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教育及服务去垄断化的大学

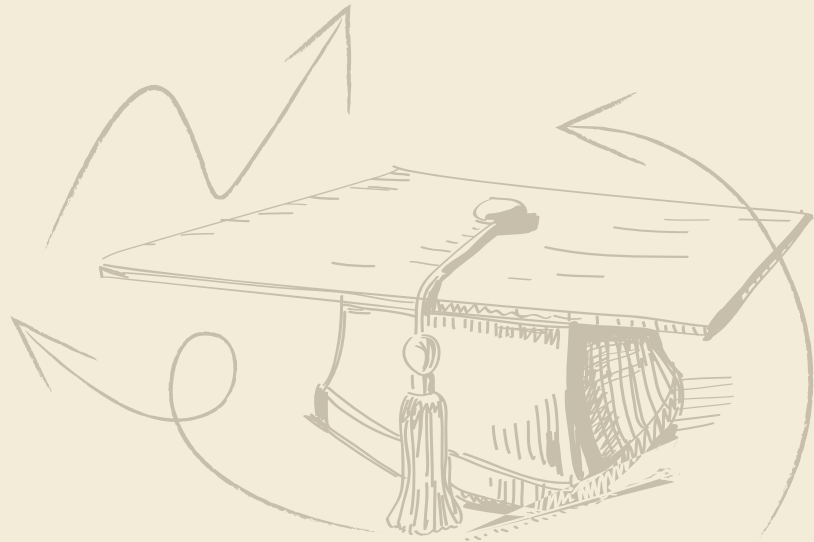


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# DE-KNOW- POLIZATION

**UNIVERSITIES FACING THE  
DE-MONOPOLIZATION OF KNOWLEDGE  
RESEARCH, TEACHING, AND SERVICE**

*To know what you know and what you do not know, that is true knowledge.*

— Confucius

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## Introduction

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This introductory article presents the context for the fourth issue of *Venture Findings*, Collier Institute of Venture's flagship publication. In this issue we look, from different angles, at the evolving role of universities within the evolving 21<sup>st</sup> century venture ecosystem. We fondly call the topic "Univenture."

The global venture ecosystem itself, and the forces that change and shape it, were reviewed in our past issues. In the first issue, *Policy and Welcome*, we focused on defining the venture ecosystem, the changing value of venture capitalists, and government policies to encourage ventures.

In the second issue, *History*, we looked at key insights from the history of venture based on our database of 160 events from the last 100 years as well as topics like Apple's DNA, Corporate venture, and China's unique growth.

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## THE HISTORICAL ROLE OF UNIVERSITIES IS FUNDAMENTALLY CHANGING

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In the third issue, *Deep Innovation*, we explored the life cycle of ventures in areas like Brain, Nanotechnology, Medical, and Water — namely more long-term, investment-intensive, and complex ventures (than the typical IT/digital-based ventures). In this Univenture issue we turn our focus to one of the most important players of the venture ecosystems. We look at universities — and we explore their future.

We start with the fundamental observation of the de-monopolization of the knowledge actions of research, teaching, and service — aka "De-know-polization." The historical role of universities, which reached its peak in the 20<sup>th</sup> century, of being the societal leaders in knowledge creation (=research), knowledge transfer (=teaching), and knowledge usage (=service) is fundamentally changing.

Knowledge, in the context of this article, is defined as the artifact that we discover or construct, we learn, and teach, to impact the world.

This fundamental change comes as universities are at their zenith. Today, there are more students than ever, in relative and absolute terms, attending university. The university degree — especially one from a top institution — has more societal value than ever, and part and parcel to this trend, tuition is higher than ever before. Universities are expected to have an impact on the local community, in terms of jobs, new companies, and quality of life. This is what we call the "service" of universities.

In contrast to this exuberance, in broad terms and using gross generalizations, most universities are no longer the best place to do research and no longer the best place to teach. Their societal service as innovators, places for new ideas to turn into ventures, for policy and government feedback, etc. can be done elsewhere. The 20<sup>th</sup> century monopoly that universities had on knowledge is being attacked. (Naturally, the inefficiencies of monopolies create a blind spot which prevents universities from fully seeing the looming attack).

While we have many examples of successful university-led research, teaching, and service — and we should strive to learn from them — these good examples are but tiny fixes not alone capable of dealing with the deluge of De-know-polization in the 21<sup>st</sup> century.

Our assumption: knowledge actions (research, teaching, and service) were a small part (say 5%) of what society needed and was willing to pay for in the 20<sup>th</sup> century. Universities that combined research, teaching, and service were appropriate institutions to lead this effort. One could even claim it was a natural monopoly. In every territory one can have limited players, and it made sense to focus societal efforts in small numbers of regulated bodies. But in the 21<sup>st</sup> century, knowledge creation, teaching, and service became a much bigger part of our life (say 50%). Individuals, organizations, and nations need many more knowledge actions.

Even more, De-know-polization both rises from, and is pushed by, the twin engines

of the 21<sup>st</sup> century: globalization and digitization. De-know-polization is both a cause for, and response to, the disruption of the old monopoly that universities enjoyed.

We assume that De-know-polization is already occurring in most locales, albeit at different maturity rates. We also assume De-know-polization will intensify progressively with the advancement of globalization and digitization. Our message to university leaders and policymakers is to be aware of the various threats and opportunities, particularly when it comes to the evolving role of universities within the venture ecosystem.

