

Collaboration in the R&D Workplace: A New Generation of Laboratory Design

by William S. Harris

Over the past half-century, we have witnessed tremendous breakthroughs and innovations in the Life Sciences which have pushed research and development efforts to become increasingly collaborative. Since the discovery of DNA's structure, which gave way to the revolutionary fields of molecular biology and then genomics, researchers have discovered that the only possible way to compile, analyze, and synthesize the sheer volume of data uncovered about the make-up of genes and their relationships to disease is to collaborate and network not only within a lab, but also between institutions.

This more "open-source" approach in science, coinciding with the emergence of the World Wide Web and social media, has combined with advances in technology to bring us to the precipice of a new and more complex level of collaboration – the convergence of biology with physical sciences and engineering. This convergence is seen across the spectrum of research, in computer sciences, music, business, and more.

We see the effect of this convergence in the partnerships and strategic alliances that Life Sciences companies and institutions have formed. Not only do these col-

laborations promote innovation by bringing together varied disciplines and providing new shared resources, they help mitigate the increases in cost and risk associated with the rising complexities of current R&D activities. As a result of this partnering approach, we have seen Life Science clusters pop up around universities, allowing organizations to take advantage of the benefits provided by co-location. One of the strongest examples of this phenomenon is the biotech corridor in Cambridge, home to many of the world's leading universities, corporations and research institutions.

Inside each organization, this trend toward collaboration has impacted the way research is conducted, as companies build more dynamic business models which support:

- Interdisciplinary research teams
- Collaborative working methodologies
- Evolving technologies
- Attracting and retaining talent
- Investing more in research and less in capital expenditures.
- Integrating sustainability to reduce the consumption of resources and cost of facility changes.

The impact of these drivers on the architecture of the laboratory is wide-

spread and embraces not only bench and technical support spaces, but also offices, meetings rooms, common spaces – virtually every aspect of the R&D environment. Examples include:

Creation of spaces and places for sharing ideas, information, and perspectives:

- Distribution of social/meeting spaces within and between research spaces
- Introduction of collaborative workspaces inside the lab and informal collaborative areas outside the lab
- Establishment of circulation strategies that foster interactions
- Integration of technologies to facilitate communication

Transparency, daylighting and amenities:

- Creation of open layouts that permit colleagues to see one another and communicate easily
- Utilization of glass to make the research, people, equipment and processes visible
- Introduction of interior glass to bring views and daylight to work areas
- Inclusion of amenities to promote a healthy state of mind and a home for creative thinking

Adaptability:

- Design of layouts that can accom-

modate change without significant investment or down time

- Selection of casework that allows for changes in equipment and working methodologies
- "Universal" distribution of utilities for easy connection to equipment in alternative locations

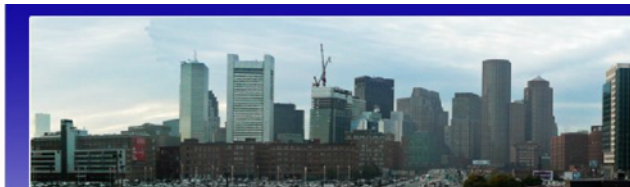
Efficiency:

- Consolidation and centralization of equipment, service, and rooms

As we create R&D environments that support new business drivers, it is clear that laboratory design (and research protocols) will not return to the "old days" of secret and segregated scientific silos. The principles of adaptability and collaboration, of openness and community, and of technology and change must be core planning elements.

Altogether, what we are creating now are research "communities" in the fullest sense of the word – where people, places and technologies merge; and the distinctions between where work is conducted – lab, office, or café – are blurred. This is the future of lab design.

William S. Harris, AIA, LEED AP, is founder of Boston-based architecture firm Signer Harris Architects.



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