The EMAIL REVOLUTION

How to Build Brands and Create Real Connections

DR. V. A. SHIVA AYYADURAI
THE INVENTOR OF EMAIL

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THE
EMAIL
REVOLUTION

Praise for *The Email Revolution*

"V. A. Shiva Ayyadurai is the inventor of email, and his journey reveals a much larger story, one that should be evident by now: innovation can happen any-where, anytime, by anyone. The sooner we embrace this truth, the sooner our lives will be enriched by the thousands of other 'Shivas' that do not have the luxury of working in the established bastions of innovation, but nevertheless have the intellect and the drive to make big contributions."

—Dr. Leslie P. Michelson, Ph.D.,
Director of High Performance Computing,
UMDNJ, Newark, NJ

"I remember vividly my conversations with Shiva in the early stages of his initiative when he was working hard on the creation and development of email. Knowing the basic concept of what he was creating and the fact that it was so innovative, I and another teacher in our science department recommended that Shiva apply for the Westinghouse Talent Search Award for high school students. Email was to be the electronic version of interoffice mail systems. I specifically remember looking at our school district's Interoffice Mail Envelope and thinking about Shiva's having told me that all the intricacies of this labor intensive system, with its creation, delivery, receipt, and distribution aspects, would one day not be necessary. He had an objective/goal to replace it and other things with his electronic mail. He worked diligently at both his schoolwork and the creation of

what we now know as email. Shiva was obviously very successful at both."

—Gerald E. Walker, Shiva's Honors and Advanced Placement Chemistry Teacher, New Jersey State Teacher of the Year and Livingston High School Principal (retired).

THE
EMAIL
REVOLUTION

Unleashing the Power to Connect

DR. V. A. SHIVA AYYADURAI
THE INVENTOR OF EMAIL

—————————

*To Amma, God's Angel, who opened the doors of Heaven so
I could create*

•

*To Appa, a Genius and one of the most benevolent people I
know,
who taught me to solve incredibly complex problems with
creativity
and tenacity*

•

*To Leslie P. Michelson, who believed and changed my life
forever*

•

*To the Great Unsung Heroes of History, who fought
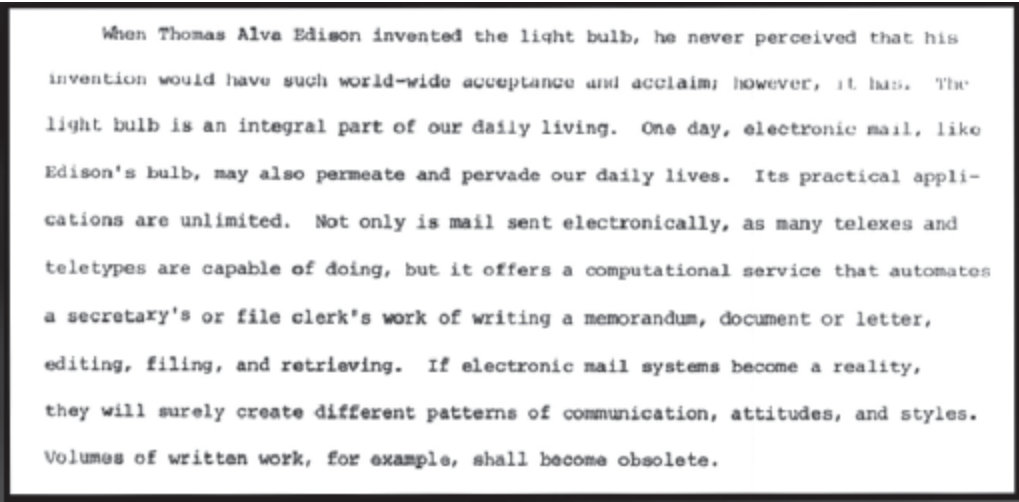uncompromisingly, with
no guile or cleverness, with pure heart and spirit to unleash
freedom, and
whose labors we now enjoy*

—————————

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Statement of Donation

All of the author's proceeds from this book are donated to Innovation Corps,
a project dedicated to unleashing innovation among high school youth in
inner cities and villages across the globe. [1]

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Statement from a young V. A. Shiva Ayyadurai, in 1981, predicting the future of email

"When Thomas Alva Edison invented the light bulb, he never perceived that his invention would have worldwide attention and acclaim; however, it has. The light bulb is an integral part of our daily living. One day electronic mail, like Edison's light bulb, may also permeate and pervade our daily lives. Its practical applications are unlimited. Not only is mail sent electronically, but it offers a computational service that automates a secretary's or file clerk's work of writing a memorandum, document or letter, editing, filing and retrieving."

When Thomas Alva Edison invented the light bulb, he never perceived that his invention would have such world-wide acceptance and acclaim; however, it has. The light bulb is an integral part of our daily living. One day, electronic mail, like Edison's bulb, may also permeate and pervade our daily lives. Its practical applications are unlimited. Not only is mail sent electronically, as many telexes and teletypes are capable of doing, but it offers a computational service that automates a secretary's or file clerk's work of writing a memorandum, document or letter, editing, filing, and retrieving. If electronic mail systems become a reality, they will surely create different patterns of communication, attitudes, and styles. Volumes of written work, for example, shall become obsolete.

From V. A. Shiva Ayyadurai's Westinghouse Science Talent Awards application submitted in 1981.

V. A. Shiva Ayyadurai
Writing in 1981 as a High School Teenager
in his Westinghouse Science Awards Application

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Foreword

Inventor of Email

"The facts are black and white.

A fourteen-year-old kid working in Newark, NJ

invented email in 1978."

In the summer of 1978, I hired a brilliant young fourteen-year-old teenager, by the name of V. A. Shiva Ayyadurai, to be a Research Fellow in my Laboratory for Computer Science at the University of Medicine and Dentistry of New Jersey (UMDNJ), located in the heart of Newark, New Jersey Shiva was given a challenge: create a computer program

that would be the electronic version of UMDNJ's interoffice, interorganizational paper-based mail system.

Shiva took on this challenge and created a program of nearly 50,000 lines of computer code, which he called "email."

In 1982, he was awarded the first US Copyright for "email," the "computer program for electronic mail system."