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### **1. The Impact of Knowledge De-monopolizing**

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As of 1 January 2016 there were 23,729 universities worldwide, according to a Webometrics survey (Webometrics is a Spanish research project “devoted to the quantitative analysis of the Internet”). Each of these universities employs a different ratio of research, teaching, and service. Some are fully dedicated to teaching with little research and service. Some are more dedicated to research and less to teaching. Others are active in serving their locale (being at the center of their community), while others still strive to focus on global service. There are also those universities that are trying to do it all: research, teaching, and service — but only a select few succeed in this three-pronged endeavor.

As the De-know-polization reveals itself, university leaders as well as their funders will need to take action. University leaders need to assess their status, suggest plans, and implement them. Mostly critically, they will have to justify their plans to public and private funders and their students.

Taxpayers will ask: are universities the best place to do research or teaching or service? How does university research affect my quality of life? In blunt terms: why do I need to pay for professors to travel and publish papers that have little impact on our society? And when it comes to teaching, assuming we need to fund teaching, shouldn't we fund teaching in the best place, including travelling elsewhere or virtual modes of learning? And in service, could not-for-profits that focus on



# COLLER INSTITUTE OF VENTURE RESEARCH STRANDS

CIV's research is organized into strands, each addressing a particular aspect of the venture ecosystem. Current research strands include:

Policy of Venture  
[civ.global/plcy](http://civ.global/plcy)



History of Venture  
[civ.global/hov](http://civ.global/hov)



Deep Innovation  
[civ.global/deep](http://civ.global/deep)



University Venture  
[civ.global/uni](http://civ.global/uni)



City Venture (Coming Soon)  
[civ.global/city](http://civ.global/city)



Planned future research strands include:

- Financial Models
- Corporate Venture
- Digital Venture
- Family Venture

*Venture Findings* issues are each devoted to a single strand. This one focuses on Univenture, which we define as the relationship between universities and venture. Much can be learned from the experiences of universities in promoting venture ecosystems around the world. In this issue, nine authors explore the opportunities and challenges for universities in this age of De-know-polization. They offer insights into how universities navigate venture by canvassing success cases (e.g. Stanford and Edinburgh), unpacking nascent strategies for furthering university venture in advanced economies (e.g. EIT), and investigating the Univenture models employed in emerging contexts (e.g. Kenya). In so doing, the articles reveal diverse lessons for Univenture system design and operation.

Telling cases of Univenture from across the globe are explored, including:

- Stanford University's Office of Technology Licensing
- Kenya's Silicon Savannah
- The U.S. NSF's I-Corps program
- South Korea's KAIST and POSTECH
- The European Union's EIT
- The University of Utah

It is our aim to understand how Univenture succeeds in these varied contexts, and how to measure its impact on a range of stakeholders.

If you wish to download the articles, or engage with our unique resources, join our community:



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social value do a better job than professors that also need to teach and research? In short, why invest in a “jack of all trades” rather than a “master of one”?

To assist in the planning and implementing that stems from De-know-polization, let us share some of our observations about the De-know-polization of research, teaching, and service.

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## 2. De-know-polization of Research

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Where is the best place to do research in computer science? The answer is probably Google, Facebook, Microsoft, or IBM. Such firms, which direct more and more of their dollars into R&D, represent modern knowledge-intensive organizations. Their livelihood depends on new products and services that stem from their research. Researchers in these firms *do not also have to teach*; they usually have the needed resources of time, money, and equipment — and they have business managers that push for value.

In complex, less commercially viable arenas, which we have called Deep Innovation, research is best done in centralized public/private labs. Science today demands long-term commitment, investment,

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# MOST UNIVERSITIES ARE NO LONGER THE BEST PLACE TO DO RESEARCH OR TO TEACH

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and community. This can and should be done at scale. Private firms, or dedicated research organizations, seem like a better answer than the usual university faculty-driven research or labs. Universities that meaningfully connect with industry offer models for how research can deliver impact. Some universities answer this call with heavy investment in specific areas that create the critical mass for research.

Granted, in the first part of the 21<sup>st</sup> century (say until 2020), the research value of universities will continue to generate societal value, but the model needs to be overhauled so that universities are at the cutting edge. Enhancing the research mission can follow some concrete steps, such as academic contracts that enable faculty

to focus full time on research, forging closer ties with industry, and ample, long-term funding. These types of efforts could basically duplicate large-scale research projects like the Human Genome Project (HGP), the National Aeronautics and Space Administration (NASA) agency, and the European Organization for Nuclear Research (CERN). See Box on the birthplace of the web.

Future research needs to look more like the recent (April 2016) Breakthrough Starshot project headed by Harvard Professor Avi Loeb. Starshot is a US\$100 million program of astronomical observations in search of evidence of intelligent life beyond Earth. It is planned to be “the most comprehensive, intensive and sensitive search ever undertaken for artificial radio and optical signals. A complete survey of the 1,000,000 nearest stars, the plane and center of our galaxy, and the 100 nearest galaxies.”

