

## The University Research Committee Report on USC Stevens

April 19, 2022

One of the 2021-2022 missions of the University Research Committee is to bring forward recommendations on how to improve the state of innovation at USC. We are aware of the efforts of the University Innovation Council (UIC). While the URC support the mission and efforts of the UIC and would like to echo the value of their recommendations, we also want to make separate recommendations addressing local deficiencies in many key attributes essential for success in innovation and emphasize the essentiality of a leadership structure that will ensure positive and needed change.

As defined in the summary report of the 2015 UNESCO Institute for Statistics Innovation data collection<sup>1</sup>, “an innovation is the implementation of a new or significantly improved product (goods or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. A common feature of an innovation is that it must have been implemented (Oslo Manual §146). A new or improved product is implemented when it is introduced into the market. New processes, marketing methods or organizational methods are implemented when they are brought into actual use in the firm’s operations (Oslo Manual §150). An innovation does not need to be commercially successful: a new product may not sell as much as expected and can turn out to be a commercial failure”

It is important to emphasize that innovation is not simply driven by or an engine of inspiration. It is hard work and needs to function and be managed like any other corporate function to be successful. Marc de Jong et al stipulate that strategic and organizational factors are what separate successful big company innovators from the rest<sup>2</sup>. In short, being good at execution does not equate to successful innovation. The question we need to ask ourselves is how well do we really innovate at USC?

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<sup>1</sup><http://uis.unesco.org/sites/default/files/documents/ip37-summary-report-of-the-2015-uis-innovation-data-collection-2017-en.pdf>

<sup>2</sup><https://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/the-eight-essentials-of-innovation>

To shed light on this question, we refer to the Best Colleges US News and World Report of 2021, which ranked USC #46 in Most Innovative Schools, behind neighbors like UCI (#40), UCLA (#29), UC-Riverside (#26), UC Berkeley (#14), Caltech (#11), and Stanford (#7) with Arizona State University ranking #1. This is telling and symptomatic of a litany of problems, inefficiencies, and years of stagnant dissatisfaction with the corporate functioning of USC's innovation structure and practices. While we recognize the importance of methodology for deriving these rankings, they are nevertheless an important benchmark and do impact our reputation and the optics of our operations. As we celebrate high rankings by the same methods, we need to pay attention to lower rankings. Also, as further support, we attach a series of reports dating back to 2008 by faculty, the Academic Senate, the Effective Tech Transfer Committee, and URC outlining the need to improve the operations at Stevens for varied reasons. It is a matter of obligation that we investigate these practices for the sake of progress, due diligence and for minimizing future losses, frustration, and missed opportunities due to sub-optimal functioning.

What can we learn from others in order to foster an environment primed for success in innovation? To better understand how to proceed from here, we can draw on the lessons of a multi-year McKinsey survey consisting of 2500 global executives (Nov 2012) in 300 companies, including performers and laggards across a broad set of industries and countries. The study, which tested for 27 innovation practices, found that there were 8 essential attributes present to some degree in every high innovation performer. These were described by Marc de Jong et al to constitute two kinds of attributes. First are those attributes, that are "strategic and creative in nature, and help set and prioritize the terms and conditions under which innovation is more likely to thrive." Second, are attributes that "deal with how to deliver and organize for innovation repeatedly over time and with enough value to contribute meaningfully to overall performance." Below, we address 5/8 attributes based on what we assessed were the greatest needs at USC Stevens (Creative attributes: Aspire, Choose, Evolve. Deliver and organizational attributes: Scale and Mobilize). We state the goal of each of these attributes, the deficit in the attribute and recommendations the committee offers for improvement.

### **Aspire:**

**Goal:** To establish quantitative innovation aspiration and provide estimates of performance targets and timelines.

**Deficit:** There is Stevens fatigue at USC across schools but especially among STEM disciplines. Morale is down around innovation and faculty have frankly had a plethora of “bad” experiences and interactions that does nothing more than stunt innovation (see attached reports especially “current problems with Stevens and Effective Tech Transfer Report). There are too many barriers to faculty-led start-ups and licensing opportunities due to insufficient support, communication and lack of transparency. Faculty experiences are varied depending on the assigned licensing associate and in terms of process which indicates a lack of standard operating and possibly training for associates.

**Recommendation:** Innovation needs to be encouraged and we need a clear aspirational vision and strategic plan linked to financial and humanitarian targets and how to reach them that is communicated to faculty across schools and disciplines. Faculty-led start-ups need to be supported financially and operationally. Licensing associates should be cordial and encouraging and not put-up unnecessary obstacles. Transparent standard operating procedures are needed and should govern the disclosure process, patent filing, what information should be returned and communicated to faculty all the way through potential licensure.

### **Choose:**

**Goal:** To have a transparent governance process that constantly assesses the expected value, timing and risk of patents and whether to proceed with the patent process or not.

**Deficit:** There is little to no transparency in the governance process that assesses the go/no-go decision-making process for patents at USC and as to whether Stevens will pursue the innovation and take it through the patent process or not. There have been conflicts related to Stevens not willing to reassign the rights to the inventor should USC be unwilling to proceed.

**Recommendation:** Innovation is risky and managing risk is essential to making good investment decisions. We need a transparent governance process to constantly assess the process of defining, identifying, and pursuing innovation while determining the expected value, timing and risk of the initiatives. USC needs to be willing in a timely fashion and mutually agreed upon time to reassign the patent to the inventor should USC not proceed with the patent. The URC advocates for

implementing a dashboard system to track all faculty innovations and form a Stevens faculty advisory board to aid governance and transparency.

### **Evolve:**

**Goal:** Establish an evolving framework that will allow the USC innovation ecosystem to meet new challenges in a changing technological and policy landscape.

**Deficit:** A current lack of transparency with respect to policy and systems designed to evolve policy.

**Recommendation:** To orient all stakeholders to the status quo, current innovation and technology transfer policies should be clearly articulated and posted publicly. Workflows should be put in place to assure that all policy information is kept up-to-date. Consider the policies posted at [stevens.usc.edu/researchers/policies-and-guidance/](https://stevens.usc.edu/researchers/policies-and-guidance/), some of which have not been updated in decades and are inconsistent with current practice. Policies should also be communicated through regularly offered training and workshops incorporating both researchers and research administrative staff. Changes to policy should be made in consultation with a cross-section of stakeholders in the university research community and communicated clearly to the research community (including both researchers and administrative personnel).

### **Scale:**

**Goal:** Enable the innovation infrastructure at USC to address not only the wide spectrum of academic disciplines engaged in research, but to also flexibly scale to deal with emerging disciplines and interdisciplinary efforts.

**Deficit:** There is insufficient communication consistency and clarity between USC researchers and the licensing experts who shepherd the technology transfer process and search for potential licensees, especially for faculty-led startups.

**Recommendation:** Establish a working partnership with the inventor(s) regarding which educational backgrounds and sets of staff expertise are needed as the technology transfer function evolves. A partnership between licensing experts and research teams should include frequent meetings, transparency of processes, agreed upon timelines and costs involved if the inventor is a potential licensee. Incorporate researchers more directly in conversations between licensing experts and finding and securing potential licensees. Provide greater support for faculty-led start-

ups including financial (support and leway), mentoring and reasonable licensing terms according to best standards and benchmarks from other universities.

**Mobilize:**

**Goal:** Equip USC Stevens with the tools needed to take advantage of the deep innovation expertise at USC and motivate the research community towards tangible achievements in innovation.

**Deficit:** There is a current lack of communication and transparency between the leadership team at Stevens, the university stakeholders defining and performing research, and the administration.

**Recommendation:** Clarify the role of the Vice President of Research as the accountable leader of the technology transfer apparatus. Enable the VPR (or others) to make meaningful changes in the structure and personnel of this apparatus if necessary. Perform regular outreach to gauge attitudes of the research community (in the form of surveys, interviews, town halls, etc.). Produce regular reports including an annual report on the state of innovation and technology transfer at USC, including quantitative performance metrics.

**Summary and overarching recommendation**

In summary, lack of transparency and leadership oversight culminate as the main areas of need at Stevens. Addressing the deficits encompassed by these attributes is likely to require additional resources, new leadership structures, and a restructuring of the communication and reporting framework of the current system. Key to the recommendations made above is the need to establish a baseline for the culture of innovation at USC and the state of our technology transfer performance. We recommend that a panel of external experts be commissioned to evaluate these attributes. This panel should include representatives that mirror the innovation stakeholder community at USC, including faculty at all levels and technology transfer professionals. By improving on these key attributes, USC will not only rise in the ranks of most innovative schools across the multitude of disciplines embodied by our university but will foster an environment that will enable forward-thinking innovators and entrepreneurs to thrive across our great school.