Shiva defined email as we all know and use it today, as a system of interlocking parts, consisting of the now-familiar components: Inbox, Outbox, Folders, the Memo ("To:," "From:," "Date:," "Subject:," "Body:," "Cc:," and "Bcc:"), Forwarding, Composing, Drafts, Edit, Reply, Delete, Priorities, Archive, Attachments, Return Receipt, Carbon Copies (including Blind Carbon Copies), Sorting, Address Book, Groups, Bulk Distribution, and hundreds of other components and features, which he implemented based on his direct observations of the office environment at UMDNJ.

The facts are black and white.

A fourteen-year-old kid working in Newark, New Jersey, in 1978 invented email.

Nearly thirty-four years later, on February 16, 2012, a donation ceremony was held at the Smithsonian Institution in Washington, DC, at the National Museum of American History (NMAH), where Shiva was honored.

The Smithsonian Institution accepted into their archives his papers, code samples, and other artifacts, documenting the invention of email.

Immediately following this event, a cabal of "computer historians" and industry insiders unleashed a vicious attack

on Shiva.

The acceptance of his artifacts into the Smithsonian had thrown a wrench into a revisionist history they had been writing for years about the invention of email.

This cabal of insiders was a fraternity with close ties to Bolt, Beranek and Newman (BBN), a subsidiary of Raytheon, a multibillion dollar military contractor, which had positioned itself as an innovator in the lucrative cyber-security and cyber-warfare industry.

BBN had built its entire brand image juxtaposing three elements: the word "innovation"; its logo, the "@" symbol; and its mascot, Ray Tomlinson, who they proclaimed to be the "inventor of email."

Ray Tomlinson, however,

did not invent email.

At best, Mr. Tomlinson updated a few lines of code in a pre-existing program or protocol called SNDMSG, admitting that it was "a no brainer—just a minor addition to the protocol."

All this did was to enable the exchange of electronic text messages across two computers, while using the "@" symbol as the mnemonic for distinguishing between the two computers.

The simple exchange of electronic text messages, however,

is not email, just as Twitter, another medium for exchanging electronic text messages, which also uses the "@" symbol, is not email.

The simple exchange of electronic text messages dates all the way back to the Morse code telegraph of the 1800s, or the 1939 World's Fair where IBM sent a message of congratulations from San Francisco to New York on an IBM radio-type.

If we applied BBN's revisionist definition of "email," then Morse code would also be classified "email."

What's even more absurd is that, from an etymological standpoint, the word "email" did not even exist until 1978, when Shiva was the first to coin the term.

This fact is substantiated by the Oxford English and the Merriam-Webster dictionaries, which place the modern origin of the word "email"

after 1978.

Moreover, M. A. Padlipsky, a pioneer of electronic messaging in the 1960s and 1970s and a contemporary of Mr. Tomlinson, exposed Ray Tomlinson and BBN's conflated claim in the famous essay,

Shiva's rightful claim threatened BBN at its core.

The true history of email could have likely hurt BBN's branding as "innovators," in a market where their brand positioning with Tomlinson as the "inventor of email" had given BBN a potential advantage in the highly competitive cyber-security industry.

What should have been an occasion for celebration turned into a wave of unwarranted, bigoted, and highly coordinated attacks on Shiva.

These insiders contacted MIT, Shiva's home institution, and asked for his dismissal.

I had followed Shiva's career and achievements over the past three decades.

After inventing email, Shiva went on to receive four degrees from MIT, started six different multimillion dollar companies, providing hundreds of jobs to people in the Boston area as well as overseas; he has published numerous academic conference and journal papers, received multiple US patents, and has been a good citizen throughout, fighting for the causes and rights of the underprivileged.

   Now, a vocal minority committed to protecting the vested interests of a multimillion dollar brand, was trashing Shiva.

This was wrong and unconscionable.

This cabal began publishing articles overnight in "peer-reviewed" journals, spreading "scholarly" disinformation on email's true history.

It was easy for them to do this as their "old boy" network included editors of these journals.

They coordinated with BBN's PR machine to feed the press inaccurate sound bites, and attacked any reporter who wrote favorably about Shiva, dismissing them as ignorant and misinformed.

They worked together to remove facts on Wikipedia favorable to Shiva, and even went to the extent of creating the InternetHallOfFame.Org website, one week after the Smithsonian event, where they bestowed Ray Tomlinson with the moniker "inventor of email," while local press deemed him the "king of email."

All of this reaction was within weeks of Shiva's donation ceremony at the Smithsonian.

It is quite a process to watch how those in power react when their positions are threatened.

As someone who wanted to share the truth and correct a wrong, I knew we could not compete with these industry insiders.

We made a decision to share the truth of that fourteen-year-old boy in 1978, who worked in my lab and

did in fact invent email, by creating a website called

www.inventorofemail.com to publish the facts, along with primary sources, to reach the public directly.

We spent many months developing the site, referencing those primary sources, and ensuring the accuracy of all the information.

And we were successful.

Thousands of people began visiting the site.

People who visited the site stayed on and read our content, spending an average of seven minutes, compared to a view time of thirty seconds, which the average Internet site receives.

The insiders responded by calling Shiva self-promotional.

How ironic, when here was a multibillion dollar company that had spent millions on creating a false brand image!

Our website was built entirely by volunteers.

Devon Sparks was one such volunteer who spent many sleepless nights in the MIT library, scouring hundreds of documents dating back to the 1950s.

His sincere work would put to

shame the so-called scholarly work of "computer historians" who were clearly there to perpetuate a false history and ensure BBN's brand image.

In the midst of this controversy, Devon discovered an important document in an old dusty microfiche in the bowels of MIT's library system, dating back to 1977.

The discovery of this document would demonstrate how this cabal was purposefully not revealing historical facts.

What Devon found was a seminal RAND Corporation report entitled "

Framework and Function of the 'MS' Personal Message System," authored in December of 1977 by Mr. David Crocker, a former BBN employee, and a part of the cabal waging attacks on Shiva.

Mr. Crocker, at the time the document was written, was considered an electronic messaging pioneer.

In this report, he summarized the state-of-the-art electronic messaging research.

The concluding statements made by Mr. Crocker are perhaps the most revealing.

He stated with emphasis:

> At this time (December 1977), no attempt is being made to emulate the full-scale, inter-organization mail system.

To construct a fully-detailed and monolithic message-processing environment requires a much larger effort than has been possible. . . .In addition, the fact that the system is intended for use in various organizational contexts and by users of differing expertise, makes it almost impossible to build a system which responds to all users' needs.

Consequently, important segments of a full message environment have received little or no attention. . . .