Doing research using a “Silicon Valley approach” is promising, and probably has a good chance of also being productive — when you reside on a hill in Cambridge, MA, aided by the best and brightest Ph.D. students globally, with US\$100 million as seed funding, and a board that included Yuri Milner, founder of DST Global (the initial funder), Professor Stephen Hawking, Director of Research at the Department of Applied Mathematics and Theoretical Physics (DAMTP), the University of Cambridge, UK., and Mark Zuckerberg, founder and CEO of Facebook (who founded with his wife, Priscilla Chan, the Chan Zuckerberg Initiative to support such endeavors with an estimated value of US\$45 billion in December 2015 Facebook shares).

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## 3. De-know-polization of Teaching

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Most university teaching is akin to horses in the age of cars, Morse code in the age of WeChat, or Daedalus and Icarus in the age of modern aviation. An extra-terrestrial observer of most university teaching will wonder why we keep putting people into the same ineffectiveness, potentially causing torture by boredom.

The classical model of several students listening to a lecture in the same room (and this accounts for ~95% of all university-level teaching worldwide) is dead. All too often in universities’ classrooms, a quarter of

# CERN AS THE BIRTHPLACE OF THE WEB

Source: <https://cds.cern.ch/record/1164399>

The following image documents CERN's releasing of HTML rights to the public. The World Wide Web is born. This exemplifies

the quality of good research, namely ample investment coupled with the managed policy of sharing knowledge with the world.



the students are listening (but could have gained the same value from YouTube or Khan Academy courses), a quarter are in their Facebook-like apps for most of the time and Tinder-like apps for the rest of the time, a quarter are sleeping or dreaming based on the previous apps, and a quarter are not even in class.

We already see seeds of change in the form of digital education. Online education, including massive open online courses (called “MOOCs”) and their ilk, are a minute step in the right direction.

De-know-polization in this teaching context means that knowledge:

- is accessible (for example video and not just text, in multiple auto translation languages);
- is searchable (including by text, image, video, and meaning — see Wolfram | Alpha, and AI-based tools like Google Now, Apple Siri, and Microsoft Cortana);
- involves skills development (how to search, how to deal with conflicting knowledge, how to forget knowledge, and how to retain knowledge);
- means building domain expertise (one has to understand words in order to write, machine language in order to write deep software, and political patterns in policy to affect it). Such deep knowledge can only be attained from inter-personal engagement with domain experts;
- is much more social than factual (“it is not what you know, it is who you know”);
- itself is not a one-time, three- to four-year undergraduate effort ... it is a lifelong journey; and, perhaps most importantly,
- needs leaders who can create new knowledge, who can innovate, and venture. We need people who master the basic knowledge enough to challenge it, and change it.

Augment these changes in needed output with the changes in the inputs. As students coming into universities lack basic learning skills, and are “programmed” by consumerism of knowledge (i.e. in the form of social networks), the challenge of teaching is daunting.

What makes this challenge all the more difficult is the fact that teaching professors are expected to deal with these teaching

challenges using remarkably antiquated technologies while they also do research. This is akin to asking a race driver to also design the engine of their cars, *while driving*.

There are, of course, islands of excellence in teaching. The Harvard Business School (HBS) MBA program was able to build an educational experience that is based on unique learning materials (the cases), and teaching methods aided by uniquely defined physical classrooms and supportive processes and culture. The Kellogg MBA

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## **WE NEED PEOPLE WHO MASTER THE BASIC KNOWLEDGE ENOUGH TO CHALLENGE IT, AND CHANGE IT**

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global program took that HBS model and added the global-international network to it. There are also good examples outside academia, such as Khan Academy free courses, Lynda.com professional education, and Stack Overflow (“a community of 4.7 million programmers” teaching each other).

Globalization and digitization are strong forces. Top-notch education (fully virtual, or aided by local human-based social interactions) will become the norm for most teaching. The Georgia Institute of Technology’s engineering and computer science programs (which consistently rank in the top 10 of U.S. News & World Report’s annual ranking) offer the flexibility to study where you want, whenever you want. Local universities will find it increasingly hard to compete with that — and, we hope, follow suit by offering similar flexibility in their method of delivery.

Students, their parents, and other funders of education will ask: where is the best place to learn? Who gives the best value for the investment? Universities that continue with “older” methods and do not embrace the new global tools will not be able to justify their funding.

The needed change is not about adding teaching assistants, computer-based blended learning, or using MOOCs: What is called for is redesigning university teaching such that it aims to deliver *student learning*, not

teaching. A new university teaching system needs to change the relations between learning basic knowledge and creating new knowledge; will redefine the semesters, internships, testing, in-class, out-of-class assignments; and strive to constantly improve and change.

Faculty will be able to specialize as teachers or researchers (e.g. research professors), and in so doing, develop the skills they need to excel either as facilitators of student learning, or as cutting-edge researchers.