We thank you for your time in taking the recommendations in this memo seriously and are available to answer any questions you may have. This report is presented by the following members of the 2021-2022 University Research Committee:



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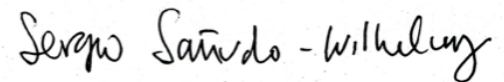
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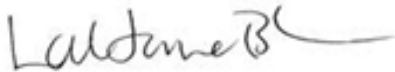
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# APPENDIX

## SUPPORTIVE DOCUMENTATION

### Order of Previous Letters and Reports regarding Stevens

1. University Research Committee Subcommittee on Innovation Report, May 2008
2. Report of the Effective Tech Transfer Committee of the EFC, March 2015
3. Letter from Martin Gundersen
4. Letter from unknown Faculty (details unknown – sent in file form)
5. Academic Senate Meeting, March 22, 2017
6. Charge to the USC Academic Senate Task Force on Innovation



**University Research Committee  
Subcommittee on Innovation  
Report May, 2008**

***Subcommittee Membership***

Manuel Castells (Co-Chair)  
Joe Sullivan (Co-Chair)  
Steven Goodman  
Tom Holman  
Ellis Meng  
Don Miller

The specific goals of this subcommittee were to create a process for future scholarship and Innovation including relation with commercial ventures. Subcommittee deliberated one specific proposal and made a collective presentation to the Research Committee. The subcommittee emphasized the need to understand innovation in the framework of the University in a broader sense than commercialization of research. In our view, social innovation, particularly in areas of public service and education, is as important a derivative from academic research as innovation that leads to patents and springs businesses. Both aspects must be considered in connecting the research potential of our University to the creation of wealth and meaning in the economy and society.

In the course of our discussions we realized that much of what we have planned was in fact already being put into practice by the USC Stevens Institute, so we abstained from interfering with the plans that were already under way at the initiative of the Institute, although we offered our collaboration and advice to the staff of the Institute.

We elaborated a scheme of innovation processes that was submitted and discussed in the meeting of the Research Committee.

Our main contribution was the elaboration, at the initiative of Professor Steve Goodman, of a proposal for generating Grass Roots Innovation Projects at USC. The proposal follows.

**Mobilization of Innovation: Proposal for Grass Roots Innovation Projects (GRIP)**

Several University and individual school sponsored programs are currently available to facilitate interdisciplinary interactions and subsequent research units. Some of these are oriented 'top down' where initiatives originate from Provost's office. Others are more 'bottom up' where mechanisms are in place for investigators to self-organize. Most notably, the Zumberge Interdisciplinary Grant requires multiple principal investigators (PIs) from multiple schools at the University as the basic criteria to ensure the melding of disciplines and resulting innovation. This approach has been modestly successful but is limited since it requires the PIs to know in advance of the extent of expertise at the University, the current portfolio of research projects both proposed and in progress and or for the PIs to find each other by happy accident. It also mandates a mechanism to acquire independent external funding which requires topics that are fundable and sufficiently hypothesis driven. However, it fails to readily support innovation beyond research into teaching, the heart of the University's mission. How then does USC tackle questions and themes where there is no clear approach?

To this end, we offer the following proposal to mobilize all manner of innovation through the creation of GRIPs. Briefly, we recommend a two tier system to bring together any and all faculty under the auspices of a single timely theme. In the first step organizers would submit a theme with a brief explanation as to why this topic is timely. If chosen the University would fund a retreat where the organizers would present the state -of -the -art and the relevant questions still pending in a symposium format. A workshop would follow with open discussion between participants. In the second step the participants would apply to become a GRIP replete with an action plan. A University committee appointed by the University Research Committee would adjudicate applications and once approved would attach a University liaison. The designated GRIP would then hone the action plan including a means to acquire external funding to become fiscally autonomous.

Outline with recommendations:

### **Step 1**

1. Faculty with a common interest or question, propose a theme in a brief proposal. The theme can be highly specific (e.g. how to make a better toothpaste) or highly general (e.g. how to stop global warming). Inclusive in the proposal is a list of guaranteed participants; faculty who are committed to presenting at the symposium.
2. A committee from the Provost's office selects the best proposals and awards the organizers up to \$5K for a one day retreat (symposium/workshop) held at the Davidson Conference Center or other venue appropriate to the task.
3. The first phase of the retreat is an all morning symposium outlining the issues and questions at hand. The second phase is an afternoon workshop where participants interact (e.g. in breakout groups) to suggest possible hypotheses and or approaches. Findings are presented to all of the participants at the end of the retreat.

### **Step 2**

1. After the retreat, any combination of faculty can submit a proposal for a GRIP. Inclusive will be a list of participating faculty (not necessarily the organizers of the retreat), a budget and specific action plan. All GRIPs will have a discrete endpoint designating the completion of the project (see Appendix).
2. A committee from the Provost's office selects the best proposal, attaches a liaison and provides sufficient funding to accomplish goals e.g. independent funding, reduction of an invention to practice, creating a new method for teaching etc.

### **Summary**

The merits of the above proposal are that it immediately facilitates familiarity with faculty and expertise. Hence even if the second step is not achieved it still provides a means for faculty in diverse and possibly unknown disciplines to interact. This first step is highly cost effective and produces immediate results. Furthermore this gives the faculty a chance to ask 'larger' questions that seem presently unanswerable given current resources and funding opportunities. A variation of this approach is also easily implemented where the initial topics are generated from the Provost's office.

### **Appendix:**

From the Steven's Institute ([http://stevens.usc.edu/innovation\\_at\\_usc.php](http://stevens.usc.edu/innovation_at_usc.php))

Innovation (n) - the process of translating new ideas into tangible societal impact

Counter to conventional belief, USC understands that innovation can be technological or scientific; social, or artistic; can take the form of start-ups or licenses, new products or services, or even non-profits and new organizational models. In fact, some of the many innovations that found their start at USC include:

- \* An antiviral drug to inhibit HIV and influenza A.
- \* A new method for palm oil production and distribution to reduce poverty in Nigeria.
- \* Novel software to automate the translation of human languages.
- \* Prosthesis to restore sight to those suffering from blindness.
- \* The revolutionary approach to social networking that has become the sixth most popular website in the world
- \* The cotton t-shirt

Examples of Other Types of Innovations:

- \*New teaching method
- \*A community project
- \*A preservation project

# **Report of the Effective Tech Transfer Committee of the EFC**

## **March 2015**

Members: Peter Beerel, Andrea Belz, Martin Gundersen (Chair), Hossein Hashemi, Berok Khoshnevis, Mahta Moghaddam. Ex Officio: Maja Mataric, John O'Brien

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### **Charge of the Committee**

The Effective Technology Transfer (ETT) Committee was formed by the EFC in Spring 2014 and tasked with identifying problems and recommending solutions to challenges broadly reported by Engineering and other faculty at USC and in the Viterbi School.

## **Key Findings**

- Major stakeholders, including potential investors and partner institutions, have determined that the opportunity cost of working with the Stevens Center is too high and therefore are turning their attention to other institutions.
- The Stevens Center opportunity cost manifests itself in many ways, including: 1) longer response timelines; 2) an adversarial tone with faculty and stakeholders alike; 3) a lack of flexibility in negotiating license terms.
- The Stevens Center places too many obstacles in front of faculty and student entrepreneurs instead of supporting them towards successful commercialization of USC-developed innovative technologies.
- The Stevens Center strategy does not recognize the typical 5-10 year payback time in university technology commercialization, and thus today's lack of investment negatively impacts USC's technology commercialization rankings in the year 2020 and beyond. Prospective research faculty and students are keenly aware of USC's shortsighted strategy.

## **Key Recommendations**

- The Stevens Center mission, strategy, and plan need to be clearly and transparently articulated to the university community and aligned with other USC recruiting initiatives.
- An Oversight Committee chaired by a senior faculty member should be given administrative authority over the Stevens Center, to ensure alignment with faculty needs. The committee should include faculty members with experience in commercialization, or partnering with peer institutions in commercialization efforts.
- A cross-disciplinary task force should be created by the Academic Senate to review issues related to the Stevens Center and make recommendations to the Provost and to the Vice-Provost for Research.
- The faculty and Stevens should study and learn from the best practices from top institutions such as Stanford and Caltech with continued successful technology transfer experience, and utilize advice and expertise that is available from these institutions.
- The Stevens Center should provide frequent quantitative measures of its activities and interactions to the faculty.
- The license term agreements should be revised to be consistent with current best practices at other major institutions.

## Detailed Recommendations

**Recommendation 1: Change the Culture to Faculty Driven, Stevens enabled.** Include for oversight a Board of Faculty who drive the culture, and provide input for the mission, culture and evaluation of Stevens.

