

CHAPTER 3

Partnering on a Global Scale

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INTRODUCTION

The past decade has brought tumultuous change to industry, effectively rewriting the assumptions and rules of how global business is conducted and of where to locate one's operations and why. The advancement of information and communications technology, the ready access to a global delivery infrastructure, the pervasiveness of worldwide supply chains, the easy access to new and undeveloped markets, and the ability to move thought, information and materials around the globe quickly and easily have contributed to a leveling of the playing field which was once thought to be the exclusive purview of larger companies. With ready access to information, materials, capabilities, other people (human capital), specialized talents and markets (both developed and undeveloped), and with today's infrastructure, it's possible for any individual to become a product designer, a service provider, a systems integrator, a solution provider, a marketer or even an e-commerce channel, and literally create the enterprise of their dreams, large or small. The power of many is rapidly on the way to becoming the power of one.

Yet this shift in capability has not come easily, nor without significant disruption and cost. To get to this point, companies have struggled mightily with their structure, growing explosively in some regions while shrinking in others. They've been engaged in downsizing, rightsizing, rebalancing, offshoring, onshoring, outsourcing, insourcing and just about every form of restructuring as they attempt to adjust their work flows and processes to the new rules of globalization. In recent years, almost every form of value creation and service

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delivery has been disintermediated — and if it hasn't been changed already, it will be soon. The form and structure of just about everything we know is changing, and the question of how not only to survive, but to thrive while all this is going on remains a challenge.

At the highest level, we know from experience that the three pillars — education, entrepreneurship and innovation — can bring lasting success and prosperity to societies. They are built upon a strong partnership between government, universities and industry that takes years to put into place, and can pay many benefits and dividends far into the future. This partnership must be cared for, invested in, shepherded, optimized and moved forward into the future if continuing benefits are to be derived from the investments made.

Yet not all three partners have fully adapted to the global world, and the opportunities and perils that it presents. To date, industry has largely been leading the charge with respect to globalization. Whether this is advantageous or not seems to be a side discussion. No one in industry believes that they can resist the forces of globalization. They must understand what it means to operate in a “flattened world”, and they must figure out how to adapt, to take advantage of the benefits, to mitigate the limitations and risks, and, in short, they must learn how to be global companies and citizens in order to bring their unique value to an ever-increasing range of potential markets and customers. It's particularly interesting to note that at a recent meeting of innovation and thought leaders in Silicon Valley and the San Francisco Bay Area, we've noted that even new start-up companies are starting out their lives as global firms. Companies with a mere handful of people (5-10) have employees located in multiple countries and regions of the world, for a variety of reasons that make sense to their particular enterprise and what it's trying to achieve. The new notion is that global does not necessarily equate with big, but global is necessary for survival, from the outset.

Universities are not nearly as far along in their adaptation to a global environment. While they do possess many of the raw building blocks and values to be globally situated (communities based on open inquiry, the free exchange of ideas and knowledge, philosophically, politically and religiously agnostic, etc.), they are still fundamentally a local enterprise. What does it take to achieve cohesion in a university setting? And what does it mean to have multiple locations or sites, in different cities, regions and cultures of the world? How does all this enhance the learning experience and the pursuit of new knowledge? And how can higher education institutions navigate the minefields of legal and regulatory requirements, governmental support, taxation advantages and other hurdles as they grapple with the challenges of globalizing?

We will begin by looking at some of the factors that motivate their need to become increasingly global in a flattened world.

TRENDS AND DRIVERS OF GLOBALIZATION

Unprecedented Levels of Networking & Interconnection

The internet, together with the information and communication technologies, the global materials delivery infrastructure and the worldwide supply chains have brought us into contact with our colleagues and partners at the far reaches of the planet with merely the click of a mouse or the dialing of a phone. Individuals, companies, industries and ecosystems all move “stuff” about the planet, with little or no concern for its ultimate destination, or even where it might be located at the present moment.

It could be argued that universities were the forerunners to globalization. They began the whole process of building interconnections and linkages by using their abilities to attract students from far and wide, with their exchange programmes, their sabbaticals and their gatherings (conferences, symposia, etc.) to support the free exchange of knowledge and ideas. One could argue that the whole networking and interconnection movement began with the actions of universities throughout our global society.

