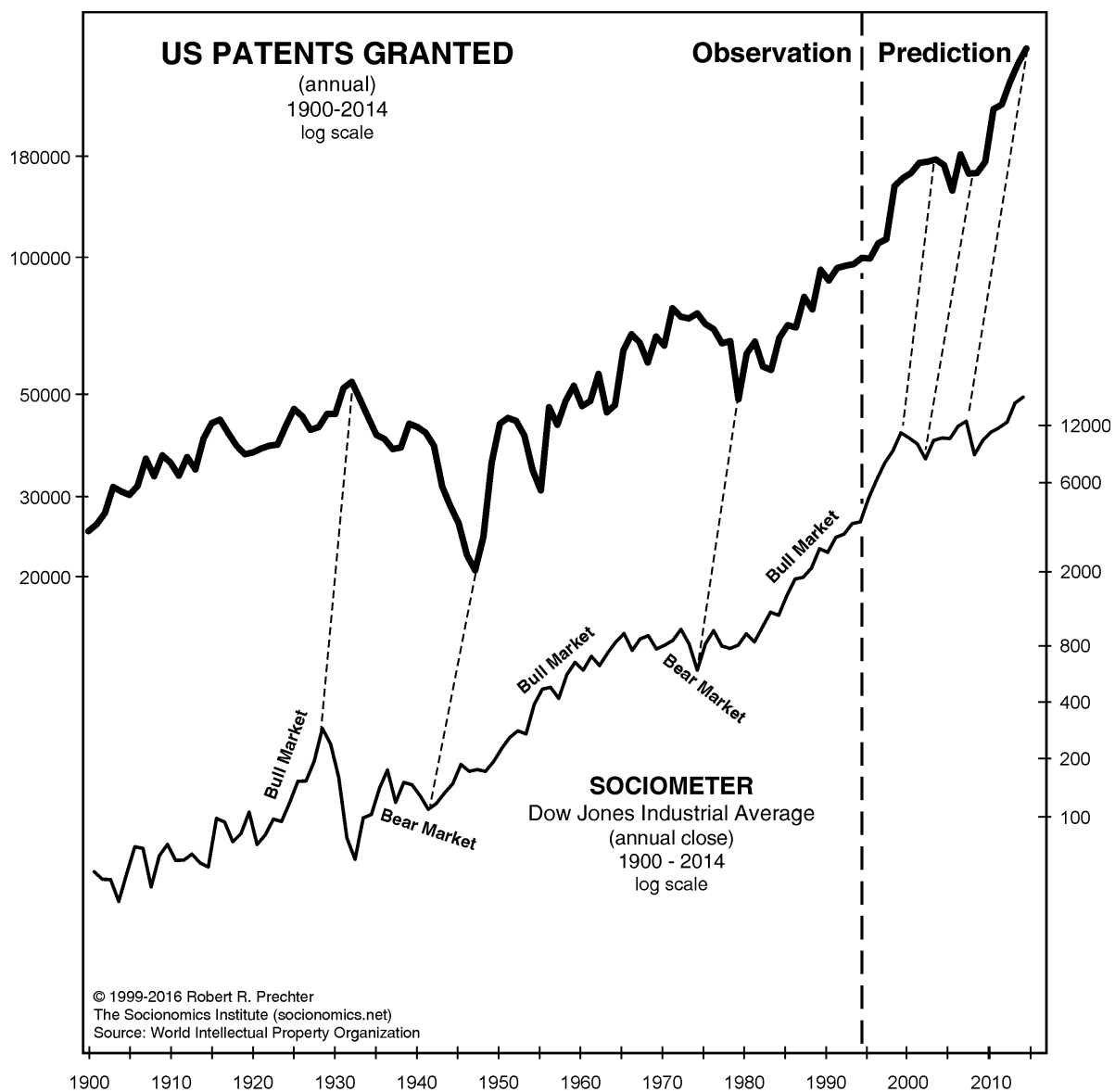


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## SECOND ORDER WORLD

A trend toward positive social mood impels technological advancement.<sup>1</sup> Grand Supercycle wave III, dating from 1784, has been one of the most transformative eras in history, beginning just after the founding of the United States. It subsumes both the Industrial Revolution and the Information Revolution.



