



Human Collaboration, Africa's Revolutionary Application for Broadband Expansion



*A Global Learning Framework
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Human Collaboration, Africa's Revolutionary Application for Broad Band Expansion

“We need a Internet content and collaboration public strategy such that upon connecting an African broadband connection with a town, its capacity will be maximized and exceeded in the shortest amount of time possible.”

– Richard C. Close 2013

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Abstract

This paper explores how to leverage the Internet's collaborative multipliers of human learning dynamics in order to rapidly scale broadband traffic in Africa—and ultimately connect Africans to themselves for economic and cultural development. It describes how the synchronized evolution of both network design and human communication has evolved into the global collaborative framework we call the Net. Once understood, clarity can be gained as to why traditional view points for scaling (such as killer applications of media) may not provide the scalable Returns On Investment (ROI) that community collaboration models are more likely to deliver. Finally, the Chapter proposes a Community Development Center in African towns to seed and accelerate the process of leveraging broadband technologies.

Note;

A Killer App on the internet is one that will experience hyper-growth or massive traffic.

In the case of video, this paper addresses whether consumer/commercial collaboration with applications may ramp up faster than broad band entertainment volume and distribution in Africa.

Finally, the paper illustrates the need for Africa to revise marketing strategies and delivery models in order to accelerate the development of African towns through collaborative community development communications centers.

I. The Myth of the Killer App vs. the Revotion of the Human Collaboration

Scalable revenue formulas from a business point of view mean that the income from broad band (profitable usage) will exceed costs at some point in time before the investment objects are to be met. However in contrast, the dot com era's dreams of killer applications taught us painful lessons on hopeful financial runways that proved to be too short for takeoff. In the 80s, while working for GEISCO and MCI International, marketing and sales teams had many discussions about the "Killer Applications" that would quickly ramp up enough traffic that would make significant profits to pay for large network investments. The single killer application did not surface (with exception of the cable industry). However, the killer "network appliances" of the PC and mobile industry launched human collaboration into a global relationship few could imagine. What evolved was millions of small applications coming together from these appliances in multiple ways we could not have forecasted.

Web 1.0 was basically a massive phone directory to look up information. It was with Web 2.0, which offered human collaboration, that global Internet user traffic exploded. Web 2.0 was also the advent of application collaboration--widgets in blogs and YouTube in Facebook.

Thus, in the absence of a killer application, we might explore what changed in global behavior that motivated 60% (1) of the world's population to communicate together. Within this behavior of how we live, learn, express and create together, we will find the answers to rapid scaling of African broadband investments.

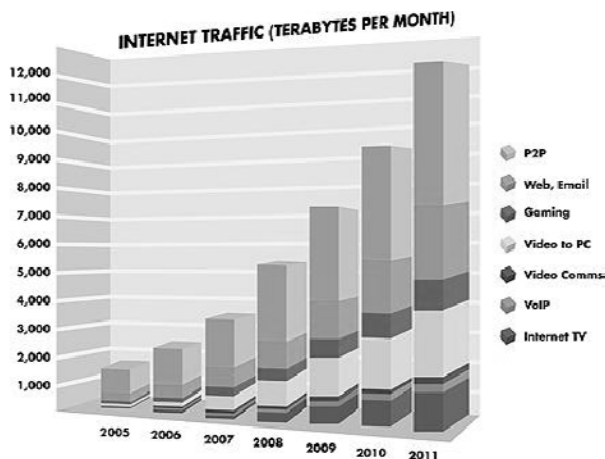


Figure 1. Cisco VNI Forecasts 120.6 Exabytes per Month of IP Traffic in 2017

The chart above was generated from data by Cisco in its “Global IP Traffic Forecast and Methodology, 2006-2011” and featured at www.satmagazine.com.

The early concept of a mythical killer application would be a business application such as online banking or academic eLearning. Like authoritarian colonialism, these are traditional one-too-many commercial network strategies. The Internet is the reverse of this top down strategy, and has been for some time. The Internet is more like Democracy in Education Dewey (1916).¹ The Web empowers global people with a collaborative voice. Internet culture is best represented by peer to peer (P2P) computing. Even in the case of a FEDEX shipping system, there is a relationship between the shipper and the receiver. FEDEX’s centralized system is transparent to that relationship. FEDEX shipper to receiver and back again is very similar to P2P computing. Evidence of massive scalability in Web traffic goes back to Napster in 2000 and demonstrates the power of human behavior to scale. We must keep in mind that Napster’s staggering growth happened without any traditional marketing methods and as an underground collaborative model.

“A student at Northeastern University in Boston, changed the music and media industry with his creation of a digital file sharing program called Napster. In 1999, he created a software program that allowed computer users to share and exchange files. Napster had several hundred thousand users by the Spring of 2000, and had grown to over 50 million users by February 2001. This technology is called Peer-to-peer or P2P because it allows ‘peers’, ordinary computers to exchange files between themselves”²

If we want rapid scaling in Africa, we should look at P2P and collaboration as a strategy, not trickle down applications.

By 2008, P2P traffic had become 44% of all consumer Internet traffic globally and according to “P2P Traffic to Grow Almost 400% over the Next 5 Years, as Legitimate P2P Applications Become a Meaningful Segment” from MultiMedia Intelligence, P2P traffic would grow by 400% by 2013”³

Case:

While meeting with University of Phoenix in its third year of operations, the University's senior staff understood that MBA students wanted faculty who were in the business world and wanted them to collaborate with students who were also in the business world. This was the Phoenix model. This business model proved massively scalable and profitable for Apollo Group (parent company to University of Phoenix). In contrast, traditional university models thought their brand was strong enough to build star configurations with their own professors. These competing universities either failed, grew slowly or franchised from the University of Phoenix. In contrast, University of Phoenix now has 200 campuses and 600,000 students globally, far exceeding any private university's growth. Ironically one of the universities that failed, thought they were ahead of the Internet curve, while in fact, they were way behind it.

We can think of University of Phoenix as a Napster academics model; again it is not trickle down knowledge from an ivory tower. Collaborative peer-to-peer academics is learning from experts in the field of business--ie. learning from each other. Learning from one's peers is deeply relevant to collaboration and scalability.