It could also be argued that universities are communities, based on an open attractor model. They are communities, yes, but of what? Are they communities of individuals? Or of departments? Of faculties? Of schools? Or of colleges? At what level do the elements of a university federate into an overall cohesive whole? For decades, companies have been asking similar questions to these about their own sub-structures, as they attempt to locate branch offices and satellite operations in other regions apart from the parent location. Yet the old notions of branch offices and satellite locations are far removed from the present-day models that underlie a global company. What are the equivalent structures for the modern university enterprise, for higher education delivery, and for the interconnected network of global community elements? And how will the present-day knowledge delivery systems become disintermediated and reformed as the universities explore, adapt and discover the models that work for them in the globalized flat world?

The one thing that we know for sure is that just because universities were the forerunners and early beachheads to linking with others in remote regions and countries of the world does not necessarily guarantee them any leverage or special position with respect to conquering the challenges in present-day global operational models and knowledge delivery systems.

Global Talent and the Flow of Ideas

Universities have traditionally been founded on the premise of knowledge creation and a continuous flow of new ideas. They have long been in competition for the “best and brightest minds” (both students and faculty members)

to attract to their institutions, to further its outputs, amplify its impact and to enhance its reputation.

In a flattened world, the access to new minds, new people, new ways of thinking, new ideas, new modes and models of operation, new philosophies, new orientations and new knowledge grows significantly. One could easily argue that not to take advantage of the radically enlarged supply of talent and ideas would be to put one's institution at a disadvantage. For that reason alone, access to the wider supply chain of knowledge, ideas and people would be a compelling argument to adapt one's university into a more global enterprise.

Globally Nuanced Offerings

On the other side of the supply chain are the outputs. What are the outputs of a university (thoughts, ideas, students, knowledge), and how are they perceived and received in other regions and countries, apart from the home soil?

Companies have long ago realized that the products and services they design and deliver in one region of the world don't exactly work well and aren't necessarily well received in other areas. To provide compelling value globally, they must increasingly nuance and tailor their offerings at least regionally, perhaps even locally.

One of the outputs of the university is new knowledge. Yet, is new knowledge creation truly universal? Or is it situational and cultural? What are the trends in this area, and what does our experience reveal to us? We would argue that specialization and nuance are the elements that make knowledge and the application of knowledge both academically interesting and impactful to society. Without nuanced outputs and regional application of its work, the higher education institution runs the risk of being recognized for valuable contributions in its locale of origin only.

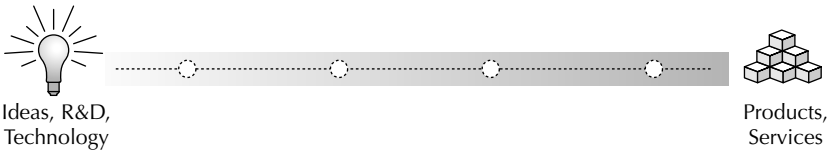
The Disintermediation of Innovation

Innovation can be described as the process whereby new ideas are converted into tangible value and benefit to society. Traditionally, this has been accomplished through a complex interplay of processes — research, development, commercialization and delivery of products and services into both new and existing markets of those who would enjoy the benefit of the work. This complex interplay has been achieved through a combination of investments in infrastructure, and through government, university, and industry actions and initiatives to enable new value nets to be formed.

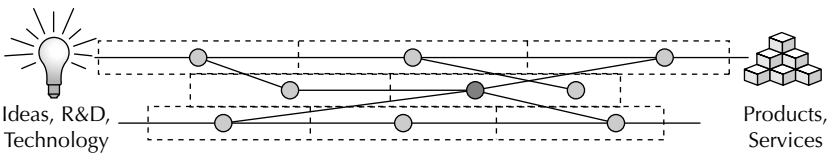
Today, the word innovation is on the lips of most every thought leader, seminal thinker, government official, industry leader and academic visionary in the quest to find and apply new knowledge to the situations and opportunities at hand. Yet how we innovate today is quite different from 5-10 years

ago. The flattened world has simultaneously brought us access to orders of magnitude, more ideas, knowledge, talents and people, as well as to many more both undeveloped and existing markets and opportunities than can possibly be imagined.

As a result, the form and structure of our one-dimensional value chains are being totally transformed into multi-dimensional value nets. The old vertically-integrated value chains were optimized to have a few inputs (materials, technologies, components) and a single set of outputs (identified markets and targeted customers). These one-dimensional value chains were typically embodied within a single company, and the intermediate, middle nodes in the chain were opaque and hidden from view. They served only to fulfil their roles in a single, one-dimensional value chain, optimized for the contribution that a single company could make.



