State Foresight, Innovation and Entrepreneurship: The Case of Economic Development, E-Learning and Outsourcing Industry in Uganda

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Abstract

Uganda's President Musaveni understood that Uganda's future could only progress via engagement with the global economic system. The success of the first, education-based phase of this initiative, however, produced 800,000 college graduates with few job prospects. An online global education network offered training to these graduates to help Uganda achieve a competitive advantage in attracting outsourced jobs. The convergence of the two visions behind the initiative led to an innovative solution to the challenges of post-graduate education and employment. The science of networks and research into the structures underlying organizational creativity provide guidance for implementing this process in institutional settings.

Keywords: foresight, online education, outsourcing, Uganda, Africa, networks, systems thinking, knowledge networks, developing world, global economy

Introduction: Complexity in Foresight Models

Linking multiple sources of input and feedback is a critical element of all foresight practices. The need to integrate cognitive, organizational, and strategic models often leads to a highly complex map of foresight procedures. In general, organizations tap knowledge-managers (internal or external) to generate and guide the integration of new knowledge through a process designed to maximize the effectiveness of the knowledge network and the efficiency and creativity of the dis-

course that the network supports. Newly generated ideas and information are then subjected to analytic modes designed to push thinking farther into the future or into areas of significant complexity (else, there would be no "foresight" involved, as the term is relative by nature). In this regard, Contractor and Monge (2002) propose a multi-theoretical, multilevel model (MTML) of knowledge networks that addresses, "the psychological, social, and communicative theoretical mechanisms that help us understand why individuals and aggregates forge, sustain, or dissolve knowledge network ties with other human and nonhuman agents". MTML addresses the mechanisms by which foresight structures often coalesce; construction of the knowledge network and activation of its foresight activities result in a complex blueprint for refining ideas. MTML is enlightening from a theoretical perspective and it does inform the foresight process, but in practical terms, it turns the process into a labyrinthine journey that does not necessarily reflect the actual experience of turning foresight into action.

Great Britain's admirable "Foresight Programme", an example of government-cultivated foresight, oversees a multi-stage process of brainstorming to determine possible projects for the program. Topics are then listed and experts in various industries consulted. The project must win "the support and endorsement of the government department with the policy lead for the subject", a "high-level stakeholder group" oversees all projects, and the project draws together in-house teams and a network of experts to "work closely with the Foresight project teams" (2007). The Foresight Programme seems to have achieved success, and the cross-fertilization of ideas among experts from various fields and the relatively short time-lines for such extensive project development speak well of its approach. Again, the foresight process is managed and guided through a procedural system that reflects the complexity of an industrial assembly plant. That it is enacted with imagination and flair makes it work, but our point is that it still represents a complex, mechanistic model of foresight that can easily become cumbersome and over-managed.

Michael Godet (2006) points out that complexity need not attend the act of foresight (p.16), that the most successful principles are streamlined and fundamentally simple, but the nine-stage scenario development process he elaborates (p.24), with its "several loops", while elegant and action-oriented, nonetheless indicates the difficulty in simplifying a structure-based approach to foresight. Similarly, Canongia, Lamb, Oak, & Silva (2007), in their review of methods of using competitive intelligence for futurist planning, focus on a six-stage process of "planning, collection, treatment, analysis, dissemination and feedback", each of which occasions a set of other procedures. For instance, "treatment" requires "standardization of items of data, the harmonization of concepts, the application of software and applicatory based in bibliometria or artificial intelligence and the generation of knowledge maps to subsidize the following phase, analysis."

Breaking down a methodology into specific steps and stages is often necessary to achieve a clear picture of it and legitimize it for others. Description itself often generates a more thorough "plan" than actual implementation requires; many steps that must be detailed in writing turn out to be combined in actual practice. Nonetheless, the paradigm of a large-scale, complicated foresight mechanism through which ideas are

fed like raw materials with an expected output (a "plan", "scenario", "decision", etc.) is prevalent in the literature, even when streamlining and elegance are the stated goals.

