



Knoll Workplace Research

# Booming Biotech

Characteristics and Priorities of  
the Modern Biotech Workplace

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## Characteristics and Priorities of the Modern Biotech Workplace

The biotechnology industry has experienced accelerated growth in recent years. The major factor influencing this growth has been large pharmaceutical companies looking for their next blockbuster drug coupled with an aging population facing a long list of chronic diseases.

The demand for new medicines has brought challenges to biotech companies. They are engaged in a heated talent battle, looking to hire from a small pool of elite scientists from major universities and institutions. In addition to battling for talent, the smallest, most innovative companies must also fight for square footage near established biotech research hubs, like Cambridge, Massachusetts and San Diego, California. The facilities and networks in those areas are ideal for supporting new drug development but the cost per square foot continues to grow.

Finally, biotech workplaces themselves are changing under technology's influence. Scientists are spending less time in the lab due to increased automation of tasks and the ability to gather data remotely over the internet. As always, biotech companies' offices must change as their phase of drug development evolves, from lab-heavy research and development to hosting a sales team when new medications hit the market.

Knoll surveyed professionals at leading biotech companies, real estate firms, architectural & design firms and building management companies associated with biotech, to capture the most recent trends in the industry and what drives the biotech workplaces of today. Speaking with these industry insiders, we identified characteristics and priorities of the biotech workplace.

This report summarizes our research, covers key trends in the industry and provides planning and design strategies biotech companies can implement within their workplaces.

### Key Take-Aways

From a highly competitive real estate market to the need for flexible designs, biotech workspaces have a unique blend of factors that influence their style.

We propose five workplace strategies and solutions to best serve the current and future biotech workplaces:

- ▶ Create shared, open spaces to encourage collaboration
- ▶ Include quiet spaces for focused work
- ▶ Make lab spaces that can serve many users, not specific individuals
- ▶ Offer high-quality amenities to attract talent
- ▶ Invest in a flexible layout for changing office space needs

## Drivers, Culture + Characteristics

The heart of biotech is small, innovative companies creating new solutions to illnesses. These companies must interact with outside forces like healthcare reform, real estate costs, new technologies and large pharmaceutical companies (big pharma) as a source of funding. All of these drivers and influences combine to create the biotech industry's unique culture and characteristics.

### Aging Population Needs Support

According to Deloitte's recent Global Life Sciences Sector Outlook, worldwide healthcare spend will grow at 5.2% annually at least over the next few years. The drivers for increase in healthcare spending are the aging population, longer life expectancy, population growth, rising wealth and the growth in chronic diseases. Drug spend in the U.S., in particular, will remain one of the highest in the world. Despite this increase in demand, companies

### Pharmaceutical Companies Dominate

Market Size

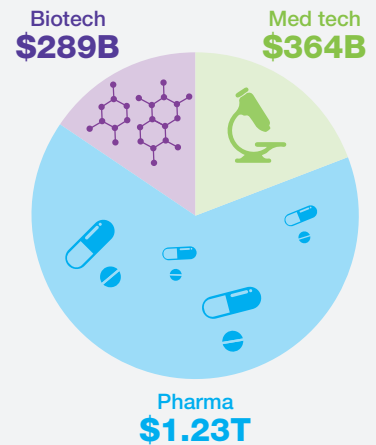


Figure 1. Based on research from Deloitte's Center for Health Solutions, pharmaceutical companies account for most of the activity in the life sciences market (over 65%), with medical technology (med tech) and biotechnology coming in a distant second (around 20%) and third (around 15%)

are under even more scrutiny to prove the value of their therapies, particularly since expanding healthcare coverage is straining payer budgets. Brands must make price concessions, be efficient with R&D dollars and work hard to prove the value of new products.

### Blockbuster Drugs Require Replacement

Biologics, complex medicines derived from biologic sources, revolutionized the treatment of many chronic diseases in the past decade, such as rheumatoid arthritis, and earned many pharmaceutical companies healthy profits. But, the patents for many biologics began expiring in 2012. Work is being done now to regulate the production of biosimilars, medicine that act similar to biologics but cost less, much like a generic version of a chemical drug. This shift lowers costs for healthcare providers and consumers, but also takes profits away from pharmaceutical companies.

Reacting to this patent cliff, big pharma companies have been on the hunt for their next generation of high-earning medicines over the past few years. They are turning their attention and investment dollars to small, innovative biotech companies, getting involved earlier in drug development in hopes of accelerating their path to earnings. The biotech industry shattered records for venture investment, IPOs and M&A in 2014. Overall, the global life sciences industry raised a total of \$104.2 billion, up from \$92.9 billion in 2013.

