

Integrated Decision Making Platform

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Abstract— The platform we're proposing will be the main actor of the upcoming paradigm shift from representative governance to self governance, the architecture, functionality and interface of the platform was modelled after the human anatomy. Human decision making efficiency is dependent upon the governance system of the deciding agents and the roles they play. Aligning the context in which a decision impacting human life/society is made into a natural organic context, as the one governing the cells of the human body and described by the anatomy of the body as a whole and biological algorithms that drive communication and decision making within the cell ecosystem, will increase efficiency and personal satisfaction, provided by the increase of individual expression supported by the self representation organic decision making platform in discussion. A system of this sort, capable of changing the context decisions are made into a more organic and natural one, can be achieved with the help of modern day technology.

Keywords— Integrated Decision Making Platform, Collaborative Decision Making, Participative Organic Governance, Anatomically Correct Decision Making Platform, Online Organic Self Governance

I. INTRODUCTION

The webster dictionary defines decision-making as: “the act or process of deciding something especially with a group of people; a conclusion or resolution reached after consideration”.

Decision making is the key factor in human, and life in general, evolution, thus optimising this process to a state of coherence with the organic, natural framework that life provides will most likely bring a huge enhancement in the quality of life for all participating parties/agents.

In order to better understand the problems our predecessors had to face regarding decision making we looked into the main scope it was used for, which is social governance, and we identified the best formulated questions and statements that arose so far.

The problem of governance:

- a. Imperfect or lack of knowledge on how to collect and integrate distributed knowledge for the purpose of value creation.[1]
- b. Governance issues arise when knowledge relevant to production exists fragmented among different actors.[2]
- c. It is far from clear how highly distributed knowledge can be integrated and steered to a coherent collective output in the online environment[3].

How does a collective capability to create and maintain value emerge and evolve in an online social production system?

To address the question:

1. We extend a capability-based view to online social production
2. We argue that governance can be understood as an evolving capability
3. We do not assume that the governance capability was in place at the beginning

II. GOVERNANCE AS A CAPABILITY

Firms integrate knowledge into organizational capabilities to accomplish complex tasks and create value by transforming inputs into outputs[5].

Capabilities are usually found anchored to traditional organizational forms, but it is reasonable to assume that they emerge in other types of collective arrangements as well.

Capabilities are embodied in bundles of interrelated routines that encode practical experience and knowledge [6].

Productive arrangement develop many different kinds of

routines: production routines (e.g. writing routine), interaction routines (e.g. discussion routine), etc.

How to attract and integrate distributed knowledge resources: Writing routine, Version control routines, Reverting routine, Discussion routine.

Capabilities are focused to the production of governance articles: Individual skills and knowledge in writing on topic, Technological ordering of edits from multiple contributors, Collaborative assessment of edit quality, Discussion focused on governance article content and its development.

Contributors learn from each other in talk page discussions and by observing reactions to edits. Capabilities are anchored to small and fluid groupings of contributors and to the technological platform.

The object to be governed is an individual governance article, subdivided into individual ever evolving and independent sentences referred to as physical wisdom bits.

The platform, using an online social networks of users, is an evolving, enabling and embedded process. Enabling rather than controlling: supports learning (and allows the initial build-up or resources). Evolving as the product matures: rights and capabilities are reconfigured to cope with complexity and tackle new situations. Embedded in the interaction system and technology: no inherent distinction between production and governance functions.

III. RESEARCH ACTIVITY SUMMARY

The domains I have reviewed and offer important information for this thesis are: psychology, anatomy, biology, genetics, computational neuroscience, history, religion, quantum physics, physics, chemistry, human computing.

