

Applying CLA to Technology Planning Old “American West Style” Web Homesteading -- Exploring Metaphoric Allegories to Enrich Four Internet Sustainability Scenarios

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Abstract

This essay examines four possible trajectories for global internet growth through the macro-lens of an old American West metaphor. The essay attempts to postulate four possible alternative futures. Sustained growth of the internet is not a given and may depend heavily upon outside factors that involve a rich blending of social, technological, and regulatory, factors combined with an economically viable business climate.

Keywords: Futures, Strategic Planning, Metaphors, Scenario Planning, CLA, Sustainability

Introduction

Adding metaphoric allegories through introducing scenarios can add a useful dimension to technology strategic planning by casting business and technology themes into more common and relatable contexts. This is especially true when the subject matter at hand (the internet) is comprised of behind the scenes engineering that includes a global technological morass of wiring, circuitry, electromagnetic spectrum, photons, and electrons.

Cyber relocation has transferred many functions that take place in the brick and mortar world to their online corollary. As corporations, governments, and individuals move more of their intellectual engines online, opportunities for exploitation and opportunity exist in equal contexts while multiplying exponentially. Many thought the next age of expansionism would be permanent space colonies. Cyberspace has become the next frontier just like the old days of the American West. When the frontier opened up for settlement, there were few laws, few lawmen, and little ability to identify criminals, defend against them, or run them out of town. Collective knowledge can be accessed over the net as each community and market segment places services

online as the cyberspace is built upon exabytes of data representing quadrillions of dollars of intellectual capital. Furthermore, cyber relocation has transferred many functions that take place in the brick and mortar world to their virtual equivalent.

Cyberspace is aging and working its way through infancy to maturity as user communities unite, innovate, and create next generation business and technology models. As we think about cyberspace we must think about human behavior and how we have quickly relocated to new geographic places, taking our ideas, our families, our histories, our businesses, churches, theatres, and new innovations with us. Cyberspace relocation has followed a trail not dissimilar to human relocation patterns through the centuries. As humans, we're constantly seeking new venues for social interaction, developing commerce, and helping one another. Of course, on the darker side, like the old West, there are always the train robbers and bandits who are seeking anonymity as they find newer ways of profiteering and stealing from others. As this starts to happen, it is a bit like the old West, as we see the sheriffs showing up and laws being made on the new frontier. Settlement, of course, brings with it new ways of regulation, warfare, and even territorial disputes.

Global internet growth is the circuit that continues to plug people into the world's economy. It also serves as a growth engine for multi-national and global companies, like Google, Facebook, Coca Cola, and Samsung, who are trying to capture broader market share in emerging and developing nations. Growth scenarios depend heavily upon user relocation patterns as global societies connect through smart phones and computer systems in emerging nations. The emergence of smart phones and global market penetration patterns indicate that internet homesteaders are showing up at an increasing rate. By 2025, 1 trillion devices and 4.7 billion users could be connected to the internet (McKinsey, 2015). The array of technology, social, economic, and behavioral factors cannot be underestimated. The factors influencing internet adoption from a technological standpoint include affordability and availability of devices, such as smart phones. Global broadband connections reached 2.2 billion in 2013 (GSMA, 2015). Global broadband access to remote and rural areas of the planet still remains an enormous challenge but its achievement continues to be more promising. According to Samsung Electronics (Samsung, 2015), mobile wireless traffic growth, much of which is attributed to the internet, grows by more than 1000x every five years.

Internet Futures: Melding Myth and Metaphor from the Old West

In her paper "The Wild, Wild Web: the Mythic American West and the Electronic Frontier", Helen McLure painted a metaphoric landscape of the internet paralleling the development of the American West (McLure, 2000) The dimensions of this fantastical landscape beckon the imaginations of historians, scholars, entrepreneurs, and adventurers alike as they attempt to tame an unknown frontier that continues to offer up new and unexplored passages. Deepening of this metaphor allows us to expound upon present day business and engineering possibilities to envision alternative development futures for internet growth.

When the internet began as ARPANET in the 1960's as an experiment by the Defense Advanced Research Projects Agency (DARPA), it was not yet contemplated how its growth would evolve or how it would change the world. (McKenzie, 2011) The global internet has been the venue of relocating businesses and lives to cyberspace and is tantamount to homesteading in Western North America in the

19th century. The world is still coming to grips with the timelines and net effect of billions of people sharing information and how rapidly ideas will disseminate, shape shift, and create new paradigms. For many, envisioning the vastness of cyberspace requires significant imagination in order to fully grasp the realm of possibilities. Causal Layered Analysis (CLA) (Inayatullah, 2004, 2007), can breathe new, life-giving metaphors into futures scenarios for internet growth. CLA’s mesh of socially and culturally engaging contexts offers a broader avenue for exploring interrelationships between socio-cultural dynamics and technological aspirations. Further, relocation of people, businesses, churches, organized crime, recreation and other activities to the internet often mirrors the impact of real world forces on the virtual world.