In December of 1977, Mr. Crocker unequivocally stated that electronic messaging researchers had made "no attempt" to emulate the inter-organizational mail system.

He further admitted that the creation of such a system was "almost impossible."

However, in 1978, the creation of such a system was precisely Shiva's intention when he joined my laboratory at UMDNJ.

In 1978, Shiva did that "impossible" feat, which Mr. Crocker referred to in his RAND report, by attempting to and successfully building a system "which could respond to all users' needs."

He did this by becoming the first to create an electronic system which was the full-scale emulation of the interoffice, interorganizational paper-based mail system, with the clear intention "to construct a fully detailed and monolithic message-processing environment" that could be used "in various organizational contexts and by users of differing expertise."

Shiva coined the term "email," which was not so obvious in 1978, and associated that term "email" with the system he built.

This is why I say the facts are "black and white."

In the midst of these overwhelming facts, Shiva's detractors resorted to the old strategy epitomized by Harry S. Truman's quote, "If you can't convince them, then confuse them."

They attempted to spread confusion by arguing that upper case "EMAIL" is different than lower case "email."

The only reason upper case was used by Shiva in referencing "email" was because in 1978, in the FORTRAN language, the programming language in which he created email, all variables and program names had to be in upper case.

Noam Chomsky, the great linguist and MIT professor, expressed the absurdity of this argument, in a

Wired magazine interview on June 16, 2012, entitled "Who Invented Email?

Just Ask Noam Chomsky":

> What continue[s] to be deplorable are the childish tantrums of industry insiders who now believe that by creating confusion on the case of 'email,' they can distract attention from the facts.

Email, upper case, lower case, any case, is the electronic version of the interoffice, interorganizational mail system, the email we all experience today—and email was invented in 1978 by a 14-year-old working in Newark, NJ.

The facts are indisputable.

Moreover, email, Shiva's invention, was not a "no brainer" composed of just a few lines of code, but a system of nearly 50,000 lines of complex software that he wrote single-handedly, which converted the entire paper-based system of creating, delivering, receiving, and processing typewritten interoffice paper memos across UMDNJ's three campuses, into a sophisticated, easy-to-use, highly reliable electronic platform, accessible to hundreds of doctors and secretaries.

Shiva's story is eerily similar to the story of Philo Farnsworth, the thirteen-year-old farm boy who created Television.

It took Philo many years of fighting vested interests and industry insiders to ensure that the broad public became aware of the truth of the invention of TV.

Thirteen-year-old farm boys and fourteen-year-olds working in inner cities are not supposed to invent anything of significance, based on the "history" of certain "scholars" who want to perpetuate a narrative that innovation can only take place in big companies, large universities, and the military.

This book, appropriately entitled

The Email Revolution, will provide you with a firsthand account of Shiva's journey from 1978, when he invented email, to modern times, where he helps the largest brands in the world to understand what email truly is, and how to use it in incredibly creative ways.

Once we realize that email is a system that directly emulates the interoffice, interorganizational paper-based

mail system, Shiva's contribution becomes crystal clear.

There is no gray area in this controversy except the one created by those who wish to profit from misinformation.

V. A. Shiva Ayyadurai is the inventor of email, and his journey reveals a much larger story, one that should be evident by now: innovation can happen anywhere, anytime, by anyone.

The sooner we embrace this truth, the sooner our lives will be enriched by the thousands of other "Shivas" that do not have the luxury of working in the established bastions of innovation, but nevertheless have the intellect and the drive to make big contributions.

Dr. Leslie P. Michelson

Director of High Performance Computing Lab

University of Medicine and Dentisty of New Jersey (UMDNJ)

Newark, NJ

Statement from Noam Chomsky

"The efforts to belittle the innovation of

a fourteen-year-old child should lead to

reflection on the larger story of how power

is gained, maintained, and expanded. . . ."

The angry reaction to the news of Shiva's invention of email and the steps taken to belittle the achievement are most unfortunate.

They suggest an effort to dismiss the fact that innovation can take place by anyone, in any place, at any time.

And they highlight the need to ensure that innovation must not be monopolized by those with power—power which, incidentally, is substantially a public gift.

The efforts to belittle the innovation of a fourteen-year-old child should lead to reflection on the larger story of how power is gained, maintained, and expanded, and the need to encourage, not undermine, the capacities for creative inquiry that are widely shared and could flourish, if recognized and given the support they deserve.

Prof. Noam Chomsky

Massachusetts Institute of Technology

Department of Linguistics and Philosophy

Cambridge, MA

Personal Note

In 1978, I was fourteen years old.

I loved the New York Yankees.

Chris Chambliss and Graig Nettles were my heroes.

Baseball and soccer were two of my loves, and I was good enough to make the high school varsity teams in both sports.

My other love was mathematics.

My parents' home was filled with math books ranging from number theory to topology to calculus.

Next to my baseball cards on my dresser were the latest set of math books I was reading.

In math, I found a way to structure numbers and find beauty, very much as I suppose how a musician finds beauty in providing order to sets of musical notes.

In the spring of 1978, my mother, Meenakshi Ayyadurai, had a coworker, a mathematician, by the name of Martin Feuerman, who informed her about a special educational program being offered at the Courant Institute of Mathematical Sciences at New York University (NYU).

The program was organized by a visionary, Professor Henry Mullish, who wanted to provide high school students with an

opportunity to learn computer programming.

I was fortunate enough to be one of the forty students who got accepted to this program.

The excitement was beyond words—attending the Courant Institute and being in New York City, at the same time.

I felt as though I was the luckiest person in the world.

After I finished the intensive course at NYU, where I learned seven different programming languages, my mother was excited to see that I had an aptitude for the new technology, and introduced me to Dr. Leslie P. Michelson, who taught at the University of Medicine and Dentistry of New Jersey (UMDNJ), in Newark, New Jersey, where she worked.

Dr. Michelson challenged me to find a solution to an office technology problem.

The doctors in the medical school were starting to use computers, but

they were still isolated from each other—so much so that they still used a hand-delivered interoffice paper mail system.

He wanted to know if I could invent a computer program that would be an electronic version of the paper-based mail system.

This challenge became my obsession.

For three years, I dedicated all of my free time to working on this problem.

Dr. Michelson provided me with access to their three HP 1000 minicomputers, a network connection called DS1000 IV, the FORTRAN IV programming language, a CRT terminal, and the RTE-IV relational database.

But he did more than that.