In both revolutions, inventors and entrepreneurs advanced machine automation of tasks that are laborious for humans. They differ in that the information revolution has a mental-realm focus, whereas the industrial revolution had a physical-realm focus.

The key technology for automating physical tasks was the engine (starting with the steam engine, begetting factories and locomotives) while for mental tasks it was the transistor (begetting personal computers and the internet). These two foundational technologies are so essential for modern life that perhaps the famous human-centric motto “mind and hand” should be reformulated to its modern, mechanized equivalent: “transistor and engine.”

### Production vs. Progress

Production is required for humans to survive. Farmers must grow crops, or people don’t eat. Production is a *first order* activity since it directly addresses immediate needs.

Progress, however, requires a completely different mindset than that of production. A farmer can grow all the crops he wants, but no matter how many he grows it will not make life any easier for his great-grandchildren. In contrast, an imaginative farmer that develops a new pesticide can positively affect all subsequent generations of people. Developing a pesticide is a *second order* activity: it does not directly produce the food required for survival as first order activity does, but instead it *multiplies* the effect of all future first-order efforts. And ultimately, second order effort grows production exponentially because the easier everyday survival becomes, the more time mankind has available to devote to second-order causes.

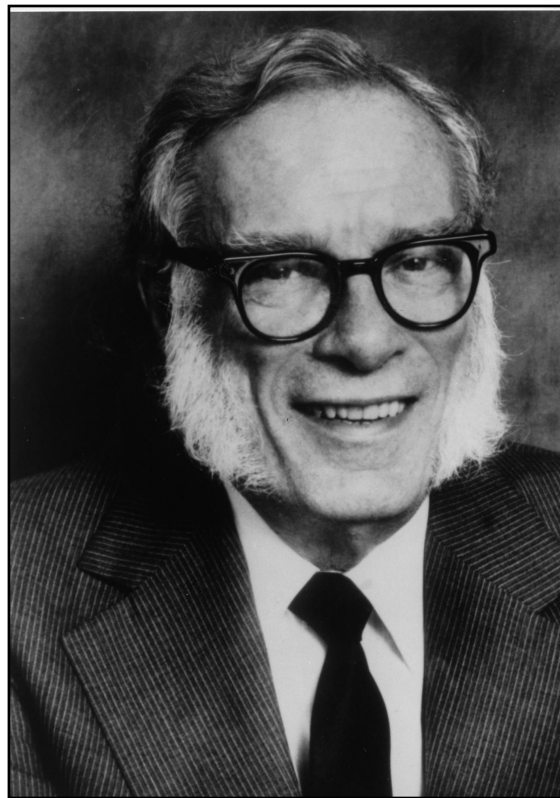
The future being a better place is not due to first-order human efforts. Rather, the future becomes better due to only a few human beings thinking outside the box and changing the way the world works. Entrepreneurial, scientific and technological advancement are the primary drivers of improvement in the human condition.

Will our children be better off than we were? I say, yes, but it’s going to be due to the engineers, not the politicians.  
-Thomas Massie

Although there will always be large-scale setbacks (such as the Dark Ages, which wiped out centuries of progress), at the very highest degree social progress is always upwards. This trend allows for lasting technological advancement to take place. As time passes, human capital is increasingly devoted to second-order efforts, with machines performing intellectual and physical tasks while humans support and improve the machines. In other words, we are shifting away from “mind and hand” to a realm of *meta* mind and hand.

The world of A.D. 2014 will have few routine jobs that cannot be done better by some machine than by any human being. Mankind will therefore have become largely a race of machine tenders. -Isaac Asimov, 1964

There are infinite possibilities ahead for automation technology. But this newsletter will focus on three major fields that are on the cusp of being transformed by automation: social forecasting, monetary systems and open learning.



