SCIENCE FICTION ECONOMICS LABS
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EDGERYDERS

THE WORLDBUILDING ACADEMY

SCIENCE FICTION ECONOMICS LAB PAPER

Economics, as we know it currently, has changed from a place to imagine new and better worlds to a discipline which re-enforces and improves itself in a single model. Much "blue sky" economic thinking is now done in strange contexts.

Science fiction is one of them. Another one is local communities who attempt to reboot their economies in more humane and long-term resilient ways. The Science Fiction Economics Lab papers track down and investigate examples of systemic innovation or radical rethinking of the current economic model.

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INTRODUCTION
ALBERTO COTTICA

A while back, we at the Sci-Fi Economics Lab had a new idea: instead of writing academic papers, we could channel out-of-the box economic thinking around building a fictional world, to serve as the backdrop for works of science fiction or fantasy. In retrospect, it seems obvious: after all, this space exists because a small patrol of economically inclined sci-fi authors invested a lot of time and brainpower into dreaming up exotic economic systems. But we added a couple of extra ideas to that original insight.

First, we decided to build the world in a participatory way. We want anyone to be free to contribute ideas, analysis, references, visuals, and so on.

Would technologies of great power (like Star Trek's replicators) be compatible with a market economy as we know, based on scarcity? How would slower-than-light interstellar trade work?

1. Paul Krugman, **The Theory of the Interstellar Trade,** 1978, https://www.princeton.edu/~pkrugman/interstellar.pdf

(Nobel laureate Paul Krugman actually worked that one out[1]) How can Harry Potter's Wizarding world use precious metal as a currency, given that wizards can simply magick out more of it and cause hyperinflation? No matter how smart, an individual author can not keep track of all the possible variables and their permutations. So, we are going to do that as a community. It just makes sense.

There are already over 150 people posting on the Science Fiction Economics Lab forum, many of us professional economists. We are licensing the world with an open source license: you can use it for your novel, film or game, and no lawyer will ever come calling if you make it big.

2. https://www.poll-maker.com/poll1009893x-a10948B5-42

3. For an explanation of the Hives in Terra Ignota, see: Ada Palmer, Writing a Future in Which You Choose Your Own Nation, Tor.com 2017' https://www.tor.com/2017/03/13/writing-a-future-in-which-you-choose-your-own-nation/

Second, we decided we want a world that contains several economic systems, not just one. Again, this is an old trick in sci-fi: Anarres and Urras in Ursula K. Le Guin *The Dispossessed,* the Hives in Ada Palmer's *Terra Ignota*, the Acquis and the Dispensation in Bruce Sterling's *The Caryatids*, and so on. This plurality creates a nice narrative tension, as characters can move across places and experience different economies. Also, readers tend to start thinking which economic system they would choose, if they were free to do so. For example, this poll[2] about "which *Terra Ignota* Hive would you choose" is popular on the Internet[3].

But participatory projects work best if someone makes an initial investment in them. Participating in filling an empty space can be intimidating, or simply not that much fun. So,

4.Edgeryders' Writers Residency https://edgeryders.eu/t/writers-residency-come-lead-the-worldbuilding-academy/14502

5. https://edgeryders.eu/t/an-innovative-social-investment-model-in-messina-sicily/9451

6. https://yudhanjaya.com/

7.https://edgeryders.eu/t/econ-sf-a-selection-of-works-and-authors/8582

8. https://joriamramoscv.webflow.io/

9. https://www.enspiral.com/

10. https://unime.academia.edu/MichelaDomenico

11 http://www.accademiadicatania.com/docenti/MarcoLoCurzio.

12. The call, upon the participants consent, was recorded for research purposes.

third, we decided to offer a writers' residency to someone to lead the charge. The residency[4] is generously funded by Fondazione di Comunità di Messina, the people with one of the weirdest, most fascinating real-life economic models[5] we have found so far. Among the applications who flowed in, many stood out; but in the end, the strongest one came from Yudhanjaya Wijeratne[6], a Nebula-nominated author from Sri Lanka and a member of our community. His novel *Numbercaste* has been on our wiki of economic sci-fi[7] since the beginning.

Yudhanjaya pointed out that, in order to bring the world to a level of maturity where contributing to it is fun and interesting, a small team is better than one person. So, fourth, we decided to create one. The other team members are Joriam Ramos[8], a Brazilian author and designer affiliated to Enspiral[9]; Michela De Domenico[10] and Marco Lo Curzio[11], Italian architects and illustrators; and yours truly, as the resident economist. If you want to volunteer for the core group, just let me know with a comment or a DM.

This group has the task to prepare, and pre-populate an online space where we all can contribute to build an open source. We organised a webinar which held Monday, 7 December[12], where we presented our concept and initial thoughts, and sought feedback from the community.

