Berkeley
Innovation & Entrepreneurship
Land-Use Roadmap

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This document summarizes a land-use roadmap for developing Berkeley's innovation and entrepreneurship (IE) ecosystem to its fullest potential. The roadmap starts with, (1) a set of land-use guidelines, then (2) outlines a geographical framework, and (3) ends with a specific land-use project recommendation (targeted for after the BioEnginuity project is underway).

This roadmap is a work-in-progress aggregation of input from numerous people. This roadmap is also informed by observations of other top-tier, town-gown IE ecosystems. The MIT IE ecosystem is the primary model, and the Stanford IE ecosystem is the secondary model – because UCB's campus has more similarities to MIT's urban campus (see Figures 1, 2 and 3) than to Stanford's suburban campus. However, this UCB IE land-use roadmap doesn't try to duplicate MIT's IE ecosystem because MIT has had advantages that UCB doesn't have – namely, large former industrial sites adjacent to the MIT campus that could be redeveloped. Accordingly, this roadmap recognizes Berkeley's unique opportunities and constraints.

This land-use roadmap deliberately doesn't explain the many benefits to UCB of maximizing the campus's IE ecosystem (or the benefits to the City of Berkeley). Those benefits to UCB's research enterprise and educational programs are described in the 2011 white paper: [Localizing the Commercialization of UC Berkeley Innovations: A Justification, Strategy & Plan to Take the Campus to the Third (and top) Tier of Innovation Ecosystems](#) .

I. IE Land-Use Guidelines

1) **Adjacency Versus Vicinity**:
In mapping-out the geography of Berkeley's IE ecosystem, it's optimal/ideal to locate UCB IE assets (e.g. the Energy Biosciences Building) and non-UCB IE assets within walking distance to each other (and also to public transportation). That tight proximity maximizes interactions[1]. The walking distance model is exemplified by the Cambridge IE ecosystem adjacent to the MIT campus (see Figure 4). In contrast, the Palo Alto (and greater Silicon Valley) IE ecosystem is driving (not walking) distance to the Stanford campus. To achieve the optimal walking-distance configuration, UCB should prioritize the allocation of scarce near-campus development sites (see Figure 5) to IE assets that would most benefit from walking-distance proximity to existing UCB IE assets (e.g. the Energy Biosciences Building and other IE assets in the northwest area of the campus).

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[1] Richard Florida, *The Rise of the Creative Class-Revisited*

2) **Mix of Catalyst/Players**:
In planning the development of Berkeley's IE ecosystem over time, the inspirations, funding and implementations should come from a combination of the following: UCB-derived resources, public-private partnerships, and private sector-only sources. Top tier IE ecosystems, such as those in Cambridge and Palo Alto, have not been driven solely by the local universities. Likewise, UCB alone, can't drive a top-tier local IE ecosystem. Nonetheless, UCB should play a leadership role to further catalyze IE development.

3) **Mix of Assets**:
The most productive IE ecosystems are diverse across a range of attributes, such as maturity of company (e.g. startup to Fortune 100 corporation), range of activity (e.g. research, engineering and manufacturing, etc.), and variety of talent (e.g. scientists, engineers, marketers, managers, investors, mentors, attorneys, etc.). Over the past several years, Berkeley has ramped-up the number of startups in its ecosystem. However, in comparison to other ecosystems (such as those in San Francisco, Silicon Valley, and Cambridge), Berkeley has a relatively weak number of companies that are mature and profitable. Accordingly, Berkeley's IE roadmap should try to address this weakness by, for example, adding more high quality commercial space (with large floor plates, etc.) that are conducive to large, profitable tech corporations.

4) **Faculty Champions**:
All UCB-driven IE projects should have UCB faculty champions early in the envisioning of those projects because that will help with the credibility and momentum of those projects. This is exemplified by Prof Amy Herr's lead on the BioEnginuity project, as well as Dean Shankar Sastry's and Professor David Teece's championing of the SkyDeck startup accelerator.

5) **Planned but Opportunistic**:
Establishing a land-use roadmap for growing Berkeley's IE ecosystem is important to achieving our IE ecosystem potential. However, many discrete IE projects are likely to be based on unforeseeable and serendipitous opportunities. Therefore, the roadmap should be flexible and agile.