Because my family had emigrated from India to Paterson, New Jersey, I saw America from the viewpoint of the disadvantaged.

After we arrived, my mother started work in a factory.

All around me, I saw impoverishment, racism, and social barriers.

But Dr. Michelson and his colleagues, though decades older, treated me with respect, collegiality, and kindness.

I was given the chance to innovate, and I was successful.

First, I studied how the existing system processed and transported paper mail between offices dispersed across the three separate locations of UMDNJ's campus.

Then I set out to duplicate these features in a computer program.

What resulted was that UMDNJ, a small school in an impoverished city, had an electronic version of its entire interoffice, paper-based mail system.

My creation provided them with the first, easy-to-use user interface with an onboard Word Processor and Editor to view and edit the To:, From:, Date:, Subject:, Body:, Cc:, and Bcc: fields and the ability to link with attachments.

I used a modular architecture to ensure reliable and secure transfer, and provided all of the other interoffice mail features, such as Inbox, Outbox, and Drafts folders, as well as an Address Book for managing one's directory of contacts, among a host of nearly one hundred other features that today we take for granted in email programs such as Gmail and Hotmail.

I called my program "email."

I selected this name for the very idiosyncratic reason that in 1978 FORTRAN IV only allowed for a six-character maximum variable and five-character subroutine naming convention.

On January 21, 1981, I received a Westinghouse Science Talent Search Honors Award for creating email.

In the fall of 1981, I was accepted to MIT.

When I arrived on campus in September of 1981, I recall the front page of MIT's official newspaper

Tech Talk, highlighting three achievements of the 1,040 incoming students.

One of those was mine, referring to the email system I had created at UMDNJ.

A few days later, I was elected Freshman body student President, and one evening I was invited to MIT President Dr. Paul E. Gray's house for dinner.

In conversation, Dr. Gray shared with me how unfortunate it was that the Supreme Court had not understood what software patents were.

However, he encouraged me to file Copyrights to protect my invention of email, as Copyright was the only vehicle at that time

to protect software authorship.

Dr. Gray's advice would prove to be important in the many years to come.

On August 30, 1982, I was awarded the first US Copyright for creating "email," the "computer program for electronic mail system."

The issuance of that Copyright was the culmination of my "first life" with email, as its inventor in 1978.

My second life with email, a bit more serendipitous, started in 1993, nearly fifteen years later, when I was asked to participate in a competition sponsored by the Executive Office of the United States White House to automatically analyze and sort email messages being received by then President Clinton.

In 1993, I was in the midst of my PhD program at MIT.

I was the only graduate student to participate in this competition; the other competitors were established companies.

I won the contest and subsequently created EchoMail, ironically, a software system to manage a problem that my earlier invention had caused: the growing volume of inbound email messages.

EchoMail became the leading provider of email management and email marketing services to Global 2000 companies.

As Chairman and CEO of EchoMail, Inc., I kept detailed notes on my experiences of helping some of the largest brands in the world leverage email in unique ways appropriate to their business.

However, it was not until 2011, following news of the potential demise of the United States Postal Service (USPS), that I decided to write and complete this book.

It became clear to me that the USPS, which should have embraced email as a way to generate revenue when I had advised them in 1997, did not, because there was a fundamental confusion concerning the definition of "email."

My intention in writing this book was to provide clarity on many things related to email: clarity on the history of email, clarity on what email is, clarity on how it differs from social media, and clarity on the fact that email is here to stay with us for a long time.

I hope that this clarity will enable you to use email in very practical and yet creative ways to build one-on-one relationships, be it with your partners, friends, customers, prospects, constituents, or voters.

Email is very personal.

When someone gives you their email address, they are inviting you into their lives.

This invitation is very different than becoming their "Friend" or "Follower" on a social media page.

It is far more personal.

The email address can be stored in your contact list or database, and to that email address you can add other personal information, such as their birthdate, personal information, and their likes or dislikes.

The data can be used to continue ongoing interactions with them in a more personalized manner.

The nature of these interactions can either enhance or diminish the relationship between you and that individual.

In this book, my goal was to provide you with a diverse range of case studies to demonstrate how versatile email is, and the many ways in which brands have used email to connect and develop relationships.

In sharing the personal story of inventing email, my goal is to convey the real origin and nature of email so you can see how it is different from other media.

Another goal is to inspire young people with the larger truth, that innovation can take place anywhere, anytime, by anybody.

On February 16, 2012, a month after my mom had passed away, my papers, computer code, and artifacts documenting the invention of email were accepted into the Smithsonian Institution.

I wish my mom had been there, because without her neither email nor this book would have been possible.

For me, email is very personal.

I hope this book allows you to find how personal email can be, and realize its unique nature in building brand and creating real connections.

V. A. Shiva Ayyadurai

Belmont, Massachusetts

Introduction

Email Is Dead?

"The United States Postal Service (USPS)

forgot their brand, a trusted provider of

mail, be it print or electronic."

Mark [Zuckerberg] is full of $#&*!"

      That was my response to Lora Kolodny, technology editor at

Fast Company, in an August 2011 interview, to the CEO of Facebook Mark Zuckerberg's comment that "Email is Dead."

That month, news on email was everywhere.

Zuckerberg was predicting email's death, while the twenty-ninth anniversary of email's birth was around the corner on August 30th.

And, the United States Postal Service (USPS) was blaming email for its potential demise.

 Amidst all of this confusion, Lora was writing an article on the future of the USPS and Email, and wanted my perspective as the inventor of email.

News had come out that the USPS was in dire straits, almost bankrupt, and about to lay off 100,000 workers.

My blog in 2011 had expressed a critique of such lay-offs and also shared concerns that the USPS should have embraced email far earlier.

In 1997, nearly twenty years before, my advice to USPS senior officials that they offer USPS branded email services to small and mid-market companies had fallen on deaf ears.

And, I still felt strongly the USPS could provide those email services and rebuild itself in the innovative spirit of one of its founders, Benjamin Franklin, versus being self-destructive by simply firing postal workers and closing post offices, which in my opinion are the most valuable assets

of the USPS.

The 500,000 workers of the USPS are an incredible door-to-door, customer-facing sales force, which has direct access to nearly every American.

Zuckerberg's public relations blitz for his new offering @Facebook, meanwhile, was sending shock waves, with headlines that the new Facebook would kill email.

Such comments were adding to the confusion and raising a fundamental question.

Was email dead . . . or alive?