## Social Forecasting

Mainstream sociologists and economists today are in the same position that flat-earthers were when Pythagoras first postulated a round earth in 6th century BC. The mechanics paradigm of action and reaction, combined with linear extrapolation, dominates their thinking. These foundational errors prevent the proper understanding and forecasting of social behavior. The earth was not flat even though it seemed to be, and aggregate human behavior is not linearly driven by events or news even though it seems to be.



*Linear Extrapolation*

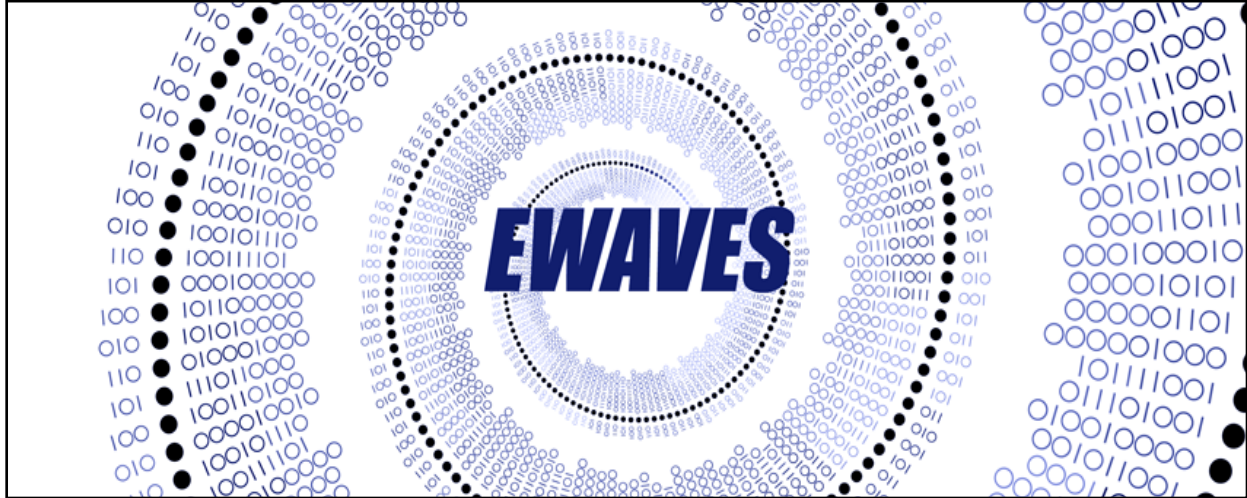
The socionomics paradigm turns the conventional notion of causality on its head. Instead of events dictating social mood, it posits that endogenously regulated social mood determines the character of social events. Social mood exists because humans have powerful and unconscious herding impulses, much as other social animals do. Shared mood is then expressed through social behavior.

Through a socionomic lens, everything looks different. Wars don't "cure" economic depressions; rather people tend to initiate conflict at the greatest depths of depression. Rising stocks don't make people confident; rather confident people buy stocks, making them rise. Contracting economies don't cause people to become anxious; rather anxious people cause economies to contract. Social mood comes first, and actions come later.

Instead of linear extrapolation, socionomics relies on the Law of Patterned Herding (LPH), which posits that social mood adheres to the Elliott wave model. By extrapolating fractal patterns in social mood, one can probabilistically predict the character of future social actions.

EWAVES automates this process, providing the world's first second-order approach to Elliott wave forecasting. Our mission statement regarding EWAVES is multifaceted: Our immediate business goal is to provide traders, investors and institutions with the highest quality machine wave analysis that is possible with current technology. Our scientific goal is to prove formally that Elliott waves are real, that they can be captured by a discrete mathematical algorithm, and that they have powerful predictive value regarding future aggregate social behavior.

EWAVES plus socionomics has the potential to disrupt the entire field of economics and sociology. Social mood regulates fashion, financial markets, macroeconomic trends, periods of peace and war, the rise and fall of nations, and more. The realization that aspects of human history are driven by, and can be probabilistically forecast by, a mathematical engine will forever change the way people perceive the very fabric of their social and historical existence.



*Elliott Wave Analysis & Validation Expert System*

Development on EWAVES is progressing rapidly. The next version is nearing its completion, and internal testing is showing its analysis to be a major leap forward. That said, each new release date is (and always will be) [\*when it's done\*](#). We will keep you posted.