THE WEBINAR

WHAT, WHO, WHY, WHEN, WHERE?

Nadia:

 "The Worldbuilding Academy is a process of imagining alternative worlds and building the economics that make them possible. There is the storytelling part, the technical part and there is a platform where the storytellers, the economists and the scientists look if what was built is feasible.

We are doing this because we are stuck in a transition to a different future, in a place between what is no more and what is not yet. With the impending climate crisis, who are we going to be in this future? What is it going to look like? How will it work? How will it be plausible? How will we get there from where we are? Shall we be able to step out of our own limitations as individuals into a collective thinking about where we could be and what we could do?

The organisers are **Edgeryders,** an online community which interacts through an open online platform. It's also a not-for-profit company that

runs the research Institute and does on-location experiments based on online conversations and insights. The partners are **Fondazione di Comunità di Messina**, a fascinating case study of an alien economy that already exists and **Blivande,** a creative space in Stockholm.

The project is funded by **EIT Climate-KIC** and **Nordisk Kulturfund** will join us in 2021.

The core team consists of Yudhanjaya Wijeratne, the writer, Joriam Ramos, the network specialist and Alberto Cottica, our resident economist. They have been laying the grounds for the basic infrastructure for this project."

Yudhanjaya:

"As Nadia said, I am a science fiction writer. I live in Colombo, Sri Lanka.

Being a writer means making up lies, putting them down on paper and getting paid for it, a fantastic thing. But when I'm not in the business of professionally lying to people, I work in policy as a data scientist, sort of massaging things towards a future. And I tend to write new fiction, 2030s-2040s kind of stuff.

I would like to introduce you to the project.

THE FLOATING CITY

The process started with a conversation on the Science Fiction Economics Lab forum about the possibility to build an honor society where probability theory and risk mitigation are built into the religion itself and what sort of world might that generate. But let us go step by step.

First there was a concept note of a project called Extremistan, with the idea of a floating city that could potentially support multiple districts and where each district had its own unique social contract.

At their core are the systems we have seen before, for which the economic theories are well established. We know, for example, what a hyper capitalistic, very chaotic, unregulated world might look like. We have seen the examples of religion based societies and their economies. Around this will come the experiments. We will release the structure of the world and people will be allowed to build up the cities and bring in new ideas, see what clashes would happen with these existing models of thought and truly radical changes happening at the agent.

There would be the process of bringing these ideas to the center.

A funny thing happened. The concept note immediately started morphing. In a couple of rounds through the forum, it mutated into a wiki that contains the history of this fictional

island. It developed further, hints of architecture appeared. The hints of a history. In a short time span, books started to be written, entirely fictional, and became the meta narrative of this history itself.

It starts out now as an experiment in P.M. Scanlon's contractualism. That then goes wrong. And then the set floor begins to partition itself into future societies.

There are some ground rules. One, for example, that the floating city can exist.

In this construct it is not really important to know whether something this large can float properly, but it is very important to see the system is isolated from the rest of the world, or that the system has all the energy it needs. What kind of society is going to be constructed on top of that?

The collaborative nature of this is now on the backend, but people come in with all sorts of incredible ideas. One example is a beautiful solarpunk option that has now been woven into history.

IDEAS AND HISTORIES OF A FICTIONAL SOCIETY

There are conversations about how economics work in areas where nobody is going to enforce contracts. How have they historically worked? How has trade worked? How have, how would people function in a reputation driven society? And there's for example, Joriam coming in and saying, well, can we rearrange the structure of this?

Can we have energy generation in the middle? Can we have other cities coming in from our own and connecting potentially, and the way the cities connect would also lead to very interesting conflicts at the boundaries. The influx of new ideas coming in, represented by these new cities, joining the infrastructure and going on shows us we have a system that works. And we can support as many systems of thinking as we want.

I would say it is going faster than expected. So by **January 31st,** you should be able to access a wiki full of ideas and histories of this fictional society, where you are invited to enter and contribute with your ideas and proposals.
But even before that, as the purpose of this call, we'd like you to get involved.

World-building is something that every science fiction and fantasy writer does in his own way. Some people I know, work on characters first.

They complete the characters and then, driven from the characters, comes the world.

There are people like me who prefer to have the world in place. Then we find the characters and the conflicts are just generated by it. Personally, I prefer to work from a historical perspective. Once you finish writing the history of things, people emerge from it. That is a top-down structure.

It is up to you how and what you approach this with. Here is what we are looking for: First, ask yourself, what is the truth of this world. When you think of contributing, when you're thinking about the kind of societies that you want to see here, think about the defining characteristic of your world, about what makes it special and truly stands out.