II. IE Land-use Map Geographical Framework

1) **Center:** *Center a dense set of IE assets in the northwestern area of the UCB campus that borders the commercial downtown – in order to create a core critical mass for Berkeley's IE ecosystem*. The northwest corner (see Figure 5 and http://www.berkeley.edu/map) leverages the following existing IE assets: the Energy Biosciences Building (EBB), Li Ka Shing Center (LKSC) for Biomedical & Health Services, Barker Hall with molecular & cell biology programs, as well as the future replacement of Tolman Hall that will combine programs from the College of Engineering, College of Chemistry, and College of Natural Resources. The northwest corner is also just down Hearst Ave from the College of Engineering core buildings, and the main entrance to the Lawrence Berkeley National Lab. Accordingly, UC-owned land in the northwest corner of the campus should be saved

for IE opportunities (in contrast to other UCB land bordering the campus such as in the southside area that is ideal for student housing).

2) **Concentrate:** *Concentrate IE assets in a newly designated "IE zone" (see Figure 6) that's bounded by the EBB, Golden Bear Center, 2020 Milvia, SkyDeck building, Brower Center, and wrapped around to the BioEnginuity Hub in the old museum site (Woo Hon Fai Hall).* Ideally, the City of Berkeley will entitle 100,000 square feet of new commercial office space in this IE zone in order to stimulate private sector investment.

3) **Connect:** *Connect UCB and downtown IE assets to IE assets in west Berkeley and the Emeryville bio corridor (see Figure 7)*. Ideally, the City of Berkeley will entitle 100,000 square feet of new commercial office space in west Berkeley to stimulate private sector investment. Providing an employee shuttle services between the campus, BART and west Berkeley will also maximize this geographical connection. UCB should collaborate with community stakeholders and the City to explore new development and transportation initiatives. It should be noted that the University's 4th Street property might be a future candidate site for an IE initiative. The adjacent parking lot (not owned by UC) has potential for development and might complement an IE reuse of UC's 4th Street facility.

4) **Expand:** *Expand UCB's IE ecosystem to Oakland – especially in the vicinity of the downtown Oakland BART stations so that those IE assets have easy BART access to UCB*. In comparison to Berkeley, that downtown area of Oakland has more commercial office space suitable for large tech companies.

5) **Leverage:** *Leverage the IE assets of the greater Bay Area – especially, the UCSF Mission Bay IE ecosystem and Silicon Valley, as well as the office park clusters in Dublin, Pleasanton and San Ramon (e.g. Bishop Ranch)*.

III. IE Land-Use Specific Project

After the BioEnginuity Hub is underway, UCB should pursue an InfoEnginuity Hub with the following characteristics:

1) Activity: Complement the bio-focus of the EBB, LKSC and BioEngenuity facilities by focusing this InfoEnginuity Hub on research, development and commercialization related to information technology, data science, and machine learning. Perhaps this could be the home of the new Data Science division?

2) Location: Locate this InfoEnginuity facility on UCB-owned land in the northwest corner of the campus just east of the Energy Biosciences Building (EBB) and west of the Li Ka Shing Center (LKSC) – in order to build a critical mass of dense IE activity in this area.

3) Tenants: Co-locate in this facility outside corporate R&D activities. Perhaps this could also be the home of the Cyclotron Road program for hard tech research-stage startups.