### **Monetary Systems**

Modern banking systems are bizarre beasts. Most currencies today are exclusively produced out of thin air by monopolistic central banks, and then traded for government bonds and other IOUs. So for every new currency unit created, an equivalent amount of debt is owed to the corresponding central bank.

If there was ever a scheme devised to create the most possible amount of debt within a society, central banking would be it. Just think: all currency created by a central bank requires the borrower to pay back that currency plus interest. But if only enough money to pay back the principal is created, then where does the money come from to pay the interest? (Answer: it doesn't exist, so more debt must be taken on to pay back previous debt.) The result is a sea of credit expansion and currency inflation, simultaneously indebting society while chronically stealing savings through inflation—until, of course, social mood turns negative and the system implodes in a wave of bankruptcies. We saw this in 1932, and a less severe version of it in 2008.

Complacency over unstable and kleptocratic monetary systems has reigned for nearly a century. But there is good news: when social mood turns negative, people wake up to the fact that [the whole banking system is a scam](#). But instead of just complaining, we now have an amazing technology—cryptocurrency—that allows us to simply opt out of the entire mess.

Cryptocurrencies automate the functions of currency, including banking, safety, settlement and more. Anyone can establish a virtual monetary system. These systems are decentralized, so they cannot be shut down or controlled by any single entity. And unlike brick-and-mortar banking, there is very little first-order effort required to run the system. This encourages second-order thought and experimentation with respect to monetary systems.

Various cryptocurrencies compete against one another in the free market. This competition has yielded substantial variety and innovation. Yet even the first cryptocurrency, Bitcoin (which we wrote up in *The Elliott*



*Wave Theorist* in August 2010, when it was trading at six cents), has many superior properties vs. fiat currency: a stable money supply; long distance monetary transfers that cannot be blocked; rapid final settlement; a virtual, personal, full-reserve bank that you can store in a file; funds that cannot be institutionally confiscated (except by threatening to use the wrench method, depicted above); and more. Ultimately, this new technology will do to banks what email did to the post office.

Cryptocurrencies are capable of automating much more than just monetary systems. Another burgeoning revolution is in

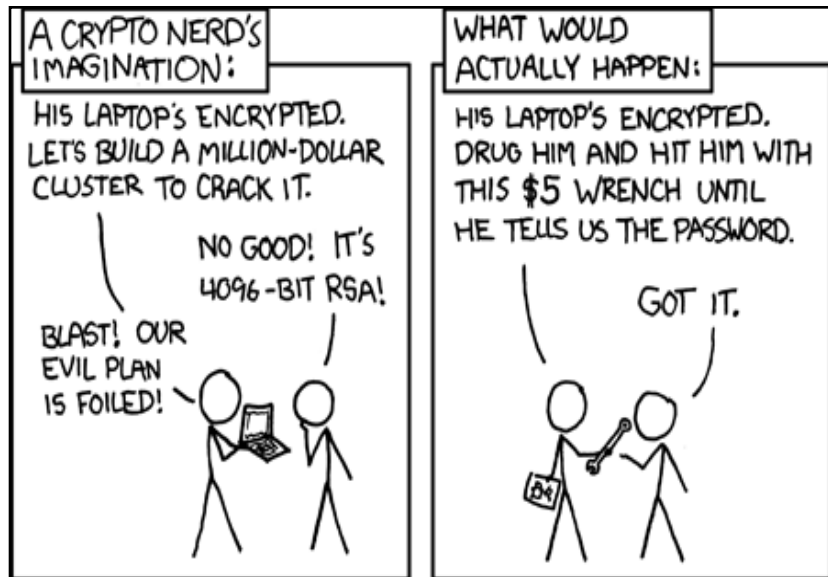
programmable *smart contracts*, which will ultimately supplant paper contracts.

One example is Bitland, which automates land title storage and transfer. It works by first dividing existing property into digital assets, which are tracked in an open, distributed and incorruptible database (known as a “blockchain” in crypto-speak). The database disallows conflicting claims as an invariant property of the system, while allowing for the merging and subdividing of properties.