Napster worked in the US in 2000 – 2001 because of its installed base of PCS and unlimited Internet access. Even though Napster was shut down in 2001 over copyright law, the social impact and brand was strong enough to resurface it in a merger with Rhapsody in 2011. Africa may lack the large appliances and the installed base that is in the US. However, Africa's youth do not lack the motivators to collaborate such as the ones that empowered Napster's growth.

The primary question we must address in the human model that drives the technical market is: How do we achieve a similar ROI with broadband in Africa's town or city communities? Similarly, we need to examine:

1. What human behaviors can we leverage to rapidly scale up the usage of these broadband investments into African towns?
2. How do we facilitate a collaborative process in the midst of corruption and technical connectivity hurdles?
3. How do we leverage the participation of African youth in these P2P applications?

II. A Historical Context: When IT Communications Mirrored Human Communications

Today the Web has finally evolved to a point where human communication can integrate simultaneously with life's "content" (facts) with human "context" (feelings, values opinions, etc.). Social networking is the human context of facts. A photograph of a baby's birth is a "fact"; the reaction of everyone who views it is the human "context." Previously, in the age of TV or movies, we watched the show or movie and talked with our friends. Today media is released in many formats that ignite global collaborative discussion with global commerce systems functioning side by side. Whereas in TV, we watched the show once (perhaps the rerun), streaming now allows movies to pop up in Facebook or Twitter discussions. The concept of adding one or two killer applications is dwarfed by algorithms of "interrelated applications" driven by the human drive to collaborate globally (Napster). In a sense,

Note:

Human context uses more bandwidth than facts. Think of company management posting a memo in the break room restricting sick days. Then think of the bandwidth of gossip time lost between employees as a result of the paper memo. Human context on global web is massively scalable, because it spreads in complex algorithms that expand or shrink depending on what is added or subtracted from the fact. As an example, examine Mindcraft's version of the "Gangnam style" video on YouTube. From the Rodney King video in Los Angeles to injustice in Egypt, a simple fact, image, video or idea can push massive traffic and social change. Perhaps the Africa technology analysis needs to step out of the technology aspects of throughput and into the human contextual model of what generates massive scalable usage, which is a statistical challenge to accomplish. Perhaps we will see P2P video drive traffic that will exceed broadcast entertainment video in Africa

Because of humans sharing content YouTube is now codependent on Facebook and Twitter.

In a 1995 conversation with Ray Norda, the founder of Novell, Norda referred to this collaborative marketing as a strategy "Co-opetition"--together we grow the market as a whole; together technology providers grow the market while competing for customers and investors.

III. The Evolution of the Human Beings and the Advent of Technology Upgrades Are Inseparable: Triggering Leaps in How the Human Race Communicates and Builds as a Species.

As we analyze each step in human communication, it is important to note several shifts in power and control of both content and editorial comment (the human context). Over an extremely short period of time in human history, power in the form of information shifted from a top-down to a horizontal democratic model. In the 1980s, when I was lecturing on Lotus Notes, which was the first true collaborative database communication and application software, corporate executives struggled with the concept of sharing information. The model of transparency and collaboration resulting in shared information was frightening for them. It shifts the traditional "one-to-many" model of communication, to a "many-to-many" model, affecting directly the power of the "one" who had been the disseminator of information. Thus, introducing Lotus Notes into the market proved to be a difficult process in a community that was not collaborative at the time.

Global youth experience the cell phone's collaborative power as part of themselves. What seems to be missing in the Adult Learning theoretical framework is the awareness that human behavior is driving the technological revolution and not the other way around. Human and collaborative knowledge has merged. We want to be unique and yet also be one global society at the same time. In the words of Star Trek's Borg, "Resistance is futile."

From the network engineer's point of view, this may not seem very relevant, but from an investor's point of view, it is critical. If we want traffic to increase, human collaboration must increase, they are inseparable. If human collaboration increases, it will demand more bandwidth and more complex applications.

III. A Brief History of Human Behavior and Communication Networking

TV & Radio Networks: One to One strategy

TV and radio, with the exception of radio talk shows, are one-way media venues. Content is pumped out from a central point where the message is controlled. It is ironic that the advent of cell phones /Twitter allows people who are driving to talk back to the radio talk show host in order to win a contest, tell a joke or rant about politics, not to mention talk with one another. But in the beginning, this was not the case, as the Government and media industry had 100% control over the messaging. The trend was "one-to-one" marketing, not serving communities of interest like today.

A. Star Networks: Dictatorial Control Strategy

The early stages of mainframe computing, such as IBM Star computing, progressed into a two way model between a terminal and mainframe. IBM Systems Network Architecture (SNA) was sold as being secure for business communication and applications. What IBM did not fully grasp was the inherent human need to cross communicate (P2P), which eventually cost IBM its leadership position by losing the inter-human communication market (desktop market). IBM's behavior was typical of its time in which the business culture hoarded information and policy-making to the top. IBM learned the hard way that people will bypass authority in order to collaborate. They will gossip in bathrooms if need be. How could a corporate giant with so many brilliant minds not see past its own authoritarian culture? It was simple denial of the inevitable disruptive process of user collaboration. IBM was on the road to recovery when Gerstner restructured business units to

Star Network

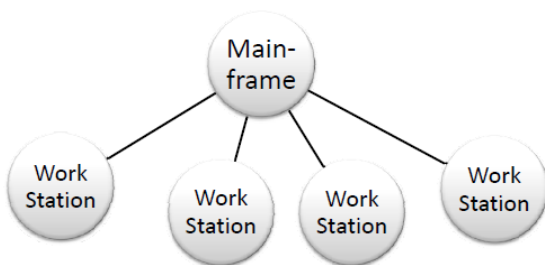


Figure 2. Star Network Computing

Case:

While working for GEISCO in 1983, with some PC software called Viscalc, I mentioned that this could put the mainframe industry out of business and almost was fired. I was told to stop playing with it and build with PC Focus (on the mainframe). That software later failed as Focus, then failed again as Ramis and finally as Nomad, because it did not hold up against the simplicity of Microsoft desktop applications.

compete with one another and collaborate with the outside world and suddenly Microsoft became a friend and partner. While it was an unthinkable corporate change for this market icon to collaborate, collaboration was smartly embraced, and suddenly IBM became a team player and the service company it is today. 4

Internet applications ramp quickly when they are collaborative in nature. Today computer dating alone in the U.S. is a remarkable suite of applications. Statistics indicate that eHarmony has 20 million members and Match.com has 15 million members. Many meet on SKYPE before physically meeting. Computer dating as we know it started with Jeff Tarr, Dave Crump, or Doug Ginsberg and the “Operation Match” first dating application was launched in an article in the November 3, 1965 edition of Harvard Crismon. 5 Perhaps African dating will drive video broadband traffic up. The point is, many of today’s large companies were built on the wave of desktop collaborative applications, while centralized mainframe-style companies lost and shrunk for failing to recognize the change in information models.