Figure 1. Four Internet Futures

In his essay “Walt Disney’s Frontierland, an Allegorical Map of the American West”, Richard Francaviglia, a geographer and historian, explored cartography at multiple levels (Francaviglia, 1999). These levels viewed cartography through a litany and iconography to represent geography and indigenous populations, while creating structural representations that could uniformly be interpreted across language and culture. In Francaviglia’s allegorical reference to Walt Disney’s Frontierland, he saw maps and cartography as transformative creatures of utopian myth and metaphor. Like a set of Russian Matryoshka dolls, Disney’s Frontierland created a personification of historical and cartographic references through unpacking deep emotional contexts that are intertwined with opportunity, freedom, and the spirit of “Going West”.

Techno-homesteading on the Electronic Frontier

By 2025, it is estimated that nearly 70% of people in emerging nations will have access to the internet and that 90% of the developed world will be connected in a proverbial homesteading fashion as railways to new settlements are built. The internet and its offspring of mobile wireless devices, personal computing, and the “Internet of Things” (IoT), have become the trade routes, postal services, virtual cities, and communications mediums of the post-modern era while subjected to the inertia and designs of real world market forces. The possible growth scenarios hinge

decidedly upon the idiosyncratic subjectivities and interactions between human behavior, market forces, technological prowess, government policies, and dynamic forces that are continuously being redefined. Internet growth has been analyzed using models with varying scenarios by companies like McKinsey (2015), Microsoft (2014), and Nokia (2008) who have formulated quantitative models for internet growth based upon global regulatory impacts, demographics, STEM growth, technology infrastructure availability, adoption rates, and other factors (Microsoft, 2014). These models indicate potential futures for internet growth (or lack thereof) based upon quantitative factors. Using Sohail Inayatullah’s Causal Layered Analysis (CLA) methodologies, this paper will attempt to look at these factors through the lens of CLA in order to extend our imaginations to a virtual space and contemplate future possibilities. Causal Layered Analysis is a methodology to think through future scenarios by deconstructing levels of litany, structural causes, discourse, and myth.

Four Alternative Future Scenarios Unfold

Economic expansion yielding infrastructure investment in emerging economies is an extraordinary factor influencing internet connectivity and especially mobile wireless adoption rates. For example, China’s recent pledge to invest \$189 billion in expansion to last mile technologies may precede another era of internet growth via mobile wireless in both China and emerging nation trading partners much like the Chinese government investment made in its own internal telecommunications which preceded epic global infrastructure growth in mobile wireless communications. As North American and European markets are growth saturated, incentives for expanding infrastructure offer lesser value propositions. Creating connectivity venues through broadband access and enabling mobile wireless devices offer multi-fold enablers for delivering internet service while enabling micro-banking, connectivity to commerce, and expansion of services to future consumer audiences.

Growth Scenario I: The Internet as a Frontier Boom Town

SCENARIO	LITANY	STRUCTURAL CAUSES	DISCOURSE	MYTH
FRONTIER BOOM TOWN Dynamic Growth	We can do it, we have the capability. Nothing can stop us.	Offloading network traffic to non-core devices and IoT (internet of things) will manage growth	Policy and regulation will keep technology in check	It’s a new frontier. Absolutely anything is possible.

Figure 2. Internet Growth Scenario I

In the Frontier Boom Town scenario, the internet has expansive and massive growth penetration and can reach beyond expectations. “Boom Towns” on the old American West often sprung up around railroads, gold mines, and places where people hoped to become wealthy. It is drenched in the mythical euphoria of protected perfection where no harm can come. Much like the days of the romantic American West, where Lewis and Clark, commissioned by President Jefferson in

1804 to explore points west of the Mississippi, in this scenario, society, technology, policy, and security all perform perfectly in concert. In order for this to happen, broadband growth would likely need an economic and regulatory environment that fosters growth. Technology challenges, such as reaching nearly four billion people, would have to be overcome by removing barriers to broadband connectivity at an affordable price point. This is the most optimistic scenario. It is likened to the beginning of the railroads entering the West and creating transportation points for raw materials like gold and silver. Like the railroads running into perpetual obstacles, many of the most optimistic scenarios in technology do not come to pass because infrastructure and technological adoption must catch up with growth. In an article entitled “Internet of Things: A Vision, Architectural Elements, and Future Directions”, Jayavardhana Gubbi (2012) sketches out an internet filled with connected devices all talking to each other mirroring the lives of individuals who make technology the background and foreground of everyday life. In this rendition of the future, billions of sensors transmit critical information streams about people and life on the planet. In this growth scenario the internet begins to look like a movie set on fast forward where homestead cabins and trains transform from settlement town to modern day, urban San Jose, California, complete with the 101 and 405 California freeways and densely populated but interconnected communities.