Sohail Inayatullah (2001), examining modes of futures foresight, speaks to the utility of multiple complementary methods. Interestingly, four of seven methods he lists rely on a deep awareness of history, a concept with which the current authors are in full accord. An appreciation for the past is often deeply embedded in individuals prone to thinking ahead in time. Inayatullah's emphasis on history speaks to a personal, intuitive element upon which our own model relies. Inayatullah also notes how each traditional foresight method contains substantial uncertainties, which our model may reduce by bridging the gap between the foresight event and entrepreneurial action.

We do not have any argument with structural, institutional approaches. We reference them to point out the fundamental alternative our proposed model represents. It is entrepreneurial and interactive, and does not depend on a prefigured architecture of abstract methodological planning. Real-world examples of foresight that result in action often do not emerge from "textbook" models of foresight. This article seeks to identify, address, and formalize for institutional application, the more informal, interactive, visionary-based foresight "events" that do so often provide the impetus for ambitious, large-scale initiatives. In doing so, our own scheme shall perhaps also appear overly complicated, but hopefully in the interests of a more fluid, less rule-bound method that organizations of all types can use.

Posing the alternative raises certain questions about the practice of foresight: 1) Does institutional foresight really require multi-phased, multilevel maps just to guide the process? 2) Hasn't foresight often arisen spontaneously out of a "creative" rather than bureaucratic process? 3) Is the incidence of institutional "noise" likely to increase in proportion to the complexity of the procedures, hence reducing its chance of success? 4) In a process designed to reduce risk and uncertainty, do institutional controls and prescriptions in fact raise the risk of a misfire in the process? Our goal is to suggest one way to cut through some of that institutional and structural noise.

The CUMA Model

This paper considers the convergence of two individual sources of foresight and then generalizes it into a method for cultivating foresight in institutional settings.. Our method is more entrepreneurial and streamlined than the embedded systems approach. There is no question that it lacks many of the qualities of the more formal constructs, and it is intended as an additional tool that trades away broad-based inputs, degrees of consensus, and systemic checks and balances for speed, fluidity, inspiration, and intrinsic authority. This is a system of strategically directed vectors rather than labyrinthine flow charts. It is driven on the input end by spontaneous insights arising from immersion in a set of problems or conditions, and on the output end by efforts to implement solutions. This contrasts with the embedded institutional approach, in which one carefully plans both the structure of, and the inputs into, the foresight mechanism and cultivates and shapes the process towards a set of controlled outputs – like *espalier* applied to a young pear tree. In our Converging Uni-Modal Approach

(CUMA), procedures are random and one does not know if they will result in foresight in any given case, but it is geared to maximize the benefits from specific foresight events that do occur.

The actual organizational input that triggers the event is very different from the traditional institutional/systemic approach. It can be visualized by reference to networks in whose hubs (or nodes) reside large stores of potential energy that can be linked with other hubs, with a high probability that the link will trigger forward looking ideas and action. A Unimodal System resides within a single individual or several individuals working closely together and becomes an exercise in foresight when it coalesces into an initiative. The notion of "convergence" becomes operative when that initiative converges with another foresight initiative. Although the individuals involved will generally represent an organization of some kind, in this case a national state and a corporation, the exercise of foresight emerges out of the inspiration of individuals rather than pre-designed institutional procedures, thus enabling the individuals to operate unencumbered by institutional structures.

This approach has obvious advantages, foremost among them flexibility, responsiveness, freedom from the diluting impact of bureaucracies, and a greater proportion of planning taking place between high-level players who can implement policies and operations more quickly than is usual for large institutions. The importance of this model lies in the fact that most foresight-events – indeed, most great insights – do not occur as the result of institutional processes. (The latter are strongest when it comes to shifting the momentum or direction of long-entrenched policies and procedures, akin to turning an ocean liner). The CUMA draws upon certain basic human dynamics: great ideas often emerge from individuals with the greatest immersion and stake in those ideas; a quick response often occurs when individuals with high mutual trust can operate together; and ideas gain more rapid acceptance when driven by decision-makers rather than emerging out of the institutional system.

A CUMA-driven initiative has the following qualities:

- Vision-driven, often out of a deeply felt need or inspiration
- Strategically positioned from the first to leverage significant resources
- Entrepreneurial, capable of quick response to perceived opportunities
- Potential for aligning complementary spheres - public/private, global/local, etc.