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#### 4. De-know-polization of Service

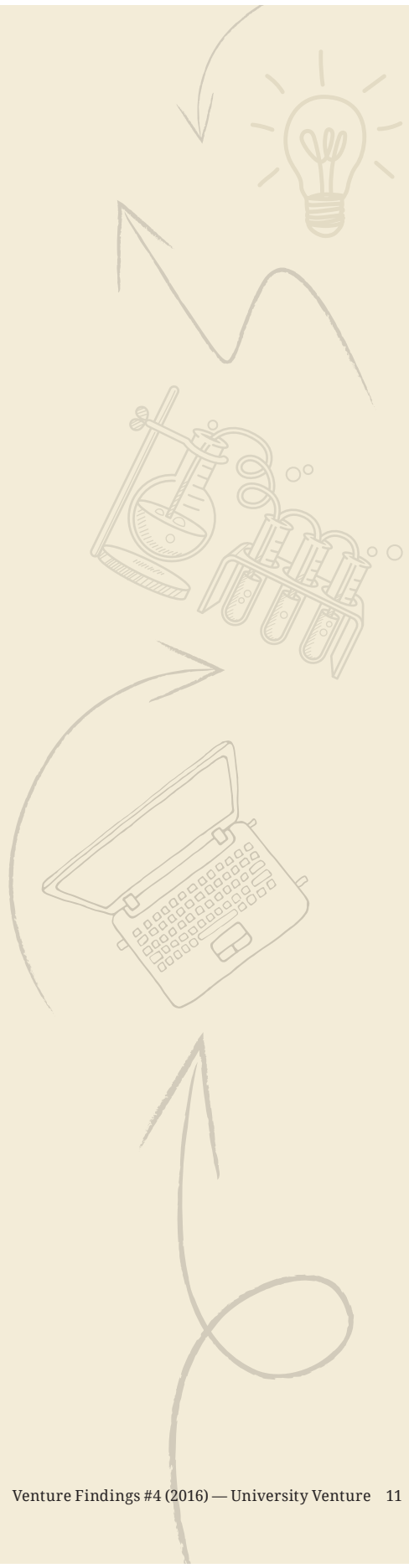
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A common argument for investment in universities is the ultimate aim of developing local industry. The magic mix of research, teaching, and embracing new knowledge was indeed the case around universities in the 20<sup>th</sup> century. Venerable universities like MIT and Harvard in Massachusetts, U.S.; Tsinghua in Beijing, China, and the Technion in Haifa, Israel, seeded many firms in their locale, and in so doing, aided the economic vibrancy of their local environments (=high-quality jobs and high-quality life).

In the 21<sup>st</sup> century, the age of universities developing local industry is over. All too often the university's locale is not able to benefit from the success of the ventures established on its soil.

DJI is a telling case of a university investment that moved away. DJI, the drone global leader, rumored to be worth US\$10 billion in 2016, was founded by Hong Kong University of Science and Technology graduate Frank Wang in 2006, and moved to Shenzhen soon after. DJI has 3,000 employees (2016) — many of them could have been based in Hong Kong. DJI demonstrates the duality of government-supported, university-led innovation. We see, in the DJI case, both the potential (of ideas created in a university), and the natural development of such firms (departing for “better” places).

How can we justify the public investment in universities in the age of globalization and digitization? We cannot. Even Harvard could not keep Facebook in Massachusetts as Mark Zuckerberg moved to a better place for his firm: Silicon Valley. Capital and people are flowing to the best place for their goals. In the 21<sup>st</sup> century there is much less reason to be near a university.



Even more so, funding a university with the hope of getting good jobs and firms only diverts resources from other policy actions — like lower tax with direct impact on business, or enhancing quality of life, itself a pull for economic growth.

The role of Technology Transfer Organizations in most universities is fraught with challenges. If not done well, they can cost more than they make, slow innovation, and inadvertently encourage the most promising faculty and students to work outside the system. Harvard was smart enough to “release” Facebook without asking for pay, a much better approach than the University of Illinois took in the Netscape case (when Marc Andreessen, Netscape’s founder, left for Silicon Valley, the University of Illinois accused its new alumnus of infringing on the School’s rights to the browser. The university refused to settle for Netscape stock, and a lawsuit and cash settlement followed — costs that easily could have doomed the fledgling company).

Stanford takes a different approach, which can be called “let’s not disturb, and help as much as we can.” This is a valid approach when you are the epicenter of one of the most productive and self-adjusting venture

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## IN THE 21<sup>ST</sup> CENTURY, THE AGE OF UNIVERSITIES DEVELOPING LOCAL INDUSTRY IS OVER

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ecosystems, Silicon Valley. The Google case demonstrates Stanford’s approach (see the Katharine Ku article on page 22). As Google’s founders were able to fulfill their dream, society gained the Google services, and Stanford itself gained US\$336 million.

Beyond knowledge transfer, there are also claims about the intangible value of universities when it comes to helping small firms (contract R&D); impacting society (many professors influence the media or participate in societal policymaking and even politics); universal knowledge creation (the idea of developing knowledge for knowledge’s sake); and even claims that political change often stems from universities. We lump these into what we call “intangible university benefits.”

Yet in the age of De-know-polization we have other social means to accomplish these intangible university benefits. Small private or public funded organizations can effectively support such agendas — in fact, in larger countries (U.S., U.K., China, etc.) this is already the case. For other benefits, digital social networks facilitate exactly what the university campus used to do — a place for social unrest that creates development.

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### 5. Case Studies: How Universities Grapple with De-know-polization

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Much can be learned from the experiences of universities in promoting venture ecosystems around the world. In this issue, nine articles explore the opportunities and challenges for universities in this age of De-know-polization. They offer insights into how universities navigate venture by canvassing success cases (e.g. Stanford and Edinburgh), unpacking nascent strategies for furthering university venture in advanced economies (e.g. EIT), and investigating the Univenture models employed in emerging contexts (e.g. Kenya). In so doing, the articles reveal diverse lessons for Univenture system design and operation.