In the 1980s, companies like IBM and GE only wanted to hear about large \$50,000 corporate and above solutions. It was intellectual arrogance within corporate authority that missed the explosion of the Internet. Industry analysts, paid by the corporation, missed how the numbers would add up as the users of the world armed themselves with the power of collaboration. Symptomatic of this were large companies like Management Science America (MSA), the accounting applications enterprise that did not take PC accounting applications seriously. In 2012, the little company that made Quickbooks, Intuit, grew their sales by 11% to 3.85 billion and IBM’s purchase of Lotus 123 desktop applications tragically lost its value. Huge investments and market positions were lost, because analysts were stuck in an older world of trickle down authority and control.

Workgroup Local Area Network

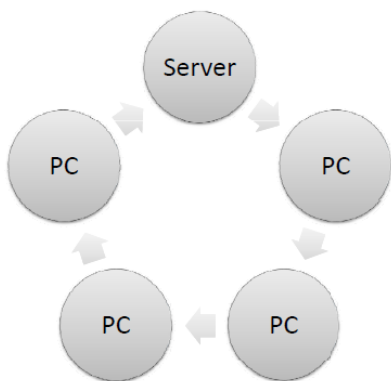


Figure 3. Workgroup Local Area Network LAN computing

The message was clear by the 1990s. People do not want mainframe control or a George Orwell, "Animal Farm" computing architecture. In the end, Dewey and Friere had their way, the main framework was now democracy in learning and business all the way. The oppressor lost and users won. Even in major corporations, the amount of time a user invests in learning and tracking snippets of information on the Web dwarfs what is learned in any corporate training course.

B. Token Ring Ethernet Workgroup Sharing

The IBM PC came on the scene in 1982. Soon after that, PCs were linked together Peer-to-Peer to share files, email and printers. Whereas, PC software started to take the power from Star networks, workgroups shut the door on mainframe markets and corporate control. Control was not relinquished easily. When the Novell User Group (NYLANA) launched in Manhattan, department heads did not trust corporate IT with data or maintenance, so they hired their own resellers to support them. NYLANA had 12,000 members in NYC. Only when the MS Exchange Server and Novell servers started managing corporate standards/security for email did IT gain some control, and the cat called content freedom was out of the bag. At the personal residence, computing and smart phones evolved and remain out of reach of the company's control. The world has changed for good and even national censorship filters that continue today in some countries, cannot change it back or even sustain the censorship in their own countries indefinitely.

From a behavioral perspective, this was a radical break from corporate authority, as many corporate business departments set up their own LANs and even LAN vendors to separate from corporate IT departments. The Novell network understood this collaborative strategy and partnered with 40,000 Value Added Resellers to compete with IBM/Digital for the human collaboration desktop market. Later, Microsoft Window NT replicated the Novell strategy. Today, IBM must leverage the Novell and Microsoft platforms for desktop communication. Despite heavy IBM corporate IT pressure, IBM's WARP

Case:

When delivering our workshops for our UNESCO “I am Africa. This is my story...” portal, youth, for the first time in Africa’s history, fully understood they could bypass the town’s one multinational factory and build their own business. They understood that their parents did not have to purchase GMO seed, they could grow their own, and find additional buyers. They did not have to work in factories for starvation wages. They now had the option to go into business. 7

network OS strategies all failed in the market. From a Sociological/learning point of view, this represented a key evolutionary leap in the mindset of democratic technology and human communications. Knowledge workers gained control of what they said and to whom they said it.

The second profound shift critically relevant to the African scalability issue is that the PC LANs, applications and Web gave small businesses the same access to global logistics that large international ones had. International, banking, purchasing, shipping, and communications could all be leveraged by a single person setting up a business in a basement. Even full blown automated accounting systems could be purchased from a local retail store and linked into any local bank, not to mention the U.S. Internal Revenue Service. These were all strategies that are recent in human history, that only few years ago were reserved exclusively for the multinational firms. The small person in the U.S. became empowered and so was the single person in Africa. In the case of Africa, it means that any youth can become a multinational with the web applications and resources used by companies with billions in assets.

Today the number one employer in the U.S is small business. Another lesson for African scalability is to look at small and medium business for scaling and partnerships, not multi-nationals.

C. Collaboration: The Revolution of Global Democracy with Internet Applications

The date when the Internet went from Web 1.0 lookup into the community collaborative to Web 2.0 is somewhat debatable, perhaps 2000. No one application such as Facebook or Twitter can claim credit. The human tendency to find purpose in life by sharing has existed forever. As soon as office email could send family pictures, we were collaborating on everything from business engineering, cute pussycat pictures to grandma’s best chili. There is a method in the madness.

Case:

With this paper medium, I cannot write more than one sentence or conflicting ones at the same time. My editor would go crazy. Yet I typically have about six Windows up on my laptop. While writing this sentence I am also SKYPEing with an African editor in Nottingham, UK who is laughing at my coonhound barking in the woods of Connecticut. We are not only collaborative, but also concurrent at the same time. We are the Killer App.

How frustrating it is writing with black and white paper and being restricted from inserting real time HTML statistics. Such as CISCO Projecting global IP traffic growth widget <http://ciscovni.com/forecast-widget/index.html>

Collaboration is how we socially reflect life in technology. From learning how to change a diaper, to fixing a copier, to a collaborative AutoCad meeting for designing nuclear accelerators, collaboration is an integral part of the way we interact and produce knowledge. Even drone air strikes are collaborative gaming, weapons and politics in one application. We swap tiny bits of information back and forth, pasting them together to create homes, experiences and plans for when to send a child to the doctor. We learn socially in a relationally fuzzy structure that Knowledge Management can not currently handle. Perhaps in the future something of a holographic type database which is yet to be invented running on quantum computing systems using DNA based memory systems. The key attribute of the behavior is that we swap lots of small chunks of information.