**Recommendation 2: Improve culture, attitude, and process.** Treat investors, students and faculty who wish to start businesses as potential future donors, which they are, by being efficient and solicitous. Send them out with encouragement and a smile, give them a faculty ‘godparent’ preferably at a senior admin level to nourish their efforts, get bureaucracy out of the way, help them. Make available to faculty direct and immediate contact with a senior licensing director who is tasked with getting entrepreneurial initiatives ‘out the door’. Faculty comments include:

Faculty and companies involved in negotiations with USC feel strung out and taken advantage of. Negotiations take a very long time, cost everyone a great deal of money and patience, and alienate the involved parties. Faculty and new ventures are stifled and turned off.

Stevens should be transparent!

Stevens should be on the side of faculty, staff, and student entrepreneurs when it comes to start-up activities.

**Recommendation 3: Share the risk and reward with the founders.** The Stevens Center approach in start-up negotiations should be to align its interests with those of the founders. Start-ups are cash sensitive even when they generate revenue, and investors will seek alternative opportunities without the cash flow handicap imposed by the Stevens Center. It is short-sighted to demand large royalties from start-ups when they should be reinvesting the money into growth and continued R&D. Faculty comments include:

Society, Los Angeles, Southern California and the nation, as well as USC will benefit much more from the success stories and successful entrepreneurs (who will be philanthropic) coming out of its start-ups than the royalty returns, equity stakes, etc.

The Stevens Center should use domain experts when negotiating agreements with USC start-ups in a due diligence process that is similar to institutional investors. The due diligence process can use USC faculty as well as the Stevens personnel.

**Recommendation 4:** Follow up with Jen Dyer's memo directing improved response times and **commit to a 30-60 day response time** to either pursue a patent or return the IP to the inventor/faculty member, including returning rights to the inventor. Comments include:

The process of deciding whether a patent will be pursued takes too long. Faculty lose opportunities and Stevens Center holds on to files to day 364 of 365, when it is too late for faculty to do anything on their own.

USC Stevens should leverage the many programs across campus to analyze the potential market of the technology (e.g., NSF I-Corps Node regional programs) and use this information to guide patenting decisions.

**Recommendation 5: Create a small set of simple license agreement templates and use those.** Comments include:

Mike Rondelli has started this and following through is a good step.

Remove the lawyers from the process. Don't hire licensing associates who don't know how to write the agreements.

The current licensing agreements are overly complex, expensive, and open-ended, with too many binding terms and no options to cap costs/legal fees for the company. They stifle startup activities, and turn off faculty and potential investors.

Advisors for preparing these can be provided from several sources, including Niels Reimers and the current leadership at Caltech. Mr. Rondelli is encouraged to be given access to the best expertise possible in preparing these agreements.

## Summary of the EFC review of the report

This report was reviewed and approved at the March 4 meeting of the EFC. Two votes were taken. The first was to accept the report, and the second was to recommend as an outcome of the report that the Academic Senate be asked to form a cross-university task force to review these issues university wide. All members present voting, both measures were unanimously approved, 20-0-0, all members present voting.

The comments below reflect the discussion and comments of faculty participating in the EFC meeting. Generally the EFC, and especially those members with direct experience with entrepreneurship, were strongly supportive of the report.

- 1) There was strong agreement that the negotiations for licensing are burdensome and actually harmful to start up activities by USC faculty, staff and former students.
- 2) The Stevens center has recently been under significant financial pressure to the point where there is little to no discretionary patent budget. This is forcing licensing agents to require licensees to be lined up before agreeing to move forward with the associated full patent applications. This is too short-sighted and is making it harder for faculty and students to successfully transition their technology to the market.
- 3) Concern for ill will. Concern was raised that the burdensome contractual arrangements left entrepreneurs with ‘bad feelings’, and in addition to the problems created for a start up, such as fees that require cash-strapped start-ups to cut staff positions, that if a success story emerges, there will not be the good will that is important to the support of USC. An example was cited. HP was cited as an opposite example where good will translated into major support of academic goals.
- 4) The contributions of faculty who create start ups, that is, their often millions of dollars of research funding that they have obtained through their individual efforts, overhead and salary contributions, enhancement of the reputation of USC, and graduation of students, are not considered in the negotiations with Stevens, where everything should be the same for anyone wishing to license IP.
- 5) Transparency. One comment raised the issue of transparency of the royalty agreement at USC, where expenses for Stevens are taken off the top, and what those expenses actually are is not clear. A better approach is the example of Stanford, where a set percentage is taken, so that the accounting is therefore transparent.
- 6) The stated view of Stevens that Stanford shouldn’t be selected for study because of the 2500 other institutions that should also be of concern was found objectionable. In representing the Viterbi School, ranked 10<sup>th</sup>, it was felt that we should be most concerned with the 9 ranked above us, and that among those, the reasons for considering Stanford for study are obvious. Some Stanford data is provided at the end of this report. It was pointed out that the entrepreneurial culture at Stanford started 3 or 4 decades before the licensing office was created. The comment that “USC needs a Terman” was made, in relation to the discussion of the role of faculty oversight. It was also pointed out that it is wise to learn from the experience of others.
- 7) Andrea Belz was recommended as a potential leader or at least participant in a University wide task force.
- 8) There was strong objection to the currently stated intent of Stevens to hire licensing associates who are not repeat not PhD engineering or science.



## **Appendix 1: Select comments from faculty and Stevens Center staff**

The committee collected comments and suggestions from faculty. Recent meetings have taken place with the senior leadership of Stevens, various committees, and many faculty members. Those faculty members with valuable experience throughout the entire technology transfer cycle, including patenting, licensing and startups, have been almost invariably negative in their assessments of interactions with Stevens. The considerable unhappiness with Stevens on the part of VSOE faculty falls under two major categories: 1) patenting, and; 2) treatment of entrepreneurial faculty and students. Comments have often reflected on the relative ease at other peer institutions. The content of these comments forms the basis for the recommendations.

USC Stevens Center should learn from successful examples in other top universities where USC aspires to such as Stanford, Caltech, and MIT.

USC Stevens must be more nimble in response to technology disclosures and licensing opportunities.

The start-up company deals with USC are overly complex and do not favor the USC faculty, staff, and student entrepreneurs.

Quantitative data regard to the disclosures, licensing, etc. should be provided to the faculty on a regular basis.

The USC Stevens Center Administration provided the following information:

Stevens Director Jennifer Dyer sent an email to all USC faculty on 10/31/2014 providing an update, with highlights including:

Stevens Center is investigating implementing early reviews disclosures (memo of Jennifer Dyer to all faculty).

Stevens Center will communicate all ongoing patent decisions at least days in advance of any deadline.

Number of disclosures, licenses, and start-ups have increased year-by-year since 2012 (she took office 2 years ago).

In her opinion, communication should be improved from USC Stevens staff to the faculty.

She has been asked to stay on budget while the previous Stevens Administration ran out of budget by large margins (many filed patents and not producing enough licensing revenue).

Michael Rondelli: Joined USC on 12/1/2014 from San Diego State University where he was the Director of Technology Transfer and Research Advancement at the SDSU Research Foundation for the past 11 years.

## Appendix 2: Comments on the Stanford example

The Stevens Center administration has indicated reluctance to consider Stanford as a prime example for licensing and tech transfer successful practices, commenting that there are approximately 2500 institutions in the US that could as well be considered. In the view of the Committee, this is indicative of where and why the problems with licensing and entrepreneurship persist at USC. The Committee's opinion is in direct opposition to this view.

ETT believes that the most important licensing and entrepreneurship policies to understand are those practiced by the institutions ranked ahead of USC, and, among those, successful private schools in California urban environments (state institutions being under different mandates and regulations) point to Stanford as a place to start. Stanford's successes dramatically reinforce this. Further, the availability of Niels Reimers for consultation makes this even more obvious. Leadership in entrepreneurship at USC, a faculty issue, and leadership in licensing, should be required to understand the example of Stanford!

Among the lessons from Stanford is the role of senior faculty leadership. The enterprising entrepreneurial attitude there started well in advance of licensing.

- First start up  $\approx$ 1910 (applying radio transmission to long distance communication)
- The Terman era  $\approx$ 1935 (Varian, Klystron), 1939 (HP), Integrated circuits and the subsequent Silicon Valley (1957).
- Office of technology licensing  $\approx$ 1970, Niels Reimers, Cohen-Boyer patent. **Decades after the creation of a successful entrepreneurial spirit by faculty leadership.**
- Taking equity is a more recent development, recommended by Reimers, but turned down by the President at that time. (Reimers recommends today for startups taking of equity only, not requiring other expenses because of the obvious cost to startups where up front fees, etc. can eliminate a staff position, where there are only a few people in place.)

Stanford's contribution to the Silicon Valley is sometimes viewed as technology, but this is actually imprecise, if not wrong. It has been estimated by senior leadership at Stanford that only an estimated  $\approx$ 5% of companies spun out from Stanford have used technology derived from Stanford.

The Stanford University contributions to Silicon Valley have included

- Education,
- Openness,
- Entrepreneurial attitude and environment,
- Venture capital,
- Land resources,
- Faculty leadership.

