CIRCUS foundation

Emergent Democracy

Charles Armstrong

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The Internet is already bringing important changes to our political and governmental systems. But while we pursue these immediate benefits, we must take care not to overlook deeper implications that could have greater long-term significance.

In this chapter, I argue that the Internet has changed a fundamental aspect of democratic systems which has persisted for 7,000 years. This change may presage a period of democratic innovation on a scale comparable to classical Greece. It will lead to democratic systems that are more fluid, less centralized, and more responsive than those we know today; systems where people can participate as little or as much as they wish and where representation is based on personal trust networks rather than abstract party affiliations.

This is Emergent Democracy.

Democracy As a Scaling Mechanism

To understand Emergent Democracy we need to take a brief look at how communities have governed themselves through history. There have been a great many forms of government over the millennia, but my focus here is the evolution of the particular subset we call democracy; a continuous thread of systems where power is spread through a large portion of the community.

There is no single definition of democracy. The original Greek *δημοκρατία* means simply "rule by the people". Each society and epoch has defined democracy differently, reflecting its unique preoccupations and aspirations. Democracy is a mechanism to distill the will of a people, a way to remove ineffective governments, a means of resolving conflicting interests in a community without recourse to violence and a thousand other things.

For the purposes of this chapter, I'm going to add yet another definition to the catalog. Looked at in the sweep of human history, democracy can be understood as a scaling mechanism for self-government. Small groups are able to govern themselves efficiently without any need for formal structure. But the larger a group gets, the less efficient this becomes. From this perspective, a democratic system is an exoskeleton enabling a group to self-govern at a larger scale.

This definition promotes democracy as a system, a social machine occupying a body of fixed and unambiguous rules. This positions democracy firmly as a product of postliterate society and a world where rules can be written down. Yet examples abound of preliterate

societies and unstructured groups where decision making is shared between the members. While it's problematic to call these democracies, they are certainly democracy's direct ancestors. Our story starts with them.

Informal Self-Governance

Our ability for informal collective self-governance is one of humanity's most virtuosic achievements. Because it functions almost entirely subconsciously, we barely appreciate the wonders we perform each day through nuances of speech and microgesture. Each of us is a cell in a collective intelligence machine of marvelous complexity and efficiency. Look beneath the surface of a typical village and you will find a continuous jostle of demands, alliances, and opinions in play. Without any formal structure, voting, or central management, this hubbub of tiny individual signals translates into collective decisions that are strategically intelligent and widely respected as legitimate.

However, this phenomenon works only in communities of a similar size to those in which the behavior evolved. In his oft-quoted 1992 article "Neocortex size as a constraint on group size in primates," Robin Dunbar suggested that humans are able to maintain social relations with around 150 other people, but struggle to exceed this. The archeological evidence also suggests that for most of our 2 million years on Earth we existed in hunter-gatherer communities ranging in size from a dozen to a couple hundred people. This was the setting in which our social mechanisms for collective governance evolved. Beyond this size, their efficiency declines precipitously.

The scaling barrier was first breached during the tenth millennium BC when the earliest agricultural societies developed independently in Melanesia, Mesopotamia, and sub-Saharan Africa. Nobody knows what triggered the switch to agriculture. Perhaps it was a change in the climate as the last ice age retreated, or perhaps a critical combination of technological developments.

Whatever its cause, the shift to agriculture changed the balance between population and food supply which had persisted previously. Communities of several thousand people developed, a size which had no precedent. It's no coincidence that specialized roles and hierarchy start to become visible in these societies. As populations grew and informal collective governance began to creak, it started to be supplemented by humanity's first innovations in formal structured governance.

Mostly, this is believed to have taken the form of tribal heads and councils of elders. But I suspect these were more often focal points within an established mesh of informal interactions than wholesale replacements for it. Some anthropologists have described these models as "primitive democracy."

Increasing Scale, Increasing Formalization

The agricultural revolution entered a new phase in the late sixth millennium BC with the appearance of the first city states in southern Mesopotamia. This transition led once again to larger populations. By the end of the fifth millennium BC, the Sumerian city of Uruk had upward of 10,000 inhabitants. These are the societies where written language first appeared, perhaps responding to a need for accurate recordkeeping and taxation in an increasingly complex hierarchic society.