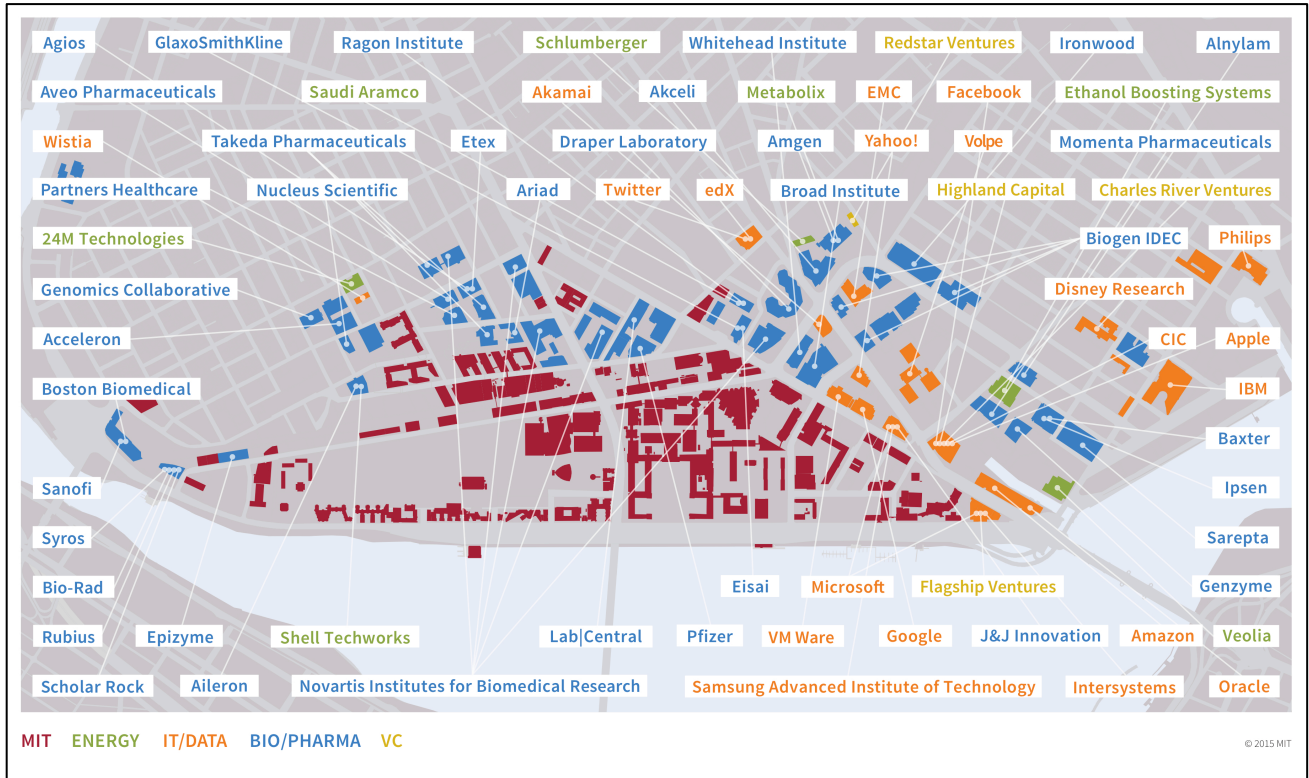Figure 1: MIT Innovation & Entrepreneurship Ecosystem Map