I'll give you an anecdote.

I live in Sri Lanka. We have free and universal education and healthcare. This is standard here, we would not think of taking away healthcare from people. The first time I went to the US, I realised the cost of healthcare there. It was a massive shock. This was the defining characteristic of that particular country for me, this system where if you are at a particular socioeconomic level or below, you're basically going to get scalped. So think about what the truth of your word is, and that comes from your perspective that comes from your experiences.

THE CULTURAL ICEBERG

Then let's break this down a little bit more. Imagine we were building a Star Trek-like society, where resources are not a problem. You can have all the food you want but all of human society now runs around reputation. There is an infinite amount of snacks from the replicator but there is a limited number of captain's chairs. Reputation is a new currency here. Now, once you've established that, think how would this world present itself.

The concept of the cultural iceberg is something that a lot of authors use, particularly those involved in big fantasy, some branches of space opera and science fiction, where one of the defining characteristics is rich and detailed societies where people can really get themselves into. At the top of the iceberg are the things the reader interacts with such as food, flags, festivals, fashion, holidays, literature, language. Underneath that, supporting it, are the rules and the systems on which this world is built on. Concepts of self and past, what justice and fairness mean. Attitudes towards elders and adolescence and towards death, possibly. What does courtesy look like? What do manners look like? How do people handle personal space? Current economics - what does this look like?

With the project Witness we are building the bottom of the iceberg through the lens of the wikis where people can dive into and get in. What we would like you to do, once you have established the truth of your world, is to think

about the bottom of the elsewhere, because these are things that you can communicate, share, write down, spark imagination.

This is an open innovation. While we have some stuff in the background cooking, we would love to listen to your ideas on what a floating utopia city can be to you."

WHAT DOES ALL OF THIS LOOK LIKE IN DETAIL?

Joriam:

"I am a writer myself, but I also happen to be a network specialist. For me, the critical mass in this room is the most important outcome of this phase. All of you here are here for the same reason. There was an invitation, you got it. And you decided to dedicate your time to be here together. Now I would like you to get to know you rather than talking to this team.

For this reason we have organised the breakout rooms with a main question: What alternative currencies or currency rules do you think should be experimented?

The breakout rooms will not be recorded. Make a short introduction, present yourselves and discuss the origins of currency and today's age of cryptocurrencies and the lively debate around them.

We will continue the discussion here and through the posts on the Edgeryders platform."

QUESTIONS AND DISCUSSIONS

ON BOUNDARIES AND CONSTRAINTS

Yudhanjaya:

"Let us run through some points again: there is a concept of a floating city with rich history behind it. This history is deliberately structured to start splitting at a certain point where others can plug in. There is the concept of the migrant train and the idea of a single central system that constantly uses behavioral big data to monitor people's changes in social contracts and people's morals and attitudes towards certain topics. Whenever someone doesn't seem to fit there is the migrant train to a district that is more in alignment with what they expect from the world. And in some parts, in some cities that were coming up with this is completely disabled. You go there and after that, you're responsible for walking out.

There is a history of being built off the other districts as well. Beyond that anything can come in

respecting the following general aesthetic constraints: it is human centric, and based on human interaction. Robots, cyborgs, yes. Dragons, giant dragons, aliens, possibly no.

It is meant to be anchored to a future where many of the problems that we have today have been exacerbated. Climate change for example, or the uneven distribution of infrastructures. All these things have impacted the world and these massive mega cities, are really a response to some of these problems."

Joriam:

"We are building one city, something concrete for the people who are not interested in building the base of our iceberg. But nothing stops anybody from building other cities and structures that are not cities in this world. We just want to make sure that there is enough there for all sorts of audiences.

SCIENCE FICTION NEEDS ROBUST ECONOMIC THINKING

Alberto:

"An important constraint here is the logical consistency. We are imagining an open architecture of districts and sub-districts and so on. One is free to imagine of course, but in practice, the districts will be standing next to each other. So

you have to figure out the kind of equilibrium in which they would exist with the other districts. This mirrors closely the problem we have in our world where if you want to build a different economic system, you have to build it in the present economic system.

If the system that you want to build is incompatible with the current one, it will die and it will never happen. So those of us who are into imagining widely different arrangements for our societies and economies will need to solve two problems at once. Not just one. We need to design a system that works and that we like, and it needs to be able to go from here to there."

HOW DO YOU PLAN THE BUILDING OF A FICTIONAL WORLD?