"In the core R&D markets, you're going to see the early stage innovators primarily, the large pharma companies are increasingly downsizing their R&D departments and leaning on early stage innovators, partnering with them so they can design and build a company to buy it. It's build to buy," John Hundley, Senior Associate for commercial real estate firm CBRE.

### Six Challenges for Life Sciences Industry

Research and consulting group Deloitte's Global Client Portfolio Managing Director Homi Kapadia listed the following issues as most pressing for life science companies

1. Market reconfiguration and consolidation
2. Pricing pressures
3. Health reform and the shift to value
4. R&D productivity
5. Disruptive technologies
6. Risk, regulations and compliance

Hundley says that bigger companies stay nearby smaller ones, assessing the risk of acquiring. He says, "They have to determine at which point it makes sense to acquire the company. They don't want to pull the trigger too soon because of risk, or too late because as soon as data is good on the medicine, the valuation goes up. They want to buy just before that."

### Real Estate Is Costly in Innovation Hubs

Biotech companies want to be in or near innovation hubs. Marked by a combination of major research institutions, universities, foundations, private companies and venture

### M&A Deals Increasing Rapidly

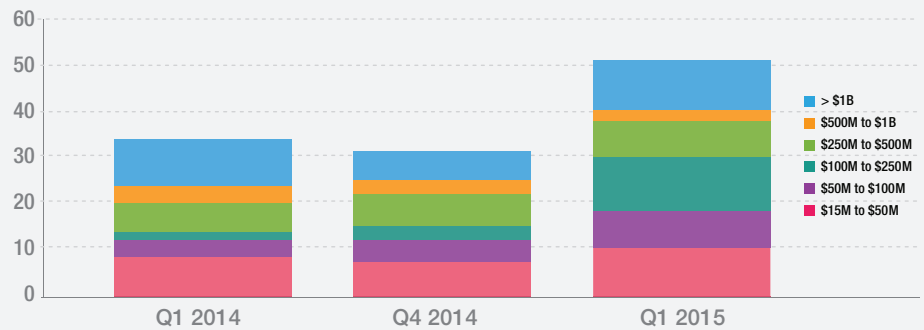


Figure 2 According to data from the U.S. Food and Drug Administration, the volume of merger and acquisition activity among life sciences companies increased exponentially going into 2015, as well as the value of each deal. This reflects in part the need for pharmaceutical companies to get involved earlier in the drug development process in order to reduce their R&D cycles.

capital firms, these locations provide an optimal ecosystem for new drug funding and development.

The cost of real estate in these ideal locations is soaring. For example, in Kendall Square, near MIT and Harvard in Boston, lab rents have doubled in the last 10 years to \$71 per square foot and vacancy rates are at an all-time low of 3% despite a 25% increase in capacity since 2008.

When commenting on his company's Kendall Square location, CEO of Biogen George Scangos said, "MIT is a two-minute walk. Harvard is just down the road. Mass General is a five minute walk in the other direction. You can't go out to lunch or dinner without

seeing someone from those institutions. The level of excitement, interaction and vibrancy is quite amazing."

Further, new small and mid-sized biopharma firms are scooping up labs across the major U.S. markets—leasing locations vacated by consolidating firms. All this activity is reducing the amount of vacant lab stock across the key clusters and giving landlords the opportunity to push rents higher. Once a drug has been approved, many companies move their drug testing and manufacturing work to suburban, or even rural, locations but the R&D work and initial funding happens fastest in hubs with the right people, money and infrastructure.

### Biotech Real Estate Costs Climb

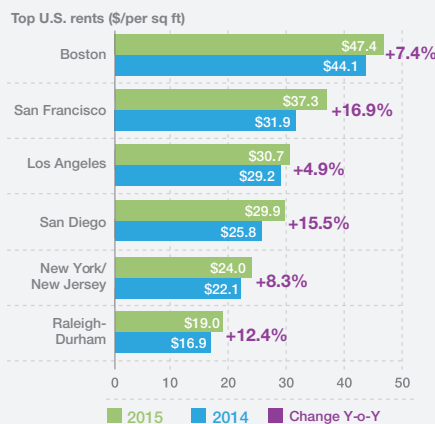


Figure 3. According to JLL, the cost per square foot for both lab and office space increased in every major hub between 2014 and 2015, in some cases more than 15%.