With literacy also came the possibility of fixed laws and of democracy itself. Several legal codes survive from this period. It seems that a large proportion of male citizens of

Uruk were entitled to participate in an assembly which could make legal judgments, advise the king, and in extreme cases even remove him. Raul Manglapus, the Philippine statesman and writer, has argued that what developed in those Mesopotamia city-states constituted the first democracies. It is a sobering reminder of our short memory and historical arrogance to reflect that democracy was born in what is now Iraq thousands of years before it ever blossomed in Europe or North America.

Regardless of how we label it, the governance systems that developed in these first city-states represents a leap in the formalization of authority, citizenship, and participation compared to the pre-urban agricultural societies.

The next milestones in scale and formalization come in the middle of the first millennium BC when sophisticated democratic systems were established in northern India, in a number of Greek city-states and in the Roman republic. By the sixth century BC, Athens had a population of several hundred thousand people of whom some 10% were male citizens entitled to participate in government. The Athenian system was vastly more intricate than anything that had come before, appropriate to a community 10 times larger than any that had employed self-government previously. Meanwhile, the Roman model employed a multitiered system of election and representation, governing a population which exceeded 10 million people by 100 BC.

The consistent pattern that becomes visible in this evolutionary chain stretching from the earliest hunter-gatherer communities to the Roman republic is that as communities increased in size, so the balance shifted from informal to formal decision making and citizen participation in government declined. This line continues right up to modern times. The Constitution of India of 1949 extended democracy to a society which then numbered half a billion people and has since doubled. Conducting an election at this scale takes several weeks. The Indian government addresses mostly the same preoccupations and needs as those which faced the first hunter-gatherer communities. But a price is paid for this extraordinary increase in scale.

Limiting Factors and the Internet

Since the first legal codes were written in Mesopotamia 7,000 years ago the fundamental trade-off with democracy has been that it enables a society to self-govern at a large scale, but at the price of a reduction in agility and problem-solving capacity.

Underlying this trade-off are three limiting factors:

- The need to associate citizens and state interfaces with a fixed geographical location in order that information can reliably be exchanged between them
- The need to build in time lags between each stage of a multistep process because information could move no faster than a galloping horse
- The need for people to come together at the same place at the same time for formal debate and decision making

These constraints have been part of every democracy from Solon's time to the present day. They underlie many of the rigidities and inefficiencies of Standard Democracy. Involving citizens in decision making on any scale is so burdensome as a result of these factors that highly formalized representational systems have become the norm. Most states rely on focus groups and market research as a surrogate for widespread citizen involvement. Even occasional participative mechanisms such as referenda are too costly

and disruptive to be practical. Meanwhile, the operation of a representative assembly itself requires a huge superstructure of formal processes with an associated apparatus for monitoring and enforcement. This maintains equity in debate and decision making but slows the process to a glacial pace.

A few years ago, it occurred to me that the Internet has rendered all three of these limiting factors obsolete. The combination of ubiquitous connection, storage, and processing opens the door to complex many-to-many interactions which can be molded dynamically by logical systems. But the democratic fabric with which we're familiar is so impregnated with assumptions founded on these three limiting factors that it's hard for us to imagine anything different. Nobody has ever experienced a democratic system that wasn't tied to those three factors. What would it look like?

By obviating these limiting factors, the Internet calls into question the iron trade-off between scale and fluidity. In the absence of these constraints, it's possible to conceive of large-scale democratic systems an order of magnitude more complex than existing ones that harness our complex social behavior for collective decision making rather than disabling it. Imagine the jostle and opinion-clustering process that operates in a village, but functioning in a society of 1 billion people. A system that operates in this way represents a new kind of democracy, which the phrase "Emergent Democracy" captures nicely.

The distinction between emergent and planned systems has a rich intellectual history. In economics, Friedrich Hayeck made the distinction between *taxis* and *cosmos* with the former concept representing mechanical, designed structure and the latter organic, spontaneous structure. In systems theory, emergence is seen a central mechanism of self-organization, enabling complex behavior to result from the interaction of a large number of relatively simple agents.