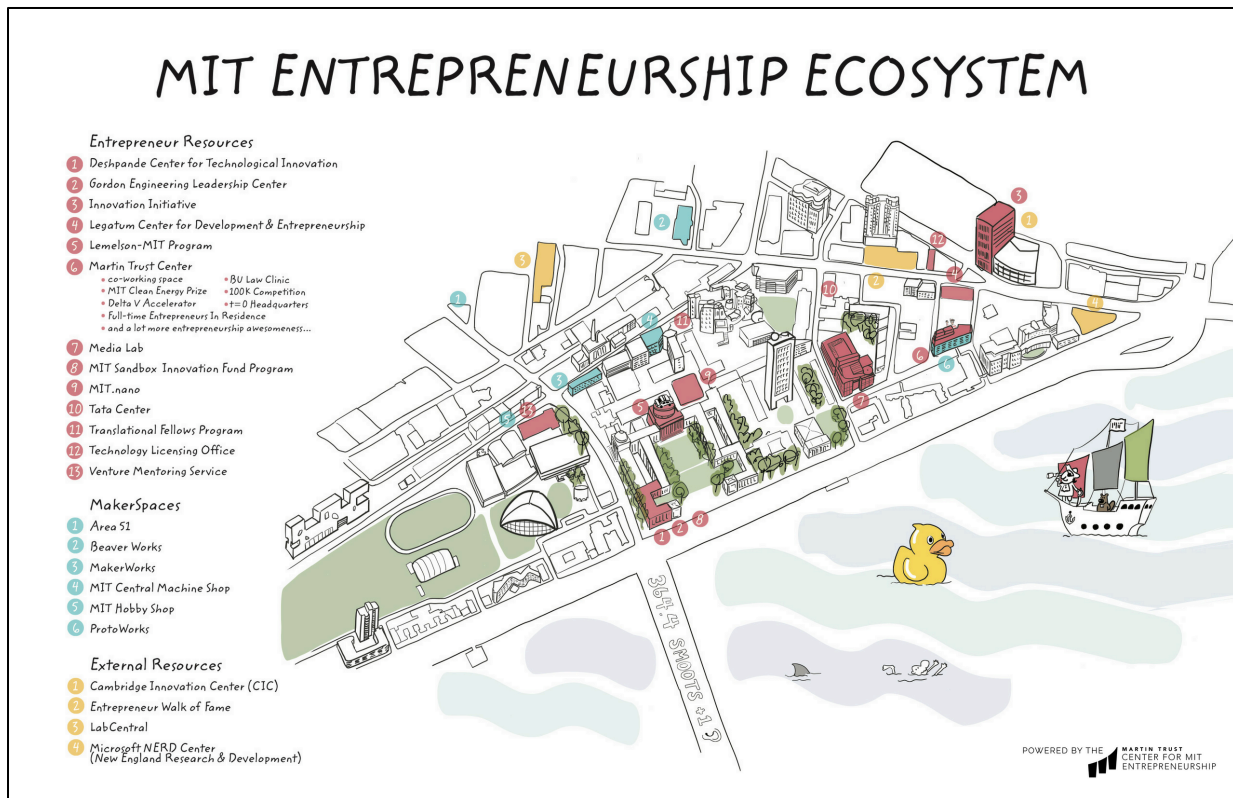Figure 2: MIT Entrepreneurship Ecosystem

Figure 3: Birdseye Photo of MIT Area

Figure 4: Walking Distance of MIT Ecosystem
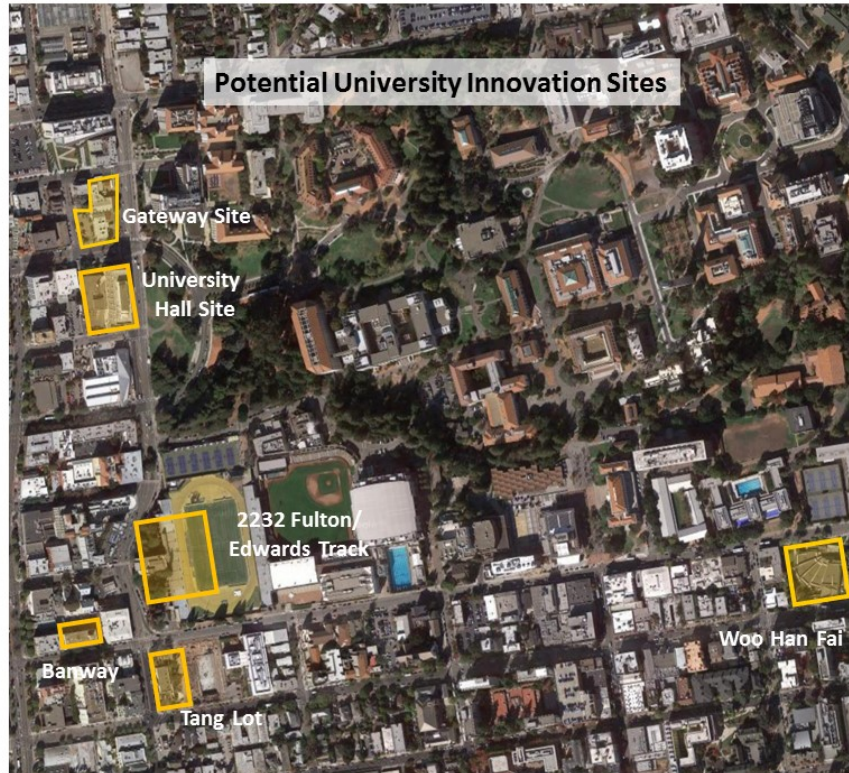
Figure 5: UC Berkeley-Owned Sites

