

The Emergent Web

a dialogue on the possibilities of a more resonant web

by Paul Duplantis | November 27th, 2018

EmergentWeb.org

The purpose of this article is to stimulate a dialogue around the next step in the evolution of the web. I plan on using feedback and ideas collected from this article toward a book in development of the same name. Comment on this site, on this [Cake.co thread](#) or send me an [email](#).

As we approach the [50th anniversary of Douglas Engelbart's Mother of All Demos](#) an opportunity is presented to rethink the trajectory of the World Wide Web. So much so that some of the greatest minds behind the web are congregating at the Computer Science Museum in Mountain View California in early December to celebrate many of the milestones established from the demo and to look back at related theories, methodologies and innovations passed over due to technical limitations, mindsets, and cultural movements of the day to shed light on a new approach for tomorrow.

In 1968 Douglas Engelbart hosted a groundbreaking demo to envision a future of users collaborating by text, video, and audio through networked terminals 10 years before the PC and 30 years before the birth of the web. Even though punch cards were the computer media of the day, Douglas and his team at the Stanford Research Institute were building systems to push the limits of augmenting the human connection to reimagine the confines of the written page, the TV, and the radio set, where every word articulated was an opportunity for collaboration and heightened thought.

A reimagining inspired by Vannevar Bush's seminal article [As We May Think](#), published in the Atlantic Monthly Journal in 1945, where he laid out a future with a [mesh of associative trails](#) erecting a scaffolding of shared knowledge inspiring a young Douglas Engelbart and Ted Nelson. The latter who in addition to birthing the concept of hypertext created project Xanadu to realize the potential of these associative trails (or what he called [transclusions](#)) to liberate thought and action from conventional rules of media.

But reality rendered a different web, where connected pages evolved from Tim Berners Lee's efforts at CERN offering a more conventional yet wildly successful medium to half of the world's population (to date) to provide unprecedented access to the information of the world. Impressive indeed but did Tim Berners-Lee help build this web for people to be so easily influenced by outside forces in the exchange of information as we are seeing today? Did he help build this web for the monetary value of the connection to supersede the personal value extracted from the medium? I think not but as noble as the cause was the effect took a turn for the worse resulting in today's noisy silos of monetized awareness.

As stated in a recent Vanity Fair [article](#), Mr. Berners Lee obviously has some regrets but apparently has not resolved himself to defeat. No...he wants to reimagine the web as it was originally intended as outlined in the World Wide Web Foundation's new Magna Carta [#ForTheWeb](#) where it is stated, "For the web to realize this potential, it must be shaped by its billions of individual users, and not by the vested interests or limited experiences of a select few. The web's ability to empower people lives with the ability of people to access, understand, and create relevant content freely and without undue interference from any company, platform, or government."

Will this time be different? How will billions of individual users claim what was once promised? How will the organizational domains of Google, Facebook, Twitter, and Apple feel about an open web where the user is in control of their own experiences? The digital revolution began with the mainframe computer finding efficiencies in organizational development evolving into the personal computer finding efficiencies in personal development.

Once connected, realms of administrative autonomy and authority, known as domains were created to help empower the user with the information of the world but over time user (personal) domains were absorbed into organizational domains wielding influence over the user as opposed to being a neutral facilitator. (Yahoo, Google, Amazon, Apple, Facebook, Twitter, Microsoft, etc.) How could users reclaim the web? First by keeping personal domains of information created, consumed, and shared under their own authority, separate from these organizational domains and the network and the applications serving them. Where expressions and impressions of the user would be revealed based only on permissions granted and received keeping trails of activity off of the network focusing on the quality of the connection over the quantity.

At least this is Tim Berners Lee plan with his [Solid framework](#) (working with MIT) to build an open source decentralized platform of PODS Personal Online Data Stores to hold all of the information we create and consume within personal domains of our own authority where we decide what is shared and what is tracked outside the influence of organizational domains. To build on this baseline of personal authority, Mr. Berners Lee has also launched Inrupt, a startup focused on building a development community to create application layers to interact with PODS to help build a new web of purposeful and secure interactions between users. A new web undertaken by not only by Mr. Berners Lee but by a community of technologists hungry for a more resonant connection and through the lens of this writing a more emergent connection.