The new open, multi-dimensional value nets (multi-dimensional networks of multi-input and multi-output value-creating nodes) are flexible, dynamic, reconfigurable, and robust — they adjust and adapt as technologies and materials (inputs) come and go, and as markets and customers (output destinations) shift expectations around what is desirable and wanted. Intermediate nodes no longer create value for a single value chain only, and are sub-optimized within the organization they serve. In the value net model, they have the potential to become independent agents who draw their inputs from multiple cross-industry, even cross-regional, value nets, and contribute their unique outputs to multiple other value-nets across the globe.



Thus, the old value chain has effectively become disintermediated, reformed and re-linked, and has become one level deep in both directions. Consider the example of the IBM personal computer, created and developed inside the walls of a single, vertically-integrated company (IBM of the 1970s, for example.) Graphics chips designers (intermediate value-creation nodes)

inside the company would design and develop graphics chips only for this particular product line. The skill development, the R&D investment, the production costs, etc. for graphics chip design would be limited to that which could be apportioned out from the sales of this particular product line, and its success in the marketplace.

In today's value net model, there are whole companies built around the creation of graphics chips. NVIDIA, ATI and numerous others create graphics chips for many PCs — IBM, DELL, HP, as well as games consoles by SONY, MICROSOFT, NINTENDO, etc. The graphics chip companies build competencies, conduct research, advance their field and move it ahead, reduce costs, and compete with each other to achieve success and excellence. And the market has rewarded their efforts with increased opportunities to employ the results of their work (inexpensive, highly sophisticated graphics processors) in many more places than were originally thought.

The pattern repeats, recursively. Even graphics chips companies (of late) have been disintermediating and restructuring — outsourcing and partnering with research houses in algorithms research, collaborating with CPU makers on pipeline design, and extending their reach into other nodes of the network where they can source inputs and market their outputs.

This disintermediation and restructuring even applies to a “company of 1” (the limit case). With today's infrastructure, a single individual can do complex research and aggregation of knowledge and ideas, without ever leaving their house. Similarly, the potential customers or consumers of what that individual might want to create are one click in the other direction. Consider eBay and the markets and opportunities it has created for literally millions of people.

As a result, we would argue that the very form and structure of innovation are totally changing, and the contributions that individuals and companies can make are accelerating with breakneck pace. The processes of innovation are rapidly unforming and reforming into a network of relationships and interconnections that were previously impossible to envision.

During the past decade, industry has been working in the restructuring of their processes and work flows, making them more suited to a globalized world, while universities are only at the beginning of their comparable journey. Academics should now look deeply and insightfully at their knowledge creation and delivery processes, as well as their value delivery networks. What does it mean for an individual researcher to access the world's knowledge base and to build interesting relationships with others of similar interest? What impact does globalization have on the “input-side” of the equation? And how does a research contribution or knowledge element get used, to provide impact and benefit to others? How is that range extended in a global, flattened world? Looking at both of these areas would provide some useful leverage points in re-architecting the global knowledge enterprise of the future.

The Open Model

With a robust infrastructure, and together with the advances of the past decade, it's now possible for new knowledge to be created at every single node in a value network, intermediate or otherwise. Previously in the older, more closed and proprietary value chains, new knowledge and new value were more likely to be created only at the ends of the net — at the research and development end (more closely tied to discovery and basic science), and at the application end (more close to what customers are experiencing and how the contribution will be actually used).

With today's value nets becoming effectively a collection of value chains one level deep, innovation can now radically increase at each and every node in the network. The pervasive creation of new information and new knowledge leads to a shift in perception as to what constitutes value. When knowledge and information were limited, the value was more apt to lie in its availability, driven by scarcity. Once knowledge and information become abundant and pervasively available, the value lies elsewhere. It shifts to become more rooted in how knowledge and information can be connected, aggregated and combined with other knowledge and information. As a result, interfaces (the language that knowledge is expressed in) and connection standards (the cultural expectations and values surrounding its use) now play a much more important role to enable this next level of value migration.