The Uganda Project

The country of Uganda has been in conflict for decades and, until very recently, its leaders' focus was on addressing this significant issue. Its current leader (since 1986), President Yoweri Museveni, himself victorious in one of the country's protracted political conflicts, saw as his primary goal a Uganda free of conflict. This prompted the conception of plans to energize other spheres of societal life without which the hope for peace would founder.

Presidential foresight

A key choice was to have a universal educational system in which all school age children would be enrolled in school. President Musaveni's application of foresight lay

not in simply anticipating a peaceful and educated nation, but in a multi-phase plan in which education would prepare Ugandans for entry into the global marketplace, hopefully from a position of relative strength. This, in turn, would enable the country to strengthen its social and economic infrastructure, which Musaveni foresaw as a requirement of a stable and conflict-free nation. In just a few short years, the first stage of the prophesy became reality as the vast majority of Ugandan children went all the way through primary and secondary school. As so often happens, however, positive change can cause its own societal disruption: the students graduated to few employment opportunities.

The leader, faced with this situation, immediately sought out solutions elsewhere, since the system could not provide employment for the increasing numbers of jobless graduates. Information and Communication Technologies (ICTs) was already being touted by international development agencies and their sponsors in the "developed" world as the solution for resolving intractable social and economic challenges in the "developing" world. It thus seemed to provide a ready answer. President Musaveni had other reasons as well to consider ICT a promising solution.

The President frequently recounts that his country has, in fact, provided subsidies to the *developed* world by supplying very cheap raw materials only to buy finished products at exorbitant prices. (Musaveni, personal communication). This, in effect, reframes the relationship of the industrial "North" to the resource-rich "South" by redefining their respective roles in a way that empowers the African contingent in the equation. In the authors' view, this is a critical step in any foresight process: reconceiving ideological patterns whose main purpose is to reinforce habitual and obsolete behaviors that offer no hope of a solution. As Jean-Loup Amselle (2003) writes, "For sponsors of all types (international organizations, great powers, non-governmental organizations) as well as for the media, Africa is the continent *par excellence* of misery, to the point that Africa and poverty have become synonymous. The representation of Africa in the media focuses on sickness and destitution evidenced by the condition of famine, hence the emaciated bodies shown *ad nauseam*. This impoverished image of Africa is crucial to the 'charity business', an enterprise that relies on mobilizing and instilling guilt in large portions of the European and North American population. Poverty in Africa results from economic marginalization (less than 2% of world trade, a global debt of $334 billion)". Amselle goes on to describe a succession of themes – corruption, tribalism, genocide – that in "western" ("industrial northern") perceptions serve to discredit Africa as the primary agent in its own destiny. President Musaveni's observation is aligned with the observations of such historians as Fernand Braudel (1975), Eric Wolfe (1982), and Jane Jacobs (1985), among others, about the relationship of urbanized regions to the "hinterlands", but it is reframed as a service, or subsidy, that Uganda (in this case) is providing to the industrial world, a crucial conceptual leap important in avoiding a replication of failed attempts to utilize ICT to stimulate African economies.

Thus, the President viewed ICT not only as a way to reverse a drastically uneven economic relationship but also to give the country added competitive advantage at the world's trading game. Against this background, the President declared in a manifesto (Musaveni, 2006), that his government will henceforth promote ICT with a view

towards offering online programs that prepare graduates to compete for employment in call centers and outsourcing services. The programs would also give Uganda a competitive advantage in attracting outsourced jobs.

Moreover, the country's unique cultural circumstances (language intonations, education system, etc.) had positioned Ugandan graduates, when equipped with appropriate skills, to have a competitive edge over graduates from other parts of the region in the outsourcing services industry. At the same time, technological advancement also enabled Uganda to overcome such key barriers to e-learning as (a) a very high cost of 'expert content', (b) piracy, (c) bad end-user experience due to low Internet bandwidth and disconnection problems, and (d) lack of awareness of e-learning due to inaccessibility. These twin factors (cultural and technological) became primarily responsible for positioning ICT as the choice of the President in his quest for a quick response to the mounting problem of graduate unemployment.