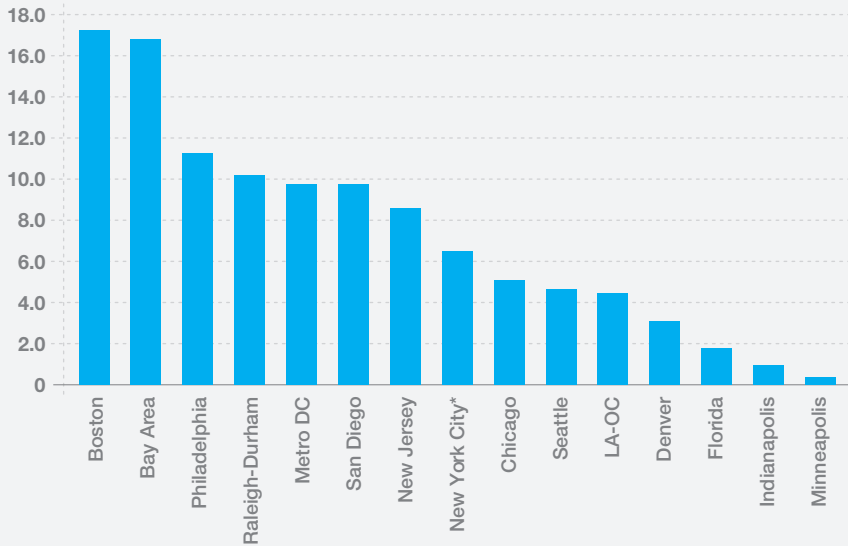
*"Being near the university creates the right environment. It's a source of new talent and there are ideas coming out of there, as well. For us, it's even more important to be near the Gates Foundation. They are driving world health and education."*

—BRIAN HORMAN, JUST BIOTHERAPEUTICS

Traditionally, lab space costs more to rent than office space. But, Bill Holt, Director of Life Sciences and Associate Principal at TK&A Architects in Boston, says that the cost of office square footage in Kendall Square is approaching lab square footage because the area is so sought after. "It's the idea of critical mass. People want to be in the same

## Biggest and Smallest Biotech Hubs

Rentable lab space (m.s.f.)



\*Includes Long Island and Westchester markets

Figure 4. Data from JLL shows the largest biotech hubs are based in Boston, the Bay Area, Philadelphia, Raleigh-Durham, Metro DC and San Diego, as shown by the square footage dedicated in each city to rentable lab space. While other markets like Seattle and Denver have biotech activity, it is a fraction of that in major hubs.

place,” says Holt. “No one can do this work alone. Success depends on partnerships and collaboration. It takes so long and takes so much money to bring a successful drug to market that the goal is to speed up the discovery process.”

### Elite Talent Is in Demand

To succeed in the competitive, risky drug development market, biotech companies need the most bright, innovative minds in the world working for them. The effort to find, recruit and retain these workers is a huge challenge in the field.

From 2010 to 2020, nearly 2 million life science and engineering jobs are expected to open. A large share of that projection is attributed to retiring baby boomers in the science and engineering (S&E) workforce. Life sciences companies, in particular, are anticipating a decrease in technical and professional skills for their industry. This shift will cause these companies to compete for talent at a global level. In a recent survey by Deloitte, 75% of the participants rated this issue as critical. Yet, only 15% think they are ready to address it.

“I think what we’re seeing is the continued focus on the innovation markets where there

is a high-quality talent pool, where there is R&D for biotech. Several markets rise to the

top quickly because of the ecosystem in those environments. It’s not just academic. It’s private institutes, VC capital, lifestyle and service providers,” says a leading real estate executive.

## Workplace Priorities

Several factors are driving up the cost and complexity of the biotech workspaces today, including the pressure to be near an innovation hub, the need to attract top talent with excellent amenities and the need for flexibility to change workspaces as the company grows. All of these factors combine to make biotech workspaces uniquely challenging to create and maintain.

### 1. Balance of lab versus office space

The ratio of office to lab space varies over time as a biotech company grows. Young companies typically require less square footage and most of that is taken up with lab equipment and bench space. A 30/70 office to lab ratio is common at an early stage.

As a drug shows potential and heads for clinical trials, administrative staff require desk space for approval processes. The ratio of office to lab space at this point may reach

## Bay Area Is Tops for New Patents

Number of U.S. patents in 2013 (most recent available data)