Some of the conclusions I reached during my research are:

- a. nature has all the solutions built-in, for those that have the necessary mental containers to extract and understand them
- b. there are no coincidences, the order within can be observed in the order without
- c. technology modeling natural anatomical mechanisms already present in the human body exists in partial form as online platforms like Wikipedia, Facebook, Reddit, etc
- d. human consciousness transcends and controls its

physical state

- e. neural connections are like tools or containers that the evolutionary forces of nature uses to help us make sense of what we already know and guide us in the direction we want to go
- f. emotions we create come back to us to create a feedback loop, with the purpose of identifying and optimising the neural connections that made them possible
- g. consciousness works like an operating system
- h. the nature of evil can be translated into a deterministic psychological structure maintained by faulty neural connections created over our individual evolution
- i. our brain takes part in influencing the collective consciousness and our ideas spread around the planet like an impulse is broadcasted over a network
- j. all information is relevant once the truth is found and information processing is going to be one of the most important fields of study in the future
- k. the heterogeneity of life is perfected once each individual is connected with his builtin purpose and finds meaning in his life by expressing his innate individuality.
- l. essentially there are no contradictions between spirituality/religion and science, only little minds that can't fit them together
- m. humans encouraged to live and express their individuality will resemble puzzle pieces that will perfectly fit together, without glue holding them together, in contrast to a conformist philosophy which creates bricks out of people, through forced conformity, and holds them together using concrete (fear of unconformity maintained through manipulation and intimidation)
- n. the nature of God is physical Wisdom (Perfect Cognitive Coherence, which can be perceived by the mind, that permeates and orders all physical dimensions) and Love that transcends time and space and it's found within all living beings and it's the driving force of evolution