Foresight from another direction

One of the authors (Tita), deeply engaged in economic development in Africa for his entire career, had also long been involved in two industries whose convergence he envisioned as being of potential use to Uganda's employment dilemma. Tita, like Musaveni, saw the establishment of an outsourcing industry in Uganda as the quickest way to generate significant numbers of jobs. At the same time, many of Uganda's degree holders would need additional training to qualify them in technical and financial areas. This problem was addressed by the Global Management Consortium, a company Tita founded that developed an on-line trade network. The network's purpose was to promote trade among the world's 131 developing nations. In 1989 Tita realized that the Internet provided a means for the third world to cultivate its own trade and training initiatives using the new infrastructure. He set about creating a world wide trade network via a partnership with the International Chambers of Commerce. Behind this effort lay another principle of successful foresight: a clear vision of the ultimate goal, in this case a network that would promote "South-South" commercial relationships, decreasing the dependency of the 131 G77 nations on the industrialized North. In conversations between the authors in the late 1990s, the notion emerged that the training aspect of the network could outstrip trade in its ultimate utility, and Tita began establishing partnerships with educational providers to facilitate this end. Courses would be made available at a cost of $5 per course on a mass volume basis; interested governments would purchase hundreds of thousands of courses at one time. As Farhoomand et al (2001) state, the information infrastructure can take a long time to become actualized into a useful application, especially in regions with relatively low infrastructure to begin with. To achieve the returns that eCommerce requires to legitimate itself, public/private cooperation is a must in the developing world. E-learning can become the activating principle for the potential inherent in a system because *something* of value must be transmitted through the system. However, the private sphere often cannot be induced to take the risk while the public realm lacks the private's expertise. Thus, the convergence of public and private, or the Uganda government with GMC, represented a natural partnership.

Applying foresight to a combination jobs creation/online educational initiative in a developing country poses special challenges. Online learning in higher education has burgeoned in the past half-decade, but most institutions, even at the programmatic level, have only a rather shaky notion of where the new technologically driven pedagogy is taking them. From the "sweepstakes" mentality with which college administrations first greeted the potential of on-line learning to the demands that online learning places upon quality control, faculty, development costs, marketing, institutional identity and culture, and student support, the ride has been volatile and often uneasy. A similar uncertainty surrounds job creation, a critical function often prey to forces beyond the capacity of developing countries to control.

At the national level, planning is also a complex, wildly imprecise activity, neither art nor science but distinctly political and subject to all the pressures of the political milieu. Uganda, in which the current project is taking place, experiences such attendant pressures with all the additional issues that a relatively poor nation with a recent violent past has to deal with as well.

Implementation of the Converging Unimodal Approach

Bold foresight initiatives can cut through many of the obstructions to implementing effective social programs and take advantage of innovative technology to bypass daunting roadblocks. In this case, foresight was implemented both formally and informally at various stages in the development of the program and along different paths that converged, fortuitously, with promising results.

State foresight begins with leadership, a visionary wild card whose appearance is unpredictable. Foresight's vision often includes all the elements that everyone else sees, but with a basic reversal of the valence with which those observations are charged. What lay behind it within Uganda was an earlier decision to promote UPE – universal primary education – which resulted in a "rising tide" effect: 800,000 unemployed college degree holders. So in a sense, the earlier decision created a crisis to which the only possible solution lay at the next highest level of systemic complexity, to shift from the national to the global stage. The earlier forward looking policy decision worked so well it created an instability in the system – an excess of potential energy – that could not be solved internally. Systemic problems that cannot be solved by recourse to the system itself can be resolved by engaging a meta-system, a larger, more complex system that can provide the resources and expansive "space" that enables the original system to transcend its own limitations by absorbing the wisdom and experience of the meta-system while primarily relying on the strength of its own internal culture (as will be discussed below).

Linking Uganda and the global economy

In network terms, the Global Economy can be represented by a hub swollen with potential energy from which countless links emanate. The nation of Uganda is a hub connected to the global economy by only weak links (a situation it shares with many of other of the world's poorer countries). President Musaveni of Uganda had the foresight to recognize that the only solution to Uganda's poverty lay in building stronger

links with the global economy. This is not quite the obvious conclusion it may seem to observers in the industrialized world.