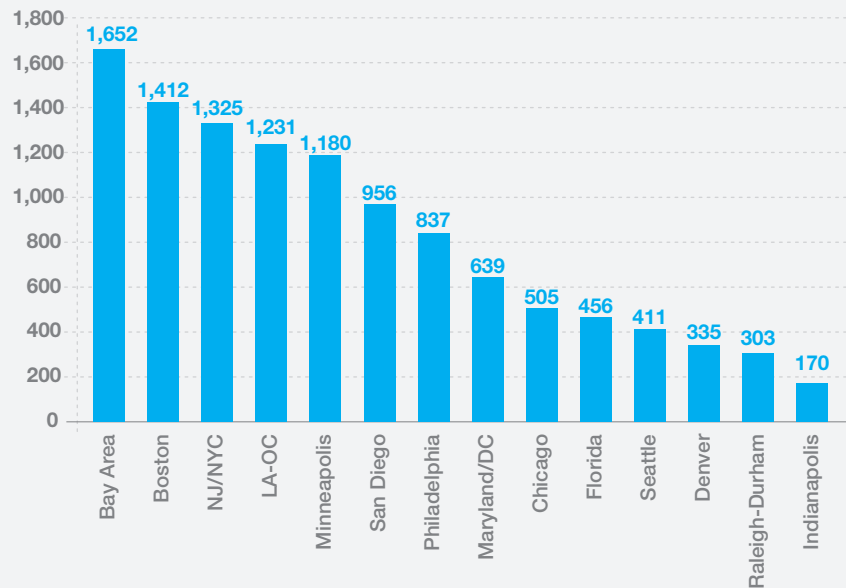


Figure 5. Evaluating the number of US patents granted is a key indicator of future innovation in the marketplace. It also shows where we will see continued real estate development and potential shifts in the life sciences workplace as products come to market. Despite being a slightly smaller hub than Boston, the Bay Area leads in new patents while a much smaller hub, Los Angeles, comes in third.

## Total Space and Allocation Ratios Change Over Time

### Example Square Footage by Growth Cycle

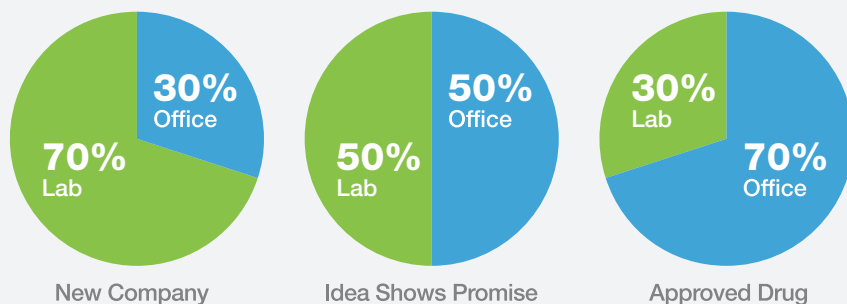


Figure 6. As biotech companies grow their need for space increases and their mix of lab and office space needs changes, as well. There is a high demand for lab space early in the company lifecycle, then much less over time.

50/50. Once the drug is approved, marketing and sales teams move in and the office to lab ratio may be 70/30.

One way that small company owners have adjusted to meet their varied square footage needs is to band together and create tenant buildings that accommodate multiple, early-stage companies. This approach allows several 4,000 to 5,000 square-foot groups, for example, to find affordable space in a desirable location.

A common challenge we heard from many architects and designers is how to allocate space for lab scientists. Labs are more streamlined and tasks are largely automated so that scientists can set up an experiment, sit somewhere else and collect and analyze data remotely. Should they have two workspaces? The solution echoed by many industry insiders was to keep individual workspaces outside the lab, with exceptions for scientists who spend the majority of their hours actively doing lab work.

The key to smart allocation of lab versus office space is to remain flexible, since change can happen suddenly. "You need to be able to move a lab in a weekend," says Ryan Egli, Senior Vice President of Life Sciences

for CBRE in San Diego. Advancements in research are happening so fast that companies cannot predict what their needs will be in a year. "Investment from a big pharma company could double the size of their group in less than six months to get a hot drug to market. Likewise, if a drug isn't doing what it was supposed to do, they will stop research suddenly to save their money," says Egli.

### 2. Attract and retain employees

Building location, facilities and amenities matter to biotech companies because they matter to recruits. Class A, fully-outfitted lab space can be a way to attract top scientists. In addition, common amenities include healthy eateries, walking paths, outdoor seating, fitness areas, showers, game rooms, coffee break areas and bike parking.

Companies in more suburban areas often offer more amenities because of the cheaper cost of real estate, and because many feel they must make up for being outside of a major hub.

One example of this effort is in the Sorrento Valley just east of biotech hub Torrey Pines, California, a suburb of San Diego. To appeal

to potential employees, companies are redeveloping properties to create an urban environment. For example, they are renovating warehouses and old industrial buildings to make them feel more modern. They are adding amenities like outdoor walking and bike paths, gaming areas and outdoor seating, even housing.

"They are not just including a deli but boutique restaurant operations, a bar for a drink after work or for industry events. These gathering spaces create action," says Egli. "They've even added conference center capabilities for all-hands meetings, bocci ball and horseshoe areas with wi-fi, fitness centers, as well as showers and lockers. Going for that 'hub' feel has become the norm. Just three to five years ago it wasn't normal," says Egli.