With cryptographic signatures from both agreeing parties, a single, instantaneous and atomic transaction both transfers the required funds from buyer to seller and transfers ownership of the property. Bitland operates without government paperwork, middlemen or fees. It is simply a set of agreements etched in mathematics. Bitland was recently launched in Ghana to combat the relatively high rate of corruption in their land titling system.

The implication is that one could create a viable land registry with just sufficient infrastructure to maintain a set of computers. All the messy business of creating a titling infrastructure and the bureaucracy to run it goes away.<sup>2</sup>

Like cryptocurrency, land titles registered in Bitland are virtually impossible to confiscate without directly coercing the owner. But unlike purely digital assets such as cryptocurrency, the land associated with a given title is still vulnerable to physical occupancy.



The implications of cryptocurrency are vast. But does that mean people should ditch their national currencies? On one extreme, Rick Falkvinge, leader of the Swedish pirate party, transferred all his money to Bitcoin; in the middle, Gavin Andresen, Chief Scientist at the Bitcoin Foundation, has consistently warned that cryptocurrency is experimental; and finally on the other extreme, Mike Hearn, a prominent Bitcoin developer, says “[the] inescapable conclusion [is] that [Bitcoin] has failed... I will no longer be taking part in Bitcoin development and have sold all my coins.”<sup>3</sup> So, the experts have no consensus. The technology is still new, and there are many unanswered questions about legality, scalability, competition and more.

One thing is certain, however: Like all financial assets, cryptocurrency success is strongly subject to waves of social mood. While we don’t yet regularly track the Elliott waves in cryptocurrencies at either QA or EWI, we have written articles when critical junctures have occurred in Bitcoin. Our largest-degree call was published in December 2013’s [Elliott Wave Theorist](#). We said then, “The reversal from that point [November 29, 2013] should mark the start of the largest bear market to date in the currency.” In January 2015, after an 88% decline that met our fourth wave target, we published the comment, [“near term, it’s due for a rally.”](#)

## Open Learning

As a child I was very interested in technology. But initially I had no idea that schools are not keen on acts of learning outside of their bureaucratic scope. I had to learn this lesson over time.

My first memory in this regard was during a typing course freshman year in high school. The first day, after demonstrating a typing speed of over eighty words per minute, I requested that the school allow me to build them a website instead of continuing to practice typing. To this day, I still haven’t forgotten the teacher’s words: “You can always type faster.”

A year later, I was sitting in study hall and I had quickly finished all my school work. So I began reading one of my favorite books at the time: [Real-Time Rendering](#). The principal of the school came by, and told me, “That doesn’t look very academic,” and made me put away my book. For the record, here’s the jacket description:

After three years this "wonderful all-around resource" of computer graphics, "indispensable for every serious graphics programmer," is available in a completely revised and updated edition. Nearly doubled in size, the new edition keeps pace with the astonishing developments in hardware and software that have increased the speed and quality of rendering images. The new edition includes information on the latest technology that is being released concurrently with the publication. The book's trademark, blending solid theory and practical advice, remains intact, making it mandatory for every programmer who wants to stay at the cutting edge. The book contains chapters as diverse as: Transforms, Visual Appearance, Acceleration Algorithms, Advanced Shading Techniques, Curved Surfaces, Pixel shaders, Subdivision surfaces, Intersection algorithms, and Pipeline tuning<sup>4</sup>

After that and other similar experiences, I kept my independent learning completely separate from school, receiving no recognition or extrinsic motivation. At an early age, I began to regard myself as an autodidact. Schools reward conformity in thought and problem-solving. They reward conformity in tastes and desires. The kid who wants to go off and do something entirely different than his peers is shunned. Having a definite focus is discouraged, especially if it does not relate directly to exams. Success as an entrepreneur requires nearly the exact opposite traits.<sup>5</sup>

Then one day, recognition arrived. In our spare time, for fun, a friend and I built a procedural graphics application using an experimental technique called the hierarchical z-buffer. Out of the blue we heard about a science and technology competition, decided “what the heck” and wrote a paper about our project. Several speeches later, we ended up in Washington DC as 5th place winners of the National Siemens Westinghouse (the competition featured in the movie *October Sky*). As autodidacts, we were the only competitors without an adult mentor.