USPS and Facebook Both Hate Email

The rise of social media was making email seem "uncool," which Zuckerberg liked.

His goal was to reframe Facebook as the new platform for communication, better than email, to gain mind share over his rival, Google's Gmail and the emerging Google+ platforms.

Hundreds of articles and books were being published promoting the idea that social media helped to build friendships and establish branding.

As that noise grew, email, the elder child of digital text-based communications, was being put in the back seat, a successful strategy for the champions of social media.

However, the reality of social media was also beginning to emerge.

How could a Facebook user, who perhaps was a social misfit or recluse in the offline world, suddenly develop 3,000 "friends" overnight in the online world of social media on Facebook?

What was the nature of those relationships?

New research from the realms of social psychology revealed an alarming and growing rate of disconnection, loneliness, narcissism, and voyeurism among users of social media platforms.

Data seemed to indicate those connections were ones with minimal intimacy, at best.

Major brands, primarily reliant on this new media, appeared

not to be grounded in any deep value exchange.

Social media did however seem to serve the important purpose of building networks of like-minded individuals.

These "social networks" were valuable for more collective activities (e.g., organizing the Arab Spring uprisings, group purchasing) not easily afforded by the intimacy of email.

Email had its place and so did social media.

When one took an objective look, it was clear that one was not going to replace the other.

However, in the midst of all the contradictory news on email, it was hard to be objective.

The differences between email and social media would need to be understood in order to overcome the confusion and to learn the appropriate use of each medium.

One thing common between Zuckerberg and the management at USPS was this: they both hated email.

Email was problematic.

Zuckerberg and the USPS took different approaches to deal with this problem.

Facebook took the approach of "if you can't beat them, join them," though publicly they presented a different face.

Zuckerberg cleverly absorbed email's features into his new @Facebook, while simultaneously claiming that email was dead, as a public relations ploy to

distinguish Facebook from Gmail and Google+, whose mainstay was email.

The USPS, on the other hand, was neither clever nor strategic.

They simply chose to ignore email.

In 1997, I was asked to present an educational lecture to senior USPS officials on the implications of email, something that I had routinely done for other senior executives in large companies.

That year, email volume had just overtaken snail mail volume.

I offered a strategy along with a scenario in which the USPS could create a suite of email services, which they could distribute to small and mid-market businesses.

My view was that the USPS was fundamentally in the broader

mail business, not just the print postal letter business.

Their 200-plus-year history of delivering mail, along with a wonderfully well-known and trusted brand—"Neither rain, nor heat, nor snow, nor gloom of night shall stay these couriers from the swift completion of their appointed rounds"—would have made the sale of email services relatively easy to their already existing customer base of small and mid-market businesses.

What better organization to bring

electronic mail services to their tens of millions of

print mail business customers?

However, the attitude of senior officials at the USPS was one of recalcitrance.

The party line of the USPS bosses in 1997 was that they were a $50 billion organization, bigger than Walmart, and did not need to venture into something so risky as email.

Fifteen years later, in 2012, the effects of that recalcitrance were clear.

Snail mail volume had declined by more than 43 billion pieces five years prior to 2012 and was continuing to decline.

Letters bearing postage stamps had declined 36 percent in the same time frame, and nearly 50 percent in the ten years prior to 2012.

The USPS bosses' response to this decline was classic: downsize.

Nearly 250 processing facilities were closed or consolidated as a part of this "bold" and "innovative" strategy (as they had branded it).

In addition, they reduced mail processing equipment by as much as 50 percent, as well as dramatically reducing the USPS's nationwide transportation network.

All of this resulted in their fiscal solution: the firing of 35,000 workers.

What was going to be their next bold and innovative move?

Fire another 70,000 to 80,000 workers and shut down more facilities and reduce more delivery services?

Innovation Is the Key

Benjamin Franklin would not have been happy.

He would likely have done some firings of his own, starting with the USPS bosses for their ineptitude.

The USPS forgot their branding as a

trusted provider of mail, be it print or electronic.

This memory loss was the management's biggest failure, leading to the situation in 2012, where the entire future of the USPS was now in question.

No one would ever have thought such a future was even in the realm of possibility—America's

oldest institution was on the path to being wiped out.

A failure to change and innovate, to live up to its true brand promise, had caused this fiasco.

The irony of this was that Franklin, who helped to envision and implement the USPS, was one of the world's greatest innovators.

His visionary leadership was a far cry from the leadership of the current USPS bean counters, committed to maintaining their turf in a declining world of postal print mail.

The writing was on the wall as early as 1997.

The world had transformed from print to electronic, and these highly paid executives, with teams of research analysts paid to watch future trends, simply and consciously chose to ignore email—for fifteen years!

Though my frustration with the USPS bosses was significant, I did have a solution.

It was obvious:

the USPS should own email.

Such ownership would enable the USPS to offer a suite of services not only to protect the public's interest in private email transactions, but also to create a whole new set of job opportunities for the postal workers.

This solution may initially appear dissonant when compared to the current postal worker's job of handling print mail; however, when one really understands what email is (as we will do in part 1 of this book), and when one looks at what the USPS is, this solution is obvious.

For me, as the inventor of email and as the founder of EchoMail, I not only knew what email was but also knew that there was a massive need for managing the growing volumes of inbound email to companies of all sizes.

At EchoMail, we had built a large multimillion dollar business addressing this need for large Global 2000 customers.

I had worked with some of the largest brands in the world including Nike, Citigroup, Calvin Klein, Procter & Gamble, and others to help them define their brands in the digital world using email.

They used email as a medium to build one-on-one relationships; that was not possible with social media (as we will show in the detailed case studies in part 2 of this book).

It was clear to me that millions of smaller companies could also benefit from the power of email to build and sustain their brands.

This was in the realm of the USPS, which had access to those tens of millions of small, mid- and large-size companies.

In my 1997 educational lecture to the USPS, I had shared with them how they could provide email services with minimal changes to their existing USPS infrastructure, and with relatively minimal retraining of their postal workers.

USPS Can Provide an Email Service, Truly Secure and Private

There are many ways in which the USPS can provide email services.

There are two that are important to discuss.

First, the USPS can offer email, much the same way Google and Hotmail offer it today, as a public service.

However, the USPS's offering of email, if

implemented through the body of existing laws which ensure privacy in the transaction of postal mail, could provide an email service that doesn't compromise privacy

as it happens currently when we use commercial services such as Google, Hotmail, and others.