In his years at the United Nations, Tita had been asked by then Secretary General Kofi Annan to visit all the governments of the G77 nations – the 131 developing nations of the world and China – and persuade them to see the benefits of opening up to the market economy. The purpose was definitively not to sell unbridled, western-controlled capitalism to these nations, but rather to persuade them to lower their resistance and mistrust of an open economy so that development could proceed, hopefully, in a nationally-directed manner, but aligned to some extent with the great currents of commerce and production throughout the world. Tita visited every nation in the world over the course of a dozen years; he was confronted by significant resistance to his and Annan's message by national leaders often understandably wary of being subsumed by a global economic machine dominated by the very countries and corporations that had so often misused the resources of the G77 nations. The notion that there was a proactive, controlled way to enter this global economy was difficult to grasp in large part because the mechanisms to do so seemed inadequate. Nonetheless it is, as the saying goes, the only game in town.

Tita's personal commitment in developing the GMC was to promote South-South trade, to stimulate the market economy among the G77 nations. In this respect, his vision was aligned with President Musaveni's: both foresaw that the only path open to the developing world was the path not yet taken and against which a great deal of indigenous resistance was arrayed. When the eCommerce sector of the GMC was established, Tita found an analogous problem to the one he faced in his U.N. duties: on the trade network, connections would be made between individual business persons located in different nations, but many participants found it difficult to operate fluently within the online, long-distance medium. While the trade network continued to develop, Tita turned his attention to the online training function that the network could facilitate.

We call our model the Converging Uni-Modal Approach because both Tita's and the President's individual exercises in foresight, operating in respect to the global economy but independently, eventually converged. Tita's occurred in stages: from the foresight that he and Annan exercised to promote the market economy among the G77 nations to his realization of the potential importance of the Internet to poor nations in 1989, and finally to his insight that outsourcing and online education could be synergized to provide solutions for Uganda's educated, under-employed population.

Uganda's challenge was to link the full-to-bursting global hub with its almost infinite links to the isolated hub of 800,000 unemployed college graduates, themselves embedded in the relatively isolated hub of the Uganda. GMC, with strong links to the global economy, Africa, online education, and outsourcing resources, could align itself with the President's foresight to attempt to establish a strong link between the global economy and Uganda and, specifically, with its college graduates. Furthermore, just as the Internet has made mass customization possible, it can help democratize and customize outsourcing by bringing the individual, as service provider, into direct contact with the outsourcer. Through online learning, individuals could also receive training

suitable for specifically targeted positions.

Cultural considerations

At this point, it is necessary to add a few complementary requirements to the success recipe with this model. They include, but are not limited to (a) the strong support of the leader(s), (b) availability of innovation, based on tangible products or services, that bridge the emerging and the meta systems, and (c) as Castells (2000) notes, mobilization of forces that can crumble or significantly re-orient the status quo. This includes minimizing the unintended consequences of the technological fix so often generated by socio-cultural assumptions inherent in development programs presented to a host country by the industrialized zone. Castells' view reinforces the perspective supplied by Amselle, for the former holds that no technology is *values*-free. The North's paradigms in regard to ICT are not suited to the South. (The authors recognize the irony of their use of such generalizations, but believe it is possible to acknowledge and apply broad cultural differences between nations and regions without sliding into counter-productive stereotyping). Both e-learning and outsourcing have failed before in Uganda – and elsewhere in the developing world – because of assumptions that range from the most concrete to the more abstractly cultural. For instance, in much of Africa one cannot assume that electricity will be reliable or that computers will be available to a critical mass of users. The drought in Africa has affected power generation and undercut the ability to attract industry to several African regions.

Credentialism and harmony

On the cultural side, Africans have a profound respect for balance and harmony as the goals of society. This is coupled with another cultural tendency: the great respect for teachers and preachers, for all bearers of collective cultural messages. In Africa, teaching tends to be a one-way street, bestowed from a higher authority; it is *messenger*-oriented, and the messenger's credentials – Oxford University, for example – stick to the messenger throughout his or her life. E-learning, however, is inherently egalitarian, and most programs come from an industrialized world that is *subject*- rather than messenger-oriented, that views programs and educational authority in terms of their success in transmitting content rather than the credentials respected by the more rank-conscious African society. Thus, e-leaning has the capacity to upset the community balance and harmony that is a substrate desired condition of so many African communities.