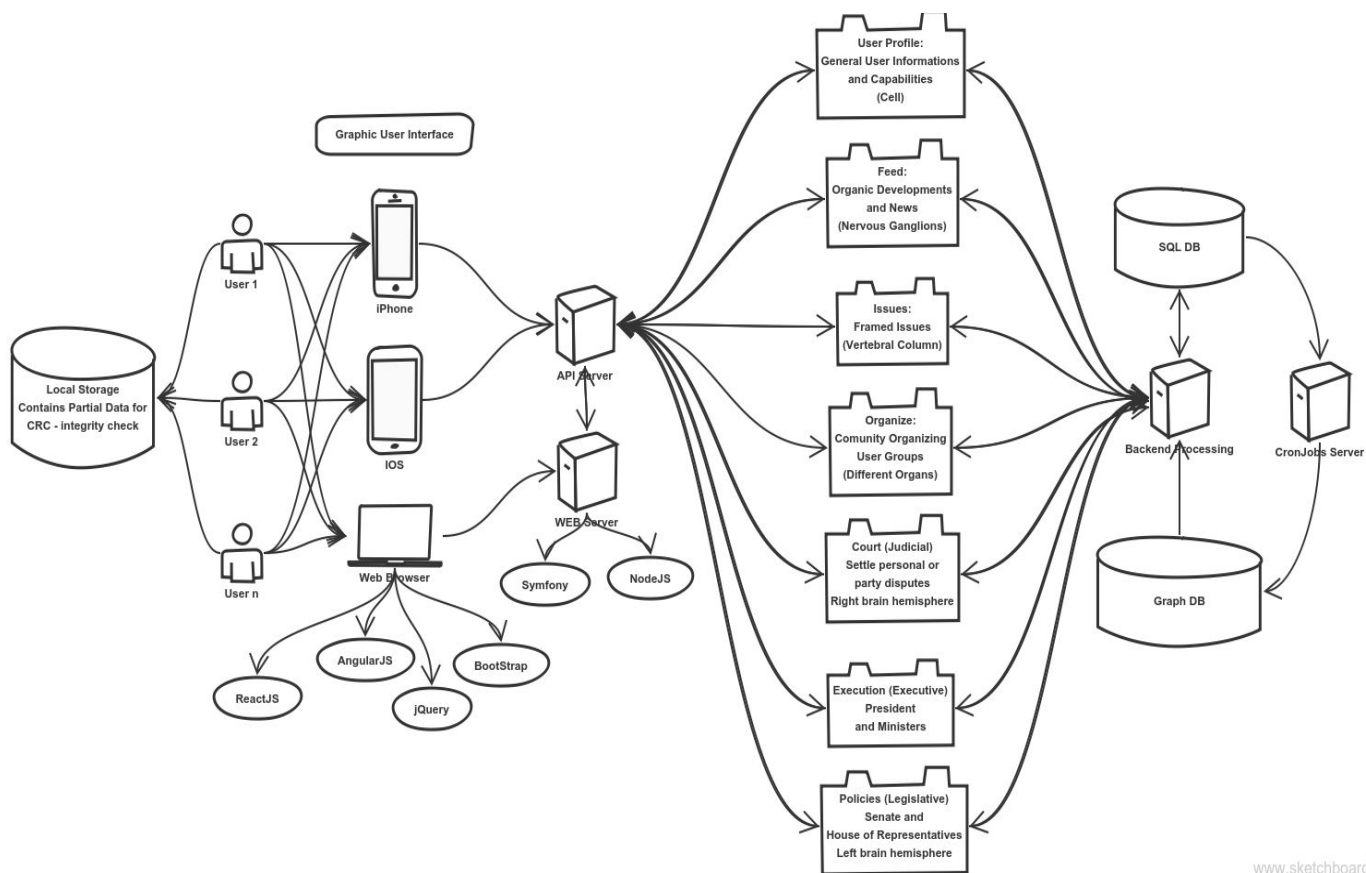


Fig 1. Architecture of the Integrated Decision Making Platform

IV. CORRELATIONS BETWEEN THE HUMAN BODY SYSTEMS AND THE INTEGRATED DECISION MAKING PLATFORM

The Integrated Decision Making Platform is modelled after the anatomy of the human body.

The most relevant biologic system in the human anatomy to decision-making is the nervous system.

The nervous system connects the brain, with its two hemispheres, to the rest of the body through the vertebral column and nervous ganglions located around the body. Ganglions, depending on their role, route and filter messages coming from individual cells.

A nervous ganglion is a nerve cell cluster or group of nerve cell bodies that has the purpose of intercepting signals coming from the neural cells located around the body, which have the role to sense external stimuli, and after filtering and prioritizing the signals, forwards them to the brain which decides on the action which will be taken according to the received signal.

The human nervous system is already built like the perfect decision-making system and all it's functions can be easily modeled and implemented into a real platform that humans can use to govern themselves as one heterogenous body regardless of the number of people involved or their individual peculiarities.

The different organs and systems that the human body contains can be found in real life as Departments, Organizations, Corporations, etc, but without a central point of governance these organs act against each other instead of cooperating.

V. THE INTEGRATED DECISION MAKING PLATFORM ARCHITECTURE AND SPECIFICATIONS (SEE FIG 1)

Based on more extensive research, which can't be covered in the few pages of this article, I have designed an architecture, modeling the identified internal organic operating system of the human body, based on micro-services, around which the Integrated Decision

Making Platform is being build.

One of the main components of the Integrated Decision Making Platform is the ranked social network. The ranked social network will allow individuals that want to get involved to receive direct votes of trust from other users with the scope of creating an organic and dynamic hierarchy, which will later be used as main metric to fill specific roles in the organization using the platform (Department, Institution, Corporation, State, etc).

The three classical branches of power in decision making: Legislative (left brain hemisphere), Executive (spinal cord) and Judicial (right brain hemisphere), are formed from the individuals located at the top of the trust hierarchy which are interested in taking part in the decision process and posses the capabilities needed for the available roles of each branch.

The Integrated Decision Making Platform can be used to model all previous modes of government like Democracy, Monarchy, Communism, Republic by allowing citizens to dynamically and collaboratively create and modify the constitution and the laws/rules of the institution, department, organisation, state, etc, and the governing roles that will be assigned to the most trusted citizens.