IV. The Bridge Between Human Consciousness and Technology

Whereas the physical world is time and space-locked, like an indexed based text book, human thought (consciousness) is not. Inside of our anything goes mind space, we can dream the impossible, improbable and then somehow manipulate physical reality to make it happen. Web 2.0 collaboration serves as a bridge between the physical industrial world and the mysterious mental world of emotions. It is where human context and physical reality crash together.

Why is this important to broadband usage? Human nature revolves around its need to communicate and build with community context that is massively (if not infinitely) scalable. It will never have enough technology bandwidth.

Providing a way to tap into that human instinct to collaborate in Africa is the key to stimulating the investment required for broadband. Once the means of commercializing the human need to collaborate is identified in Africa, it will be hard to keep up with demand. The killer application is not academics or even video entertainment. It is

humanity's love and need to communicate with one another.

What can be realistically achievable now? Three basic multiplying drivers that can drive up traffic at the end of a broadband pipe are: searching, collaborating, sharing and P2P video. These drivers overlap and work in collaboration with one another. One could use a single application such as YouTube for finding Kenyan songs, learning how to sell cars, gaining expertise in personal finance or learning another language. A rural farmer interested in changing to fish farming can learn about Tilapia fish farming via the Net. The farming group will use multiple applications such as YouTube, industry portals, agricultural wikis and LinkedIn to talk to industry leaders, or suppliers available for building fish farms in Southern Sudan. Again, we see no killer application in particular, just massive numbers of applications collaborating together. 8

Investments in broadband need to be tied into marketing programs that show youth, leaders and businesses how to leverage the Web. Africa needs to see youth having fun and business making money through collaboration. In order to create a desire for taking the initiative in this journey, we need more than just a station at the end of the tracks, we need a destination of fun and prosperity.

The killer application is in the user's ability: A. For youth to have access to global resources, B. Business to know how to research for solutions, C. Have affordable access to the Internet.

Adopting a multiplier strategy is not just increasing the access points for traffic, but also educating those involved with the knowledge to use an application. This would be followed by the motivation to search, learn, process and share, thereby extending the collaboration.

Tools for adopting a multiplier strategy are:

1. Entertainment applications
2. Business applications
3. Personal applications

Multiple human motivators need to also be addressed, such as:

- Business competencies methods and tools.
- Life Skills: We define this as a learning method from the UNESCO Four Pillars of life skills: Learn to Know, Learn to Do, Learn to Be, Learn to Live Together. 9 These are motivators and collaborative cultural attitudes that will aid in the development of a town and therefore traffic. These can be woven into any Telecom ad campaign.
- Personal growth: Learning form a personal cultural/values stand point of poverty is entirely different than from a developed country point of view. Simple values such as business is ethical, success is possible and will not be stolen, and the resources to reach that level of success, are all values that that need to not only be learned, but also proven as feasible.

The Web is a Learning and Creation System

Our bandwidth strategy is no longer driven by business or entertainment applications as an end in themselves. Rather, it is the way we take the world in, process it and create anew. Understanding the multiplying dynamics of the Internet is basic to understanding the learning /creative dynamics of the Web market. Humans search and learn through engines such as Bing or Google, Google alone accounts for 500 million searches a day (2013). This does not even count the links users follow after they have found their primary search location. Food recipes are a good example of this. The Food Network statistics form (Searchengineland.com 2013) indicates 25,000,000 inquiries in December 2013. 2 Once landing on Food Network's page from Bing or Google, the user will continue to search for multiple recipes and food search tangents. Each search is a learning experience, requiring the user to sift through facts in order to create a match with personal tastes at a micro level. As a personal example, I may need to discover what I can cook tonight in relation to what I have in the freezer and spice cabinet (facts) that my children will eat (personal taste). Then I will need to look at how others feel about the recipe before

Personal Learning Framework™

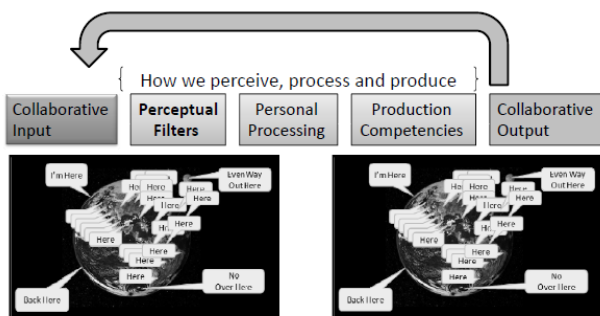


Figure 5. Personal Learning Framework integration with Global Learning Framework

trying it, resulting in a TXT to the family with a photo of the recipe. In a single internet learning event, a hungry person can filter through massive global content, and find a match with the local needs of their family within minutes. The key point here is that the Web user either by cell, tablet or PC is in total control.

Learning and collaborating on the Web is a user driven application. In most countries, it is no longer driven by state curriculum standards, government police, local school or international publishers. It is not a push-based review stream. It is pull-based. Fully grasping this concept is essential to driving African bandwidth traffic and revenues. Push-based business models of entertainment and academic curriculum will not scale in the way required for a profitable enterprise with short financial runways, as exist in Africa.

V. Decreasing The Risks of Failure

Why do Internet Communication Technology (ICT) strategies fail? Africa and the U.S. are filled with small Telecentre failures and large stranded corporate investments. Perhaps the answer is in the old marketing rule to “know the customer.” Digital Computers created AltaVista. It was the first really great and brilliantly conceived Internet search engine. Digital, being a technology company, failed to see the social and advertising value of what it had, letting Bing or Google pass it by. In 2003, Yahoo bought the brand, and today AltaVista nothing more than a page in front of Yahoo.com. Digital could have become Google, but its obsession with plumbing over people cost it the market.

A. Minimizing the Investment Risk With Multiple Revenue (application) Streams

Traffic multipliers expand the revenue streams by which traffic enters the broadband pipe, as well as the size of the events and the rate at which the events goes viral around the world. This diminishes the financial risks when relying on the revenue from a single or two killer applications.