### 3. Encourage collaboration

With all these top minds gathered in one space, biotech companies want to make sure their employees are talking, collaborating and innovating together whenever possible. To support that goal, more biotech offices than ever are moving to open seating, more meeting rooms, fewer private offices and more interstitial spaces with comfortable seating, monitors and power outlets to encourage interaction.

"One trend is to break down barriers and share things, even in the lab. Socializing may be hampered because you cannot have a cup of coffee or eat in the lab, as you can in a non-lab area, but collaboration is still top of mind," says Bill Holt of TK&A Architects in Boston.

Companies want to create a space where people are excited to be in the environment. Really small biotech firms are creating buzz because of their culture. They are encouraging interaction, offering a lot of social activity and "giving everyone a seat at the table," says Holt. In general, the teams are very diverse in terms of age and background, coming from all over the world. "The only thing not diverse is their brainpower. They are all incredibly bright," says Holt.

### 4. Adapt to technology

Thanks to digital advances like 3D modeling software, robotics and data transfer through the internet from lab to laptop, lab space is not as populated as it once was. Scientists set up the process they need a machine to complete, such as titrating a substance into test tubes,

*"In Fremont, a neighborhood near Seattle's biotech innovation hub of South Lake Union, there is a lab where companies can rent 5 or 25 feet of bench space. It is an incubator. Companies can be there for a couple of months or a couple of years. Small startups can be in that mode for a while until they get capital and rent a space of their own."*

— BRIAN HORMAN, JUST BIOTHERAPEUTICS

## Life Sciences Wages Rise Amid Talent Wars

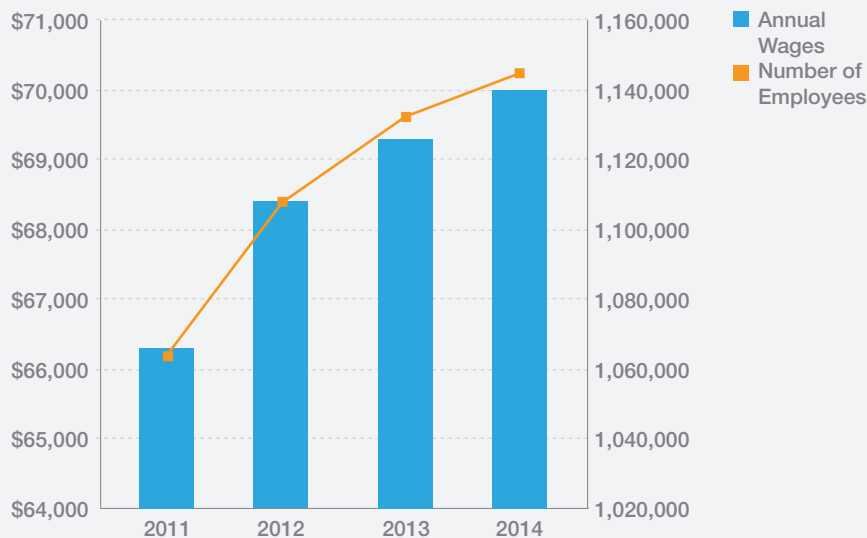


Figure 7. According to research from the U.S. Bureau of Labor Statistics, over the last several years, not only has the total number of workers increased in the field but also their average wages have increased substantially. Biotech companies must compete for a sought-after, select group of educated, innovative workers, especially those with PhDs.

and then step away from the lab to work on other projects. The machines can then send results automatically when the work is done. Finding space to analyze data is becoming more important than bench space.

As a result, lab spaces are often shared, with fewer assigned areas. Each piece of equipment has a space and likely has a shared computer attached to it for setting up processes and collecting data.

“We’re finding that research is more and more automated. Very few people spend a half or whole day in the lab, which is different than 10 years ago. Now there’s more space for equipment, not people, in the labs,” says Brian Horman of Just Biotherapeutics.

Companies used to like having their technicians in the lab or as close to the lab as they could, which might mean a lab work bench and write-up space somewhat close. Now, labs can be on one side of an area and desks on the other. In some cases, scientists can be almost completely remote, says Horman.

### 5. Allow room to focus

Given more open plan areas, we are seeing the increased need for spaces for focus across many industries. With biotech, the need is even more acute to create areas for

silent, concentrative work. Many PhDs and others involved in research analyze data or prepare papers and need long stretches of time in silence. “People from academia like dead quiet,” says Horman.

Academics tend to want private offices but designers emphasize that the pressure to use space efficiently makes shared quiet spaces, often referred to as libraries, more desirable than private offices. Typically, the company leadership makes the final call on how much space is allocated for which type of experience.