Another important element of the Integrated Decision Making Platform is the nervous ganglion algorithm used for filtering, prioritizing and routing the messages, ideas, issues coming from the individuals that constitute the governed body. The algorithm uses the already functioning popularity algorithm(Fig. 2) from Reddit with the specification that each user has the voting power increased depending on his number of votes of trust (position in the trust hierarchy).

```
function hot($ups, $downs, $date)
{
    if (is_string($date)) $date = strtotime($date);

    $s = $ups - $downs;
    $order = log10(max(abs($s), 1));

    if ($s > 0)
        $sign = 1;
    elseif ($s < 0)
        $sign = -1;
    else
        $sign = 0;

    $seconds = $date - 1134028003;

    return round($sign * $order + $seconds / 45000, 7);
}
```

Fig. 2 Reddit post priority algorithm

The Hot Algorithm (Fig. 2) sorts the posted Issues, Organic Developments, News, by the time of submission (newer items are higher) with the specification that for each Upvote the item moves forward in time, becoming newer, while Downvotes push the item back in time, making the items appear older, thus showing lower on the list.

```
function confidence($ups, $downs)
{
    $n = $ups + $downs;

    if ($n == 0) return 0;

    $z = 1.281551565545; // 80% confidence
    $phat = $ups / $n;

    $left = $phat + 1/(2*$n)*$z*$z;
    $right = $z*sqrt($phat*(1-$phat)/$n + $z*$z/(4*$n*$n));
    $under = 1+1/$n*$z*$z;

    return ($left - $right) / $under;
}
```

Fig. 3 Reddit confidence algorithm

The Confidence algorithm(Fig 3) is used to sort the comment list based on user votes. Comments are used by users to intervene with relevant ideas in all steps of the decision-making process, from Issue framing, to Policy Creation, to execution and even judicial (solving disputes).

As an example for Hot Algorithm, if $n = 10$, then $\log(10) = 1$ and the post is moved forward 45000 seconds, or 12.5 hours. If $n = 100$, then $\log(100) = 2$ and the post is moved 90000 seconds, or 25 hours. We can plot this for more and more net upvotes(Fig 4):

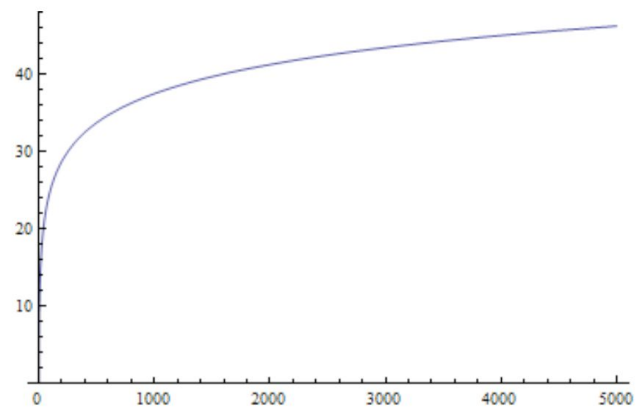


Fig. 4 Hours added as a function of net upvotes received

VI. PLATFORM COMPONENTS

A. Profile

- Users create their account or can login using Facebook Login/ GooglePlus/ Twitter/ Yahoo/ etc, and validate it using national ID
- The Profile Page will consist of a simple social network that will only have vital social functionality like, message friends, post pictures, post short statuses (like twitter, 140 characters at most)
- Users at first start out with Trust Level 1, they can use their Profile page to attract friends to give them a vote of trust. Users will be guided to express their political views, social views, economical views etc.
- The Trust level will be used everywhere around the website to create a natural hierarchy.
- Each user can give their vote of trust to anyone else(once per person) and they can receive votes from anyone else(one vote from each).

B. Feed (Organic Development + News)

- On the Feed page users can view different news articles or personal issues were organically submitted by individual users.
- If an article stands out by being Up Voted by many and the article refers to an issue the person is experiencing, it can be promoted to become an Issue and will be shown in the Issue List page. On the issue List page we can have filters that can filter only issues from friends for example, or only issues from your country, or only issues in a specific category. Also all Issues will have tags attached to them, tags will be used to better match similar issues and will also be important for the reports page.