Mr. Berners Lee is one of many web pioneers scheduled to talk at the Douglas Engelbart 50th anniversary symposium to not only look forward but to look back to ideas passed over from mid 1940's through the early 90's where words, sentences, paragraphs, and passages would be liberated from the confines of pages and media containers to become linkable, associative, editable, and shareable based on permissions whether written, spoken, or visualized. Where visions of a new web could carry these expressions into venues for collaboration, discovery, and rediscovery regardless of login.

Back to the innovative ideas and experiments of Vannevar Bush, Douglas Engelbart, and Ted Nelson to build an associative mesh of trails to connect personal domains not through the profile but through the expressions and impressions contained within. Breaking these expressions and impressions out of the box to create opportunities to augment intelligence of the user was also at the core of Douglas Engelbart's theories on the importance of maintaining a healthy balance between human systems and tool systems to encourage a more natural flow of information rather than the artificial flow rendered today.

A landscape envisioned for the user to be an active participant in crafting their own experiences rather than as a passive bystander as we see in the current iteration of the web. In a 2007 Google talk with Douglas Engelbart, a number of missed opportunities were identified that remain unresolved to this day to include [Collaborative Search](#) (17:49), [Subaddressing](#) (28:11) links inside documents, [Structured Arguments](#) (35:30), [Aggregating Knowledge](#) (44:27), [Dynamic Views](#) (48:12), and [Comments in Context](#) (51:39). Taken as a whole, the [discussion](#) provided a unique view of the largest search engine on the planet grappling with why a more expressive and emergent web had not arrived yet. A discussion taking place over 10 years ago.

What technologies currently exist that speak well to these ideas? To name a few, [Feedly](#) which allows for an open flow of information exchanged between creators and consumers through RSS feeds even as closed silos of experiences trend, [Slack](#) for harnessing individual tasks and skills into productive workflows, [Cake.co](#) for daring to reimagine social media as a destination for thoughtful conversations around topics, [Pocket](#) for bridging bookmarking and text to voice together, and [tldrify.com](#) to create links to highlighted passages inside web pages.

But these are the exception, not the rule. Where do we look to make these technologies the rule? We need to look beyond the technology and to the human behind the connection.

Douglas Engelbart didn't see the web as merely a connection but as a catalyst to help people build a better framework for their own understanding. His concept of bootstrapping described how technology could help augment intelligence by encouraging the user to build tools to inspire the building of tools for deeper learning. But I have read his fixation on bootstrapping divided his team at SRI where many went on to work on the PC as opposed to continuing to work on the notion of connecting users through terminals. In hindsight, Douglas's focus on bootstrapping was for organizational development at a time when the PC promised to free users from the clutches of centralized structures which is a fear that has only increased over time.

What could be learned from this bygone era to apply to a more socially aware yet skeptical environment of today where bootstrapping could focus more on personal development influencing organizational development rather than the other way around? With a focus on providing individuals with tools to build their own framework of understanding within their own personal domains, playing a more active role in conditioning their own expressions and filtering

impressions coming in. Could a demand driven from personal fulfillment encourage a supply of new technologies monetizing both personal and monetary value of the connection?

Many might wonder if this would be anathema to a web conditioned on ease of use but should the reward of understanding co-exist without effort? Universal access to information based on permissions and abilities within flexible and reasonable transaction costs, absolutely! Without effort, no! Because when the effort is taken out of the equation are we not more easily influenced?

Do we wish for a future of associative trails laid out before us by AI or by our own accord? Of course, there is a place for Artificial Intelligence but to serve, not to lead, right? At the Google talk referenced earlier, Douglas Engelbart spoke about the pushback he received in the development of his NLS system with Viewing Dynamics back in the 1960s where he was told he needed to focus on technology that was [simple to use and easy to learn](#). There is something to be said about working smart not working hard but how much does reward without effort inspire? When communication technology assumes inability over capability how much of our potential is lost?

In 1999, through an experiment in self-directed learning, [Sugata Mitra](#) and colleagues placed an Internet-connected computer with programs to use into a wall near their office located in the slums of Kalkaji, New Delhi. With the screen visible to the poorest of poor walking by with absolutely no instructions to operate, children who had mostly never gazed upon a computer before crowded around the foreign object and began to click and explore. Surprisingly, within a few hours, the children were already surfing the web. Whether the result was achieved through one child imparting basic knowledge to one another or accidental discovery of the user, the experiment proved the resiliency of the human mind to collaborate and adapt at the service of understanding. It seems industriousness serves many masters.