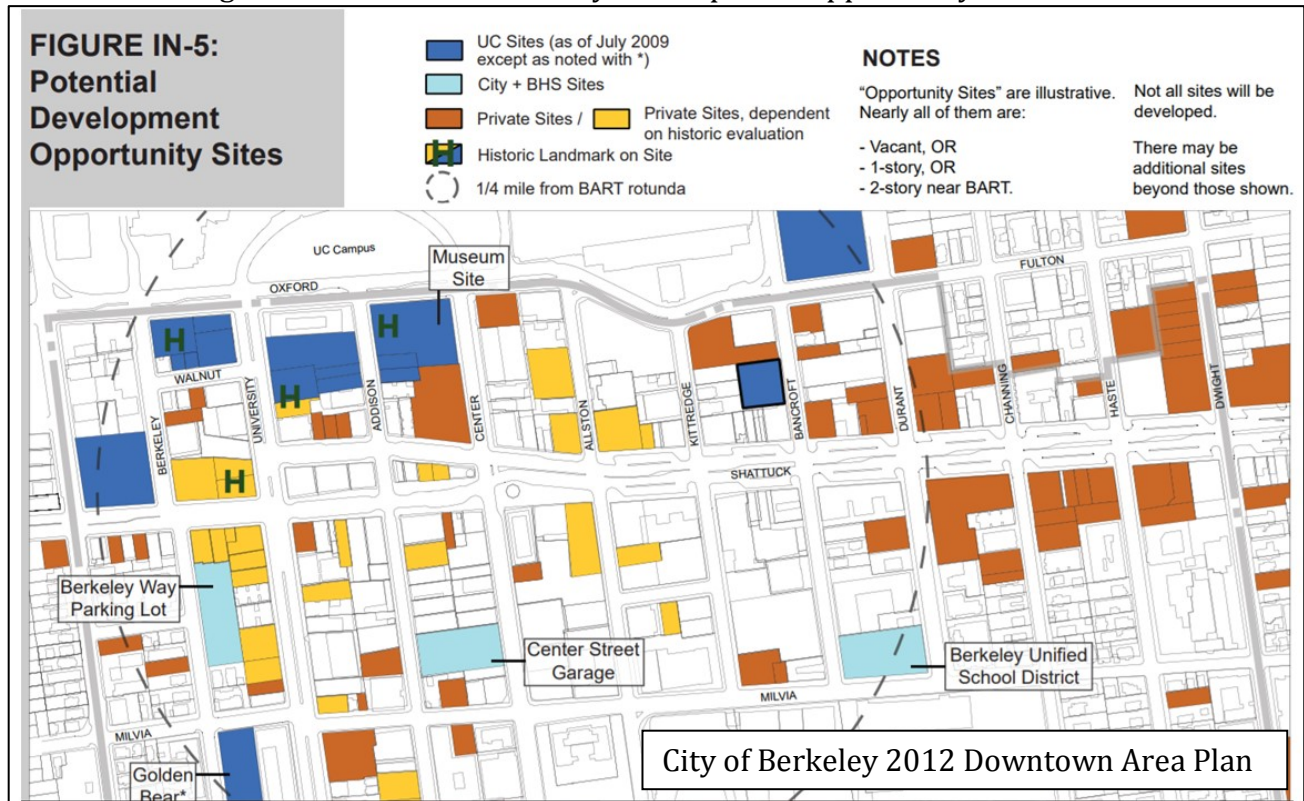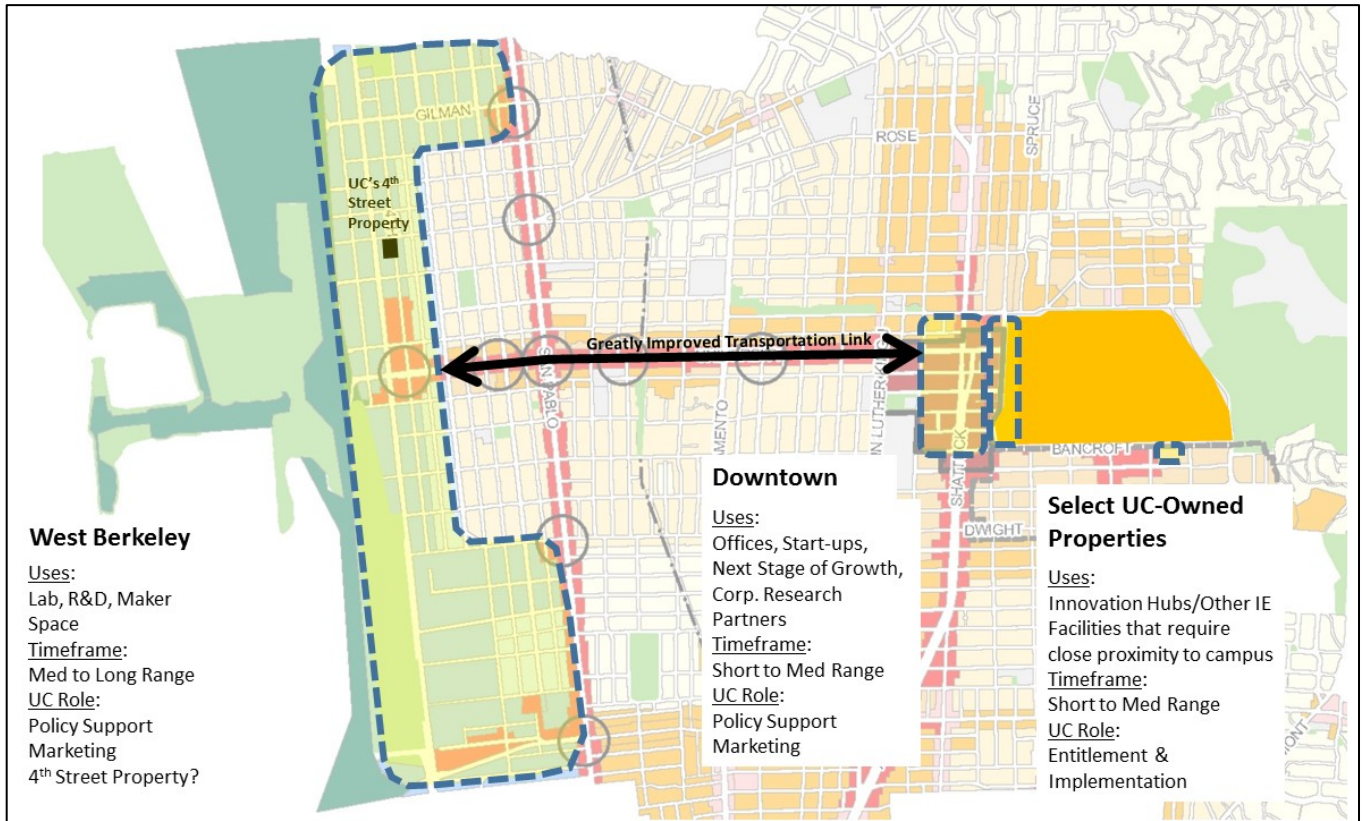Figure 6: Downtown Berkeley Development Opportunity Sites