One could argue that value will move from the aggregated and linked knowledge/information, to its first derivative — how quickly can one evolve and adapt the knowledge connections and make it situationally applicable and useful for some purpose. As a simple example, consider how quickly the trillions of web pages that exist in cyberspace are relinked, reformed and repurposed every minute, as people evolve their thoughts and their creations in real time. The value of a single web page is not as dependent on what's in it, but as to what it links with, and how it enables one to navigate the global thought space of the web. Rather than hold one's own few paragraphs of precious thoughts and insights private, it's more valuable to put them out there, and enable others to build on them, link them, utilize them, tailor them, nuance them, abstract them and develop them into building blocks upon which others can also build.

MODELS OF PARTNERSHIP

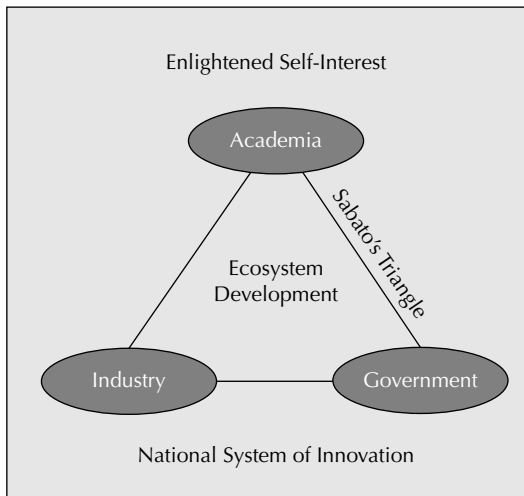
As we travel around the world, we see a variety of models for partnership among governments, universities and industry in their national innovation ecosystems. At this time, it's unclear which of these will be more successful than others. However, it is clear that the participants in these partnerships are committed to learning and adapting their models over time to make them be successful.

2-Pole Partnerships

2-pole partnerships are the classic models of interaction between two of the three stakeholders — universities, industry and government. Yet even the classic form of collaboration between a university researcher and their industry counterpart is changing. New structures are emerging and old boundaries are being broken down, as research work begins to become disintermediated in the global ecosystem.

3-Pole Partnerships

In the 1940s, an Argentinean physicist named Jorge Sabato invented a theory describing the necessary relationships between academia, industry and government, along with feedback loops for constant improvement as prerequisite to an optimal system of innovation. He correctly said that if any of these paths in “Sabato’s triangle” were weak, the national system of innovation would function poorly.



This arrangement of relationships works best against the backdrop of “enlightened self-interest” — a motivation where relationships are built on shared interests and mutual objectives, and where investments align to produce multiple, significant outcomes. This idea of “enlightened self-interest”, not just self-interest, creates the foundation for partnerships that last, and have resilience and durability.

Megacommunities

A new type of structure for addressing complex situations is the megacommunity — a large, ongoing joint initiative among organizations that share a

complex problem, the resolution of which defies unilateral solutions and depends instead on collaboration among multiple organizations to achieve a mutual goal. The megacommunity grows through informal networks of people with commitments that they act on together to make a difference. Organizational charters, structures and hierarchies matter much less than people's individual commitments. These communities of shared intent grow out of personal relationships and informal networks and enable the pursuit of comprehensive, multiyear, sustainable work.

The megacommunity approach has several notable qualities. "First, it takes advantage of self-interest. It doesn't require leaders of organizations to give up their drives for personal wealth, power, status, or recognition. Nor does it require organizations to forfeit their own objectives. Individuals and organizations come to megacommunities when they recognize that the problems facing them are more complex than they can solve alone."

Second, a megacommunity enables stakeholders to take on larger social goals. At one meeting, a senior finance manager of one corporation said: "War is now obsolete. War in any country harms our company because we do business in every country."

Third, a megacommunity helps a region deal effectively with the goals of global competitiveness and the need for local quality of life and equity. As the megacommunity work raises awareness among the leaders of a region's organizations, they become better equipped to pursue these objectives.

EXPERIENCES IN GLOBAL PARTNERING

2-Pole Partnership Example

For those of us who grew up in the '60s and '70s, the idea of thinking globally and acting locally became engrained and second nature. Today, things have turned around and, in light of globalization, we really must think locally but act against the global landscape. Clearly over the past five years, the emergence of China and India alone has changed economic expectations, opportunities and success criteria. Beyond that are the activities going on in Singapore, Taiwan, Korea, Ireland and a number of other countries. Clearly the balance of power is changing and it seems to be in direct relation with technical human resources and national systems of innovation that work.