In “Stanford’s Univenture Secret Sauce,” Katharine Ku, the Executive Director of the Office of Technology Licensing (OTL) at Stanford University, reveals the secret to Stanford’s coveted position in Silicon Valley: an attitude. Stanford did not set out to be an engine of regional economic growth, as universities now strive to become all over the world. Rather than an aim of regional development, Stanford, and its OTL in particular, embraces risk, uncertainty, and ambiguity in moving university-fostered innovation to external product or service. For Ku, it’s an openness to collaboration and a risk-loving attitude that underscores the process of licensing technologies, rather than a formulaic approach that adheres to specific criteria.

Another model to learn from comes from the University of Utah, as its venture program generated more than 89 startups in five years (2005-2009). Norris Krueger’s article on the University of Utah’s Venture Program explores this lesser-known story which attests to the pivotal role that program leadership can play — for better or worse. Curiously, though the program tied MIT

in terms of the number of spin-outs in 2008 (and at a much lower cost), when the program's champion, Business School dean Jack Brittain, left the university, the program was wound down. This raises the issue of sustainability: venture programs need a breadth and depth of support across the university in order to withstand individual movements.

In "The Uniqueness of Stem Cell Ecosystems," Adam Bock and David Johnson stress the need for fit with local culture. They explore how successful, but quite different, stem cell ecosystems have developed by not attempting to replicate models from afar, including the often cited models of Stanford, Harvard, or MIT. Bock and Johnson argue that Univenture — particularly in the area of regenerative medicine — is flourishing in environments where: (1) the local entrepreneurial ecosystem is supported, (2) programs prepare entrepreneurs to learn from failure, (3) they promote knowledge exchange beyond their locale and, (4) they customize, not copy, in order to fit the local culture.

Wilfred Mutua Mworira investigates the

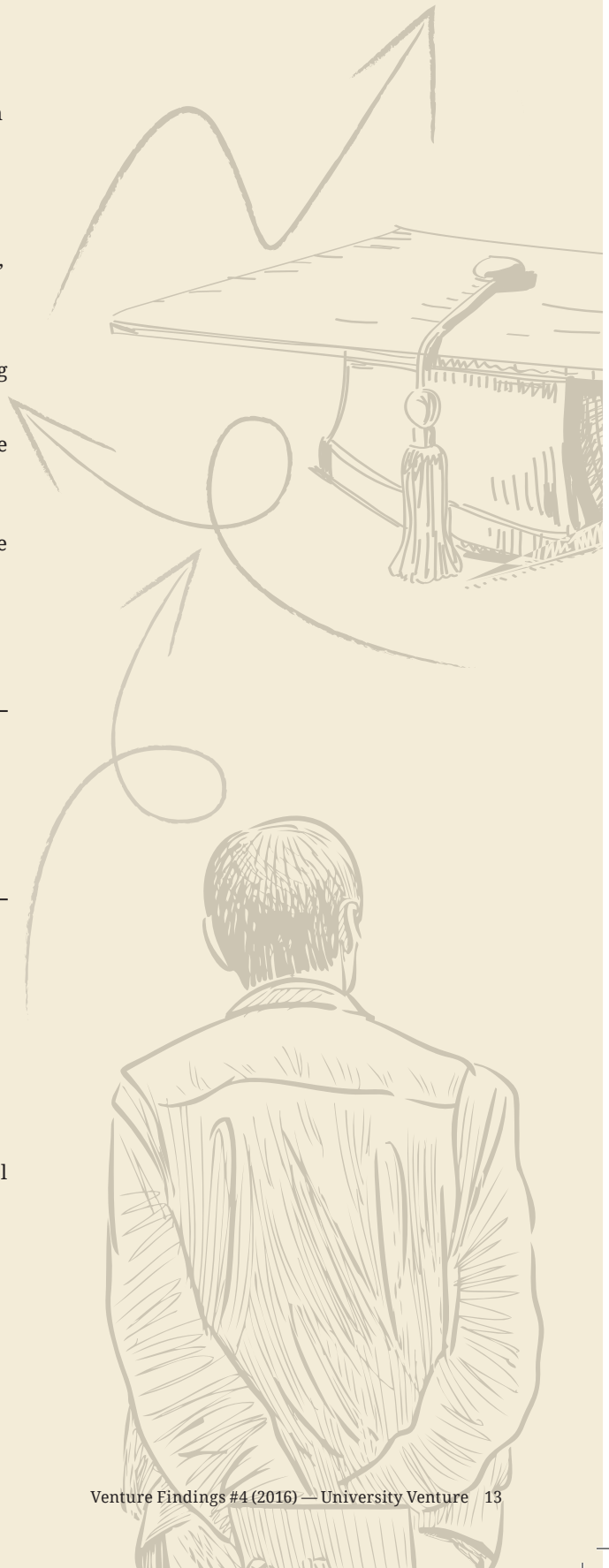
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## MUCH CAN BE LEARNED FROM THE EXPERIENCES OF UNIVERSITIES IN PROMOTING VENTURE ECOSYSTEMS

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approaches by two universities — one private, one public — in an emerging market in his article on "Crafting a Silicon Savannah." Mworira reveals the initial success and failure of the University of Nairobi and Strathmore University efforts and offers lessons for Univenture in emerging contexts. The universities' accelerators and incubators are part of a larger picture in Silicon Savannah: the university as a core driver of entrepreneurial culture, as the provider of necessary skills, and a place for like-minded people to meet and collaborate.