### Appendix 3: Benchmark data

The Association of University Technology Managers (AUTM) 2013 survey highlights include the following statement:


AUTM reported more than \$22 billion in sales of products created and based on academic research. In FY2013, nearly 14 new commercial products were created each week—products based on university discoveries for which patents were typically filed five to 12 years prior. The goal of university technology transfer activities—to advance research discoveries from academia to the marketplace for society’s benefit—is achieved when these new products reach the marketplace after years of development by industry collaborators.<sup>1</sup>

Our peer institutions (MIT, Caltech) report similar investment timelines, including Stanford<sup>2</sup>:

[In FY12] Stanford received \$76.7M in gross royalty revenue... Ninety-eight percent of the income came from licenses signed many years ago.

The University of California system reports similar payback cycles (Figure 1).

University of California invention	Year(s) disclosed	FY11 royalties (\$M)
Immune activator for treating cancer	1996	\$87.5
Hepatitis B vaccine	1979, 1981	\$13.0
Treatment of intracranial aneurysms	1989	\$10.6
EGF receptor antibodies	1983	\$7.1
Bovine growth hormone	1980	\$5.0
Chromosome painting	1985, 1989, 1995	\$4.0
Barrier repair lipids	1991	\$3.7
Firefly luciferase	1984	\$3.0
Camarosa strawberry	1992	\$2.4
Detection of mycoplasma	1984	\$2.4



Collectively \$139M, or 76% of UC licensing revenues in FY11; from inventions on average 24 years old

**Figure 1: University of California system revenues in FY2011.**

“Five Universities You Can Do Business With,” by Carl Schramm, President and CEO of Kauffman Foundation, Feb 2006, contains the following excerpts:

<sup>1</sup> AUTM 2013 report,

[http://www.autm.net/AM/Template.cfm?Section=FY\\_2013\\_Licensing\\_Activity\\_Survey&Template=/CM/ContentDisplay.cfm&ContentID=13870](http://www.autm.net/AM/Template.cfm?Section=FY_2013_Licensing_Activity_Survey&Template=/CM/ContentDisplay.cfm&ContentID=13870)

<sup>2</sup> Stanford Office of Technology Licensing 2012 Annual Report

“ ... Just five schools, in fact, constitute the elite of the technology transfer world. They are Berkeley, Caltech, Stanford, MIT, and Wisconsin. The list of universities reporting new discoveries changes from one year to the next, but each of these five schools consistently garners around 100 patents per year.”

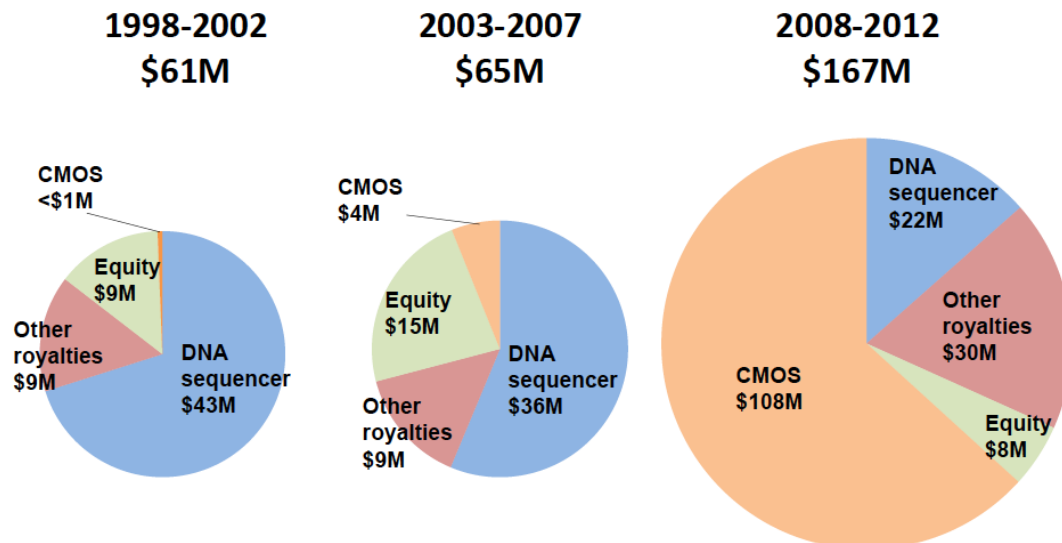
“... Along with teaching and doing research, they seem to be in the business of inventing companies.”

“... Administrators at the Big Five play their part in nurturing tech transfer by resisting the temptation to monitor and regulate business relationships aggressively.”

Caltech has been rated the top technology transfer office in the country<sup>3</sup>, suggesting that Los Angeles supports a healthy technology transfer system. Their metrics for performance 1995-2012 include the following:

- Number of startups launched: 156
- ~40% VC backed
- Raised over \$4B

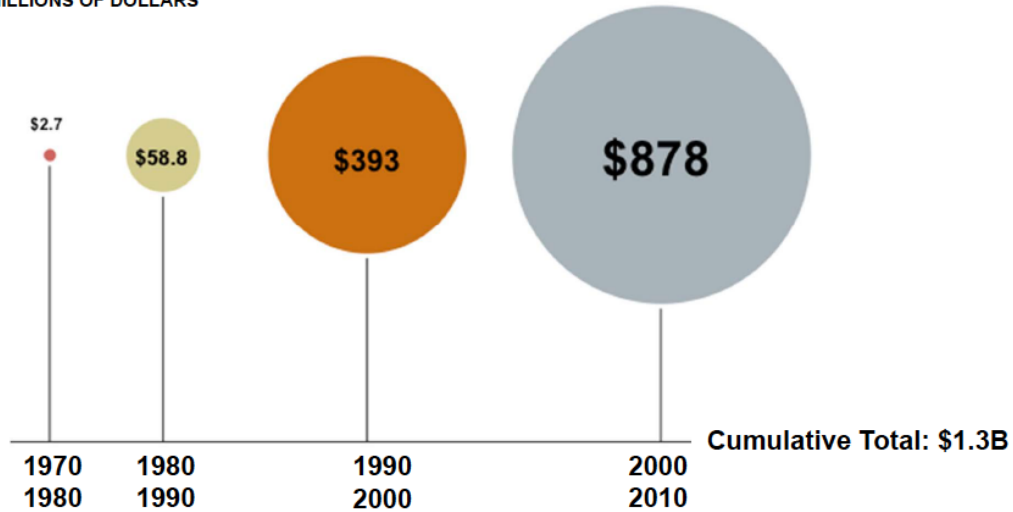
Caltech earned \$167 M in technology transfer revenues in the period 2008-2012. The evolution of its business model and top revenue generators is shown in Figure 2.



**Figure 2. Caltech technology transfer revenues, 1998-2012.**

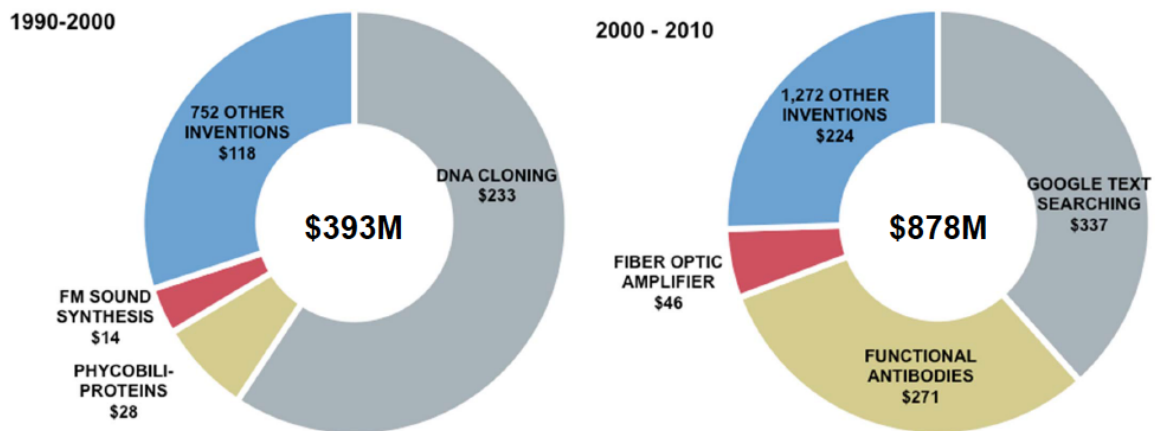
<sup>3</sup> B. Cummings and R. Truman, Boom or Bust – How to Structure Technology Transfer for Success. Les Nouvelles: Official Journal of Licensing Executive Society International . March 2013.

**Total Royalty Income by Decade**  
IN MILLIONS OF DOLLARS



Source: Stanford Office of Technology Licensing Annual Report 2009 - 2010

**Figure 3. Stanford technology transfer revenues, 1970-2010.**



Source: Stanford Office of Technology Licensing Annual Report 2009 - 2010

**Figure 4. Stanford top 3 revenue generators in technology transfer, 1990-2010.**

12/5/16

This is to request help and support with a serious issue that I am having with Stevens.