Yudhanjaya:

"The core team is me, Joriam, Nadia, Hugi, Ivan and Alberto. Pretty much everyone that you see here. Our first goal was to set up this call. We had a few districts in mind. We brainstormed them over, took some features out, added some features in, then decided that seemed interesting enough that we could plunk it down there. The structure is made in a way that you can have anything, any other city coming in if you can imagine it. You can have it plugging into the fictional infrastructure already there. For example, one of the most recent contributors to this

project, proposed the parallel city of Avantgrid. A beautiful solarpunk moment which will hopefully plug into this infrastructure and become a historical event. We have actually already added that to the history. The city exists now and potentially it can start having interactions with other cities. But, maybe they don't like each other. Maybe they have massive problems with them or the migrant train coming in."

Alberto:

"The declared goal is to have the wiki which, I imagine, will never be finished, like the Marvel wiki or the star Trek wiki, or the Star Wars wiki. One can always add another edit or some more nuance and imagine a cool building to build in the middle of the district.

The real goal, however, is to expand our ability to think about different economic systems and to put some of this ability into the hands of the people who are running the green transition. The green transition is a thing. I think we as a civilization are underestimating the amount of mess that it will cause, starting in Europe immediately. A lot of public money is flowing down pipelines that were not built for that much money. These pipelines risk rupture and a lot of mess could happen. Mostly bad, but we also think of some opportunities in which new seeds could grow.

So if we could place some interesting ideas in the field of vision of the people that are trying to make the green transition happen, we could

have some surprises. The important thing is that although this has the print of an art project, its consistency has the ambition to feed into a participatory policy project."

SCIENCE FICTION AS A VECTOR FOR IDEAS

Yudhanjaya:

"This is a vector for ideas. Take a look at the concepts that we today take for granted. A lot of them originated in science fiction. Science fiction has often not been a very good predictive tool but it has been an inspiration for people who operated in reality. For example, the Apple engineer behind iTunes is quite often being quoted saying he took the idea from Star Trek. Edward Bellamy in the 1820s wrote about this future where people use little strips of metal for their payments, prefiguring credit cards and supermarkets. They would just swipe them in the large stores that contained everything.

The smartphones, the watches in the seventies, were not necessarily predictive works of fiction, but product engineers at some point have looked at these ideas and chosen to take them. So think of it as a vector for injecting ideas. It may work.

THE FUTURE OF ECONOMICS?

Maria:

"A couple of questions from the audience: Would it be correct to say that ideas should in some way be based in a plausible economic theory? Does it rule out some systems?"

Alberto:

"No, absolutely not. Today we tend to think of economics only as neoclassical economics, the standard model we see applied. We do not need to imagine a world based on that. I mean, we are looking at it and there's nothing much to be gained.
However, economics has a long history. The Wealth of Nations is from 1780. Before that, the physiocrats were already active in the 17th century. There is plenty of inspiration, models and schemes that you can deploy and you can absolutely build more.

First, consistency is important. We want ideas with reasonable intellectual integrity, not just attempts to pull things out of the air, because they look cool. I mean, we do that too, but then we shoot it down and we kind of trim it to a point where it feels alive.

How the narrative looks is powerful. If the word feels cartoonish as much of the utopian liter-

ature in the fifties or sixties, it will be just bad literature. It is very difficult to imagine a captivating story in a world that feels fake, let alone the economic principles.

Our work should feel real. That is what the iceberg is about. On the other hand, economics is now also moving into many different directions, physicists, network scientists moved in. Today economics orthodoxy is cornered and in my opinion it will go extinct within 30, 40 years. It will be completely blown away. There is Taleb[13], Ole Peters[14], the cultural evolution theory guys. There is so much interesting science in economics, because it is about allocation of resources in human societies. It doesn't come from university departments of economics, but we don't care about that."

Yudhanjaya:

"As an author I continuously follow the new publications. Often the new things are something we have seen in the sixties, the seventies, the eighties, Because generally people agree on what a nice world would look like.

I worked on an experiment by looking for the word utopia on Twitter, downloading 70,000 tweets that mentioned it and classifying them by the kind of world it represented. One of the things we found out was that everybody agrees people should have equal starting points, access to good things. The writing done without a consistent thought behind it tends to inevitably converge on the same.

13. https://nassimta-leb.org/

14. http://tuvalu.santafe.edu/~ole/

As Alberto said, at the edges of sciences the boundaries are being broken. Even coming from literature, it's absolutely fantastic to see linguistic analysis go up, observe all these strange and interesting new ideas that you can take and grab and actually construct a world around."

Zoe:

"I don't think worldbuilding should be limited by existing theories. I say this as an economist, but it should be limited by things like incentive compatibility and our understanding of human behavior."

Yudhanjaya:

"Precisely to the point. There is the issue of how much something needs to be grounded in political realities. In an expanding narrative, getting from A to Z becomes ever more complex."