When I invented email in 1978, there was never any intention of creating a commercial company to offer email as a software platform.

At that time, it was all about innovation and creating something new, and getting users to use the system—that was satisfying beyond belief.

However, after my invention, email became a commercial tool, and with that, we as citizens made some significant compromises to our own privacy, as we started using "free" email services.

The USPS is in a unique position to provision and offer email as a service to all citizens to ensure privacy and security, which the private email providers such as Hotmail, Google, and Yahoo cannot.

When we sign up to those services, we give up our privacy and tell them that they have the right to tamper with the contents of our email, our electronic letters.

We would never think of giving such rights away to anyone to open and read our postal letters.

The USPS ensures that this does not happen.

There is a whole body of law, hard fought, which ensures that citizens' mail is not tampered with

The USPS is poised, if it takes ownership of email, to ensure that such privacy and security are maintained for email.

Gmail, Yahoo, Hotmail, and others profit by reading our email!

They have full rights to read the content, and today reuse that content to deliver advertising.

We have given up our privacy to these private organizations in return for their "free" email services.

I believe when we become aware of the implications of this implicit transfer of rights, we will recognize the importance of privacy and real security, and realize the need for email to be provided as a civic function not dissimilar to the highways and public water systems.

USPS Can Offer Email Management

The USPS can also offer another important and valuable service: Email Management.

Email management services can be offered to small and mid-market businesses, which would likely pay as little as $1 to process an email.

The thought of postal workers, who previously processed postal print mail, now processing email may initially sound odd.

When one considers how many companies are routinely outsourcing their email processing to companies in India and the Philippines, who have built teams of "electronic" postal workers to process email, the opportunity will not sound that odd.

If you send an email to a major credit card company, for example, where does it go?

It goes to email processing centers in places like India or the Philippines, where in conjunction with intelligent

technology, which can do sorting and analysis of the email, your email is then opened and read by humans, who review and respond to the incoming email.

If you go to the website of American Express and fill out a complaint or a question on their "Contact Us" form, or directly send an email to the email address

support@aexp.com, that email is routed to email "postal" workers, based in India, for example, who are opening, sorting, routing, and processing your confidential email, with your personal information and financial details.

Sounds a lot like what USPS workers were trained to do with postal mail.

While USPS workers today do not actually open up your postal mail, there is an entire infrastructure within the USPS designed to do such processing more securely and in a trusted manner.

Think about it.

Would you rather have someone half-way around the world processing your email, or the USPS, which has a long and trusted history of processing mail, long before the founding of the United States?

What doesn't make sense is why the USPS is not offering those email services using USPS workers, who are perfectly

trained with the right core values of trust and integrity to do the same job.

Think about this: corruption in developing nations such as India is rampant.

It would not be that hard for a competitor to your company's business, for example, to pay a few extra rupees to some nineteen-year-old email worker in Gurgaon, India, to download all your customers' email.

The trusted brand of the USPS, across its 500,000 workers, however, provides a policing force through the USPS Office of the Inspector General (OIG) to monitor, deter, and prosecute such incidents.

We, as consumers, would never think of such a situation when it came to the USPS worker.

These USPS workers have been trained, imbued by more than 200 years of experience with the mail service ethos of respecting confidentiality, and know how to handle the mechanics of sorting, handling, and delivery.

For $1 apiece, smaller enterprises in local communities could hire USPS people to manage their email.

USPS workers could be situated in their existing local post office locations, manage, analyze responses, and send responses based upon predetermined answers.

The value to those enterprises using such a professional service would be immense.

Nearly 70 percent of companies today do not respond to email effectively.

Research shows that if one does not respond back to email, there is nearly an 85 percent chance of losing a customer for good.

We all know our postal workers can be trusted and counted upon to be timely.

They never miss a heartbeat delivering the mail.

In this solution, rather than fire 100,000 workers, close down half the nation's 461 mail processing centers, end Saturday delivery, and raise postage rates, with about two weeks of instruction the USPS could retrain an employee to be a knowledgeable worker, as India and the Philippines are doing, to handle email, scan and process documents, and do things they already know how to do.

USPS OIG Gets the Value of Email

Benjamin Franklin, and other forefathers of the printed word, had already done the hard job of designing and implementing the USPS production system of mail pickup and delivery; and more importantly, they had established a deep and trusted cultural ethos, a core part of its brand today.

That postal infrastructure framework is ready to be used for email.

The USPS already possesses everything necessary to include email in its services.

In spite of the logic of the two solutions mentioned above, my personal attempts in 2011 to reach out to USPS were not

getting anywhere.

However, in November 2011, a feature article in

Fast Company magazine appeared, in which I related the accurate history of my creating email, and how email was different from TXT, SMS, and other forms of digital text-based communication.

More importantly, in that article, I once again attacked the USPS bosses for their ineptitude in embracing email.

That attack in

Fast Company magazine finally resulted in my receiving a call from the USPS OIG.

The OIG is the ombudsman for the American public, overseeing and auditing the functions of the USPS.

The OIG, like me, wanted to save the USPS and was seeking and willing to explore innovative and even out-of-the-box solutions.

In my discussion with them, the focus was on getting back to basics: What is Email?

and why should the USPS be in the mail business, be it print or electronic?

The OIG sincerely seemed to understand.

That strategy demanded that the USPS live up to its brand promise of being a provider of mail services—print or electronic.

Even if the OIG supported my recommendations, the USPS bosses could turn a deaf ear and did not have to implement

those recommendations.

In late 2012, my research center, the International Center for Integrative Systems (ICIS), was commissioned by the OIG to write a detailed report on how Email Management could generate new revenues for the USPS.

The nearly sixty-page report was accepted by the OIG.

The report projected, conservatively, that the USPS could generate $250 million in additional revenue annually by providing email management services.

Did USPS officials do anything with this report?

Ultimately, only when the public becomes fully aware of the importance of the USPS as a foundation of American democracy and innovation and raises a massive outcry, will the USPS management fall in line and fulfill the brand promise of this amazing institution.

Saving the USPS Is About Innovation and Freedom

For me, helping the USPS was a personal endeavor.

My own struggle against the corrupt Indian government in 2009 to unleash freedom for Indian scientists to innovate had taught me the close link between innovation and freedom.

In 2008, I had gone to India on a Fulbright Scholarship Program to study traditional

systems of Indian medicine from the perspective of modern systems biology.