Stevens is proposing, or demanding, an agreement that requires cash up front, equity, and 10% of gross sales for a license to patents that are somewhat relevant to some of the technology under development at TPS, a company founded by two of my former students.

This proposed agreement damages TPS due to 1) impacted income, 2) adding an overlay of USC bureaucracy, 3) reducing support available to staff, and 4) it discourages investors. It is like an anchor thrown from a ship that is trying to leave port.

Startups are short of funds and staff, need cash, and are hurt by an agreement that will reduce or eliminate badly needed income as well as discourage potential investors. In my opinion, based on experiences over 25 years, these reasons are clear.

Parenthetically, agreements of this nature discourage USC inventors from working with and through Stevens. Faculty sense the difficulties, and look for alternative routes, such as through collaborative arrangements with other institutions.

My understanding, based on comments made last December (2015) at a Senate Board meeting, is that the emphasis on early cash is to make up for previous shortfalls in Stevens income. But this is insufficient reason to pick on a start up.

President Nikias and Niels Reimers have separately stated that the proper agreement for a start up or entrepreneurial effort is to take equity, and basically let it go ("...turn them loose"). I have spent a fair amount of time with Mr. Reimers on these issues.

Nikias and Reimers are right!

I request that:

1) Stevens acknowledge that startups are different from established companies and change the TPS proposal, as well as their general licensing practices, to follow Nikias and Reimers, to take equity and leave it at that;

2) Faculty leadership should be instituted so that there is a one-on-one faculty connection with an entrepreneurial faculty member (such as me in the cases of TPS and our AMI arrangements--personally I hear nothing), and support, (although not monetary--the patents already do that), to nurture, rather than impede, entrepreneurship that is initiated with due attention to potential conflicts and faculty responsibilities.

3) Transparency be instituted so that I and other inventors can be aware through periodic reporting of exactly what is happening to their intellectual contributions.x

Martin Gundersen

Dear Kathy

I am writing you with regards to my issues with USC Stevens staff. After licensing out our patents from USC in 2015, the license was restated and amended in May 2016, where USC received 5.5% equity, 3% royalty, and milestone fees. After which time we had engaged in discussion with numerous potential commercial partners. Our team found a commercial partner who would support the R&D of our product, where successful demonstration could lead to an asset purchase at the conclusion of Phase II studies.

In May 2016, we discussed with USC Stevens an overview of our development strategy. In November 2016, R&D and asset purchase agreements were forwarded to USC Stevens with a joinder letter (2 pages) and side letter (2 pages). These letters were sent on November 29, 2016. After Stevens's staff reviewed the letters, it was obvious that their response suggested that they did not understand the transaction. After our lawyers explained how the deal was structured, the staff requested that time review to review the documents, where the request was granted.

Despite numerous requests to discuss any issues, no response to emails or calls were returned. On December 7<sup>th</sup>, the director of licensing finally emailed us suggesting that USC would not sign a non-compete found in the joinder. However, the non-compete clause did not pertain to USC but for the licensee, who were clearly documented in the joinder. Our lawyers had to again clarify this to the Stevens staffers who are both lawyers. At the end of the December 7<sup>th</sup> (one week), the side letter was signed with no substantial change in the language, despite their initial thoughts that the team was trying to circumvent USC. While the side letter was signed, the consent joinder was not signed.

On December 9<sup>th</sup>, after numerous calls and emails, a red line of the consent joinder was returned to our lawyers. It was obvious that the Stevens staffer misunderstood the purpose of the joinder, where USC needed to sign because they are equity holders. As of 12/9/2016, which is 10 days after they had received two 2-page documents, the Director of License not only do not understand the legal language but had made critical mistakes to what the documents are asking for.

After advising the Director Licensing the actual meaning, he returned our email stating that he was understood the documents: "Received with thanks. Please know that we understand and acknowledge that USC is not defined as a Covenantor in the joinder agreement. (there is no misunderstanding on that point). I have forwarded to XXX and will keep you updated."

These incidences suggest that a lawyer in the position of Director of Licensing is 1) unprofessional in his response time (over 10 days), 2) does not understand the legal language, 3) does not acknowledge that he has made a mistake. This is the person who is leading the licensing effort, where he does not appear to understand contract law. He also implied that the licensee was trying to circumvent USC process. This was so far from the truth, where we gave more than the minimum of what USC requested.

What is clear is that these staff and the director of licensing cannot do their job right. They are unprofessional in terms of urgency. After reminding them that these are urgent matters, they tell us that they will get to it as soon as possible, yet their timeframe can extend up to 5 days without even an update. Their understanding of the law appears to be subpar and unable to understand normal legal language. Yet they are demeaning and act as they are doing us a favor. Because of their numerous mistakes, they have delayed the entire process and put at risk the entire project. What they have done is to almost break the deal because they are woefully under trained.

1  
2 **ACADEMIC SENATE**

3  
4 **UNIVERSITY OF SOUTHERN CALIFORNIA**

5 Meeting of March 22, 2017

6  
7 HSC, Broad CIRM Center 1st floor Seminar Room

8 1425 San Pablo St., Los Angeles, CA 90033

9 2:00 - 4:00 p.m.

10  
11 **Present:** Y. Bar-Cohen, R. Bostic, J. Cain, P. Cannon, J. Chisum, M. Eshaghian, P. Fiss, B. Girandola,  
12 A. Goldkorn, L. Hoffman, E. Horowitz, R. Jubran, J. Kagan, M. Lee, R. Lonergan, J. McLaughlin  
13 Gray, S. Palmer, J. Parr, G. J. Peters, M. Polikoff (alternate for M. Pensavalle), K. Rodgers, P.  
14 Rosenbloom, D. Ruddell, A. Uyeshiro, R. Watanabe, G. Zada

15  
16 **Absent:** M. Apostolos, M. Aranda, N. Benbassat, M. Burgos, N.C. Burle, S. Curran, R. Davila, G. Giuliano,  
17 W. Kast, A. Ouellette, D. Pecchenino, R. K. Rasmussen, K. Servis, S. Shroyer, R. Smith, J. Steele, N.  
18 Stoubis, T. Tambascia, T. Tucker, Z. Unno, A. Wilcox, D. Williams

19  
20 **Guests:** G. Clark, M. Levine, M. Quick, C. Resnik, L. Saxon

21  
22  
23 **AGENDA**

24  
25 Paula Cannon, Academic Senate President, called the meeting to order at 2:15 pm and introduced  
26 the guests of the Senate.

27  
28 **Approval of February Senate meetings and February 8 Additional Senate meeting draft minutes**

29 Mike Lee, Secretary General, presented February draft minutes for discussion and approval.

30  
31 *Genevieve Giuliano moved to approve; Jeff Chisum seconded; 24 in favor; 0 opposed; 1*  
32 *abstentions.*

33  
34 **Update from the Nominating Committee**

35 Paul Rosenbloom, Chair, Nominating Committee and Academic Vice President, provided an  
36 update from the Nominating Committee.

37  
38 Committee has met in December and February. Currently have 2-3 candidates for Academic VP  
39 nominations. Once have at least two committed, will focus on Administrative VP and then At  
40 Large members. The nominees will be introduced at the April Senate meeting.

41  
42 **Presentation from the Task Force on Innovation**

43 Kathy Rodgers, Chair, Task Force on Innovation, presented an update from their committee.

44  
45 Charge for the task force was to provide insights into the culture of innovation at USC and  
46 recommendations to improve. Initial goal was to provide insights into faculty engagement with  
47 the USC Stevens Center for Innovation (USC Stevens). The Senate task force felt that an event  
48 involving USC Stevens should be a catalyst for innovation.



Four major areas were identified: focus on short term gains versus long term impact, value place on faculty as customers of the US Stevens, insufficient emphasis on marketing go intellectual property, and balancing leadership and management.

Process used was identification of barriers to innovation and maximal societal impact, prioritization of these barriers, collection of insights from areas to address, and identification of common issues.

Method used to gather information beyond individuals on the senate task force included meetings with USC Stevens by individual members of the task force, development of a survey, an attempt to distribute survey, in person interviews with persons identified as having concerns, and gathering of anecdote from the committee and persons within the committee network.

Task force has written an initial draft report with recommendations.

Final steps include meeting with Vice President Hall and Director Dyer to gain their insights on the draft report, provide updated draft of the report to the Academic Senate Executive Board, discuss with the task force any final edits to the report/recommendations, and provide the completed report to the Academic Senate.

#### **Report from the Sustainability Committee**

Darren Ruddell, Chair, Task Force of Sustainability Committee, presented the committee's report and proposal.