The phrase "Emergent Democracy" itself has a little history. Joi Ito and others employed it in 2003 in a somewhat different sense to describe the way public opinion flowed and coalesced via blogs and other web communication platforms. Indeed, it was a conversation with Joi that got me thinking about Emergent Democracy again.

Building an Emergent Democracy

In the summer of 2008, I formed the Themis project with CIRCUS foundation to experiment with constitutional and technical systems for Emergent Democracy. The project brought together a variety of people involved with democratic innovation for a series of workshops in London.

Underlying Principles

We started by identifying six principles which would provide a foundation to develop the Themis constitution:

1. The formal system is capable of modeling a level of fluidity and complexity similar to informal social behavior.
2. Citizens are linked to electronic, not geographical, addresses.
3. All formal interaction between citizens and the state is conducted electronically.

4. Discussion and decision making are continuous processes, not restricted to discrete times or places.
5. Dependence on nonautomated processes is minimized.
6. The formal system is deliberately incomplete; informal processes cross the boundary into formal mechanisms only when there's a good reason for them to do so.

The first principle is the central one. An Emergent Democracy is a formal system, but one which can adapt and reform the same way our underlying social behavior does. This entails bureaucracy an order of magnitude more complex than a Standard Democracy. For the formal system to even approximate the fluidity of informal behavior there need to be mechanisms capable of reflecting the continuous ebb and flow of authority and opinion in connection with different issues. The constitution itself also needs to be able to evolve constantly. This degree of complexity and constant change would be impossible to realize in a paper-based democratic system, even at the smallest scale. Only by translating a constitution into software does it become feasible. This fusing of a constitutional rule system and an electronic processing system is a defining characteristic of Emergent Democracy.

The second and third principles sever the paper-bureaucratic umbilical cord between the state and citizens, removing the built-in time lags. The fourth departs from the "same time, same place" foundation of Standard Democracy, replacing discrete processes with continuous ones.

The fifth principle recognizes that an emergent system will be impeded if it has to interoperate with external bureaucratic systems (such as manually drafted contracts or regulatory structures) that continue to function in the conventional manner. Any such dependencies will undermine the fluidity and responsiveness of the system.

The sixth principle reflects the perennial tendency in systems design to try to encompass every conceivable circumstance within the engineered framework. In the case of Emergent Democracy, it is better if discussion and consensus forming are permitted to happen "offstage" and cross into a formal mechanism only at the point a formal record is needed or a consensus can't be achieved without a vote.

The Themis Constitution

Building on these principles, the Themis constitution is a simple participative democracy where each citizen has an equal right to propose and vote on group decisions. The constitution contains multiple references to an electronic governance system through which citizens can access definitive records, participate in decision making, and join communities of other citizens interested in particular topics. Even amendments to the constitution are initiated on the electronic governance system and the constitution is automatically updated if they succeed.

The Themis constitution incorporates a rather unconventional representative system. In line with the first and fourth principles it was clear any representative model would need to introduce minimal rigidity and reflect informal behavior as closely as possible. That ruled out cyclic elections, fixed-term appointments, restricted candidate lists, and party-based voting.

In the purest sense, a representational system is a way of concentrating authority within a wider group. My experience with small communities has been that influence is held by different people in particular subject areas. Also that the distribution of authority can

change remarkably quickly in response to events. In the absence of formal hierarchy, this mainly seems to function through a web of peer-to-peer trust relations. Such systems respond very efficiently to changing circumstances, increasing the concentration of authority at times of crisis so that decisions are made and implemented rapidly, but distributing authority more evenly at other times, creating space for more debate and disagreement. Standard Democracy lacks this ability to flex. Powers which become centralized during a crisis tend not to be relinquished once the crisis has passed.

I spent a lot of time thinking how a representative system could be engineered to model similar characteristics. The solution I came up with was a fluid proxying system. Every citizen retains the right to participate actively in debate and decisions when they want to. But if they don't want to get involved, they can assign their vote to someone they trust, who is then able to cast two votes. There's no permanence in this. If someone doesn't like how his vote is being used he can withdraw the proxy at any moment and either participate himself or give it to a different person. Proxies can in turn be pooled. A citizen holding six proxies can assign all of them to another person whom he trusts. In this way, authority is dynamically concentrated through people's trust networks, able to ebb and flow freely. Based on this proxying system, a second, more sophisticated Themis constitution was drawn up.