Such patterns are not easily changed nor should they be; better to enact strategies that use the two world's respective strengths to complement one another. In an African context, e-learning can only work if the person receiving the knowledge is tied to something that imprints the knowledge – the subject – with the authority of a worthy messenger. In this case, *outsourcing itself* is the stamp of authority for the online educational program *if* the education leads to a job. The status and authority inherent in a good job then validate the online educational effort. Without this demonstration of faith, so to speak, an online program can seem a disembodied "message without a messenger" with no relevance or roots in the student's society. This type of validation is a prerequisite for achieving synergy among e-learning, outsourcing,

Uganda's future planning, and the nation's key cultural markers. The outsourced job serves as the stamp on the Internet-learning certificate, which is now *worth* something. Previous e-learning initiatives failed because people simply did not use them – the learning was not anchored to a useful cultural marker. The ability to apply e-learning immediately overcomes the technological determinism that Castells identifies as a function of values often imposed inappropriately on one culture by another, even in respect of technology.

CUMA and its relationship to democratic and participative ideals

The CUMA model, with its emphasis on leaders acting quickly and, to a large extent, unilaterally, might be viewed as flying in the face of democratic or participative planning models. One reason, for instance, that descriptions of foresight models tend to be rather complex is precisely because of the need to engage multiple stakeholders and experts from different disciplines. The more a model integrates vertically distinct entities, the more complex it is likely to be. Overcoming organizational hierarchies requires a rigorous counter-structure to the inertial tendencies that enforce – and reinforce – vertical or pyramidal stratification of responsibility, status, and authority and the communication patterns that accompany this stratification. While CUMA is not explicitly democratic in its thrust, it is not anti-democratic either. In fact, if implemented properly, an initiating hub can just as easily be located within a person or department far down the hierarchy or on its margins. The key is not the role of leadership per se, but the reality that high-impact ideas often originate among visionary leaders and are often most efficiently set in motion by them. Those leaders, of course, may well be democratically chosen as well and exercising their leadership functions within a democratic context. Similarly, the most participative scheme in the world is often easily co-opted by political or organizational leadership, and the flow of information and ideas on paper often bear only the fuzziest approximation to the actual exercise of influence within the process itself.

Formalizing CUMA and the Hothouse Effect

Now how do we formalize this process within or between organizations? Kunstler's (2004) concept of the relationship between "meta-systems" and "emergent systems" is useful in this regard. In examining what he dubbed "the hothouse effect" (THHE), Kunstler identified 36 factors and methods utilized by history's most creative communities and applied them to modern organizational strategic development. One of these factors described how a local, relatively isolated system, emerging into a broader role in its own region, engages a far more sophisticated, over-arching system – the meta-system – and under the galvanic stimulation of exposure to that system undergoes a period of immense creative growth. The key to the emergent system's success, however, lies in its own strong local roots: it absorbs all the meta-system has to offer but remains true to its own character, and the dynamic tension thus engendered helps draw that emergent system into an era of unbridled creativity.

The example of ancient Greece

Examples included ancient Greece and, in more distilled form, ancient Athens. Greek villages and towns grew in virtually total isolation from the eastern Mediterranean world after the collapse of the entire region in the 12th century B.C.E. While recovery in the eastern Mediterranean began at an accelerating rate by the 9th century B.C.E. , the Greeks themselves remained isolated behind their mountains. It wasn't until the 8th century B.C.E. that the Greek world opened up suddenly to the region's sea lanes and civilizations. From Egypt to Babylon, the knowledge of the ancient world – its mathematics, complex systems of commerce and accounting, astronomy, art, urbanity and cosmopolitanism, and technology – became available to the Greeks. Yet their cultivation of local traditions had been so sustained for so long, that everything was absorbed with a distinctly Hellenic stamp. The city-state for whom this shock was greatest, however, may well have been Athens, the quintessential creative hothouse, for until the early 6th century B.C.E. Athens was a politically riven, sleepy backwater whose cultural and commercial life was transcended by those of its wealthier neighbors. Thus, within the emergent system of Greece, Athens underwent a particularly rapid and violent confrontation with an eastern Mediterranean world that, by the 6th c. B.C.E., was far more advanced than that experienced by the Greek city-states that were exposed to that world 100-150 years earlier.