C. Issues

- If a person is interested in an issue it can upvote/follow that issue.
- The Issues page shows Framed Issues that were identified in the Feed page coming from the governed body (institution, department, state, etc).

- In Community Organizing users can organize themselves in order to get support from Social Groups to come up with solutions to the issues at hand.

D. Organize

- In Community Organizing users will be able to organize Campaigns of different types: meetings, rallies, email/fax/phone campaigns
- The Community Organizing tab will provide the means for users to have their problems heard and attract the people that can solve the problems.
- In the Community Organizing we will allow users to add their own Campaign Methods on top of the ones we will have by default (to increase people's creativity in protesting peacefully – like all people wearing a shirt with a specific message, call the parents of the person that is creating the issue and so on) and we will promote only Non Violent forms of Protest. We will add a protest etiquette that people can read before starting any Campaign.

E. Policies, Execution and Disputes: Policy Creation, Live Issues, Executive groups, Legislative group, Judicial Groups, My Groups.

- Each Framed issue becomes the center of attention for Social Groups, these social groups represent people interested in helping out with Policy Creation for the Categories/Domains they are interested in. We can have cases where a person joins all groups or when a user doesn't join any group but he gives the vote of trust to someone else to represent them.
- Each Social Group has a calculated Trust Level based on the users that make up the group.
- Anyone can create a social group if he thinks he has a new unique view of things that can help others that also that have similar interests and activities.
- Social Groups can also act as a syndicate for different roles people can play in society.
- Once you are part of a Social Group, or you created your own, you can take part in Policy Creation and you can increase your influence by promoting valuable Policies for people in

different social/economical/political contexts.

- Users of groups can have different roles within the group like: owner, manager, activist, etc
- The owner has the option to promote other users to managers in their groups.
- There can be Social groups that require an Invitation, some will be free to join, others will require approval.
- Policy Making will enable users to find solutions for everyday problems in an organized and collaborative way.
- In the Live Issues Tab, we will have the Framed Issues the person is following. If he is part of a Social Group, he can initiate a Policy for any Issue.
- The Policy will be built inside the Social Group but will also be visible publicly and people can comment on them.
- Once Policy receives the required number of votes and provides the best solution for the problem (that will be decided in the Issue Framing Tab when the issue is defined).
- We can have a democratic vote as default, where all people that follow that issue get to vote.
- Once an issue is voted up it will become an active Policy of that Nation.
- All Nation Policies/Laws will be shown in Active Policies Page that will be created for each Nation or Organisation. Users will have the possibility to browse through the Policies and request changes by Framing an Issue.

VII. USER INTERFACE COMPONENTS

Based on the two branches our autonomic nervous system has, sympathetic and parasympathetic, I have designed a Graphic User Interface to organize and handle the information that the platform receives and processes from and for the users that reflects this distinction.

The News section of the Feed represents the Parasympathetic nervous system, which monitors, gathers and classifies information in a relaxed state. The Organic Development section, which represents the Sympathetic nervous system, gathers and acts upon external and internal stimuli that signal a potentially harmful situation to the governed body.

A. Feed

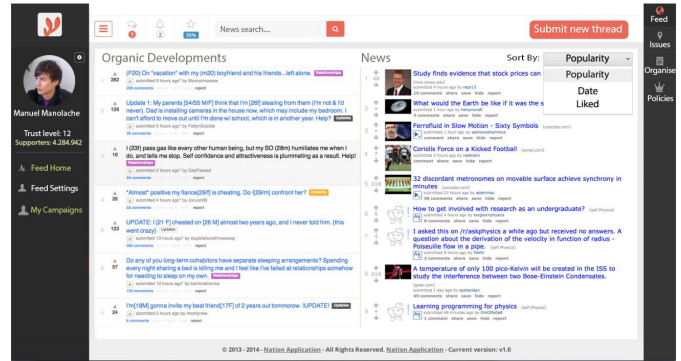


Fig.5 Feed - News and Organic Developments

In the News category users can submit information which is relevant to the whole society, like inventions, theories, studies, scientific articles, major social events, and so on.