A fluid representative system of this kind would, of course, be completely impractical in a Standard Democracy. It would be impossible to update records fast enough to know with certainty how many proxies each person held at a particular point in time. Only with the shift to an electronically managed Emergent Democracy do solutions of this kind become feasible.

One Click Orgs and Virtual Corporations

After completing the Themis constitution, the next task was to develop its accompanying electronic governance platform. Guided by the philosophy of Michael Young (my late mentor), I thought we should set out to develop something of immediate practical value rather than an academic test bed. From my experiences with the School for Social Entrepreneurs, I knew that social ventures encounter a scaling barrier at the point they need to open a bank account or create a formal governance structure. It seemed to me that providing a website where groups could automatically generate a simple legal structure and group decision-making system would probably be useful.

In October 2008, I put out an invitation for software engineers and others interested in building such a platform. The first project meeting took place a week later, and development of the One Click Orgs prototype commenced.

At a public meeting at Berlin's Chaos Communications Congress in December 2008, the One Click Orgs project became the world's first virtual organization governed by Emergent Democracy. Two nonprofits, the Bar Camp London Planning Association and Rewired State, followed suit and constituted themselves on the prototype system during spring 2009. The full v1.0 system was completed toward the end of 2009 and deployed to 20 diverse groups as part of a beta program.

After using the platform for a year, the organizations function pretty much as anticipated. Groups make most decisions by consensus without touching the formal governance system. In the One Click Orgs project group, formal proposals have mostly been submitted when a member judges a decision to be unusually significant. For instance, when we picked the Affero GPL v3 as the regime under which we'd release the code, this

was formalized with a vote. Another situation where votes have been used is to resolve fuzziness. We spent several weeks debating whether the platform was ready to release to beta groups. In the end, one of the members initiated a vote which was successful. An authoritative decision had been made, so we proceeded with the release.

Many questions remain to be answered. As soon as we started work on the system, we began to discover edge cases and paradoxes that needed figuring out. Linking the constitution to an electronic system casts the significance of bugs in a new light. Rather than causing minor inconvenience, a bug can potentially bring an entire organization to a grinding halt. Also, if we failed to think through how different constitutional mechanisms could interact, there was a risk that users would create logical paradoxes that could likewise cause the organization to seize up. Even simple things such as system upgrades needed to be rethought. Most upgrades will involve a combination of functional and constitutional elements, but any change to a constitution will require a vote. Therefore, we must provide an automated mechanism to offer groups "upgrade resolutions" which, if passed, will trigger the relevant changes to system and the constitution.

The experience of One Click Orgs suggests there may be a natural affinity between Virtual Corporations and Emergent Democracy. Each innovation consists of mapping legal-bureaucratic processes onto electronic logical systems. The former may turn out to be the natural container for the latter.

Currently, the One Click Orgs platform provides a self-contained Emergent Democracy wrapped in what's technically an unincorporated association. Legally, this is the amoeba of the organizational world, conjured into being by the mutual agreement of its members. The next step is to extend the platform to provide legal envelopes with greater durability, specifically corporations.

One Click Orgs is now starting to work with other thinkers and innovators who are working in related fields. David Johnson at the Center for Democracy and Technology and Oliver Goodenough at Harvard's Berkman Center drafted a set of recommendations which in June 2008 led Vermont's State Legislature to pass an "act relating to miscellaneous tax amendments." Despite its unassuming title, this act established Vermont as the first jurisdiction in the world where fully fledged virtual corporations could be formed. David and Oliver are helping One Click Orgs develop a version for a Vermont Virtual Corporation. Meanwhile, the project is collaborating with Joi Ito to develop automated offshore corporations as part of a toolkit for hackerspaces.

The Road to Emergent Democracy

We tend to associate democracy with nations, cities, and other state entities. But through history, democracy has played an equally important role in trading leagues, religious groups, nongovernmental organizations, and other nonstate entities. My hunch that Virtual Corporations may turn out to be a critical delivery mechanism for Emergent Democracy fits this picture.