USC adopted Sustainability 2020 Plan in 2015. However, given the magnitude, urgency, and multifaceted nature of the sustainability challenge, these efforts need to be embedded in a broader vision and longer-term strategy. Proposed strategy – USC Sustainability 2030 - should position the University as a leader in research and education and it would turn the campus into a beacon of sustainable operations and facilities—since we are one of the largest private employers in a region and a city that have made sustainability a top priority.

The proposal offer these initial goals with the aim of opening a conversation with the understanding that more extensive discussion needs to occur before the University commits to them.

- Education & Research: international leader in sustainability
- Community Engagement: develop and lead strategic partnerships to promote sustainability
- Energy Conservation: achieve carbon neutrality
- Transportation: 50% reduction in carbon footprint
- Procurement: pursue sustainable supply chain operations
- Waste: achieve 90% waste diversion
- Water: reduce potable water use by 50%

The proposal also identifies the need for a Strategy Leadership Council who will guide the strategy to implementation.

*Jeremy Kagan moved to endorse the report. Suzanne Palmer seconded. For 20, against 0, abstain 1.*

For more information

- USC Sustainability Strategy 2030 ([endorsed report](#))
- Proposal for a USC Sustainability Strategy 2030 ([presentation](#))

### **Presentation from the Faculty Environment and Employment Committee**

Ashley Uyeshiro Simon, Co-Chair, Faculty Environment and Employment Committee, presented an update from their committee.

The committee's charges for this year are Childcare and Campus Safety.

#### **Child Care**

As a background, the previous childcare provider for both HSC and UPC gave notice to that they end service end of last calendar year. USC was able to get two vendors to service UPC and HSC with no gap of coverage. Committee collaborated with the Provost office to look at the best practices for the childcare to avoid problems going forward, including how the relationship should function among USC, the provider, and parents.

Senate committee have looked at the childcare governance structure and came up with the following recommendations

- Primary childcare administrator - full time oversight of the childcare vendors, addressing parents' concerns and making sure items are being followed up on
- Advisory committees consisting of parents of each age - meet regularly with the primary child care administrator and childcare directors
- Reporting/communicating structure - to have a written policy and orient parents to that policy and communicate any issues

Next steps include rewriting recommendations and sending the recommendations informally to the Provost.

#### **Campus Safety**

There was not enough time for the campus safety update. This update will be provided at a later meeting.

### **Proposed Changes to the Faculty Handbook, First Read**

Edwin McCann and Jessica Parr, Co-Chairs, Faculty Handbook Committee, presented the first reading of the proposed changes to the faculty handbook.

Key changes include more inclusiveness of all faculty (focus on RTPC and, in particular, part-timers), outside education work (includes examples of what is allowed), and language to align with Export Controls recommendations.

Recommendations from the full Senate included adding examples of what is disapproved for outside education work, explicitly stating "all faculty, including full and part-time." Generally, not approved areas of outside education work are areas where it hurts USC – e.g. hurts its reputation or competes with USC.

For more information

- [Summary of proposed changes to the handbook](#)
- [Faculty handbook 2017 \(redlined\)](#)

### **Dialogue with USC's Provost, Michael Quick**

Michael Quick, USC Provost, provided updates on undergraduate admissions, potential impact of discussions in Washington, 5-year strategic plan and other updates.

#### **Undergraduates – Class of 2021**

On March 23, we will send 48k rejection letters to the undergraduate. About 8k acceptance letters. Hope to bring in 3k. 56k applications.

Average test scores were up 20 points. Average applicant score: 1380 average (93%). 54% female. 46% male. First generation college goers 15-20%. We are relatively flat on African American pool. Top markets for applicants – 40% California. 14% are international students. We are not seeing a drop of applicants from overseas (both undergraduate and graduate). PhD student apps are up 4% and masters 5% from international. Curious to see what impacts the US administration changes has an impact to that. USC is reaching out to those applicants. Biggest question is how many can we convert.

#### **Recent Attack in London**

USC has 135 students studying in London. 97 are confirmed safe. USC reaches out because of the shooting in London.

#### **From Washington DC**

Initial skinny budget from the Trump administration does not have good news for higher education. 20% reduction in NIH budget. There is strong bipartisan support for biomedical research. There is language about “thinking about costs related to research” may impact the overhead rate. Nothing in the budget regarding NSF. Pell Grants seem to be the same, but may move Pell Grant surplus to defense.

STEM OPT (optional practical training) is typically one year. Obama administration added 24 months for STEM field to allow for a total of 3 years. Likely will move back to 1 year.

Biggest problem is H1-B Visas. What is the salary floor you need to pay to get a H1-B Visa? Now its \$62K a year. Bill being sent in by republican is \$100K. Universities are exempted for the number of visas. Now we are looking at can we get an exemption for the \$100k.

USC, along with 30 other top universities and colleges, is signing an amicus brief with the Fourth Circuit Court of Appeals. USC was also a signatory on Association of American Universities sent a letter to President Trump on March 20, 2017.

For more information on the communications and other updates go to:

<https://www.provost.usc.edu/information-on-the-immigration-and-travel-executive-order/>

Strategic Plan

Board of Trustees has asked us to create a new strategic plan for the University. Takes input from the Senate, President's Faculty Address to work on the strategic plan. This plan will be a little deeper than just a vision. Six strategic priorities:

1. Ensuring academic excellence
2. Convergence – bringing difference schools and discipline to bear on problems
3. Megacities – how to we build interinstitutional partnership, prepare students to think globally in a century of mega cities.
4. Lifespan health and wellness
5. Expanding access and inclusion
6. Increasing the value of a USC degree

Goal is to send to the Trustees in 2 months. This will be the guiding document for the University for the next 5 years.

#### **Announcements**

Paula Cannon, Academic Senate President

(a) There will be an Executive Board election starting in April ([see election schedule](#))

(b) The 'End of the Year' dinner will be held on Wednesday, May 10

#### **New Business**

None stated

#### **Adjournment**

Meeting was adjourned at 3:59pm

Respectfully submitted,



Mike S. Lee

Secretary General of the Academic Senate

**CHARGE TO THE USC ACADEMIC SENATE TASK FORCE ON INNOVATION:** To provide insights into the culture of innovation at USC and recommendations to improve areas of concern.

Our initial goal was to provide insights into faculty engagement with the USC Stevens Center for Innovation (USC Stevens). In the evaluation of interactions between USC Stevens and faculty, four major areas were discussed and recommendations made. Overall, two areas of concern involved policy and vision, which included the short-term gain versus the long-term vision/goals of USC Stevens, and the value placed on faculty as customers of the Center. The other two areas of concern focused on process rather than policy. The Task Force felt that a technology transfer event should be seen as a catalyst to innovation and overall value should not be measured only by short-term gains to the university. The Task Force spoke to over 30 faculty members who interacted with USC Stevens, evaluated the processes at other major universities, and collected anecdotal descriptions of recent faculty interactions with USC Stevens indicating that insufficient emphases on marketing intellectual property and providing customer service have hampered optimal outcomes and benefit. The main four topics – short-term gain versus long-term goals, faculty as “customer,” marketing of technologies developed at USC, and balancing leadership and management – structure the remainder of this report.

By way of background and to provide context for the task force's deliberation, the mission of the USC Stevens Center for Innovation is provided. We fully support this mission and focused on means to maximize this common goal.

**MISSION OF USC STEVENS CENTER FOR INNOVATION (From Website):** To maximize the translation of USC research into products for public benefit through licenses, collaborations, and the promotion of entrepreneurship and innovation. USC Stevens Center for Innovation is committed to advancing the creative thinking and breakthrough research at USC for societal impact beyond traditional academic means. We focus on the licensing of technologies, expanding industry collaborations, and supporting start-ups. To achieve this goal, USC Stevens offers a service commitment for commercialization activities, including timely communication with the inventors of the technology, and clearly articulated processes and procedures.

## **USC Policies Regarding Intellectual Policy**

There are two documents available that address the policies at USC for protection and development of intellectual property. One is the USC Intellectual Property Policy (found in appendix A) and the other is the Faculty Handbook. In the Faculty Handbook, section 5 D, it states "A basic function of the University is to contribute to knowledge and culture by creative activity in all academic areas, and to disseminate the results of such creative activity by the most appropriate and effective means. The securing of a patent, in certain circumstances, may be the most appropriate and effective means of disseminating the knowledge involved, and it is the general policy of the University to encourage and support production of such patents for the purpose of dissemination of knowledge." The USC Academic Senate Task Force on Innovation fully supports this position.

## A. Short-Term Gain vs. Long-Term Goals

In order to decide on the policies, procedures and staff for a technology transfer center, it is necessary to agree on what the University views as the priorities of the center. The prioritization of the goals of USC Stevens and the metrics by which success is measured are currently unclear. The following is an attempt to articulate appropriate goals, their relative priority and the rationale behind these recommendations.