One model that China is using involves universities like Peking University partnering with various companies. In this example, the university takes the role of R&D while the companies perform marketing, sales and manufacturing. Professors can hold executive positions in the companies, and students move easily between the campus and the company offices. This provides real-world experience to both graduate and undergraduate students.

Interestingly, although this close symbiotic relationship between the university and company is supported and encouraged in China, it is looked at with discomfort and even alarm in the US and Europe. The R&D involvement of the university with the company is looked at as violating the objective, arm's-length relationship that typically exists between US universities and companies. Also, the role of professors in the company's management is viewed as a potential conflict of interest, where this occurs.

Because of these concerns, partnering between US and European entities and their Chinese counterparts can present some interesting challenges: If you partner with a Chinese university, would you have an inadvertent interaction with a company that is your competitor in global markets because of the R&D being done at the university?

What is not in contention is the clear benefit to students who are able to do real-world applied work. Because some companies choose to locate their R&D function in universities, students can now perform their internships within the university environment, as opposed to having to do an internship in a company.

Another example of a 2-pole partnership is Tsinghua University and its relationship to the Tsinghua Holdings Company. The university owns this holdings company, which has capital of RMB 2 billion yuan (approximately US\$260 million). Tsinghua Holdings provides a platform for science and technology development, research commercialization, startup incubation, and international cooperation. Tsinghua Holdings has invested in 80+ portfolio companies in areas including IT, energy and environment, and life sciences. This represents another relationship model which has been successful (during the period from 1991 to 2001, the total revenue of Tsinghua companies increased 100× to \$1.2 billion). Several global companies are present at Tsinghua's Science Park. This type of relationship is not common in some countries, yet global participants need to be able to work with all of these kinds of relationship models.

3-Pole Partnership Examples

In Taiwan, the Hsinchu Science Park was founded in 1980 and is administered by the National Science Council. Its purpose is to attract investment in high technology industries and to stimulate local high-tech companies, focusing on employment and wealth creation.

Illustrating Sabato's Triangle, there are multiple companies, universities and government agencies engaged in supporting HSIP. Significant government investment includes Executive Yuan Development Fund of \$8 billion, Chiao Tung Bank of \$12 billion and government investment of \$520 million in land and infrastructure. There are aggressive corporate, shareholder and individual tax incentive programmes. There is a broad collaboration of aca-

demics, including partnership with Chiao Tung University, Tsinghua University and the Industrial Technology Research Institute.

Over 20 years, HSIP has grown from 17 companies to 312 companies. Nearly 90,000 people are employed in science and engineering based businesses in HSIP. HSIP is growth-oriented, and continues to attract private investment.

Another example of a 3-pole partnership is Singapore, where government, industry and universities have all aligned their efforts to create partnerships in science and engineering. Long-term thinking and top-down design have been the hallmark of Singapore's efforts to create an economy and infrastructure to foster government-university-industry collaborations.

In 2000, Singapore started an ambitious drive to become the Asian hub for biomedical research. This effort has received significant government funding, including US\$2.7 billion in research funding by the Agency for Science, Technology and Research (A*STAR). Also, the Biopolis complex, a \$190 million project, has been started.

Singapore has designed incentives into its structure that promote collaborative activities, and has worked hard to design out the kind of in-your-face competition that is characteristic of US and Europe, as well as to mitigate the forces and factors that foster corruption.

Singapore is one of the most technology-intensive nations in the world. Singapore Science Park is a government-sponsored initiative designed to provide a focal point for high-quality infrastructure for R&D. This has become a significant location for state-of-the-art research and development, and has driven significant economic growth, creating about 300 technology companies between 1982 and 2000.

Yet another variant of a 3-pole partnership is exhibited by TR Labs, a non-profit organization in Canada involving a consortia of companies and relationships with five universities in Edmonton, Calgary, Saskatoon, Winnipeg and Regina. TR Labs receives financial support both from the Canadian government and member companies. TR Labs embraces an open innovation model for itself and its member companies, bringing together both internal and external sources of technologies. One unique aspect of this organization is that it also acts as an integrator of these technologies, as opposed to a point-source distribution channel which is commonly found in these types of structures. TR Labs endeavours to provide value to its government, university and industry partners in support of their various missions, such as economic development desired by government, and relevant experiences for students and faculty.