Joriam:

"For the world of the 18th century, today's economy would look extremely science fiction. Just the existence of the internet as a technology would look like some crazy talk. How much human behavior changed, how different the exploitation of the resources on this planet is, is there a possibility to grasp the tendencies which today are shaping our tomorrow and give them a systematic overview? This is more or less the sort of flavor we're trying to capture here."

Hugi:

"In conclusion, a lot of the questions are about the same thing. How much is open-ended and how much is already going to be structured. In my opinion the clever thing about the setup is that we are imagining one city, which is a single city with a few districts that we really flesh out. When the wiki comes out in January the mechanisms will be in place for you to come in and form your own district. Through them it will be explained how this world works. Very open ended, but with clear boundaries around it."

THE DISCUSSION

AN ETHNOGRAPHY OF UTOPIA

15. https://edg-eryders.eu/t/how-to-build-a-world-a-webinar-with-the-worldbuild-ing-academys-core-team/14773/135

In preparation of the webinar a discussion was open on Science Fiction Economics Lab forum[15] with a simple question: "What is your idea for building the world?" During the webinar, another question was added: "What alternative currencies/currency-rules you think should be experimented?"

These are the excerpts taken from a rich selection of contributions.

TECHNOLOGY, CLIMATE, RELATIONSHIPS

lidiazuin:

"[...] open to ideas that merge technology and fantasy, since any technology advanced enough looks like magic in Clarke's view. [...] Semiotics, visual arts, philosophy, anthropology, and sociology can inspire the adapting of theoretical concepts into the construction of scenarios [...]. Branched narratives with a gamified approach

[...] customized paths rather than just sticking to linear storie

EricLKlein:

"Some of the questions to answer: how do common people live / work? How do the policies affect economic life? What is the climate / seasons? How do they affect daily life (holidays, planting seasons, etc.)?"

atelli:

"I think and hope that this would be a never ending process, a work-in-progress that offers a platform for imaginative action. I would also like to see connection to other worlds worlding (as in writings of E.E.Cummings and the incredible Le Guin) as well as a transitional cosmos that is inviting for diverse communities. The common values and the raison d'etre (grounding manifesto) would also be significant assets. All need discussion, sketching, visualization, action and in instances unlearning to learn by practice." MaxCunin: "Refining social constructs. Most of the current challenges are practically/technically solvable. The question is the stories that govern behaviours are flawed (economy, law, politics, etc)

FrankDieters:

 "It would be nice to have embedded conflicts between the different systems as no system can exist without its (seemingly) opposite"

maiki:

"I would like to tackle the issue of communication. How do you resolve conflicts, ensure contracts are observed, enforce the rule of law (and who's law) when communications takes months or years (no FTL) OR if FTL is possible - and how could communication work in such a scenario (tunneling of a dimension, quantum entanglement, you name it)"

LeonardoWild:

"Money is a tool, and just as there are different shapes, forms, functions for tools depending on the task to be performed, monetary systems can be designed to perform better in specific situations or economic context [...] Rather than saying which monetary system is best, the idea is to create a Monetary Taxonomy."

Wythe:

"Include in your world-building plans for gardens, recipes, and events for sharing meals. Food provides a powerful lens for reinforcing or changing beliefs about society and culture"
Verena: "Focus on events/trends that enabled radical change of individual and social behaviour [...] What is planned, what is emergent in this change? Are drivers internal (desire) or external (pressure, crisis,...) to the societies in change? How did different societal groups react (oppose, support, challenge, steer,...) to change?[...]"

Konrad:

"Build strong communities based on authentic relating and co-creation, build a business where the central idea is a work day with working working hours 8 to 13"

Olivia-Khan-Do-It:

"What about a world with some aspects of the one from Brave New World. Hedonism, pleasure and indulgence is a central part of life. But the yin to this yan is self control and minimalism with restraint and focus. Allowing people to explore economies at both ends of the extreme and allowing them to compare the lifestyles. In my utopia people can find their middle ground this way. Nip in and out of each. Being allowed to enjoy themselves and the world and simultaneously work and create. I think having the balance that suits each individual is freeing and productive"

johncoate:

"Minimize nationalism. Pandemics and the climate know no borders. Prevent winner-take-all outcomes."

aamhar:

"I'm most interested in the models and cultures of R+D in this world. What's going on with new or alternate processes of knowledge production? What's the relationship with fundamental research and these new economies"

John-Paul:

"think backwards from a Future Space, upon the conditions I am now in. To speculate Utopia and think backwards from that, to conceptualize what I can activate in the present to make that happen"

Joer:

"Test ideas from the philosophical literature on economic democracy. E.g., all affected by a decision should have a say in it"

Alessandro:

"More than the present, I have thought a lot more about the history of a potential future-world I've been personally working on. That aspect is very important to me to build a credible setting"

DavidShelton:

"Transform government by creating an authentic relationship with citizens"

BertillaV:

"Embracing a Solarpunk mindset in every aspect of our lives, changing the world step by step, from the bottom up"

Philip:

"[...] an economy in which everyone partakes

of the value of their labor, and so has incentive to produce, but in which everyone has an income simply because they are members of that society. [...] Social Credit Theory, initiated by C.H.Douglas in the 1920s, used by Robert Heinlein in his first, never published until 2003, 1939 novel "For Us, The Living". [...] Henry George's 1879 idea in "Progress and Poverty" worked into science fiction in 1895 by S. Byron Welcome: "From Earth's Center: A Polar Gateway Message." The land with the patrimony of the nation, not of individuals, who can only extract value from it by virtue of their labor [...] Pierre-Joseph Proudhon's 1840 book "What is Property?": labor-based theory of value where property cannot be "owned" permanently

nathanmiller:

"I'd like to see a cultural timeline from near our world to the possible world we'll be creating."

fjanns:

"A central concept is to make money obsolete by dissolving it in information (as complete as possible). A complementary concept is to use special types of contracts to be compatible with any monetary system."

AlexAlmeida:

"[...] an economic system based on long term consequences instead of short term transactions. It'd need to take into account achievements and contributions, reputation and some

hindsight redrawing. In such a society, they'd probably focus more on big projects, like a focused international effort in space exploration, and/or an effort for sustainable exploration of resources, possibly even with a societal effort to normalize units, currency and law, as to reduce costs of transaction."

brooks:

"[...] I want to get behind the idea that any sufficiently advanced economic system is indistinguishable from ecology, and any sufficiently advanced agent in that system is a subject with its own experiences and viewpoints."
jackpark: "Look for ways to engage in structured ways along the lines of e.g. WoW (quests, guilds) but with quests as issue maps (tree-structured conversations); Consider AI/NLP augmentation at the backside level."

FINOkoye:

"Abolish the state and enable highly networked localised distributist enclaves"

gceh22:

"[...] economic information systems that might supplement or replace price systems for coordination and allocation, as well as open strategic indicative planning. Models in the real world are OGAS and Cybersyn"

Bill:

"Provide a foundational infrastructure for all and reward those who go above and beyond in any efforts that benefit humanity"

jakejackson451:

"self-sustaing technology for habitable eco-systems, the methods of which can be used on other exoplanets in planetary regions with stars similar to our own. Also keen to develop this in co-operation with the entire human race, as one people sharing and renewing resources, ideas and knowledge"

AlastairBall:

"different domains based on different political/philosophical ideas and you have the freedom to live in the domain that suits your personal outlook. This is different from our world, where you must live under the political/philosophical views of your government and you have little choice in this"

Ollxor:

"Add some elements of sociopathy, see what plays out, and how it can be dealt with or not" bengansky: "one of the 'tricks' to successful worldbuilding is to determine what about 'the old world' sticks around–as ruins, legacies, stock-piles. In what ways does the 'old stuff' (both material and ideological) get repurposed, and how does incumbent resistance to change shape the possibilities for novel action"

J12t:

"the traditional Kibbutz model. I have no first-hand experience, and most kibbutzim seem to have moved off that model in recent years, but it seems to have been stable and quite functional for many decades. Something to be learned here IMHO"

matthias:

"Solarpunk "Robinson economics" won't be self-sufficient on the household level [...] if we want modern comforts; at the household level, the best we could get would be the very simple tools you could find in a farm in the hinterlands of Nepal. So in my proposed system, [...] there are these levels, each with more autarky but less mobility than the previous, and each made of multiple instances of the previous level of equipment and organization, and then some more on top: L1 (infrastructure), L2 (individual), L3 (household), L4 (village or commune), L5 (shipstead), L6 (floating city)"

steph:

"In a solarpunk future, we can imagine that economy and trade could happen primarily at a localised scale, instead of being heavily reliant globalised supply chains. However, despite its history of exploitation, global trade was also responsible for the mixing of cultures and exchange of ideas—enabling the (eventual) acceptance of diversity"

Rainer:

"combine/link this great project of collective writing of science fiction stories with researching 10 to 15 real stories like the one of Messina where people in real life are experiencing new paradigms and alternative ways of organizing. It could also cross fertilize the collective inspiration"

zplakias:

"I am interested to explore possible future food systems that depart from the ultra low-tech/ultra high-tech binary that seem to characterize many existing future food system visions" Rootstock: "full and constant awareness of the interdependence and interpenetration of all things and all beings. Likewise, design the 'direction of awareness' for the participants to maintain a dynamic balance between the 'Arc of Possibilities and Potential' that is always represented by the horizon, as well as the 'Wheels' of existence (cycles, hierarchies, mechanics, materiality, knowledge, biological requirements, rule sets etc)