As methods are debated and applications created in how to connect our personal domains together for this new web, what could be done to help users build a stronger signal for understanding to emerge from a collection of individuals to help serve the whole more effectively? In Steven Johnson's book *Emergence*, ants sharing pheromone trails with each other for the benefit of themselves and the colony outside the centralized command of the queen ant resulted in a healthy community of ants. What is possible when we create an ecosystem of individual expressions and impressions under the authority of the individual to exchange personal value?

Where blockchain technology could create an exchange of micro and voucher transactions to more effectively align the value of our ideas, capabilities, and actions with the needs of others as well as the organizations and governments we interact with. An emergent marketplace where we could pay pennies for an exceptionally resonating paragraph behind a paywall then pay for more content as our interest dictates or trade a skill for content, a good or a service.

Where we could interact directly with a passage from pending legislation with the ability to turn on layers of context providing insight into committee sponsor benefactors, lobbyist involvement, preferred contractors, related legislation, and topic related member voting records. With access to a feedback tool to invite community members into the thread allowing legislators to identify contributors for panel discussions, creating associative trails of civic discourse.

Where every impression topic could carry a matched list of verifiable sources to consider to help prove or disprove the context of what is shared (verified through server origination, reputational authority, peer reviews, etc.) With every expression created having access to a list of sources as well. I would imagine if Facebook had this feature during the Russian hacking episode of 2016, the number of fake articles shared may have been reduced considerably.

Where a consumer discovers a product through a direct interaction with expressions related to the design, engineering, or cultural impact of the good bypassing traditional modes of marketing and advertising where influence over the transaction does not come from a third party but from the involvement of the consumer to tune out what doesn't resonate and tune in what does. Is it advertising if a good or service satisfies both an innate need and a value proposition or is it just an exchange of value? A new marketplace where associative trails of commerce emerge to reduce consumer dissonance and increase customer loyalty.

Where a comment thread in a news article allows the user to filter comments by relevance to the topic, commenter background, author and commenter quality scores, and sources cited in comments with the ability to mashup comments to share as a new associative thread serving as a new point of discovery to the article.

Where an augmented reality mirror could change the appearance of the user's face to reflect a different ethnicity, gender, or the effects of addiction with associative stories of background, struggle and strength to overcome challenges creating breadcrumbs of empathy for those different than ourselves and of the consequences in how we treat others and ourselves.

Where associative trails of learning are attached to an object of a species of tree carrying commentary from a world-renowned botanist, a local arborist, an article from an environmental journalist, and a live feed from a high school teacher discovered by a student through an immersive tag on a real tree or in a virtual world. What other objects are there to engage our minds? Could the world literally become a stage?

Where a group of sports fans separated by thousands of miles enter a virtual fantasy football game to collaborate on game stats while standing on the sidelines assigning

each other roles on the coaching staff to strategize on gameplay. Each participant bringing their own skills of research, observation, and strategic thinking to the game creating associative trails of immersive interaction difficult to recreate in a non emergent world.

Do we need just another version of the web, a web 3.0, or do we need more of a reboot, where owners of personal domains create and consume information not at the pleasure of organizational domains but as a partner? Where creativity, awareness, productivity, and empathy emerge from a secure connection of expressions, not as a definition of who the user is but as a signal to what they are capable of. A web intuitive enough for users of all ages while accessible for users regardless of background to be able to choose to read, watch, or listen to every expression made. Where every word, sentence, paragraph, or set of passages could be highlighted, bookmarked, and associated with people, places, and things through the user's own volition.

Associations easily and openly shared based on permissions to a phone number, email, document, web page, social post, or an object in an immersive world. Associations discoverable through advanced filtering on the user's end to paint experiences onto a canvas of understanding. Where barriers of access and cost fall as exchanges of value are revealed between users and providers uncovering potential in the most unlikely of places.