Megacommunities Example

In 1998, a group of colleagues from Raytheon, ISTE, NSF, the University of Puerto Rico Mayaguez and PUC Rio met at the ICEE Conference in Brazil and began developing a vision for better preparing engineers to address the

economic development needs of Latin America. In 2001, this same group visited Hsinchu Science Park in Taiwan to gain a better understanding of the global technical competitive landscape and envisioned how the lessons learned from Taiwan could be transferred. In 2003, the group held a workshop of like-minded thought leaders in Brazil where the idea of “Engineering for the Americas” (EftA) was endorsed. This expanding core group, now including HP, then established a partnership with the World Federation of Engineering Organizations (WFEO) and the Organization of American States to focus on quality assurance for engineering education. World-class engineering education, developed with industry partnership, attracts investment that helps a region or country retain its graduates, rather than lose them to emigration.

In nine years, projects led by Lueny Morell, HP’s University Relations director for Latin America, Luis Scarvada from PUC Rio, the accreditation bodies from Canada, Mexico and the US, and by Russ Jones, chair of the Capacity Building Committee of WFEO, grew to involve multiple stakeholders from industry, universities and both governmental and nongovernmental agencies, including engineering education and accreditation agencies. This EftA megacommunity now includes the Organization of American States Ministers of Science and Technology, funding bodies such as the Inter-American Development Bank and the World Bank, and various organizations that support programmes for the innovation of engineering education and the establishment of quality assurance mechanisms in the region.

NEW MODELS OF INNOVATION

It’s clear that everyone continues to struggle with and adapt to the forces of globalization, and to find their particular “place in the sun” in this ever-changing landscape. While universities have provided some of the initial connections and beachheads in building relationships with those in other locations on the planet, during the past decade companies have focused intensely on disintermediating and reforming their structures to allow them to take advantage of the benefits of a flattened world, while simultaneously being able to mitigate the disadvantages in order to stay competitive.

It’s also clear that emerging and developing nations are working hard to lay the foundation for increased prosperity for their citizens, and increased participation in the global landscape with their own forms of government-industry-university partnerships, and the infrastructure and societal investments they are making.

Of late, it has become more and more apparent that the models of innovation are disintermediating. They are changing shape and scope, crossing boundaries and contexts, and are unforming and reforming into new structures. And these new innovation paradigms and processes are crossing over

the boundaries that have traditionally provided government, university and industry separation.

Innovation Becomes Pervasive

In the industry space, it used to be that in order to deliver a significant product or service, one had to perform work inside a large or at least mid-sized company, in order to have access to the resources, support and infrastructure needed. As was argued earlier, today literally anyone can become a product designer, a service provider, a systems integrator, a solution provider, a marketer, or even an e-commerce channel, and literally create the enterprise of their dreams, large or small.

Yet what are the equivalent roles in the university space that have traditionally provided value inside large and mid-sized institutions? In a globalized, flattened world, and with a pervasive infrastructure, is it possible for literally anyone today to become a researcher, an instructor, a teaching assistant, a professor, a dean or an administrator? Setting aside for a moment some of the immediate issues at a model level — what is the value proposition and advantage that a large or mid-sized institution provides to those individuals performing those roles? And how has it changed, and how will it change as universities struggle to adapt to the forces of globalization?

Recently it has come to light that many companies are now out-sourcing even their executive talent — it's possible to “rent a CEO or a CFO” for 3-6-12 months, if one needs a particular skillset or uniquely experienced leader to navigate a company through a near-term transition. Will we see part-time multi-institution professors, or part-time deans who have allegiance to more than one institution, and who can make their unique contributions in multiple value nets simultaneously? And how will they be recognized, rewarded and compensated?

The New Cohesion

Universities have traditionally been communities of individuals who come together around the joy of new knowledge discovery and the satisfaction of passing along the skills of learning to the next generation. Intrinsic rewards have included the freedom to pursue areas of interest and to be associated with the prestige and reputation that goes along with a particular institution, their faculty and staff, and their place in the community. Also, faculty and researchers have typically foregone the more near-term, monetary rewards normally associated with for-profit companies.