“It’s about creating different environments. Some people like quiet, while some people go nuts if they have to be quiet all day,” says Horman. Horman’s team reserved the 6th floor of the Allen Institute for Brain Science building in Seattle for scientists to work on papers for publication. There are library environments that anyone can use.

The machines that automatically do work in the lab produce a tremendous amount of data. Scientists need to review and interpret the data.

“They don’t do that as a group. They do it as individuals. They need to get their head around the data. So much of the scientists’ work is on the computational side. There has been an explosion of data. Thinking work is critical.

There has been a migration of people out of the lab and into the office,” says Kate Wendt, recently retired Director of Interior Design and Associate Principal at TK&A Architects.

*“There is a trend for chemists to design 3-D molecules on the computer. This is intense work! These thinkers require quiet.”*

—BILL HOLT, TK&A ARCHITECTS

## Workplace Solutions and Strategies

To help biotech companies create a workspace that balances pressures like real estate costs, recruitment and producing innovative medicines, we suggest the following solutions and strategies.

### 1. Encourage knowledge sharing

When masters in biotech office space design talk about knowledge sharing, they don’t just want scientists talking to scientists. They want marketers and scientists engaging. The hope is that people from different departments can learn from each other and build a stronger community. “If you get into one of the large companies, they have incredibly diverse needs and huge divisions that don’t have anything to do with each other,” say Chris Chan of Chan Mock Architects, which serves many companies in Boston’s Kendall Square.

The key to creating interaction is attracting people to shared spaces. “Inside the office, you want break areas to be really wonderful. They need to be in a corner or on an edge, with plants, lots of coffee, maybe a patio with a desk, a variety of seating, plug-ins and wireless. You want people to relax with coffee, knowing they can charge and use their smartphone or laptop,” says Wendt.

Most designers see a trend where workspaces are getting smaller and communal spaces are getting larger and more diverse.

“It’s important to have places where people can meet and have casual conversations, especially drop-down tables with monitors. These interstitial spaces get different people

from different parts of an organization together,” says Annie Mock of Chan Mock. She sees company leaders deliberately pushing for social interaction, referring to it as “social engineering.”

### Planning Strategies

- ▶ Tall tables with barstool seating encourage brief meetings or working side-by-side
- ▶ Banquettes, upholstered benches along a wall, give people the feeling of sitting in a booth, yet it is a shared space
- ▶ Transparent, glass walls positioned around labs help connect the quiet, separate lab areas to adjacent workspace
- ▶ An in-office cafe or pantry with a mix of tables and chairs nearby allows for informal meetings

### 2. Provide choice in workspaces

Biotech employees come from a variety of work backgrounds, as diverse as tech startups and academia. These different experiences affect their expectations about workspaces. Biotech companies must offer a variety of workspaces for individuals or groups to keep everyone comfortable. From libraries to small and large meeting rooms and private offices, biotech executives struggle to balance efficient use of space and productivity.

“Putting everyone in the open so they will collaborate and innovate can work, but some people have a really, really hard time concentrating. So, what is coming back into the workplace is not the private office but private rooms for two, three to four people or spaces for one-on-one or video conference meetings. They are sound proof. Space is not getting bigger, it’s just being reallocated,” says Holt.

Architects point out that the device mobility we have now allows for a fluid, varied space design. Employees can easily move to where they would like to be moment to moment, whether it is near colleagues or, literally, walled-off.

### Planning Strategies

- ▶ Quiet rooms or areas, like a library, with rules against cell phone use or talking can give workers a retreat space

## Communal vs. Private Space: A Modular Approach



“Communal spaces are more prevalent now than ever before. Private spaces are still desired, especially in the biotech world. People with high level degrees want private space. It’s shrinking, though, to quick, heads down, task-oriented time, not all day long.

We’re taking a modular approach. For many small, R&D heavy companies, private office spaces are down to 8x10 feet then meetings rooms are 10x16. Or a 16x20 space can be four private rooms that convert easily into a conference room. The key to the small private office space is glass walls and furniture that suits the space, not trying to jam old furniture in. How do you make the furniture not the focus of the room?

Beyond private offices, we include residence spaces, 5x6 or 6x6 desk areas where each employee can start or end their day and keep their belongings. But, especially at R&D-heavy companies, workers spend the majority of their day in teaming areas, where they work together on a project for 3 to 6 months. The balance of wet lab, dry lab and office space in these teaming areas can change rapidly as projects evolve. Modularity and flexibility are essential.”

*Tiffany English, Principal, Ware Malcomb*

## Dynamic, Flexible Workspaces



A spine-based furniture system that can be rearranged in multiple ways provides a foundation that, as needs change, can mix and match parts without having to rebuy or rebuild.