Moving beyond university-initiated programs, Michael Ehrlich delves into the role of the federal government in promoting Univenture in his article "The National Science Foundation's Lean Startup Push." He explores the NSF policy evolution from



# ON THE ELUSIVE NATURE OF IP-BASED INNOVATION POLICY IN CHINA — TWO BLIND SPOTS

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As China tries to upgrade its technological competitiveness to compensate for the loss of low labor costs as a competitive advantage, local governments at the city and provincial level have been working to encourage the generation of innovation. With few exceptions (the Shenzhen area and Tsinghua University Science Park, for example) such programs have not produced significant results. Why not? These efforts often fall into the category of one of two common blind spots that I have witnessed in the last three years:

1. “We want to build the largest IP/innovation trading platform in the country (or the world).”
2. “We want to start a large real estate project to accommodate and promote IP/innovation trading operations.”

These two blind spots have driven many governments to spend their money and time on things that appear to be crucial, but in reality do not deliver impact. Both are what I’d call “hardware projects,” without any attention to the investment in “software,” or human capital, which is the real issue.

Firstly, IP rights and innovations are unique “merchandise” and cannot be traded online easily, like Gucci or Shanghai Tang bags, between many sellers and buyers. Each innovation is truly unique, by definition, so there is no referenceable “market” price. Any IP transaction requires deep due diligence, involving a long process of understanding the needs and particulars of each side, which can take months of hard work. Both parties in an IP transaction must also negotiate many terms, such as upfront payments, royalty rates, performance diligence, sublicensing rights, etc., so the complexity of such transactions is not what a simple e-commerce scheme can support.

Real estate projects do have their unique place in economic development for local governments in China. They offer a quick way for a local government to trade resources they control (land) for more liquid assets (floor space after the development), while leveraging external resources from real estate developers. IP trading or technology licensing requires little space, but that is just an insignificant side note, because the officials need physical trophies — a shiny new building, for example — as a means to demonstrate innovation advancements.

Such symptoms show a “checklist mentality” behind the innovation agenda. By simply following several easy steps, any government can claim that it has accomplished a great deal in promoting innovations. Indeed we have witnessed some commercial operators rising to the occasion to fulfill such checklist requirements, so the project leaders can claim “mission accomplished” and turn their attention onto other issues.

As long as we are talking about checklists, let’s add “sustainable and localized training, on IP, technology licensing, and entrepreneurship” to the list. There is *nothing* more important than building human capital to encourage innovations.

To this end, we at City University of Hong Kong have started building, between our base in Hong Kong and the mainland China market, a channel through which international innovations can be systematically introduced into China. This channel is assisted not by artificial intelligence based on big data, but by real human experts who understand both sides of the channel. We hope to illustrate that an innovation platform with significant human capital investments is the right model. As we have heard many times, after all, technology is ultimately all about people.

the 1960s in order to contextualize its new I-Corps program, which launched in California in 2011. I-Corps provides science and technology management training, teaches the Lean Startup principles, and promotes commercialization. In so doing, it strives to endow Univenture ecosystems with the practical tools needed to effectively transform their novel ideas and technologies into viable businesses. Ehrlich supposes I-Corps to be a model for international constituents.

The inter-workings of Univenture at India's IIT-Madras are explored by Thillai Rajan A. and Ashok Jhunjhunwala. The authors identify the changing expectations of a wide range of stakeholders, namely current students, faculty and staff, corporations, alumni, the government, and society at large. Students want more practical venture education, faculties want the capacity to venture, government increases its emphasis on venture, corporations want more collaboration, alumni want to contribute expertise and capital, and society at large increasingly demands access to IITM's

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## I-CORPS TEACHES THE LEAN STARTUP PRINCIPLES AND PROMOTES COMMERCIALIZATION

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knowledge. As the multitude of stakeholders point towards a greater interest in, and investment available for, venture, so have the venture creation and nurturing offerings advanced, ranging from pre-seed to scaling offerings.

Jean H. A. Gelissen shares insights into the aim and design of the European Institute of Innovation & Technology (EIT). The EIT works to advance the capacity to innovate across the European Union, with specific societal goals in mind. For example, EIT Digital forms partnerships between startups, universities, research institutes, and corporations with the goal of producing digital solutions for issues associated with the continent's ageing population. The outcomes of its efforts are the creation and operation of ventures that offer digital offerings for exercise, social interaction, and memory.

In his article, David S. Lee chronicles how South Korea's KAIST and POSTECH run initiatives aimed at a second miracle on the Han River — i.e. a new economic miracle in South Korea — by driving entrepreneurship and innovation. In addition to the support of the elder President Park, Lee reveals that KAIST, a leading South Korean university, came into being on the recommendation of Fred Terman, the former dean of Stanford's School of Engineering and a prolific figure in the history of Silicon Valley. Since its inception, KAIST has followed suit in the Silicon Valley mantra, as entrepreneurship has been part of the university's core fibers. Just as in Silicon Valley itself, KAIST has benefited from the successes of its graduates, as their successes attracted others to follow in their footsteps. Though there are wins in the South Korean Univenture context, aided in recent years by government policy, significant challenges remain.