Any individual can post in the News feed because the voting system will place the news at its right place as soon as other members categorize it as relevant or irrelevant.

The News feed can also be used to point to resolutions for other ongoing issues that Groups and Organizations try to solve or create policies for. For example, if a Policy needs to be created to handle traffic in crowded areas but there is an Article in the News section that talks about Artificial Intelligence for Traffic Management, the Group that is trying to develop a solution can reference that News article and bring the people involved in that discovery into the policy creation process and later on create a public Project for the solution to be implemented using that technology.

Organic developments allow everyday personal issues to be submitted so the community can collaborate into finding solutions. Organic development threads can consist of any type of issue someone can meet in his daily life, from relationship problems, infrastructure development, public transport issues, and even emergencies of any type like fires, car crashes, and so on.

In the Organic developments sections articles are going to be downvoted or upvoted depending on the relevance and also on the area of impact each issue has. For example, if on residential area there is an urgent need for extra parking spaces someone can Submit a thread regarding it and invite all people living in that area to upvote it. If the number of votes in a specified period of time reaches a certain threshold the criticality

of the issue is increased and a message will be sent to Organizations and Parties that work in that specific area. Hashtags are going to be used to signal the area of expertise and other such properties for each Organic Development.

Once an Organic Development reaches a certain criticality, Organizations and Parties can address it and start creating Policies or Projects that will fix the issue and assure no other future issues of that nature can arise and if they do an automated plan of action will be used and laws to prevent that will become active.

For example, if a fire starts in a Petrol Station a Policy can be drafted that forbids people from using fire in a certain area around a Petrol Stations.

Another example of Organic Development can be people complaining there are no parking spaces around some area, once the Issue is upvoted to reach a critical priority level, an Organization can address the Issue and create a City Project that can build fast parking spaces using available technology, which will be used for all issues of that sort around the City.

B. Issue List

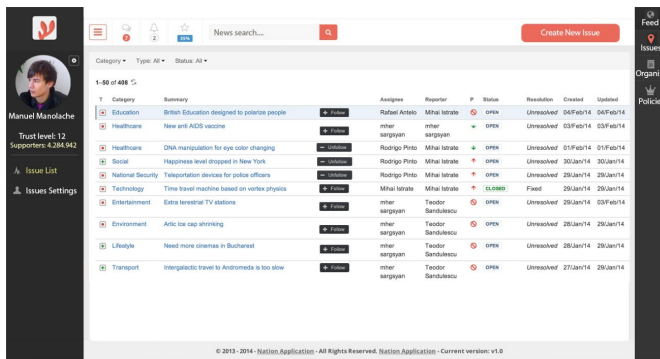


Fig.6 Issue List Page

On the Issue List page users can see a list of Issues that match their personal settings, like Location, Tags, Categories, ordered by different fields. Each Issue can be created by party or organisation members and can be derived from an Organic Development that becomes popular.

Once a party member opens an Issue or gets invited by another party to join solving an issue it will show up in their Group followed Issues so they can discuss and find solutions together with their group. Users can request email updates for the issues they are following by setting it up in the Settings Page.

The interaction between regular users and any Framed Issue is limited to only commenting. Party and Organization members can come up with solutions in the form of laws, campaigns, projects, meetings and so on, with the purpose of fixing the Issue and any other that can eventually arise of the same type.

Once an issue was solved the status will change to Closed. If the users wants to find out more information they can click on the Issue and go to the Issue page where all the details regarding it will be displayed.