Figure 6. UNESCO PPN “I am-Africa. This is my story...” African youth portal cloud community
<http://i-am-the-story.ning.com>

The Web’s ability to rely on event traffic of human experiences throughout the world is multiplied by how those events are modified and expanded as it goes viral. Whether the event is the changing of a song or the methods of organic coffee growing, information on the Web is constantly morphing and changing with each touch of human influence. Imagine a corporate Knowledge Management Data Base Manager attempting to control such scaling with the geometric increase in the number of connections from the days of cloud.7

The Cloud is an Internet with unlimited applications, servers and appliances connected to 61% of the seven billion populace of the planet. The Cloud has accomplished a technical leap by creating clusters that link applications and websites together. Learning portals such as www.bascom.com offer over 10,000 free educational websites sorted by categories and then education levels. Concepts such as Flat Classroom Project (2011) empower educators to teach without purchasing any curriculum content and by streaming live into classrooms throughout the world. In addition, Internet translation capabilities empower cross cultural, trans-borders and multiple language learning. Collaborative systems such as Nings’ www.classroom20.com have 76,000+ global educators within a free online conference together. Collaborative classroom systems such as Mightybell empower students with Smartboards to touch boxes and launch to any place in the world to present ideas as team classrooms without walls. In Africa, we need community centered safe places to show, guide and stand back for Africa to create its new destiny.

Taking on Poverty’s Motivational Hurdles

While conducting the workshops for our Digital Storytelling UNESCO PPN social network, “I am Africa. This is my story...,” 10 youth understood what the Web had to offer, but they also were realistic that it would be a long and challenging road. In less than an hour, they could see their personal story on YouTube, and the sense of significance and empowerment was breathtaking.

Note:

eLearning as practiced today is not a representation of how we typically learn on the Web. It is a replication of old colonial indexed sequential educational methodology, called page turning. In contrast, humans spend one second, on average, on a webpage, and learn instantly through searching Bing or Google. This illustrates that learning on the Web is relational in small chunks not in long winded courses. eLearning represents a tiny fraction of how we learn real-time as a global collaborative community. eLearning from a classic Learning Management System is based on a star publishing model, is cost-prohibitive in Africa, and the content is often not reflective of or relevant to local cultures. Scalability of the star architecture is dependent on adding additional students with minimal collaboration. It is not a killer application for bandwidth, even with video. Similarly, limited video streaming does not generate the multipliers required to be a sustainable model in Africa. Indeed, those of us who lecture in the GlobalEducationConference.com turn video off. It is too expensive and unreliable in developing countries.

Perhaps the greatest hurdle to the increase of Internet traffic is the development of new Life Skills and Personal Growth values in order to defeat poverty's mental hurdles. People in poverty need to be convinced there is a way out of isolation, and communication is a way out. African youth is a new generation that possesses the mental seed of this possibility. 11

As early as 1989, in an eLearning conference in San Diego, I pointed out in my JumpStart speech that learning via the Web would not adopt the sequential style of text book or page turning that eLearning courses of the day demonstrated. Human learning would shift to a relational "Search Learning" framework that would mimic how we learn on a day to day basis as individuals within groups. Simply put, we apprentice. The reaction was both excitement at the global possibilities and anger by those wanting to sell the Sharable Content Object Reference Model (SCORM) type Instructional Design. Search Learning took the business model of making expensive courses or books and shrunk it down to a few seconds on a page. In 2010, a competing consultant contacted me to ask if I would revisit the Search Learning concept based on Web 2.0 today. Keep in mind that the concept of collaboration as we know it today was not present at the time. Starting with Lotus Notes in the 90s our global culture of the collaboration has evolved through applications like Facebook, Twitter, Angie's List. Even Food Channel recipe reviews were not available back in 1989. Presently, collaboration is everywhere. You can look up an abstruse YouTube video such as "amphibian World War II bombers" and see commentary by the men who flew them.

This consultant's challenge sparked my development of the Global Learning Framework™ and Micro Learning Frameworks™ that illustrate how content and context application, mixed with the human experience, facilitates learning, processing and creation in a global learning environment. The more that we understand how this global learning process of collective problem solving and creating works, the faster we can

develop applications to encourage investment in and connect Africa's broadband infrastructure. 12

VI Global Learning Framework is Application Scaling

The entrenchment of colonial/industrial education is when a superior/expert imparts their knowledge down into the working classes/cultures. Democracy in learning has the masses fully empowered to explore, create and share knowledge on equal footing between students, the same way billions of people typically use the Web today. The disconnectedness between these two approaches of learning is vast, wide and often antagonistic.

Entrenched in the Industrial Model

Colonial or industrial training is when people in authority such as governments, educational departments or companies utilize a learning process as a "one way street" to replicate the principles or process they want the learner to perform. It is trickle-down, authoritarian and industrial in its curriculum nature. Figure 7 illustrates this one-way flow of informational obedience, or oppression. 13

In Colonial training, there is not much personal responsibility for learning, as evidenced by the "do as you are told" process of developing good soldiers. The eLearning buzz word for this strategy is "workforce productivity." This is a pass or fail, fit in or get fired method. It is the opposite of the Web.

Community, not facts, defines competence. Colonial online learning fits the academic and business models well because of the requirement to control brand, knowledge base, intellectual property rights and student ownership. Yet even when we were developing Microsoft Certification and others, we understood the limits of certification training that were eventually tested in the courts. We could certify that the person knew the body of Microsoft NT knowledge, but not guarantee if they were a good MS Systems Engineer because of variances in IT environments and the personalities of the engineers. Tests only tell us that a person is competent in a self

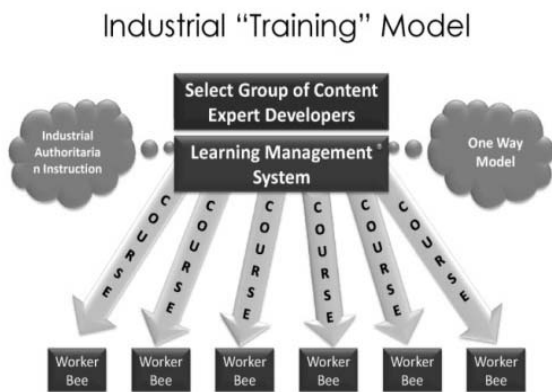


Figure 7. Star Hierarchical Industrial Educations Model

contained body of knowledge. Factual certification does not necessarily mean that “job competence” has been developed. How do we certify mastery of context, values and feelings?