Beatriz:

"social and economic organization that contemplates its gradual reduction and the problems that it implies. During a period of time, the population piramide will have a narrow base and a large top, and that will change little by little. We have to think of infrastructures that will serve to

respond to the needs of people and guarantee their rights during this transition. Ideally, these infrastructures will be easily transformed once they have accomplished their function"

flaviagoma:

 "Global collective intelligence + gift economy" Sal: "modelling of future consequences of growth-based capitalism, versus new (i.e. previously impossible or otherwise unattempted) forms of socialist economic systems aided by current technologies"

Graceleopoli:

"Considering the grounded process of becoming, and cultural production of knowledge rooted in decolonial, queer and posthuman convergence"

hubert_brychzchynsky:

"a world where personal identification systems are not viable anymore, and the effects it would have on the economy"

filipnystrom:

"a world where conflict can become a positive force instead of something to avoid, and where difference is not rhetorically and politically circumvented. A political and economical system that creates potentialities for subjectivities to meet in their actual strangeness, and see what would bloom from the friction in between"

sheila:

"S.C. Mullooly's World-building Strategy: Trans-lingualing, or operating between/across languages, as a form of freedom from monolingual restraint as well as a means of resisting monolingual bias"

GiulioNRC:

"Informal settlements around a major city have been attracting displaced and disenfranchised communities for decades. Used to a dynamic and constantly shifting economic reality, they have become increasingly reliant on digital tools and gig economy roles on the internet, as smartphones became more universally accessible.

Following several pandemics started with the Covid-19 and become more frequent and brutal due to climate change, tourism, leisure and commerce industries have almost disappeared, city centres are now emptying out due to unemployment and office buildings are almost deserted. Suddenly, work from home is the new normal, and the previously marginalised communities become the engine of a new economic system"

Mehdi:

"A new monetary policy not based on debt but on local issues (environment, social, ...). New technologies widely shared and free will support what will be future infrastructure. Ending the current form of modern working contract"

JasonCole:

"the technology to create an advanced civilization is radically networked and distributed. If we can make solar power generators and storage simply and cheaply anywhere in the world, can ferment a huge range of chemicals and foods, and 3D print advanced designs"

WHAT ALTERNATIVE CURRENCIES/CURRENCY OR RULES DO YOU THINK SHOULD BE EXPERIMENTED?

lidiazuin:

"a society with universal basic services granted to people, so people would have their basic needs covered and actually have more agency to choose what they want. This idea is based on Aaron Bastani's concept of Fully Automated Luxury Communism"

EricLKlein:

"[...] The scope will change based on how large a group interaction that is desired. Also, past economies started as barter and then were moved to a "rare" material used to exchange for items that had previously been bartered. This is not possible when rare on one world is not rare on another"

J12t:

"That depends on the choice of social and economic organization you are assuming. For example, inside a Kibbutz, I don't need a currency. At least not an interchangeable one. Nor do I inside a family. And if one possible future is that long-distance transportation becomes rare (one possible consequence of limited fossil fuels) then "global" or widely used currency are sort of mostly pointless"

zplakias:

"Our group discussed the possibilities of things like gift economies and the challenges of scaling up these kinds of systems. In addition, we discussed the importance of social contracts. However, social contracts are not necessarily shared across cultures or worlds (in a multi-world setting). We discussed the challenges of distributing power. I think some kind of cooperative management of currencies would help to maintain a more equitable distribution of power. But I think path dependency also matters. Changing from current systems is different from starting with a clean slate. It would be interesting to explore both. Cooperative management would be easier for a society with no memory than moving from current system"

hubert_brychzchynsky:

"a technocratic, academic-driven society that would convert academic citation index into cur-

rency. The higher citation index someone would have, the more currency. However, if one spent some of this currency, more could be generated only by increasing one's index. So you could have a very high index and still remain poor, if you were a big spender. Plagiarism would be tantamount to forgery. There would be a black market of people who would write academic papers for those who would not be able to do it on their own"

YukiNoSaru:

"A couple of themes that came up in our breakout chat:

• Privacy and the importance of freedom - a feeling of being trapped by our e.g. credit card footprint etc. On the flipside, traceability important for transparency of financing and in the other direction, where things have come from.

• What happened to trust? If you don't trust you have to control. Formal currency is a way of formalising trust on one hand (albeit centrally controlled), but on the other transactions led to transactional behaviour - I do this, so you own me that.

• Physical cash benefits from accessibility - this is very key.