Figure 7: Potential West Berkeley Innovation Zone

2018 Addendum

This October 2018 Addendum to the December 2017 IE Land-use Road Map starts with a summary of the issues facing the top three driving forces that shape the IE ecosystem in Berkeley (not in the overall Bay Area), and then proposes some ways forward. The three forces are:
1. The government – mostly the City of Berkeley municipal government;
2. The private sector – including venture capital firms, real estate developers, and IE-oriented companies;
3. The university and the national lab.

I. The Government

In the context of Berkeley's IE ecosystem, the city's municipal government can be segmented by: (a) elected officials – particularly the Mayor; and (b) government staff – particularly the City Manager (CM) and the Office of Economic Development (OED).

Starting with the East Bay Green Corridor[2] initiative in 2008, the City of Berkeley government has come a long way towards supporting the city's IE ecosystem. The current (and relatively new) Mayor and CM are supportive of growing Berkeley's IE ecosystem. This is exemplified by OED recently stepping-up to play a leadership role for the Berkeley Startup Cluster (BSC)[3].

However, growing Berkeley's IE ecosystem is not a top priority for the Mayor and CM. It's not even in the top 10 priorities – as demonstrated by the CM's 2018 Annual Report. **This is not a criticism of the Mayor and CM**. It's simply a observation that the city is more focused on housing, homelessness, safety, transportation, streets, parks, finances/budgets, and climate change / resilience, etc. Furthermore, the focus of the city's business-related activities is on the vitality of its retail districts and corresponding retail storefront vacancies (not on IE-oriented companies).

Accordingly, the city staff doesn't have the focus to lead government-related initiatives that would materially impact Berkeley's IE ecosystem, such as: (a) entitling a high-quality commercial office building in downtown Berkeley, (b) changing the West Berkeley zoning to be more supportive of R&D uses, or (c) establishing an IE zone in the city.

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[2] The East Bay Green Corridor was formed in 2008 and essentially folded in 2012. It was an initiative of the UC Berkeley Chancellor, LBNL Lab Director, as well as the mayors of Berkeley, Oakland, Emeryville and Richmond. Its goal was to make the East Bay a center for green and cleantech innovations, companies and jobs.