C. Issue Page

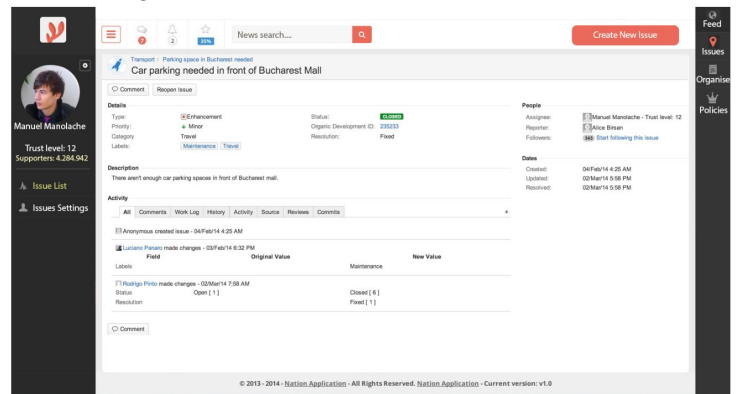


Fig.7 Issue Page

On the Issue page Users have access to all details regarding the Issue like, Category, Priority, Tags, Status, Number of followers, Comments, Groups, Commits done by different Groups and Organizations, Source for the current solution and so on.

If any regular user wants to help they can do so using the Comments section, in the Comment section any relevant comment can be upvoted so everyone will be made aware of relevant information that was submitted by anyone following the Issue.

In the Work Log we can see what each Group or Party is working on related to the Issue and their latest conclusions.

In the History Tab we can see time labels referring to groups joining the Issue, submitted partial solutions, and other relevant information sorted by the date of submission.

The Activity Section will display Actions started by the Groups or Parties in order to find a solution like meetings, information gathering, research.

The Source Tab contains the latest accepted partial solution from which other joining Parties can start and branch to improve on.

Once a solution is considered complete by the majority of following Parties and Individuals the Issue will be flagged as Fixed and the solution implemented in the circle or area the Issue can appear, for a street, a Corporation, for a whole City, or Nationwide.

VIII. IMPLEMENTATION CONCLUSIONS

The architecture of the Integrated Decision Making Platform should be based on micro-services built around a distributable data model similar to torrent technology, connected using Symfony social network framework or custom built user interface and backend using AngularJS/React/Redux framework, in the form of independent widgets, complemented by a REST API framework and a Graph database for long term storage and fast queries and MySQL for common operations.

The main technical components of the architecture:
Symfony – php framework and reusable components
Flight PHP - fast, simple, and extensible framework created for easily building RESTful web applications
Sparrow – PHP DB toolkit PHP that can link together multiple DBs.

MySQL – common operations DB

OrientDB – graph DB used for long term data storage

Bootstrap – Javascript framework used for Widget creation

Jquery – Javascript framework used for HTML DOM manipulation

React – Javascript framework for modular widget template creation and data binding

AngularJS - Alternative javascript framework for widget creation and data binding.

IX. GENERAL CONCLUSIONS

The research for this thesis was done over a period of 3 years during which I have also experimented with human consciousness and epigenetics techniques. During this period, as a proof of concept for the validity of my conclusions, I managed to heal the symptoms of my chronic genetic illness (which I was born with) Cystic Fibrosis. Genetic code is activated/deactivated by beliefs/logical patterns that are stored in the form of physical neural connections, neural circuits and neural pathways. These genetic switches are triggered by both the mental environment of a person but also by external social environment factors, so any improvements that

can be applied to either of the two will enhance the overall quality of life.

Using an organically coherent system of governance emergent from the natural fractal expressed in the anatomy of the human body, such as the Integrated Decision Making Platform we are proposing, will align the human race to its full evolutionary potential, both at a personal and social level. In order to achieve this we need to gather, classify and act upon any good ideas that can arise in anyone's mind, not just a few that are in power at a certain time, like the previous, prone to corruption, systems.

Because we now possess the technology to recreate our body's perfect governing system it's only natural we implement it and start using it, and in doing so remove all possibility of corruption to ever take part in the governing process like it happened so many times in the past.

By implementing a decision-making system that's specifically designed for us by nature itself, and use it in fields such as social governance, we take the responsibility from any small governing group of people and distribute it to each and every one of us, in accordance to our individual capabilities and predispositions.

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