Anyone seeking a living example of what a complex Emergent Democracy might look like could do worse than look at the crowdsourced encyclopedia Wikipedia. This is an extraordinarily sophisticated collaboration where consensus progressively forms from a mass of divergent views and agendas with minimal central control. While the community strongly deprecates polling as a tool and such votes as take place are not binding, Wikipedia demonstrates many of the characteristics of an Emergent Democracy.

Moreover, it is triumphantly, improbably successful. James Wales is sometimes (inaccurately) quoted as saying that Wikipedia is not an experiment in democracy. That may never have been its main purpose, but from a certain perspective, that's exactly what it is. Wikipedia is a democratic machine for agreeing the truth.

Looking at how Emergent Democracy is likely to, well, emerge, I think the state will probably be its very last port of call. As with any experimental process, the wave of democratic innovation I predicted at the start of this chapter requires the ability to fail over and over again. Far too much is at stake in national politics for failure to be acceptable.

Therefore, in the next few years I expect to see a ferment of experimentation in settings where the stakes are lower. As successful models for Emergent Democracy start to crystallize, some will become widely adopted by nonprofits, activist groups, clubs, businesses, and others who seek to govern themselves in a more participative manner. I also expect to see existing online communities adopting legal structure and governance. We will see World of Warcraft guilds and Facebook Groups gaining legal personality, systems of government, control over assets, and the power to form contracts with the outside world.

There will also be a wave of innovation driven by businesses seeking increases in agility. This may see shareholding and remuneration tied to automated mechanisms alongside participation and voting rights, or employee contracts translated into dynamic electronic structures. Businesses' main interest will be the removal of procedural burdens that slow response times in a conventional organization.

Only after Emergent Democracy has become well established in many other areas might it start to be brought into the machinery of the state. Perhaps there will be a few tentative experiments in parish councils and other peripheral structures. Next, experiments may be considered at county or regional level. But realistically, it will be decades before we see aspects of Emergent Democracy in the government of nation states.

However, national governments may begin to see an impact somewhat sooner than this. Grassroots campaigning groups may be among the earliest adopters of Emergent Democracy. As a tool for interested citizens to debate policy questions and agree on common positions, Emergent Democracy will be a powerful aid. This will be somewhat similar to the phenomena discussed by Joi Ito and Clay Shirky, but with the addition of a formal decision-making machinery able to give focus and force to the concerns of thousands of citizens.

I can imagine an intriguing situation developing where governments elected through Standard Democracy find themselves engaging with mass citizen groups that are operating with Emergent Democracy. It's hard to imagine a conjunction that would highlight the differences between the systems in a more revealing fashion.

About the author

Charles Armstrong is a social scientist and innovator based in London. He's CEO of Trampoline Systems, a software developer specialising in large-scale social network analysis. In 2009 Trampoline was selected by analyst IDC as one of the world's top 10 innovators in business software. In the same year Trampoline became the world's first technology venture to raise equity investment through crowdfunding.

Alongside his role with Trampoline Charles is also Director of The Trampery, a co-working and events space in the Shoreditch technology cluster, and of One Click Orgs, the open-source project which in March 2011 launched the world's first platform for virtual organisations. He formed CIRCUS foundation in 1997 as a platform to undertake experimental social projects and incubate ventures, including those named above.

Charles studied Social and Political Sciences at St John's College, Cambridge, and went on to be mentored by Lord Young of Dartington, one of the architects of Britain's post-war society.

He's a Fellow of the School for Social Entrepreneurs, a board member of the global technology non-profit Techsoup and advisor to several ventures. He regularly gives talks on subjects including emergent networks, virtual organisations and entrepreneurship. He's a competent baroque keyboardist and occasionally gives electroacoustic performances with friends. Since February 2011 Charles has served on the Prime Minister's working group developing policy for the East London technology cluster.

Web	*Twitter*
charlesarmstrong.net	@car0lus
trampolinesystems.com	@tramp0
thetrampery.com	@thetrampery
oneclickorgs.com	@oneclickorgs
CIRCUS-foundation.org	