Collaboration as learning in the context of the community. The Web is not only knowledge, but it is knowledge connected together with other knowledge in “context” of the communities in which it resides. By its very nature, context about a piece of information is often more important than the piece of information itself. An image of the President of the United States in a U.S. social community has a totally different meaning than the same image in a radical terrorist community. Social context enriches learning and makes it relevant. It is why Facebook and Twitter are so relevant.

Micro Learning Frameworks™... the Process of a Global Learning Framework™

Can we find a method in this madness of global exchange of information? Is it possible to facilitate collaboration in the classroom, business and global community? Can we teach in such chaos? The answer is, yes it is already going on all around us.

To understand how Web 2.0 collaborative learning works in contrast to assess-teach-test is to move from flat index learning into 3-D weave of human context and knowledge sharing. In the 1989 eLearning International Conference, I opened my conference speech that on-demand “search learning” would accomplish this. Now I see that human collaboration and publishing are inseparable processes in the education of global social communities as demonstrated in Figure 8. Micro Learning Framework.

In 2010, Search Learning was upgraded and incorporated into the Global Learning Framework™. The Global Learning Framework is a collaborative weaving of humanity performing five simple educational processes concurrently across the globe. Multiple Internet applications can be leveraged with any Micro Learning Framework. The concurrent steps for learning and problem solving mirror how we communicate as groups in life.

How community learning works:
“Micro Learning Framework™”

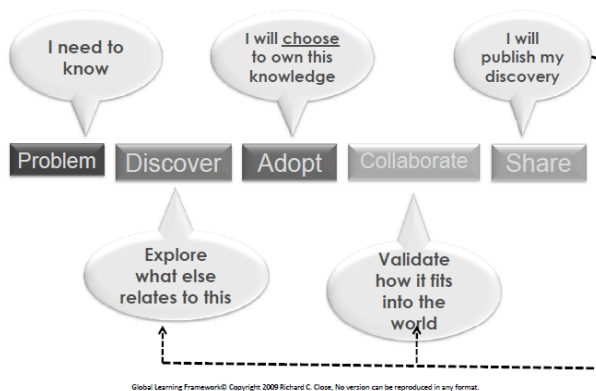


Figure 8. Micro Learning Framework™

Global Learning Framework™

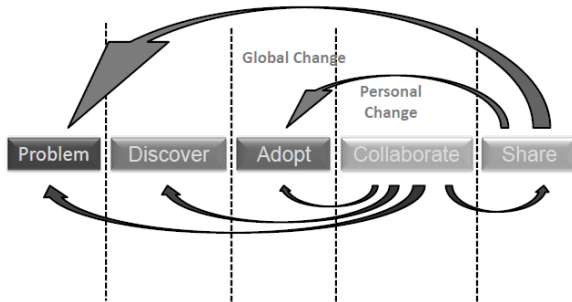


Figure 9. Transformation in the Global Learning Framework™

Global Learning Framework Model 13

Problem: Web learning starts with a need or a problem or we need a challenge. We turn to the global Web with “How do I find out...?”

Discovery: Next, enter a discovery process. Often we discover that we are asking the wrong question or looking in the wrong place. As the Web keeps offering search results, we find ourselves reformulating our questions until we finally come to a place where we think we’ve found what solves the problem. Note that this is more than a search process. We are not necessarily looking for one object, but also how that object relates to other objects and the human experience, such as price comparison and the reviews on your choice.

Adopt: Once we discover what we are looking for, we choose to adopt it either as the fact we need or the action we would like to embrace. Either way, at this point, we take ownership of that knowledge. With ownership comes a level of “trust” that is enough to embrace it into our life.

Collaborate: Knowledge alone is useless unless tested or applied with other people in the real world. After learning new cake recipes or drip irrigation, I can try it with the physical world or present it to other people. Collaboration is a field of testing the new knowledge with the reality around us. If it is not accepted, we may have to go back to discovery again. Collaboration also reassures us to move ahead or go back to the problem.

Share/Publish: Once we go through these steps and trust our conclusion, we publish it in a variety of ways. Publishing can be writing your conclusion on a homework blog, planting burn resistant seeds, or baking the ultimate brownies you just researched. Publishing is a statement that what we have learned is “worth” giving back to the world or local community. Yet the moment we share, we change global framework of knowledge and search engine algorithms.

Global Learning Framework™



Figure 10, Knowledge can flash globally through millions of Micro Learning Frameworks in a day or even minutes

VI. Web Learning Flows Within a Non Linear Global Community Framework

While the Micro Learning Framework of Problem>Discover >Adopt>Collaborate>Share seems like another linear method, it is anything but linear. It is a path 100% integrated with innumerable other Micro Learning Frameworks all concurrently running at the same time and at different stages in the personal/group learning experience. Although it seems like five nice and discrete boxes, the contents of those processes are dynamically changing. As a person, we can search, collaborate and share at the same time with social bookmarking. When we share our thoughts or publish, it integrates with other Micro Learning Frameworks around the globe. In fact, all learning is impacting other learning on a massive scale. Simply repeating a search moments later may yield different discoveries and outcomes.

The power of human collaboration is, in its ability to rapidly evolve and change, the world's knowledge base as a whole.

With the Micro Learning Framework, we can see how frequently solutions to life's problems are outside of the classroom, certification program, community education and even the country's education system. This is a leap in educational theory and practice because the human race has chosen to bypass classic education as its source, which leaves Bing or Google serving up billions of micro lessons across the planet.

"Flash Learning" or Scaling Internet Traffic 14

Micro Learning Framework driven by human passion can create large flashes of collective awareness, adoption and idea sharing into revolutions such as the Islamic Spring or presidential elections or the massive sales of entertainment media. We call these fast collective gestalts "Flash Learning" Figure 10. Dictators who once had control over their people are now waking up to discover an entire country demanding their expulsion. But Flash Learning's collective power runs even deeper than what we can imagine. While global collective learning evolves, the mental

integration of Micro Learning Framework bleed over and impact seemingly unrelated learning frameworks. This grouping of Micro Learning Frameworks are spontaneously forming overlapping groups and subcultures of interest. Layers upon layers of learning facts and context are virtually influencing one another's learning processes simultaneously. Think of it, the place you booked your flight is also where you learn about weather, food, housing, local wildlife and disasters. It is all connected to your hand held device from sources around the world, and you can give your opinion, reaction and guidance on all of it. Traditional images of history on the pages of history books have been replaced by archived or real time cries of Syrian youth being murdered by their government on a TV screen right behind the counter while we purchase our Dunkin Donuts. We can even Tweet the reporter to give them our impression while waiting to pay for the donuts. Whether we end up seeing the images of inhumanity like video game illusions or in the tragic human context, is yet to be seen.