After completing my Fulbright Scholarship Program in India, I was recruited by the Office of the Prime Minister of India to head up a new initiative within the Council of Scientific and Industrial Research (CSIR), India's largest scientific institution, to drive innovation among its 4,500 scientists across nearly forty national laboratories.

CSIR was set up by Jawaharlal Nehru, India's first prime minister, to be a translational institute to create tangible technologies and solutions to serve the broader masses of Indians.

However, after nearly seventy years, it had devolved into an organization publishing papers, many of questionable integrity, and filing patents, less than 10 percent of which were of any value, creating an archaic system of promotion, which failed to promote the original mission of Jawaharlal Nehru: to innovate new technologies to serve the masses of Indians.

During those nearly seven decades, CSIR had degenerated, producing only $2 million in revenue from its patents, less than $25,000 a year, while consuming billions of dollars of the public's money.

Significant portions of it were routed through illicit means for self-serving purposes.

What I witnessed, as I traveled across these labs and met nearly 1,500 scientists, was a consistent theme: the lab structure was set up as a continuation of the feudal system left by British colonialism.

There were many incredibly smart scientists and innovators who were trapped by this feudal and oppressive leadership structure.

If one studies Indian history carefully (as I had the opportunity to do while an undergraduate at MIT with Noam Chomsky), it becomes clear that India never really got Independence.

Instead, India transferred power from "white men who wore crowns" to "brown men who wore white hats," as denoted by the

Transfer of Power documents signed between the new Indian ruling elite and their British brethren.

Unlike America, there was no Declaration of Independence, clearly defining a new nation independent of the British crown.

The Indian bureaucrats continued to run India's internal machinery in the same resolute manner as the British feudal system of patronage, at best making India a flawed democracy, with little transparency and openness, the necessary ingredients for innovation.

The labs within CSIR reflected this.

And this is why relatively little innovation was taking place in those labs.

Consider this, that since the so-called Indian Independence of 1947, for nearly seven decades, not one Indian scientist had won a Nobel Prize

while living in India.

Ironically, the two Indian scientists who won Nobel Prizes, while living in India, won them during the pre-Independence era, prior to 1947, during the British occupation of India!

It is only after leaving India and migrating to America that Indian scientists seemed to flourish from the fundamental and relatively greater freedoms and merit-based system afforded by the American way of democracy.

Har Gobind Khorana, an MIT professor, for

example, was not even able to get a job as an instructor in an Indian educational institution.

After coming to America, Khorana not only became a full professor at MIT, but also went on to win the Nobel Prize in Medicine.

There are many such stories.

In October of 2009, after my deep frustration with CSIR and in solidarity with the 4,500 scientists of India, I published a report called "The Path Forward," describing what I had observed within the CSIR: the rampant corruption, the feudal order which suppressed the creativity and innovative capabilities of brilliant scientists, a system which recognized obsequiousness over competence, and barriers that inhibited the ability for innovation to be translated to the public.

Within moments of publishing this report I was fired from my post, ousted from my government house, and I was literally forced to flee India, through Nepal, Katmandu, to Qatar, and back to the States, under threat of physical violence as well as incarceration.

So much for freedom in India!

So much for innovation!

Subsequently, I wrote an invited Commentary article for India's

Nature magazine, entitled "Innovation Demands Freedom: Why America Innovates and India May Never," in which I laid out my thesis that without Freedom there cannot be innovation in India, along with the details of the corrupt behavior I had observed.

The Indian government banned this article and demanded that

Nature remove it, under threat of a libel suit.

Nature

, fearful of libel laws in the United Kingdom, complied.

However, by then, the article was across the Internet for everyone to read.

So for me the USPS was an amazing institution—representing the fusion of innovation and freedom.

From my experience in India, the failure of the USPS would be significant—it would send a global and reactionary signal, and deal a blow to those core elements of innovation and freedom inherent to the foundations of America's inspiring developments in science, technology, and the arts.

The USPS had to re-innovate itself, for it was not just a mail communications company but also a symbol of that freedom and democracy.

The USPS was borne out of the American revolutionary war against British colonialism, as a need to communicate orders and information to Patriots across the thirteen colonies, and it afforded each citizen the incredible services of the postal mail system, where every citizen could communicate across space and time, connect with loved ones, business associates, and friends, for pennies, no matter where they lived or what their background.

Such an institution was about providing the fundamental tool of democracy: the right to communicate freely.

The trusted brand of the USPS made each of us feel comfortable, knowing any mail we sent or received was handled with care and security.

Our local postal worker was a symbol of that trust that implicitly connected each citizen directly to the fabric of the hard-fought gains of the American Revolution.

The USPS Still Can Innovate

However, unlike Benjamin Franklin and other American revolutionaries, Postmaster General Donahoe, in 2012—a thirty-five-year veteran of the US Postal Service who managed the organization primarily using fiscal solutions instead of through vision or innovation—did not really understand the depth of the USPS as that shining pillar of innovation and freedom.

Throughout the decades, when email began to cannibalize snail mail, in a new world where email and information technology were rising, and snail mail would predictably

decline, he never chose to lead the USPS away from the physical and into the digital.

He emphasized services like Priority Mail and First Class Mail as revenue generators instead.

USPS officials were happy to be generating revenue from their consistent portfolio of products.

But email was right there for them to own, had they wanted it and had they wanted to fulfill the USPS brand promise.

Email was postal mail in electronic form, the "electronic letter," being received, sorted, transmitted, and done with reliability, speed, and efficiency—the core rubric of the USPS's core functions of processing mail.

Instead, the USPS saw themselves not as a communications organization, but as a narrow paper mail delivery company.

Lora asked me during that

Fast Company magazine interview was, "Is it too late for the USPS to capitalize on email now?"

I still felt that there was time, given the sheer size of the USPS and the existing infrastructure of personnel and real estate.

The USPS, because of its trusted brand position, could still offer email services, such as the email management service described above, to millions of businesses overnight, generating enough revenue to cover costs and make a profit without layoffs.

In addition, the USPS could also lead the charge in other email services such as email validation to solve a host of

problems being faced by email marketers.

Such service would drastically reduce the spam in our inboxes.

Email Has Nine Lives

Within the context of Zuckerberg's strategic moves, and the USPS's slowness to act, there was a deeper issue: a

zeitgeist of misunderstanding of what email really was.

We all used email like we drink water.

However, a fundamental misunderstanding of what email really was existed in nearly everyone's psyche.