The challenge to emergent systems

This aspect of THHE illuminates the challenge faced in bringing Uganda into engagement with the broader global economic system. As Tita found, many smaller nations responded defensively to the encroachments of a system that, in its own way, can be every bit as aggressive as the old Persian Empire. Many nations have been harmed by the aggressiveness of the system and its national and corporate representatives: exploitation of resources, destabilization of governments, economic manipulation, etc. The question posed is precisely that described by Kunstler's emergent/meta-system idea: how can the emergent system tap the power of the meta-system without being overwhelmed by it? Musaveni's ironic and subtle restatement of the relationship of Uganda to the industrial nations in effect establishes a claim of Ugandan sovereignty over the riches its new links can potentially absorb from the global system. In the relationship of meta- and emergent systems, the mind-set or world view of the emergent system can set the tone for its subsequent engagement with the meta-system.

Developing a formal process

We have seen how Uganda and the GMC, in a project driven by the foresight of key players, are attempting to respond to that challenge in a project whose outcome still lies in the unreadable future. Transferring the question from Uganda to that of the more general case, we might ask, "How can we formalize this process without infringing upon the spontaneity that is one of its distinguishing marks?" If the advantages of the CUMA lie in its being unencumbered by the systemic complexity that marks many foresight processes, how does one integrate it into the framework of a purposeful procedure that institutions can use to their advantage?

Organizational cultivation of CUMA relationships

The role of knowledge networks is critical, as the driving force of the CUMA model is the linking up of two (or more) such networks. The emergent/meta-system dynamic is a subset of the general case; not all initiatives need involve such disparity. In the Uganda case, two smaller networks, represented by Uganda and the GMC, converged to draw the meta-system into more intensive engagement with Uganda and its graduates. One set of applications lies in developing a foresight process that captures both the streamlined qualities of the CUMA and the unique network relationships of the emergent/meta-system dynamic. The key is to establish a process for identifying conditions of maximum Potential Energy shifts between the meta-system and the relatively isolated emergent system with its few links and relative paucity of internal infrastructural support networks.

Let us consider a more common example. Two department heads in a large corporation recognize that their respective pursuits and expertise can generate a powerful release of creative energy. An organization responsive to CUMA (assuming the promise of the synergy was substantive) would clear the space for these two to bring their departments into partnership. They would have a temporary mandate to create whatever networks and links – and even new hubs – necessary to fulfill the project's ambitions, without regard for organizational protocols, positions, and politics. The usual obstructions to such a collaboration can be anywhere from exhausting to insurmountable. One can posit the existence of a meta-system in any such situation. In this case, it might be the market, the industry, or the organization itself; the existence of a meta-system provides focus and structure to the mission of the smaller groups. The biggest hurdle to overcome is convincing an organization to be on the lookout for opportunities for such relationships and to design infrastructural supports for the disruption that they might occasion, i.e., integrate such instances into the normal flow of organizational life.

Strategically linked hubs

Instead of seeking out trends or attempting to predict the outcomes of multivariate interactions, the objects of attention in this process are the hubs of the broader systemic network. In particular, one would seek "empty", "yin" systems that, by their nature, have the potential to attract energy to themselves once the necessary links have been established. The other key targets are the over-full, "yang" hubs whose energy almost demands they be tapped and their energy released in a controlled manner and then directed towards the "empty" hub. In this regard, the establishment of suitable links becomes the main objective. The hubs exist; the links are the key galvanic element.