Knowledge is no longer black type on the white pages of an indexed book. It is dynamically woven in the fabric of all of our lives and broadcasted into the farthest reaches of space. This is the ultimate invention of the human race, one fluid Global Learning Framework moving through a socially networked technology called the matrix. This phenomenon may be Africa's final revolution tool in bridging the economic and educational gap to join the world forum as an equal member.

VII The Killer App For Africa

The formula is simple-- facilitate Web collaboration at an African town level, and you multiply traffic. This leaves us with a cultural application and not a software one. The Global Learning Framework explains that the killer hyper-growth application is the complex and high resource demand that human beings have when working, living and creating with the Internet. It also explains why any broadband strategy must take into account the ubiquitous phenomenon of human need to share and be recognized.

Case:**New York City Birthing of Networking
(Human and Technical Together)**

In 1995, I founded, with Michael Gansl, CEO of NETLAN, the first profitable U.S. Technology Center in New York City. The concept was to create a space that did not just demonstrate new technology, but was an environment where NYC network engineers would meet the industry's top technology developers in order to collaborate on how to solve New York's Novell and Microsoft NT deployment issues. The strategy was a Technology Center. From this birthed a user group, NYLANA, that expanded to 12,000 members and large scaled conferences in New York. Over 50 of the world's top IT companies paid NETLAN to attend and meet New York's major corporations and LAN engineers on a monthly basis. This was then surrounded by authorized Novel, Microsoft and UNIX training center classrooms, which raised additional revenue. The entire marketing and community building program was nothing more than facilitating the education of New York City's network engineers. The community provided the content and motivation, while we provided the space and events. This same model would work in an African town for community development.

***Facilitating Internet usage
in the African Community***

There is a mindset in business strategic planning that the marketing will generate the additional business, yet there is no real one marketing program for the Internet's growth. It is instinctive human nature to collaborate that causes the technology's explosive growth. If we transform a strict silent class lecture into a Legos robot war, explosive learning, creativity, youthful noise leap into a room of transformative learning that seems at times wonderfully out of control. All we did is create a safe learning environment and encourage children to explore answers to problems. They create the experience and teach themselves, referred to as "self-instruction." 14 It is a mindset we must adopt for African villages and, in particular, Africa's youth and underemployed college graduates. All we have to do is create community environments that are safe and reliable with good human guidance. They will create the collaborative multiples of traffic we look for to justify the investment into the required broadband infrastructure. We facilitate a market rather than create it. Our analysis of the Internet market needs to change from a perspective of "creating markets" into a strategy of "facilitating markets" growth. The fire has started; we only need to feed it with easier access and more reasons to collaborate. Physical, multi-purpose and financially sustainable learning centers may be an important element in Africa's broadband success..

Africa has many hurdles to building such a facilities in a African village. ICT reliability, personnel reliability, corruption, quality of facilities, competing NGOs to name a few. However, if properly designed and scaled to the needs of the community, a multi-purpose development center may attract multiple local investors to pursue individual small, but realistic business models, while creating a facility that justifies the investment in a broadband connection to the facility.

VIII Can or Will Africa Collaborate?

To many, especially those who know Africa only on the surface, the idea of collaborative or democratized style of education with technology in Africa's tribal cultures is simply wishful thinking. Examples of collaborative learning and action in Africa abound. Two examples in which I have been involved are: Thunder Mission and Macha Works, both located in Zambia.

Thunder Mission is located at Thunder Ranch in Livingston, Zambia, which is a 10,000 acre mission with 50 farms, three clinics, schools and orphanages. In 2003, there was one telephone connection in the entire mission that went down when town power shut off at 10pm. Now all of the five villages have mobile phones with multiple types of farming and commerce businesses. These changes were endemic to the explosion of mobile phones throughout Sub Saharan Africa, but also locally organic and evolved as a group of 300 local farmers living on the mission with a need to communicate with one another and the markets in Livingston.

Gertjan van Stam's research with the Ubuntu culture points out that collaboration is intrinsic to the very nature of their culture of communication. This environment is democratically managed using mobile phones throughout the local community. 15

Most local talent emerged from this group. Prioritization of interaction with chiefs and other leaders of the community was beneficial, as they have a direct influence on the opinion of the community.

“During the identification stage, the interests of the stakeholders became manifest through observation and conversations in re-iterative processes of interaction (van Stam, n.d.). Positioning of interactions and activities fell in line with cultural behavior patterns motivated through the Ubuntu culture. The Ubuntu concept is a true expression of African uniqueness. Tutu draws the contrast between Western philosophy and Ubuntu:

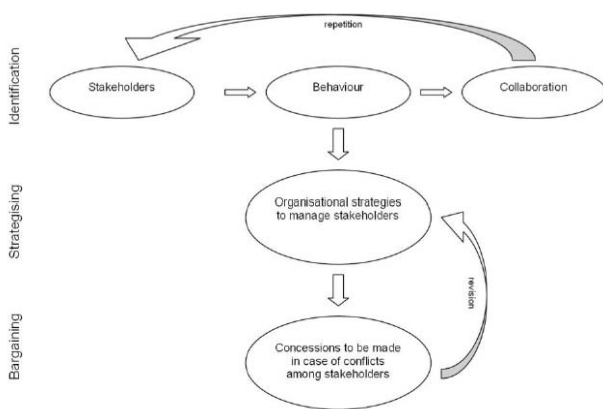


Figure 11, Stakeholder framework, amended from Bailur (Bailur, 2007).

Case

Gertjan van Stam developer at Macha Works Zambia in 2012

Macha Works in Zambia best highlights how African collaborative learning integrates the social collaborative way we learn into the Web.12 Gertjan's passion went beyond research into building an entire town with technology and collaboration.