Growth Scenario II: Trackless Train: Bandwidth Bottleneck

SCENARIO	LITANY	STRUCTURAL CAUSES	DISCOURSE	MYTH
TRACKLESS TRAIN Bandwidth Bottleneck	Not enough bandwidth.	Growth of apps outstrips bandwidth at core traffic centers. Growth falters in areas of lower investment.	Policy and regulation is slow to catch up with technology. Handling further traffic requires more investment.	Microsoft, Cisco, and IBM will make everything ok. New business models will emerge to rectify “last mile” considerations.

Figure 3. Internet Growth Scenario II

In this scenario, the internet infrastructure and human behavioral sentiments produce bottlenecks for growth as do regulatory, technological, and economic limitations. Much like railroad development in the old American West, there were bottlenecks in places where tracks were not built out and boom towns that created employment spikes and new transportation routes between supply chain dominant communities. The Internet today suffers from lack of adoption in developing nations where the cost of deployment is not economically feasible, and build outs do not offer investors a rapid return on investment. Furthermore, bottlenecks occur in places where spiking internet demand cannot adequately be offloaded. The next phase of the internet, the “Internet of Things”, (IoT), much like feeder lines for trains, promises to process traffic off of the network. Ubiquitous sensors will exchange data and port traffic back into 4G, LTE, and future 5G networks, which are the common

networks to be used by mobile wireless devices globally. By 2020, there are anticipated to be 20 billion interconnected devices (Gubbi, et al., 2012) creating the potential for being organized into common communities as is happening with cloud computing today. Theo Postma, et. al. (2012) makes a case for scenario developing in using it as a creative way to inspire new product planning. By revealing litany and structural causes in the course of constructed metaphorical scenarios, relevant strategic planning themes are more readily constructed to ensure long term strategic planning guidance is both viable and sustainable.

Growth Scenario III: Frontier Boom Town Goes Bust: Internet Stalls

SCENARIO	LITANY	STRUCTURAL CAUSES	DISCOURSE	MYTH
FRONTIER BOOM GOES BUST Internet Stall	Continued growth is inevitable	Users lose interest, adoption rates were misestimated	Growth is slower due to financial, regulatory, and technological road blocks	The internet is here to stay and will keep growing at double digit rates.

Figure 4. Internet Growth Scenario III

The 2009 global financial meltdown was damaging for many industries, as well as telecommunications and internet investment, thus, demonstrating that no industry is completely immune to boom and bust cycles. Much like the expansion on the Western Frontier, boom and bust cycles wrought havoc on infrastructure moving goods and services, including railroads, stage coaches and businesses who served the “boom towns”. Common myths among boom towns over the centuries have been that “prosperity would continue”. According to Burke (2009), “. . . scenarios are not about forecasting or even alternatives but about having deeper more effective conversations about worlds we wish to create.” Conversely, we should also create conversation pieces about undesirable futures and season them appropriately with our best version of reality.

Growth Scenario IV: Western Hold Up: Internet Insecurity

SCENARIO	LITANY	STRUCTURAL CAUSES	DISCOURSE	MYTH
WESTERN HOLD UP Internet Insecurity	It’s a dark alley, a no man’s land where you’ll be robbed blind	Cyber security is not enough	Security can’t keep up with technology; it’s better to stay off the net	The Net’s too dangerous, let’s go back to paper.

Figure 5. Internet Growth Scenario IV

The major points promulgated by Cisco and Microsoft as obstacles to internet growth, include security at the top of the list. While somewhat aggrandized, train robberies in the old West signify the relevance of financial gain centered on given traffic points. The internet and cyber security have become exactly the modern

allegory. As banks, insurance companies, brokerages, and every form of business continues to move online, they take with them the personal information and financial information of their customers. It is believed that internet security is one of the greatest risks to furtherance and expansion of internet commerce. In his paper, “Western Frontier or Feudal Society, Metaphors and Perceptions in Cyberspace”, (Yen, 2002) in the Berkeley Technology Law Journal, argues that the Old West aggrandized, utopian metaphor of “open and free” disregards the oppression of Native Americans and lack of the rule of law that resulted in death and bloodshed in the old American West.

Conclusion

The influences for determining which of the four scenarios may be most sustainable are as subjective as the humans who enjoy day to day interaction with their electronic environment. However, metaphor-enriched strategic planning approaches can lead to better sustainability through melding metaphoric allegories with technological insights. The process of deepening technological scenarios through applying methodologies, such as CLA, can enrich future landscapes and add to the arsenal of enhanced planning tools. CLA can be useful when planning for the future and navigating uncertainty through forcing abstract concepts into more tidy metaphors, and “truth-testing” the scenarios using litany, discourse, myth, and structural causes in order to challenge scenarios before quantifying through data modeling. As next generation internet architectures continue to reorganize the Internet of Things (IoT), collaborative insights that draw from a cross-disciplinary, and enhanced, layered approaches will continue to release the full richness that technology has to offer, including a cross-disciplinary matrix of ideas that can open up visioning to alternative futures.

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