We need a better web to put the user in the driver seat of the connection because technology should not be for us to disappear into but to emerge from to become more resonant in the natural world. The purpose of this article is more question than answer as will we ever know what is best for us? Probably not. But could we challenge technologists, academics, investors, politicians, and users to find common ground in what might inspire us to be better? If there were ever something to rally around with more potential for positive change it would seem improving the human connection would be on top of the list.

As the group of notables assembles at the Computer Science Museum in Mountain View, California to celebrate the spirit of innovation and their role on building tools to inspire a better connection, maybe time could be spent looking around the room to identify future partners in the building of this new web. Looking beyond only peer groups of technologists, academics, scientists and investors but to the waitstaff, the janitorial staff, the burnt out CEO sitting nearby, the disaffected youth and the homeless person passed by in the drive in. What is possible when the tools built are in turn tools for people to build their own better realities?

Realities built through an emergent web of opportunities favoring the individual user over the influence of organizational domains where capabilities of one are aligned with the needs of another. What could an emergent web do to empower us to do more for ourselves, each other, and the communities surrounding us? To learn more from what is done rather than what is said as well as finding solutions in disagreement. If we look deep inside you never know what we may find.

Is this a Utopian pipe dream or an exercise in possibilities? I guess that would depend on the eyes of the beholder. These words are clearly written for the latter. For those who see the possibilities in a web more responsive to the individual, it appears the time is ripe to act, evidenced by the congregation gathering to celebrate the 50th anniversary of a demo ushering in a new era of computing that has connected us but has not fully engaged us yet.

Is this an opportunity for a new round of innovation or the beginnings of a movement? Personally, I have been obsessed with the notion of technology reaching within for the last 15 years but only lately have been able to come to an understanding of what it is. Only after digging deep into the writings of Vannevar Bush with the theories and innovations of Douglas Engelbart and Ted Nelson and the arguments made in Steven Johnson's book *Emergence*, did I come to the realization that what I have been chasing is what is possible in an emergent connection being pushed from the efforts of the individual rather than being pulled from interactions of the masses and AI.

I do not assume the term Emergent Web will be adopted en masse but I do believe those who believe in the power of these ideas should come up with a unifying message to rally the investment community, politicians, technologists, academics, and users to see beyond only a return on investment to a return on interaction in how people are benefiting from the technologies built. Could this new web build better tools to monitor this? Where an improvement in movement could be measured from an Alzheimer's patient interacting in a virtual world or a reduction in healthcare costs could be tracked through a tool allowing doctors to more effectively and efficiently relate patient conditions to medical coding.

And most importantly, should these future technologies be allowed to fail? Thomas Edison said, "I have not failed, I've just found 10,000 ways that won't work". True innovation only comes from repeated failures but when the bottom line of shareholders is firmly attached to an expectation of constant growth, quality seems to always suffer. Part of Douglas Engelbart's vision was to carry these innovations forward outside the bottom line into improvement communities to experiment on ideas, especially in realizing many of his ideas were unproven.

In this next incarnation of the web, what type of improvement communities or labs could be created to solicit funding from social impact investors, government subsidies, and charitable organizations to build technology to help people help themselves? Some technologies will fail, the ones that prove a benefit could be made available to an open community of apps to help existing solutions become more emergent.

We have to ask ourselves will society more likely benefit from the convenience of the masses or the deeper interactions of the individual? Now that the technology exists to pull this off isn't the best investment to make the ones we make in ourselves. What better way to strengthen the core of this than through an emergent and purposeful connection.

In an emergent web, we should think small, not big to narrowcast ideas and capabilities to inspire what we do rather than broadcast what we think. Marshall McLuhan once declared the medium was the message. Maybe this meeting of the minds at the Douglas Engelbart symposium will help blend historic ideas with contemporary innovations to help realize the fact that we can and should be the medium. A medium to render better outcomes for ourselves and the communities we interact with in partnership with organizational domains rather than primarily serving their interests.

As stated under the title of this article, this writing is meant to be a dialogue to solicit feedback and ideas around what is shared here. Is an emergent web a better path? Is there something better? Or is the status quo just fine? I would like to continue this dialogue on this site, on the Cake.co thread found here or by emailing me. I would love to hear from minds, hearts, and souls on the possibilities that lie within the human connection. An ongoing dialogue I hope will serve as a source for influencers of technology to consider. Maybe someday we'll all be influencers of technology.