“Through the lens of instrumental stakeholder theory, the managerial behaviour triggered the intended outcome. Remarkably, expats rarely intervened actively but merely engendered ideas by a process of integral development”

This behavior resulted, over time, not only in universal access throughout the Macha area but also in an empowered community. The people in Macha established a sense of, and desire for, change. The stakeholder framework as put forward by Bailur differentiates between three different stages: identification, strategizing and bargaining shown in Figure 11 above. 2 Analyzing stakeholder involvement from the Macha Works model, the first two elements of change, observe and model, correspond with the process of stakeholder identification. One subgroup of the community is the local farmers, who use the Internet to gain knowledge on new techniques or crops. Young people in Macha are a key stakeholder subgroup, as they use the Internet for communication and socializing purposes (Johnson et al., 2012A)

'it is not I think therefore I am'. It says rather: 'I am human because I belong (Tutu, 1999). The most striking characteristics of the Ubuntu culture pattern are collectivism and sharing, and the use of orality (van Stam, n.d.). Consultation about change involves the entire community; individualistic action is dissuaded. Blame, criticism and shame have negative consequences for the reputation of a person within the community. Hence, the model of project implementation and the model of change cope with these cultural patterns.” Gertjan van Stam (2012)

Solution is in a safe reliable place

The solution for a place to ramp up traffic is to build a quality, safe train station capable of handling volume. The solution is to take all the problems of safety, reliability, quality and a common ground for community and business to meet and place them in one central secure compound (not a small telecentre). Control all the risks of failure in one facility and then facilitate the town's learning of how to collaborate together and with the globe. Chrysalis Campaign is proposing a new commercial concept called Community Development Center with Somaliland University of Technology in Kenya, Nigeria and Zambia, which would result in a safe compound of cyber libraries, community meeting spaces, and fully wired economical private and rentable business offices.



Figure 12. Community Development Centers Location for community technical and social collaboration.

IX Community Development Centers

In essence, a Community Development Center (2013) would be a for profit cultural and business hub to facilitate human and technical collaboration in one location. ICT Value Added Resellers (VARs) could be developed and launched, while at the same time Telcos, Technology vendors and NGOS could all have wired offices and training facilities to work together with local community and business leaders. 16

This rental space is wrapped around a public, meeting, training and cyber library facility.

In Africa, it would also be beneficial to leverage the strategies of the New York Technology Center experience reported above by adopting UNESCO's Four Pillars with business development planning in order to achieve even more remarkable results. To have a sustainable business model for a broadband pipe, collaborative activities and capabilities must be creatively and pragmatically engaged to meet with needs of the local community. A scaling strategy that has one large collaborative suite at one end of the pipe, connected by a large collaborative suite at the other end, may be the answer to sustainable investment in broadband in African rural communities. One end is already built, the Web. This leaves us with the challenge of combining community needs to create a collaborative education, personal, community demand in an African town.

X Conclusion

A paradigm shift from authoritative, centralized knowledge, to democratically and individually distributed information drawn from all over the world is necessary in Africa. The potential solution is to move marketing strategies from that of creating markets to that of facilitating them. The killer application is not a trickle down authoritarian view of video or another killer application changing Africa. Rather, it is building the infrastructure that allows for both profit to the developers as well as the free and unbridled access to the Internet that supports the already deeply

Note:

While recently teaching a class about “Lord of the Flies” (1945), I pointed out that the concept of adults from the British Empire arriving to bring order to little savages in the nick of time was perhaps the colonialist lie we were all raised on. A more compelling reality is from, a dear friend of mine, Jacob Atem (2011), who described to me his experience, at over 8 years old, of being one of the Lost Boys of the Sudan who marched 10,000 strong for one year and buried half their brothers and sisters on their way. While trying to overcome the obstacles of Chinese gun helicopters, lions and hyenas, they stayed organized with Biblical Old Testament tribal rules they learned as children. With no adults around and only armed with their principles of religion and democracy, they were in many ways more civilized than the multinational empire trying to annihilate them for oil fields. As adults, the Lost Boys of the Sudan returned to Southern Sudan educated and built schools, clinics and towns, not terrorist cells. Jacob is finishing his Ph. D. at Florida State. Democracy and collaborative principle were critical to Jacob’s survival and to Southern Sudan’s success.

rooted collaborative instincts and values of African communities.

Change is Disruptive

In the same way, U.S. school teachers are nervously learning how to let students teach themselves in Project Based Learning with Web resources. We must revise our strategies about developing cyberspace and the global collective for Africa. If we want to scale broadband in Africa, we must trust and empower Africa to build what we cannot conceive. Human collaboration and technical collaborative growth are inseparable. The role of Africans and non-Africans alike is and must be to facilitate and not dictate the achievement of collaborative activities that combine sufficiently diverse needs and desires. This will form the basis for a sustainable business model on which to build broadband connections that serve all equally in one place, for many different purposes defined by the users.



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Figures

Figure 1. CISCO, Global IP Traffic Forecast and Methodology 2006-2011, printed in part in satmagazine.com

Figure 2. Star Network Computing

Figure 3. Workgroup Local Area Network LAN computing

Figure 4. Personal Learning Framework™ Close, R. (2010, Spring). Colonial-industrial training vs. democratic Web education: The experts vs. the people? International Society Technical Education, Journal for Computing Teachers. <http://www.iste.org/Store/Product?ID=1640>

Figure 5. Personal Learning Framework™ integration with Global Learning Framework Close, R. (2010, Spring). Colonial-industrial training vs. democratic Web education: The experts vs. the people? International Society Technical Education, Journal for Computing Teachers. <http://www.iste.org/Store/Product?ID=1640>

Figure 6. UNESCO PPN “I am-Africa. This is my story...” African youth portal cloud community <http://i-am-the-story.ning.com>

Figure 7. Star Hierarchical Industrial Educations Model, Close, R. (2010, Spring). Colonial-industrial training vs. democratic Web education: The experts vs. the people? International Society Technical Education, Journal for Computing Teachers. <http://www.iste.org/Store/Product?ID=1640>

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Figure 11. Stakeholder framework, amended from Bailur (Bailur, 2007).

Figure 12. Community Development Centers Location for community technical and social collaboration.

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