- ▶ Large multipurpose or training rooms provide for flexibility and accommodate different activities—lectures, presentations or any number of meetings
- ▶ Within the open plan, areas defined by boundaries and dividers between desks can be used for teams whose work requires a lot of computation
- ▶ Open lounge settings with writable surfaces, power connections and comfortable furnishing offer spaces for creativity and socializing

### 3. Use space efficiently

The high cost of real estate in urban biotech hubs, particularly the cost of lab square footage, has companies seeking efficiencies. “The price of real estate in urban hubs is very high so you may have to have less space per person. Giving up space to be in a top location both for talent or to be with other organizations can pay off but adds overall pressure to use less space,” says Holt.

But, there are special challenges in the biotech workplace culture when it comes to space allocation. While employees in marketing or sales might have had experience working in close quarters, scientists coming from academia often want private offices

to do their work, both to concentrate and because private offices signal prestige. Creating a range of spaces is key so workers get some sense of choice and control over their workspace. “We’re working with humans who find their quiet corner,” says Wendt.

For example, architect Chris Chan points out that middle managers often spend their days moving between meetings so the shared, tall tables near meeting rooms are where they get most of their work done. Offering adjustable height desks or storage options are other ways to make workers feel more connected to the space without adding square footage.

“Give people some control over their space and their individuality. Workers sometimes feel the loss of control in open environments,” says Chan.

#### Planning Strategies

- ▶ Clean and uncluttered shared spaces make them more welcoming to employees looking for a meeting area or quiet space to work
- ▶ Different heights of furniture in common areas give workers options and create visual interest in the work environment

### 4. Design for maximum flexibility

The theme of flexibility influences nearly every choice biotech companies make about their workspace. Their quest to create a successful, new drug means they must experiment, change, shrink and grow, almost constantly.

“Definitely go modular, even labs can be moved over a weekend. More and more developers are building 50/50 lab to office but it can convert quickly to 25/75 over a weekend. It’s hard because there are a lot of utilities in the benches, but they try to build as much flexibility as possible,” says Egli.

*“Early stage companies need flexibility. They’ll pay a premium for flexibility. They cannot take on the terms of a 5-year lease. It ties them down as their needs evolve”*

— JOHN HUNDLEY, CBRE

Regarding lab space, Horman of Just Pharmaceuticals says that some equipment is so heavy that companies just need a big room with a lot of electrical outlets. It is a simple frame with an interior that can hold almost anything. For very small companies, though, more complex labs with designated bench spaces are required. Agreeing with Horman’s sentiment about keeping spaces multipurpose, Egli says, “They get started and then expect to modify in six months.”

Horman says that it is less and less about customization and more about components. Company leaders cannot afford to customize to any one process because that process may change or the need for it may change and it will be reformulated into something else.

#### Planning Strategies

- ▶ Companies with global operations can offer unassigned seating, or hoteling space, for travelling employees so that one desk serves multiple people
- ▶ A “kit-of-parts” approach to both primary and activity spaces allows for different departments to use the same basic components and suit their unique needs



## 5. Offer workplace amenities

Workers in the biotech space can expect excellent amenities, especially at larger companies or in less-costly suburban environments. "Attracting talent is one of the most important things for the spaces we're working in. It depends on the age of the talent they're trying to attract," says Catherine Hughes, Studio Manager for Interior Design at Ware Malcomb. She adds, though, that she sees more Gen Xers appreciating open office space and other trends brought in by Millennials so the generation gap is closing.

On the list of common amenities are fast wi-fi inside and outside the building, comfortable furniture, healthy food, coffee, fitness centers, gaming areas, technology support and excellent lab facilities. "Game rooms keep employees occupied in the office and ready to go back to work once they have their break," says Hughes.

Tech support is an amenity companies are increasingly focused on for both work and personal devices. They find it boosts efficiency and morale. IT departments, once located away from most departments, are now placed in high-traffic areas. IT teams offer cords, gadgets, device support, even answering questions about workers personal technology challenges, such as help using

a new camera purchased for family outings. "One company in Kendall Square offers classes such as, 'How to Take Great Pictures with Your iPad,'" says Mock.

"Aesthetic amenities matter, too. Choosing attractive colors and nicer furniture in higher traffic areas can offer a living room feel," says Mock. The goal for many companies, especially established ones, is to create a space workers feel excited to be in. They want to support the whole person, since greater mobility means many employees bring their work home and it mixes with their personal lives. "That needs to be a positive experience," says Chan.