[3] The Berkeley Startup Cluster was formed in 2009 as a collaboration of the Berkeley city government, UC Berkeley, Berkeley National Lab, the Downtown Business Association, and the Chamber of Commerce. Its goal is to make Berkeley a more vibrant, accessible and equitable place for startups to launch and grow.

II. Private Sector

As with the city government, over the past several years, the private sector has come a long way in contributing to the growth of Berkeley's IE ecosystem. This is exemplified by, (a) the 7-story WeWorks building along with several other co-working spaces in the downtown, (b) the vibrancy of the commercial office parks in the Emeryville-West Berkeley corridor; and (c) the emergence of several early stage venture capital firms with a Berkeley focus such as, the SkyDeck Fund, the Berkeley Catalyst Fund, Blue Bear Ventures, and The House Fund.

Likewise, the Downtown Business Association leadership and OED have identified existing buildings with office space that could be renovated – such that it's appealing to IE-oriented companies. Examples include, 2105 Bancroft (the Masonic Building) and 2151 Shattuck (across from the SkyDeck building and the hotel under construction).

However, the private sector is not likely to invest in a new high quality commercial office building in the downtown (or west Berkeley) because investing in residential buildings has a relatively no-brainer, lower risk ROI (assuming Proposition 10 fails in November 2018). Again, this is not a criticism of the real estate developers; it's just sound business judgment.

III. The University & National Lab

As with the city government and the private sector, UCB and LBNL have come a long way towards supporting the growth of the IE ecosystem in Berkeley. This was first exemplified by the 2008 launch of the East Bay Green Corridor, but gained traction with the 2012 launch of SkyDeck, the 2014 launch of Cyclotron Road, and the 2017 piloting of the SSUFIE program[4].

In contrast to UCB's apathy to growing the IE ecosystem in Berkeley during the previous decades, we can be appreciative of UCB's explicit support of the nearby IE ecosystem. This was recently exemplified by the relatively new Vice Chancellor for Research (VCR). In his October 9 article about the 2018 Nobel Prize winners, the VCR wrote, "we as a university need to foster a vibrant environment for innovation and entrepreneurship **on and near** our campus (emphasis added).

Likewise, UCB is showing a pattern of integrating into its new STEM-oriented buildings space for leasing to commercial tech-oriented companies. This is demonstrated by the 2018 opening of Berkeley Way West (which includes space leased to the headquarters of A3Ventures – the parent company of Gig Care Share), and the planned BioEngenuity hub in the former Berkeley Art Museum building.

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[4] The SSUFIE program (an acronym for, Shared Special User Facility for Innovation and Entrepreneurship) enables Berkeley-affiliated startups to temporarily conduct new product R&D in faculty labs – under certain conditions: ipira.berkeley.edu/ssufie .

However, in the near-term, UCB is grappling with budget deficits and limited debt financing capacity. Consequently, without third party funding (e.g. donors, partnerships, etc), the university's capacities to drive building-scale IE ecosystem growth (such as space leased for commercial R&D in the building(s) that eventually replace Tolman Hall) are hamstrung – at least in the near term.

IV. The Way Forward

Based on the above summary, the only near-term opportunities for large-scale IE ecosystem growth opportunities in Berkeley are from, (a) UCB opening the BioEnginuity building targeted for completion 3+ years from today, and (b) eventually UCB working towards funding other STEM-related buildings which include space leased for commercial R&D (e.g. the replacement for Tolman Hall).

Therefore, perhaps we should focus on maximizing the number of moderate and small-scale IE ecosystem growth opportunities.

A recent example of a small-to-moderate expansion is Semantic Machines (SM). SM is an IT-based company co-founded by UCB and Stanford researchers. In May 2018, Microsoft acquired SM. Now, it has about 20-30 employees working in about 8,000 square feet on the 5th floor of the SkyDeck building.

2019 Addendum

The 2019 Addendum will summarize the discussion of the IE real estate situation during the December 2018 Advisory Group meeting of the Berkeley Startup Cluster – particularly the reality of getting an office complex built in downtown Berkeley. In summary, it will be hard to catalyze (e.g. entitle), take a long time to design, and even longer to build – such that it would not come to fruition for a decade or more.