Enhancing the qualitative aspects of a network

In general, the science of networks focuses on the abstract mathematical and structural qualities of hubs and links. Both key elements, of course, have a qualitative existence that also requires address. The quality of the links resides in their ability to transmit energy – information, resources, currency, etc. – as efficiently as possible, i.e., a high signal-to-noise ratio. In real terms, the factors that determine whether a link is successful – the logistics of delivery – include such mundane elements as work-

manship; quality and availability of materials; overseers' ability to maintain a steady stream of "material" such as data, energy, ideas, or substance (things, people, etc.); a supply of said material; and the ability of the receiving hub to utilize the inflow (don't get backed up on the docks, so to speak). Within the hubs, that is, the individuals and groups performing the tasks, CUMA encourages cross-fertilization of ideas between disciplines, use of multiple perspectives, empowerment of personnel liberated from the orthodoxies of their usual positions, fluidity and responsiveness of the organization in regard to an often volatile economic and political environment, and a highly focused mission-critical mode of operation. These qualities are *inherent* in CUMA; they follow naturally from the decision to utilize it and the adjustments necessary to make it work.

Strengthening the emergent system

In managing or cultivating an emergent system, the key is identifying the local power sources that can sustain the hub's local identity and structural integrity. These resources may be an innate quality such as creativity or initiative or reside in the leadership or in the nuances of a particularly positive and strong culture. CUMA plays to the strengths of a group, and it can also provide direction and focus when the emergent hub engages a meta-system. This suits precisely the message that Tita was attempting to bring to the G77 nations in his U.N. years: that a nation *can* enter the global market system without sacrificing its national or regional integrity and autonomy. In the case of two networks of about equal size forging a partnership, the CUMA approach identifies the areas of highest energy much as it does with an emergent system, and would then seek to establish connections that can bring the most forward ideas into reality.

Utilizing the meta-system

In parallel, the meta-system is analyzed for those aspects likely to be of greatest use to the emergent system, in the Uganda case, jobs. Or, two (roughly) equal networks would address one another with similar intentions. In historical examples of THHE, the internal strength of the emergent system enabled this selectivity, which occurred in the course of historical events. That is, Athens took what it needed from the world around it while holding on to its cultural and democratic traditions. In the more constrained and manageable organizational situation, the selectivity would be a function of strategic foresight. Again, it is the intention to create a convergence between two networks that makes them each attuned to the reserves of energy that the other network contains and that can potentially be used by each to transform, enhance, and amplify its own growth and its own ability to make substantive the visions that almost always require some collaboration with other sources of power and creativity.

Links need to be established strategically and, while an emergent system should be an equal partner in determining need and application, it cannot ignore the massive expertise embedded in the meta-system. This expertise can be the basis of a wholesale importation of intellectual capital into the emergent system and, if the latter can sustain its integrity a la ancient Athens, the local stimulus can be extraordinary. In the more equal scenario, the exchange flows along certain links that are most generative

for the receiving hub; again, within the CUMA, this would be the focus of much of the strategic planning and foresight activity.

Streamline the process

It is, in our view, crucial to keep the foresight systems lean. Insights should emerge from those people immersed in the challenge and who can respond quickly to it – or for whom links have been established so their insights can trigger an organizational response (generally this means immediate access to leadership, at least in regard to specific project needs). CUMA is a vision-driven process whose central dynamic involves the convergence of different foresight matrices that catalyze potential high-energy shifts between hubs of energy that normally would not have the opportunity to engage one another. It is designed to cut through the resistance inherent in complex networks on both the operational level of traditional foresight mechanisms and the situational level of project implementation, in which bureaucracies provide obstructions and engender leakages along the channels linking connected, or mutually engaged, hubs.

CUMA avoids analyzing trends, certainly an invaluable exercise in many cases but one whose ubiquity can itself become a weakness. Establishing a network-based, cybernetic approach to foresight in place of (in some cases) a linear, trend-based approach can only increase the effectiveness of foresight activities in any context.

By focusing, as well, on areas of glaringly obvious need we bypass much of the micro-analysis that can slow down progress, most notably when there is a need to act quickly which, many of us would argue, is a signal quality of current global conditions. To reinforce this, CUMA assures that when one does establish links between hubs of activity or energy, the strategic logic behind the link is already driven by the laws governing the relationship of emergent and meta-systems, that is, much of the planning has been already done for us by the consistencies of history.

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