### **1. To attract and train students, staff and faculty with entrepreneurial interests and talent**

*A successful research university survives by constantly recruiting the best and brightest people it can find. Those people have many options and they tend to choose carefully. If they are interested in technology and its commercialization, they will ask our like-minded students and faculty about their experiences here. Our first priority must be to make sure that those experiences and USC's reputation are as favorable as possible.*

### **2. To promote the transfer of research advances and new technologies into goods and services available to the general public**

*It should be remembered that almost all of the innovative science and technology that a university might commercialize was funded by government grants and, ultimately, by the tax-paying public. We rely on an implicit contract between society and academia whereby society benefits from this investment. The Bayh-Dole Act of 1980 transferred ownership of federally funded intellectual property to the grantee institutions NOT because it wanted to provide them with an additional source of revenue, but in order to empower and motivate them to do a better job of IP commercialization than the federal government was doing.*

### **3. To motivate successful entrepreneurs associated with USC to contribute generously to USC advancement**

*The most successful research universities rely heavily on the gratitude and loyalty of alumni who cherish their experiences there. This source of revenue far exceeds the shorter term revenue from royalties on their entrepreneurial activities. It is likely to evaporate if the university has been an obstacle to their entrepreneurship.*

### **4. To maximize financial return on the university's portfolio of intellectual property**

*There is a widespread misconception that universities derive substantial profit from technology transfer. There is nothing wrong with doing so, but such success is rare and derived from a few "home run" events that depended more on the fortuitous outcomes of faculty research than the marketing efforts of tech transfer offices. In fact, most tech transfer offices lose money and most opportunities for commercialization arise from the industry insights and contacts of the academic researchers themselves.*

### **5. To facilitate desirable economic development in the university's neighborhood**

*USC is Los Angeles' single largest employer and a major property holder and developer. Our relationships to our local neighborhoods and the metropolitan area at large are vital to our activities and their success. Governments are increasingly aware that the largest long-term opportunities for economic growth tend to arise from the innovative activities of local universities and their graduates. One priority of tech transfer should be to encourage the creation and growth of local industry.*





## B. Faculty as “Customer”

The USC Stevens Center for Innovation serves the needs and priorities of the University of Southern California, but can only effectively do so by directly serving the faculty and other innovators within the USC community. To do so, a customer service model is required in interactions as well as clear, transparent communications with faculty. This in turn requires a clear understanding by USC Stevens’ personnel that providing a positive experience for the engaged faculty members is essential for successful innovation. This is true despite the fact in some cases the faculty has a conflicted interest in the outcome of the technology transfer. A lack of commitment to an optimized customer service model results in faculty avoiding interactions and involvement with USC Stevens when feasible and ultimately directly counters the goals of the Center and the University.

### **1. Faculty involvement with USC Stevens can only be successfully driven by providing quality experiences**

*While avoiding interactions with USC Stevens is in many cases against the legal obligation of faculty in terms of disclosing inventions and intellectual property, a perception of an ineffective technology transfer office encourages such behavior. It is important to emphasize that an aggressive approach to demand disclosures is ultimately futile and only serves to drive experienced innovators further from USC Stevens due to what they may interpret as dogmatic threats. The solution can only lie in USC Stevens’ staff demonstrating to individual innovators as well as the USC community at large that they are able to improve (and not hamper) an inventor’s path towards commercialization of valuable ideas.*

### **2. Faculty’s knowledge and understanding in their areas of expertise should be leveraged as a resource in the commercialization process**

*An essential aspect of optimizing the customer service experience for faculty at the University is a greater involvement by faculty in the negotiations and collaboration processes towards commercialization. Although this is at times not possible due to conflict of interest, disclosing faculty are often the individuals at the university who best understand marketing aspects of their inventions and the competitive landscape. As a result, including the faculty member when possible in negotiations with outside entities (in direct conversations and/or in closely communicated details of the negotiation progress) serves to both facilitate faculty engagement and potentially advance the larger financial objectives of the university. In recommending this increased faculty involvement, it is important to consider that situations occur when the faculty member’s involvement is instead detrimental to outside collaborations and negotiations. There are a number of reasons for this occurring, many of which can result from the faculty member’s misperception regarding the value of their invention. These are therefore ideal situations for involving a faculty advisory board composed of respected and experienced faculty innovators at the University (see below). In addition, organization of faculty and mentor committees for the development of individual technologies would optimize success of intellectual property disclosed.*

### **3. Broadening the involvement and oversight of the existing faculty advisory committee to a faculty advisory board can help redirect USC Stevens’ priorities towards improved faculty engagement**

*Although a faculty advisory committee is already incorporated into USC Stevens (The USC Stevens Faculty Advisory Committee), the committee's involvement is somewhat rudimentary at present. Broadening the role of this committee not only would increase faculty engagement with USC Stevens but can also serve to increase the credibility of the Center as a resource that benefits faculty members. In order for this oversight committee to indeed be a dependable body, it needs to be restructured to serve more independently of the administrative personnel of USC Stevens (i.e., be a Joint Provost/Academic Senate Faculty Advisory Board that is able to make assessments/decisions independent of USC Stevens' staff). It is recommended that this board be co-chaired by one person nominated by the Provost's office and one nominated by the Academic Senate. Further, half the members of the board should be nominated by each organization. A more independent faculty advisor board not only invariably shifts the priorities of USC Stevens functions towards making the faculty the customer, but it also serves to make disclosing faculty more likely to accept decisions regarding intellectual property and negotiated agreements as based on the wisdom and experience of their colleagues, rather than on poorly understood (by the faculty), short-term financial priorities.*

*Charges to this board would include development of metrics by which USC Stevens is evaluated, assessment according to these metrics and suggestions for the modification of USC Stevens' processes to catalyze innovation. This board would also act as both a feedback mechanism for faculty and a means to facilitate and remediate interactions with contentious faculty.*

## C. Marketing of Technologies Developed at USC

Marketing is an essential part of the commercialization process and includes:

- (i) Understanding the technology and where it fits into the current market
- (ii) Determining which companies, both in the US and internationally, would potentially be interested in the technology and how the technology could benefit, or augment, their current product portfolios
- (iii) Performing a proper valuation of the technology. This includes understanding where the technology is in the development cycle and understanding what it will take (time, resources, regulatory approval and reimbursement) to get to market

Currently, marketing of the technologies developed at USC does not appear to be a high priority for USC Stevens, as witnessed by there being no mention of “marketing” on USC Stevens’ online list of highlighted service commitments (<https://stevens.usc.edu/service-commitment/>). We understand that additional marketing efforts are on-going within USC Stevens, yet - marketing remains a perceived area of weakness within USC Stevens, and the task force has identified the following areas for consideration:

### **1. Using third parties that have expertise in marketing in the given technology and that have already developed a network of contacts in that area**

*It is unrealistic for a relatively small group like USC Stevens to have the in-house expertise to properly market all of the different technologies developed at USC, so contracting marketing work to third parties should be encouraged. In many cases these third parties have already developed the contacts needed to market these technologies to the appropriate companies.*

### **2. The opportunity for faculty members to be more involved in the marketing of their technology.**

*When conflicts of interest can be avoided, faculty should be queried as to their desired involvement in the marketing of their technology and the negotiation of any licensing deals. In many cases, a faculty member understands the companies that are active in the technology space and has already developed contacts. One size does not fit all when it comes to faculty engagement in the process; some may want to be involved in all steps of the process whereas others may prefer to hand off the work to USC Stevens.*

*The “Licensing USC Technologies” page has a link for “search our available technologies” which directs to one page summaries of the technology, including Market Opportunity, USC Solution, Value Proposition, Applications, Stage of Development and Intellectual Property. Discussions with a number of faculty members have indicated that they have had little, or no, input with regards to the content of this page. This one page summary appears to be the only marketing material that has been developed by USC Stevens to attract potential industry collaborators/licensees, and is a specific area that could benefit from faculty engagement.*

*In 2009, USC Stevens published a report entitled “Venture Capital-University Interface: Best Practices to Make Maximum Impact”. In this survey, USC Stevens sought feedback from the venture capital community with respect to “best practices” for attracting venture capital. One of the findings of this report was the importance of understanding how a given technology/business opportunity fits into a given venture capital’s business goals. Without*

*specific expertise in the technology, which is often not available in-house at USC Stevens, determining when there is a match is virtually impossible. This area may be another opportunity for more faculty engagement or the use of third party experts.*

*Another key finding of the 2009 report from USC Stevens was:*

*“Without exception, the VCs we spoke to said that the people-innovators are a central consideration of venture deals and that universities do not always understand this or create the right incentives for student and faculty innovation”.*

*This statement reinforces the task force’s recommendation that faculty are often crucial to the success of a new technology and should be given the opportunity to be more involved in the marketing and licensing of their own technologies. Further, there are a variety of resources around the university that can guide interested faculty to explore the market for their technology and the USC Stevens staff should encourage their faculty innovators to use these resources. In particular, USC houses one of the seven NSF I-Corps Nodes, which hosts on-campus monthly innovation workshops on customer discovery and product-market fit that are open to all USC innovators.*