Finally, there are questions about how to value the output, or impact, of Univenture. This issue is taken up by Peter T. Gianiodis and William R. Meek in their article entitled "Measuring University Venture: A Proposed Framework." They critique the myopic assessment in the Entrepreneurial University Model (EUM) for being too narrowly focused on monetization and economic value. Universities rely on two salient measures — the number of new firms formed and the amount of licensing revenue — in order to measure the value impact of university venture. The authors argue that focusing solely on these two measures is not conducive to universities effectively managing Univenture stakeholders. The article develops a framework that incorporates more diverse performance metrics that reflect the needs of a wider variety of stakeholders, including faculty, administrators, entrepreneurs, politicians, existing firms, and stewards of the natural environment.

# INITIAL INSIGHTS FROM WITHIN A UNIVERSITY

Nathan Zeldes  
Research Affiliate, Collier Institute of Venture

## Top six themes identified in our exploratory workshop on Univenture

As part of our hands-on effort to understand the relations between universities and the venture ecosystem, Collier Institute of Venture conducted an invitation-only workshop on the subject in December 2015 at Tel Aviv University.

**Audience:** 50 invited attendees, mainly from key Israeli universities (both Faculty and TTO managers), government, and industry.

**Objective:** to generate insights around the role of universities in view of the changes in the world of venture, and to trigger the thinking and discussion needed to further evolve this understanding.

**Process:** the agenda included lectures by leading researchers and teamwork sessions where the participants, working in small groups, explored solutions, directions, and recommendations for further action. In the closing plenary session, which was open to the public, each team submitted a summary of key insights and solution details.

**Outcome:** below is a high-level summary of the recurring themes in the teams' conclusions. A detailed report is available on the Collier Institute website at [civ.global/evnts](http://civ.global/evnts)

- 1. Interdisciplinary research:** Getting researchers to collaborate across the boundaries of Applied Science, Social Science, Business, and the Humanities is seen as highly desirable, though as yet difficult to attain. The advantages range from enhanced creativity to helping better attract the interest of VCs and angels. To attain this, universities will need an infrastructure that fosters collaboration by causing people to meet and talk — such as physical spaces that promote dialog, conversation, and partnership. There is also a need for technologists to learn more about the business world and entrepreneurship, and to attain a grasp of areas like ethics, philosophy, management, and conflict resolution. Faculty should have opportunities to meet “outsiders” – including business development people, TTOs, potential customers, and experts from other disciplines. Events that bring inventors, funders, and strategic partners together (such as those held by Collier Institute of Venture) can help make this happen (see managed resources at [civ.global/unires](http://civ.global/unires)).
- 2. Teaching and curriculum:** Teaching methods and curricula should change to develop students' entrepreneurial skills and mindset. Possible ways to do this are the institution of class curricula that explicitly teach entrepreneurship, the creation of graduate tracks that include entrepreneurship studies, incentives to Faculty to create courses on entrepreneurship, and launching integrated courses that bridge the areas of business, technology, Social Sciences, Humanities, and Fine Arts. Teaching must also change – we need more hands-on experiential teaching, notably through educational initiatives for social engagement and contribution to society. Training can be given to Humanities and Social Sciences lecturers about how to create a venture, while relationships between lecturer and students, to drive innovation and problem solving, can be nurtured.
- 3. Incentive structure:** For university and venture to cooperate, faculty need clear goals and incentives to drive the desired behavior. To that end, the incentive and reward structure in academia (which is focused at present on publication) must change. Patents must be rewarded in addition to publications, complemented by incentives for faculty and students to directly engage in entrepreneurship. Collaboration and teamwork must be rewarded, as opposed to the current focus on individual achievement. Faculty need to be exposed to potential customers and customer discovery teams, using small grant incentives (a good model is the the National Science Foundation (NSF) I-Corps program, described on page 66).

**4. Mentoring:** Our teams saw a need for bringing in mentors from outside the university to facilitate and negotiate commercialization. These can be industry experts, and social and other entrepreneurs from the “field.” They can integrate into the academic process, getting engaged in its aspects of research and teaching alike. They would then help academics to commercialize the outcomes of their research, while also demonstrating the needs that should be responded to. These mentors should work to inspire both faculty and students

**5. Technology Transfer Offices (TTOs):** Sadly, the teams consider today’s TTOs as an obstacle to cooperation; in particular, these firms put off industry types. The major problem with TTOs is lack of transparency: VCs never know what they have coming when entering a negotiation with a TTO. We need to improve the TTOs’ role as mediators, and make interaction more streamlined. There is a need for agreed norms of consideration – a combination of reasonable equity and royalties. These norms should come from

an open discussion between industry and academia, leading to standard agreements between them. TTOs should be located with faculty inside the research departments, not outside.

**6. Balancing basic and applied research:** A tricky question addressed by multiple teams was how to create a balance between basic and applied research: universities need interaction between industry and academia, but must also protect academia’s freedom to act and research. It was suggested that we must put in place a culture of industrial entrepreneurship within the university, while still letting each researcher decide whether to do basic or applied research. A careful strengthening of the influence of industry on university research – through funding, research subject selection, and curriculum – can lead to new innovation, and make the research more concrete without disturbing basic research. This is obviously a delicate balance, but universities must identify the best way to attain it.