### Planning Strategies

- ▶ Showers, bike storage and lockers support various transportation options
- ▶ Exterior windows and glass walls for centrally-located rooms provide for abundant natural light throughout the office environment
- ▶ Game rooms, outdoor common spaces, kegerators, fitness centers and walking paths offer areas to play and relax
- ▶ Coffee and other drink and snack options, plus a place to sit and enjoy a break, can draw people in

*"When it comes to amenities, we're seeing a little more of a Silicon Valley, tech style. It's a interesting mix of two different industry cultures."*

— TIFFANY ENGLISH, WARE MALCOMB

## Future Outlook

The ebb and flow of research for new medicines, influenced by regulatory changes, continued talent wars and further globalization of R&D, all make the future of biotech difficult to predict. It is, by its nature, always transforming as new technologies and ideas emerge. The only thing that is certain is change.

John Hundley of CBRE offers this summary of the future. "We're at the edge of an innovation - lab workplace 2.0. We're going to see the lines between office and lab blur a little bit because of collaboration and creating an energetic work environment. Technology is changing and the way people work is changing. There will be variability in lab work environments, different benching, things can move around a bit more and companies can add or decrease headcount as needed. It's a collaboration space but could be turned to office. Flexibility is key." ■

### Offer Personalization Over More Space



Multiple desk heights, monitor arms, storage choices and ergonomic chair options allow users to customize workspaces through features that do not require additional square footage.

## Glossary

**BIOSIMILARS** Medicines designed to replace biologic drugs but be easier and less expensive to produce, though there are still significant costs and regulatory hurdles before they can enter the market

**CLASS A LAB SPACE** Excellent, modern, new lab space that is set-up to support current technologies

**DRY LAB** Laboratory where computational or applied mathematical analyses are done on a computer-generated model to simulate a phenomenon in the physical realm

**GENERICS** Chemical-based medicines that function similarly to a branded drug but costs less to produce

**INNOVATION HUB** Location where universities, medical centers, research institutions, non-profit foundations, private companies, VC firms and other organizations supporting life sciences research are located

**THE PATENT CLIFF** The point at which patents run out on a drug and generic replicas enter the market

**PRECISION MEDICINE / PERSONALIZED MEDICINE** A medical model that proposes the customization of healthcare, with medical decisions, practices and/or products being tailored to the individual patient

**WET LAB** Laboratory where chemicals, drugs or other material or biological matter are handled in liquid solutions or volatile phases, requiring direct ventilation and specialized piped utilities (typically water and various gases)

## References & Additional Reading

Carlyle Conlan and George James, Ltd., "Life Science Trends 2015". [http://www.slideshare.net/don\\_alexander/lifesciencetrends](http://www.slideshare.net/don_alexander/lifesciencetrends)

Charter Global, "2015 Top Issues & Trends for the Life Sciences Industry". <http://www.charterglobal.com/2015-top-issues-trends-for-the-life-sciences-industry/>

Clarkston Consulting, "2015 Life Sciences Trends". [http://clarkstonconsulting.com/wp-content/uploads/2015/02/LS\\_Trends\\_2015.pdf](http://clarkstonconsulting.com/wp-content/uploads/2015/02/LS_Trends_2015.pdf)

CNBC, "Biotech's Real Estate Boom". <http://video.cnbc.com/gallery/?video=3000375630>

Deloitte, "2015 Life Sciences Industry Outlook: Interview with Homi Kapadia". <http://www2.deloitte.com/us/en/pages/life-sciences-and-health-care/articles/2015-life-sciences-outlook.html>

Deloitte Touche Tohmatsu "2015 Global Life Sciences Sector Outlook". <http://www.mddionline.com/article/what-are-top-issues-and-trends-life-sciences-2015-12-22-14>

Deloitte, "2015 Global Life Sciences Outlook: Adapting in an Era of Transformation". <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Life-Sciences-Health-Care/gx-lshc-2015-life-sciences-report.pdf>

Forbes, "7 Trends Driving Global Health And Life Sciences In 2015". <http://www.forbes.com/sites/nicolefisher/2014/11/21/7-trends-driving-global-health-and-life-science-in-2015/>

Jones Lang LaSalle (JLL), "Life Sciences Outlook, United States 2015". <http://www.us.jll.com/united-states/en-us/Documents/Life-Sciences/JLL-US-Life-Science-Outlook-2015.pdf>

Jones Lang LaSalle (JLL), "Life Sciences Cluster Report 2014". <http://marketing.am.jll.com/acton/attachment/3030/f-0099/1/-/-/-/2014-global-life-sciences-report-JLL.pdf>

Price Waterhouse Cooper (PWC) "17th CEO Survey (2014)". <http://www.pwc.com/gx/en/ceo-agenda/ceo-survey/2014/industry/pharmaceuticals-and-life-sciences.html>

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