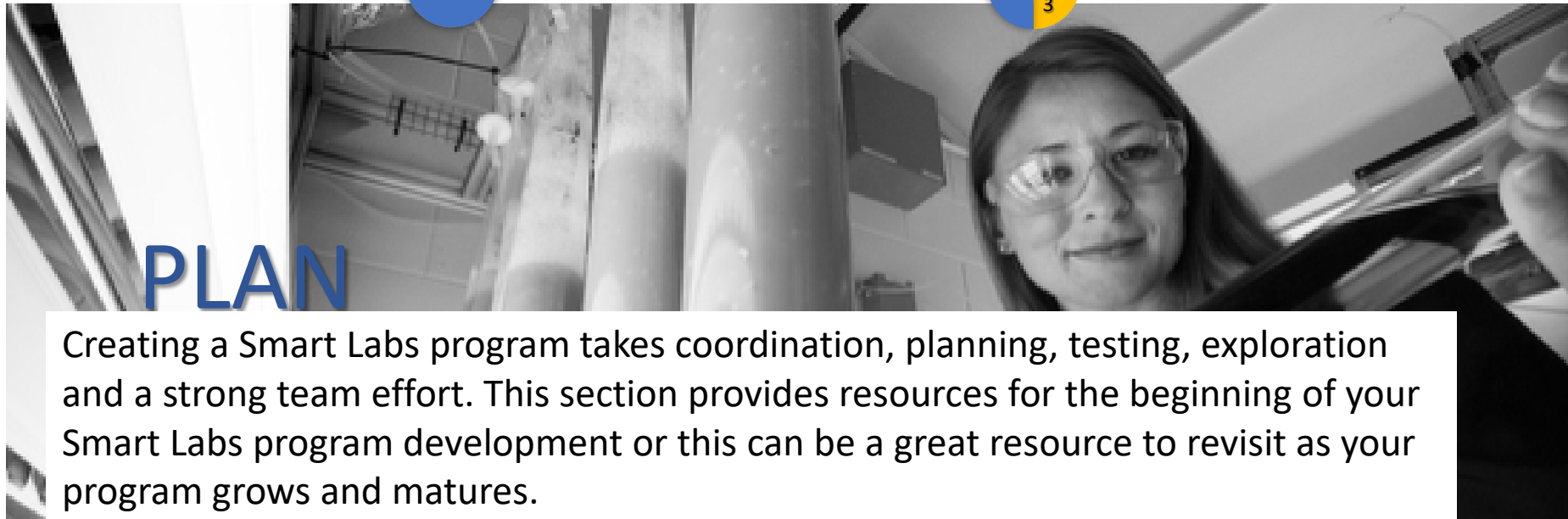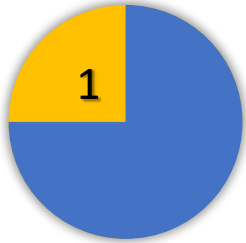## Build a Smart Labs Team

Building an effective Smart Labs team to leverage expertise, experience and relationships is an important and ongoing aspect of Smart Labs development and management. Every site will have different combinations of subject matter experts that should be involved in the Smart Labs process. Here are some suggested team members to include, this is by no means an exhaustive list:

Core Team
- Smart Labs Coordinator
- Facilities and Engineering
- Environmental Health and Safety (EHS)
  - Industrial Hygienists
- Laboratory Monitors
- Laboratory Ventilation Coordinator
- Sustainability Staff
  - Management

- Researchers
- Maintenance/Operators
- BAS Specialist
- HVAC controls specialist
- Analytics specialist
- IT staff
- Commissioning Agent
- Key laboratory vendors
- and contractors
- Procurement
- Fire protection
- Security

Best Practices

Developing your list of laboratory stakeholders takes time and knowledge. Ensure you're as inclusive as possible from the beginning to have the best and most up to date knowledge of your laboratory and to create buy-in for any future changes. Here are some key questions and best practices to consider when building your team:

- **Safety first** – many times energy efficiency efforts come out of a facility or sustainability department. Where labs are concerned safety can never be compromised so it's important to ensure the safety team is on board from the very start.

- **Design parameters** – how a laboratory is created, updated, and maintained is generally governed by specific design parameters. Who owns those parameters? Are there differing guidelines from different groups? Multiple groups should be involved when designing laboratories, is that happening at your site?

Case Study

Possible spot to highlight one of our partner's success in developing design parameters. Using that as a way to build a Smart Labs team.

- **Ongoing ownership and management** – laboratories require ongoing mechanical, electrical and safety management to ensure these complex spaces meet the needs of researchers and keep them safe in the process. Who is involved in ongoing management of the labs? Do maintenance and safety staff work together? Who makes decisions about lab changes?

- **Ongoing training needs** – research changes quickly which mean laboratory spaces need to keep up. Ongoing training is an important factor in maintaining safe and efficient laboratories. Who has good training resources? Is there training your Smart Labs team can do together? Can different departments train one another on topics to share resources and talent?

- **Involve management** – the management team must be on board to develop an effective Smart Labs team. Involve management early on and figure out the best management representative who can understand the complexity, safety and efficiency of laboratories.

Case Study

Highlight the involvement of UCI's management and how that's ensured the success of their Smart Labs program.

- **Level of effort** - require the greatest level of effort from stakeholders responsible for managing and maintaining operation. These stakeholders are key to having energy efficiency improvements save energy. Many energy efficiency changes in laboratories require equipment to be operated in a different way.

- **Be realistic** – developing common objectives and realistic goals will ensure success of your Smart Labs program. Don't start with your hardest and oldest laboratory. Find stakeholders who support these changes and work with them first to demonstrate effectiveness. Your biggest skeptics can become your biggest advocates if you realistically approach changes that both reduce energy and bring about other improvements such as equipment and safety upgrades. It's important not to move faster than your team is willing to go. Should you do a pilot in an unoccupied laboratory first? What air change rates will your safety team support?

Training Resources

- ECT training The Role and Responsibilities of a Smart Labs Coordinator
- ECT training Building a Successful Smart Labs Team
- UCI/Regional One Day Training - ECT

Other Resources

- Building a Smart Labs Team (Energy Exchange 2018)

Planning (Roadmap) Template

- What would you add?

- Anything that needs to come out?

- Other resources you think would be helpful?

- Do you have a case study or would like to create a case study for any of these elements?

- Would you use this and find it helpful?

What in-person training does your team/site need?

1. Tuning a laboratory HVAC system from air intake to exhaust

2. Lab ventilation effectiveness testing

3. Automated fault detection and system monitoring

4. Lab benchtop risk assessment

5. Design Build as a laboratory retrofit tool

6. Maintenance of laboratory building HVAC systems

7. Assigning responsibility in the design, operation, and maintenance of labs

8. Making the case to management and researchers to implement

9. Change management

10. Where does an organization start?

11. Responding to lab excursions or equipment failures