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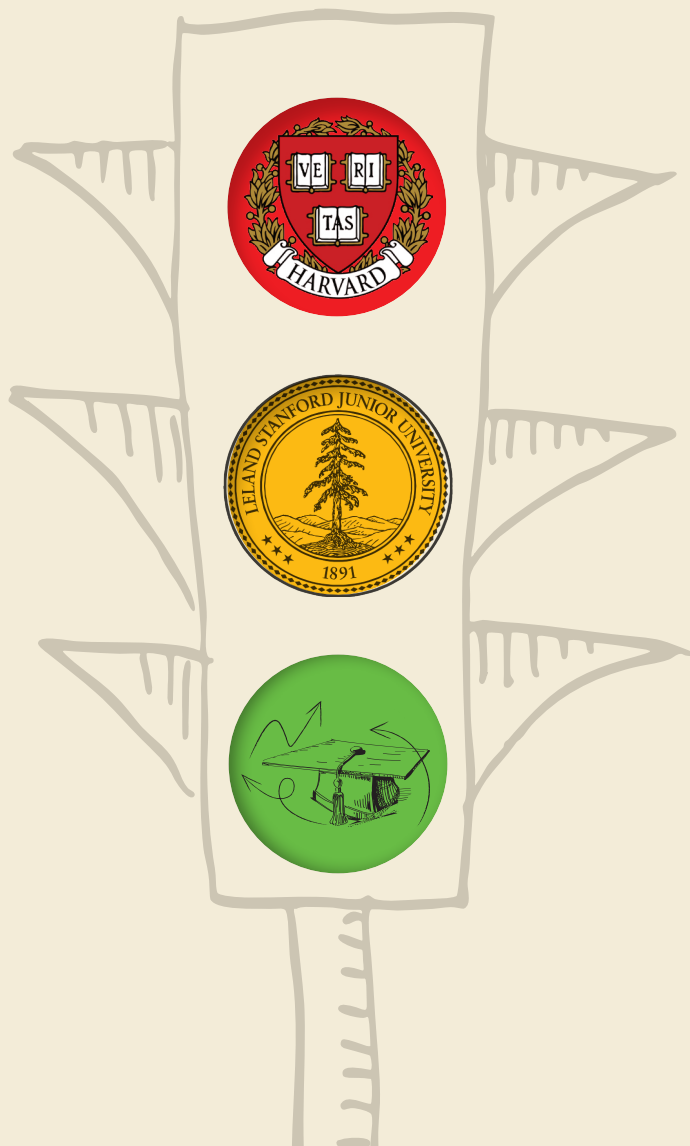
## Conclusion: The Great Opportunity of De-know-polization

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De-know-polization, namely the changing nature of knowledge creation (=research), knowledge transfer (=teaching), and knowledge usage (=service), presents a unique opportunity for universities. In fact, universities are in a good starting point to capture new positions in a world dominated by De-know-polization. Venture in the 21<sup>st</sup> century needs new players. Universities can become such players. Leading universities, leaders of universities, and leading policy-makers are already pushing in the right direction. As with any disruptive market, there are opportunities to leapfrog the older players. New players, and innovative older players, will reap the benefits of De-know-polization.

Local leadership needs to skillfully match local conditions. Here is our advice:

- **STOP: Don't be Harvard.** Be yourself — this is one of the key lessons from the seminal book: *The Innovative University: Changing the DNA of Higher Education from the Inside Out* by the Innovation mega-maven, Harvard Professor Clayton Christensen, and his co-author Henry J. Eyring. Most universities cannot emulate Harvard, you must figure your own strategic way.
- **CAUTION: You are not in Silicon Valley.** What works well in Silicon Valley will not work well outside of Silicon Valley. Furthermore, what used to work in the past, in the sense of universities being a hub of economic activity, is no longer the case. This is especially relevant in places where universities are expected to boost local economies. Again, each university needs to match its strategy with its locale, while connecting to the global world.
- **GO: Seek new models for research, teaching, and service.** Mostly make good decisions about focus. A plan of no action (itself a common choice) will lead to an inevitable demise. Business as usual now means no business at all in the future. Better you lead the change, than the change lead you.



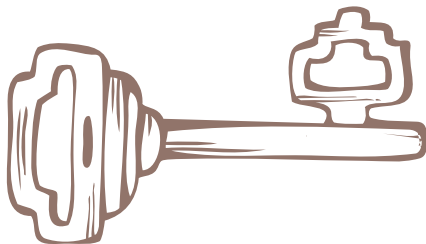
## CIV HISTORY OF VENTURE DATABASE

Issue #2 of *Venture Findings* was devoted to the theme of the History of Venture, and focused on the explosive growth of innovation and the venture ecosystem in the past century.

In addition to a number of insightful articles, the issue showcases the Coller institute's HOV Database, which lists 160 entries.

These include inventions, discoveries, ventures, organizations, and other events that played a key role in venture from the start of WW1.

In this issue you will find cross-references to this database, which are marked with the key icon and database entry number.



## FURTHER RESOURCES

A seminal book that connects disruption and universities: *The Innovative University: Changing the DNA of Higher Education from the Inside Out*, by Clayton M. Christensen and Henry J. Eyring (Jossey-Bass, 2011).

A project attempting to evaluate all universities worldwide based on their web presence: Webometrics Ranking of World Universities, <http://www.webometrics.info/en>

For more information about Harvard's US\$100 million Breakthrough Starshot project, <http://www.breakthroughinitiatives.org/Research/3>



*The World Wide Web:  
#HOV8107 in CIV's  
History of Venture  
database*