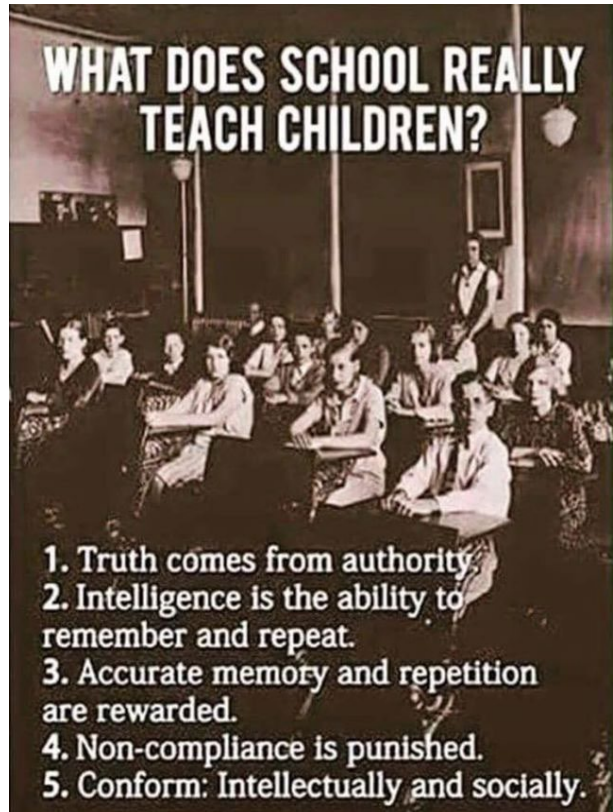
What we did had nothing to do with our school. In fact, it was only possible because we went outside the system. The take-away is that schools focus on *conformity*, not providing an open environment for *learning*. A truly open environment would have allowed us to pursue our intellectual interests with support and without limits.

Flash forward to today, and for most young people, not much has changed. In fact, with the rise of common core and “no child left behind,” schools are becoming even more close minded. Worse is the escalating tuition costs for private schools and universities. Yet if you step back and examine the value received, it’s a joke: Why take out \$100,000 in tuition loans when we’re living in an age where information is ubiquitous and free?

The solution to increasing flexibility and controlling costs is automation. Instead of bureaucratic brick and mortar institutions, companies can deliver open learning via the web. This cuts cost massively through economies of scale by using the same material many times over. Teachers transition from operating in the first order to the second order in the sense that, instead of focusing on teaching per se, they can focus on producing and improving upon the very best content, and let the content do the teaching for them. The old, inflexible approach to teaching can finally give way to an unprecedented level of personalization that was simply not possible before. With little overhead, an admission process will no longer be required. The gates to the likes of Stanford and Yale will become open to everyone and anyone.

It’s already starting to happen. One promising enterprise in this space is Udacity, a company that specializes in MOOCs (Massive Open Online Courses). Its founder had this to say in a recent interview:

"You can take the blue pill and go back to your lecture of 20 students," he told journalist Blake Graham shortly after his first MOOC experiment at Stanford. "But I've taken the red pill and seen wonderland." A few months later, he told *Wired* magazine that in 50 years, the proliferation of MOOCs would reduce the number of institutions delivering higher education worldwide to 10.<sup>6</sup>



## Coyote \$21,000 in debt after wandering through university campus

THE NEWS DESK



I think he is correct. Of course, the old guard will fight hard against the trend. Government licensing in particular outlaws autodidacticism in several fields. But this level of control over individuals' lives and minds won't last forever, especially as social mood continues to fluctuate, dictating the rise and fall of institutions.<sup>7</sup> Technology is simultaneously chipping away at the fortress walls, and eventually the walls will crumble. The future is open, decentralized and second order. As far as I'm concerned, it cannot come soon enough.

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