Yet this is changing dramatically in recent times. Witness the entrepreneurial spirit that is now growing within universities, and the desire of professors and faculty to be entrepreneurial and to become founders of companies apart from their university duties. Witness also the battles over research spon-

sorship, intellectual property ownership, licensing and commercialization, and who should receive the monetary benefit from ideas that spawn some interesting marketplace contribution in later years. As the roles, positions and structures in university systems and higher education disintermediate and dis-aggregate, and as individuals become more flexible, accomplished, and migrate between institutions, what will be the values that create cohesion in the new order, and how will power shift from the brand-reputation of institutions to the brand-reputation of a single individual? Questions such as these will undoubtedly be answered in practical experience terms, as universities struggle with issues similar to what industry has experienced over the past decade.

Models of Globility

It has been said that: “In order to be a truly global company, we must look more like the world in which we operate.” This statement evidences a radically different kind of deep understanding than was at the root of the branch offices and satellite locations that companies typically operated in the 1970s. Much of the previous motivation was based around “selling our products and services to a much larger audience”. Unstated assumptions centred around “ours is the right way” and “exporting our models to other regions of the world” motivated behaviours which failed to respect the cultures and values of the other regions, as well as to ignore the nuances that would be required in order to successfully serve customers in distant markets.

Today, it’s commonplace for executives and boards to be aware of and concerned about the social good in all the regions in which they operate. There’s recognition of the unique facets and aspects of every region, as well as a commitment to satisfying latent customer needs and situational factors in those locales. To succeed at being global, one has to succeed at being local many times over, developing differentiated value, cultivating customer loyalty, bringing products and services which make a contribution, and being responsible corporate citizens and stewards of both the physical resources and human capital that are available. Every company must literally become a local integrator with global knowledge perspective.

The model of creating multiple “mini me’s” simply no longer works. This was aptly described in a recent IBM article “Hungry Tiger, Dancing Elephant” that appeared in the *Economist*. In this article the global model that IBM is pursuing was outlined — one of instantiating multiple IBMs in every location on the planet, while federating those regional entities into a global network of a single company that is built upon the success of regional accomplishments.

Along with the IBM model, there are undoubtedly many other models that will struggle to find success in a globalized world. So what would a global university structure look like? Will universities have to go through the “branch

office” and “satellite operations” structures, or will they be able to leap ahead, benefiting from the 10+ years of struggle and learning that corporations have accumulated, as they have dealt with similar issues in their own arena?

SUMMARY

At one level — the structures and locations level — we know that everything must and will change. The elements of our institutions and our companies will disaggregate and disintermediate — they will change form and new structures will emerge. These will, in turn, go away and give rise to yet newer structures as we attempt to adapt to and thrive with the forces of globalization.

Yet, at another level, there is much stability. Here we find agreement in what we know philosophically, and uncover commonality in our discoveries from experience. We know that there will simply not be one model of innovation. There will be multiple, and they will grow, develop, and adapt over time. We must not only allow for and design for multiple models of innovation. We must anticipate them.

We know that in order to be a truly global entity, that entity must more closely match the world in which it exists. It must have multi-disciplinary, multi-cultural, multi-dimensional aspects, and be diverse, networked and connected, locally optimized, flexible and situationally adaptive, yet able to draw from the knowledge and resources available throughout the world.

There is also an irreversible trend towards openness. Contributions, achievements, and processes that are rooted in closed or proprietary architectures (“control points”) will ultimately give rise to more general, flexible structures. Value will migrate more along the lines of human learning, discovery and evolution, and static, proprietary approaches will become obsolete and no longer offer the compelling value they once had.

A surprising discovery with our ever-shrinking world is that one no longer has to be big in order to be global (either companies or universities). In past, being global was once thought to be the privilege of large, profitable, well-established companies. With the pervasive infrastructure, and with the newly flattened world, it’s now possible for start-up companies of only a few people to be global, to have people, markets, supply chains, etc. in multiple countries, even in their fledgling state.

Finally, advances in infrastructure require all three elements of Sabato’s triangle. The achievement of a flattened world and pervasive infrastructure today is the result of investments and partnerships between government, universities and industries in our past. We truly do stand on the shoulders of giants. Many nations and countries are recognizing this, and are working hard to instantiate their own particular versions of the 3-pole partnerships to make their future success happen.

Globalization is here to stay. But no matter how we globalize, we get to choose how we go about it. Our philosophical orientation can be one of self-optimizing, self-maximizing, and self-interest promotion, usually rooted in scarcity. Or it can be one of openness, collaboration, and partnering, rooted in a win-win-win-win-win philosophy, and drawing from unlimited abundance, creating the future that all can share. The choice is ours.

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