### **3. Transparency and communication during the entire marketing and negotiating process**

*Faculty members have voiced frustration in not being updated regarding their technology’s progress while it is being handled by USC Stevens. The staff of USC Stevens should therefore educate faculty regarding the expected processes from the onset of the project and should proactively communicate with faculty regarding project updates. Furthermore, when the faculty are involved in the company with which the negotiations are being held, the faculty should be notified if there are changes being made to the agreements. Instances have been brought forward to this task force in which important industrial partners have received mixed messages resulting in concern both on the part of the licensee and the faculty member.*

## D. Balancing Leadership and Management

When USC Stevens was first established, there was a focus on vision, innovation and leadership. As the center has developed, the pendulum has swung to a focus on micromanagement of deal structures and decisions. It is, in fact, unclear how many levels of approval are needed for a decision to be relayed to the faculty/licensee, but it is evident that the individuals that are in discussions with faculty or external stakeholders are not, on their own, able to approve terms, etc. Although micromanagement is apparent at this level and leads to a number of inefficiencies, the training/abilities/time of the staff to carry out their responsibilities are not as closely evaluated. There needs to be a proper balance between leadership with no day to day oversight and a structure that requires multiple levels of approval for a decision. The focus of the management should be to equip the staff to be capable and able to be the decision makers and then allow the highly trained and capable staff to be in a position to directly make decisions. Individuals working with USC Stevens have raised concerns regarding the center's ability to function in an efficient, knowledgeable, and stream-lined fashion. The process has been described as non-transparent, constantly changing and often attempting to achieve metrics (e.g. number of disclosures or number of people in a certain competition) rather than working to maximize the chance of success for the technology. While it is the desire of all individuals at USC Stevens to be successful in their roles and to maximize impact, there are hurdles that need to be evaluated to optimize outcomes.

### **1. Staff should be adequately trained and authorized to be decision makers as appropriate.**

*Faculty highlight that one of the greatest frustrations in working with USC Stevens is not understanding if a staff member they are working with is able to make independent decisions. If the person that the customer is dealing with has the experience and authority to solve issues of differences between parties and to negotiate a deal within parameters set by the university, it can be expected that satisfaction, both on the part of the customer and the staff, will greatly increase.*

### **2. Staff should have adequate time, support and knowledge to manage the products in their portfolio in an accurate, timely and transparent fashion.**

*Because of some of the issues described in the sections above, including work load and multiple layers of approval and oversight, the staff of USC Stevens often have prolonged turnaround times. Time lines for response to solve this concern have been put in place. However, they are often not met or important details have been overlooked in order to meet them. Therefore, work load, competency and bureaucratic hurdles should be reviewed to reduce the possibility of irreversible mistakes. Such lapses noted by the community include patent filings being missed, communication of misinformation, etc. Furthermore, stakeholders are often notified of the need for decisions at the last minute, which can lead to mistakes by those individuals as well.*

### **3. The majority of the faculty is currently at the mercy of USC Stevens, with no options, other than to not be innovative or to find other means to legitimately disclose inventions. This can be rectified by changing the relationship between faculty innovators and USC Stevens from one of a "right of first refusal" on USC Stevens' part to a "right of first offer" on the inventors' part.**

*IP developed by USC faculty under their Federal government grants is the property of USC according to the Bayh-Dole Act. Faculty already have the obligation to disclose any such IP to*

*USC and USC has the right to dispose of this as it sees fit, subject to minor constraints contained in the Act that must and can be incorporated into any transfer of IP to another party. We propose that, upon disclosure of IP, USC Stevens offers to the inventors the following two options:*

- A. Negotiate an IP development plan with USC Stevens in which USC would retain ownership in return for taking on the expense of patent prosecution, marketing and licensing, including revenue-sharing with inventors as now defined in their terms of employment. Section 4.1(a) of USC Intellectual Property Policy, April 3, 2001: "In general, the University will share 50 percent of the net royalty income, if any, derived from an invention with the invention's inventor(s). Since many circumstances surround the development of inventions by University employees, the exact division of income in each case is best determined by the ad hoc committee."*
- B. Take ownership of the IP and all responsibility for its prosecution, marketing and licensing in return for a fixed, transferrable obligation of royalties to USC Stevens on gross sales of products incorporating IP that is under patent protection - unprotected IP is public domain and free for anyone to use – none of which is shared back with the inventor. The royalty amount should be sufficiently low in recognition that the long term benefits of making this process attractive for faculty entrepreneurs far outweighs a difference in royalties. We recommend a 1% percent that is set based on best practices and determined based on the coarse class of the technology (e.g., software, hardware, pharmaceuticals, medical devices).*

*While maintaining the requirement that inventors disclose their inventions to USC Stevens, as is their obligation under the Bayh-Dole Act and their employment contract, this will provide USC Stevens with the "right to first offer". After this offer is made, the faculty member would then decide whether to accept the offer or develop the technology on their own. Specific recommendations as part of this include:*

- 1. The offer to the faculty by USC Stevens under the option A should be in the form of a contract that allows the faculty to understand the process that USC Stevens is following and allowing the faculty member to terminate the contract if desired. The terms for termination of the contract would need to reflect the contributions that USC Stevens has made towards the development (for example, if the technology has been supported through certain stages, then certain benefits above 1% royalty are provided to USC Stevens)*
- 2. If the faculty chooses option B, of developing the intellectual property on their own, then they will independently direct the IP prosecution. The faculty would be responsible for managing issues related to inventions that have co-inventors as well as any contractual obligations to funding agencies. Conflicts of interest would have to be disclosed and addressed through the university's standard conflict of interest procedures.*
- 3. A development plan should be provided to USC Stevens by faculty who take option B, of undertaking development on their own, such that USC Stevens may periodically make additional offers if progress is not apparent or more optimally forward paths are identified*

4. *One important metric on which USC Stevens success should be measured is the percentage of overall disclosures developed by faculty versus by USC Stevens.*

*Such an approach would satisfy both the letter and the intent of the Bayh-Dole Act. It would help to supercharge innovation at USC while insuring that the university directly benefits from its stewardship of IP. It furthermore would place USC Stevens in a position where they can compete as the technology-transfer agent in situations where they can best provide the requisite services, yet enable them to save their limited but valuable resources in other cases for additional high leverage activities that facilitate innovation at USC.*

## E. Summary of Recommendations

- 1.) Provide faculty with two options regarding their disclosures while ensuring that USC benefits appropriately from their IP stewardship under either option: a.) Allowing USC Stevens to transition their technology, or b.) Faculty transitioning their own technologies (including IP costs) and providing a fixed 1% royalty obligation to USC. This would therefore revert decision making to the inventor rather than a committee to decide on the disposition of intellectual property (Section 4.1(a) of USC Intellectual Property Policy, April 3, 2001). If the inventors cannot agree as to the disposition, option A would be the default.
- 2.) The Faculty Advisory Committee of USC Stevens should be converted into a Joint Provost/Academic Senate Faculty Advisory Board that is to monitor whether the personnel and management practices of USC Stevens are fulfilling its stated mission, principles and standards, to facilitate faculty interactions and to advise the Provost concerning USC Stevens and the development of metrics for evaluating it.
- 3.) To help appropriately determine the success of USC Stevens, an appropriate set of metrics for their performance should be provided to the faculty, along with the results of regular evaluations of USC Stevens in terms of these metrics. One important metric that would serve as a prime surrogate of the customer service experience for faculty is the percentage of disclosures that faculty choose to develop on their own versus those shepherded by USC Stevens.
- 4.) USC Stevens should be tasked with evaluating which technologies it has the capability to evaluate, market and develop. If they do not have adequate resources to support the wide range of intellectual property at USC, the expertise of the staff at USC Stevens should be supplemented with experienced faculty, alumni, entrepreneurs and third party services.
- 5.) USC Stevens should establish mentoring/development committees of experienced faculty inventors, entrepreneurs and business people to shepherd USC technologies to commercialization.
- 6.) Improved communications is essential for the faculty as the customer of USC Stevens. USC Stevens staff should return calls and queries from faculty within 48 hours (if not urgent). Further, USC Stevens should discuss changes to agreements with the inventors. By keeping the faculty informed, they will be educated as to the reason for the changes, helping to avoid unnecessary exacerbation of concerns.
- 7.) The staff of USC Stevens should be empowered to carry out their responsibilities and then allowed to carry out negotiations without multiple layers of oversight. If there are reasonable boundaries and adequate expertise, this would streamline the process and reduce frustration. It is recommended that any additional training necessary to enable the staff to do this effectively should be provided.
- 8.) USC Stevens should keep track of the success of each of their marketing efforts in order to more insightfully add resources to the most successful form of marketing. This statistic should include what percentage of successful licenses start with a business contact from the faculty inventor.