This ignorance of email was the source of the confusion and why Zuckerberg or others were able to get away with comments of "Email is Dead."

This ignorance was also the reason why brands like the USPS and other companies failed to use email appropriately.

Email was becoming indistinguishable from other digital text-based communications (real-time chat, text messaging, SMS, Twitter, online forums, discussion threads, blogs, and wall posts) because of that ignorance and

misuse of the term email, in all its variations, to refer to "electronic messaging," and the lack of clear distinguishing between email as the platform, and email as the medium which flowed between email platforms.

The trend of predicting email's death was not new.

I recall how industry analysts, experts who are paid to watch and predict trends, as early as 1997, had started to proclaim that email was dead, with the emergence of each new form of digital text-based communications.

For example, in the late 1990s, they were sure that real-time chat services would replace email and boldly declared email's imminent death.

Since then, there has been a consistent stream of news heralding the death knell of email at the inception of each one of those new mediums.

When SMS grew, in early 2000, again email's death was predicted.

Zuckerberg's proclamations were in that same lineage.

However (a big however), he was far more clever than other industry experts.

He had an ulterior motive in riding and promoting the death knell of the email story.

While he was declaring that email was dead, he was fully integrating email into Facebook, to foster what he called

conversation, recognizing that email was necessary (had the stickiness factor) to keep his viewership from moving to Google+, which was Google's response to Facebook; and with Google+, Google was in turn integrating social media features into their pervasive email application Gmail.

Zuckerberg's comment that email was dead was really not about email's dying, but about attacking Gmail, which dominated email services.

What he was really trying to say was that he hoped Google would die, once he incorporated email into Facebook.

Zuckerberg, unlike the industry analysts who were truly misinformed about email, knew the power of email and the fact that social media needed email, which was why he incorporated email into Facebook.

Email Is Here to Stay for a Long, Long Time

Mark Zuckerberg's comments and events surrounding the USPS situation are what compelled me to complete this book, though many chapters were in process for nearly a decade.

That urgency was not out of some parochial or possessive interest to save email, as its inventor.

My intention was to inform you, to help you understand what email really is on a much deeper level, and for you to recognize its unique power for branding and building connections, so you can rediscover the medium in a completely new way, and realize why organizations such as the USPS should be providing email as an important civic function to protect our democracy.

My hope is that you will realize that email is here to stay for a long, long time and recognize its immense power for building true connections, and that email offers ways to strengthen and to extend your brand, through the intimate and formal conversations that email uniquely affords.

In part 1, "What Is Email?"

we begin our journey.

Part 1 opens with chapter 1, entitled

"Smoke Signals to Email," to explore the history of messaging, to place email within its modern context, and to understand how it differs from other media, for which it has been historically confused.

In chapter 2, "Electrified Paper," I share my adventure, starting as a fourteen-year-old in 1978, at the University of Medicine and Dentistry of New Jersey (UMDNJ) in Newark, New Jersey, challenged to create the world's first email system, by translating the inter-office postal mail system to its electronic equivalent.

That adventure leads us to chapter 3, "The Pulse of Email," and to the world of modern email, starting in 1993 as the World Wide Web (WWW) comes into being, making the Internet accessible to billions of people.

Even in 1993, long before email volume overtook snail mail volume, there were those who really understood email for what it was—one of these people was former President Bill Clinton, who should have passed his understanding on to the USPS.

President Clinton had an intuitive grasp of the value of email as a vehicle to connect with constituents and build a brand.

His understanding is contrasted with that of a major corporate brand such as Toyota, who learned about email too late, costing them billions.

Part 1 ends with chapter 4, "The Ten Commandments of Email," which offers a convenient summary of ten key principles of email.

In part 2, "The Power of Email," we present eleven chapters.

Chapter 5 through chapter 12 provide a detailed account of how some of the leading companies such as Nike, Calvin Klein, American Express, Allstate, Citigroup, Hilton Hotels, QVC, and public figures such as Senators Ted Kennedy and Bill Frist, and even former President George W. Bush, used email to build brand in ways that few of us still exploit.

Chapter 13 shows how the Guggenheim Museum, a leading arts and nonprofit organization, uses email to build relationships and memberships.

Those stories will inspire you and hopefully get your own creative juices flowing.

You will learn how these brands consciously and appropriately used the medium to build close relationships by integrating email with existing modes of broadcast advertising, paper mail, face-to-face conversations, and much more.

In chapter 14, we focus on how the lessons from these large and eminent organizations are relevant to small and mid-market businesses.

The large organizations, during the early period of email's growth, pioneered many amazing uses of email, which many simply have forgotten.

Those uses are unearthed and provide valuable lessons for millions of small and mid-market organizations that now ubiquitously use the Internet and email.

In chapter 15, I share my experience in working with two personal brands, Oprah Winfrey and Deepak Chopra, to

integrate television's reach with email's intimacy, in order to deliver a timely email-based curriculum for millions to learn meditation in twenty-one days.

In part 3, entitled "Email Takeaways," I've provided two additional chapters to summarize key elements of the book and to give you some of the best utilizations of email.

Chapter 16 reviews "10 Reasons Why Email Is Here to Stay."

Chapter 17 offers those best utilizations as "50 Tips on Using Email."

In the Afterword, I emphasize why the US Postal Service must embrace email for its future and why the demise of the USPS is the demise of democracy.

As you journey through this book, you will have learned:

1) Innovation can take place anywhere, anytime, and by anybody.

The invention of email, by a fourteen-year-old immigrant kid working in Newark, New Jersey, serves as an important reminder of what can happen if the right infrastructure is put in place even in the most impoverished cities of our world.

2) Email is really the interoffice, interorganizational paper-based mail

system in electronic form.

The true nature of the email medium will be discussed, as well as its origin and its unique characteristics in relation to other media.

3) Why should the US Postal Service be embracing email?

Not only to save itself but also, and more importantly, the USPS can save democracy by providing a civic function, such as the highways and water systems, ensuring that all of us can communicate, anytime, securely and privately.

4) Unearthing the lost history of email's use, by pioneering companies and businesses, during 1995 to 2003, provides us today with important and relevant lessons on using email for what it was really intended: to create a strong brand by making deep connections that are trusted, deep, and sustained.

5) Email is here to stay for a long, long time.

I hope that this journey through

The Email Revolution will help you value the medium for what it is, so you can appropriately use it to develop your brand and the kind of relationships you deserve.

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