Some other loose thoughts

• Could imagine a 2-tier world where block-

chain becomes standardised - but ta black market in physical currency evolves as a backlash"

stepht:

"barter-trade systems that used skills as a currency, and the idea of creating localised commons for resources, there the "currency" or the transaction would be somewhat similar to a library loan"

FrankDieters:

"The amount of autonomy you turn over gives you credits, you can use to purchase goods and services. In other words, the more you let yourself being "controlled" and hand-over data/privacy/ etc. the more you are allowed to benefit "free services and goods" and you have credits to purchase "add-ons""

iouxo:

"challenger banks!"

Philip:

"My room-mate and I talked about what money is. There is fiat money and there is commodity money. Gold & silver are the common examples of commodity money, but they are terrible examples. The vast majority of people throughout history never saw a gold coin in their lives – most never saw silver either. They mostly traded among friends and family as described in the

Sociologist Marcel Mauss' 1925 book "Essai sur le don" about the Gift economy [...] with people you know and interact with daily, gifts determine the balance of exchange between you and others. But if you are trading with someone you don't know, you would use barter (my knife and bow for your woman), or domestic animals (chickens, sheep & goats, cows, camels) or grains. Both animals and grains are what should be called "commodity money".

You can make combinations based on [...] "Dunbar's number", which has been proposed as the approximate number of people in early bands of hunter-gatherers in the Paleolithic society, and seems to be the number of people one can know and get along with well, from studies of interactions on Facebook, then you could use a "gift economy" inside the group, organize it as a separate governing entity with every set of about 150 people being self-organizing and more or less anarchistic, but interacting with others on an occasional basis, then maybe a couple of people in the group could act as "traders" who use a kind of universal trading currency (call it "credits") and a central overarching bank that keeps track (corruption at the bank would be a problem to be solved).

Another might be to use data. [...] blockchain technology would keep track of transactions – this would enable a non-governmentally controlled currency.

[...] what "the Machines do, in the Isaac Asimov short story "The Inevitable Conflict". [...] posi-

tronic brains developed to such a state of per-fection that they run the global economy, telling companies what to produce, where to sell it, and on and on, for the optimization of the well-being of humankind.[...] a complex barter economy where all is perfectly"

Yudhanjaya:

"In the Warhammer fantasy world, among a lot of creatures, there are Orcs, traditionally considered as an evil tribe. They use their teeth as currency. The teeth of course decay in time so you cannot stockpile the currency in that system. But Orcs have incredible regeneration, their teeth grow back within weeks from removing them. So you can never have a poor orc because naturally it'll regenerate whatever you spent, but there's also a cap on the spending and there's an ultimate cap on the amount of money that you can accumulate and thus the amount of power that you can accumulate within that system."

Nadia:

"How about exploring the concept of Spam economics[16]? I am curious about how this is like this never ending resource. It is like this bottomless pit of words."

16. https://www.aeaweb.org/

Yudhanjaya:

"You have just brought up an interesting point about the economics of language. Could words be turned into a form of currency? Imagine if some words had sales power, if you could only

use said word if you paid X, and if you use some other word, you would get currency out of that.

And you can form like a society of social contracts that if you promise something or if you want something to be true, you pay for the truth of that with language"

WITNESS: A CONCEPT NOTE

OVERVIEW
YUDHANJAYA WIJERATNE

17. https://undark.
org/2019/10/07/
floating-lab-future-
climate-change/

18. https://tvtropes.
org/pmwiki/
pmwiki.php/Main/

Witness is a floating city based on the UN float-lab design[17]. The name is a riff off Taleb. World hardness is between a 3 and 4 on Mohs scale of science fiction hardness[18]. This looseness serves to:

• Make it easier for multiple authors to postulate ideal conditions under which a theoretical economic system or society may flourish, without having to run into conflicts over materials sciences and fundamental engineering problems.

• Allow a more extensible universe that ages less (truly hard science fiction stories age extremely rapidly and, unless Clarke-level expertise is brought to bear, are generally bad at predicting social patterns).

• Allow the UN's float-lab design to actually work, in the same way that some handwavium is required to make generation ships realistic.

Extremistan is one of a set of cities floating on the sea, occasionally coming into contact with landmasses (reason: isolation; experimental society). Its energy source is assumed to be enough to run its infrastructure without major interruptions, but it appears to be partially ravaged by climate change. At the very center is a Tower of Babel that broadcasts white noise outside its borders so as to prevent communications from coming into or out of the city.

A State Machine similar to the one depicted in this story[19]- which uses behavorial big data to infer the morals and attitudes of a society towards its body of laws, and thus continuously updates the Constitution, thus creating a near perfect responsive democracy has, by consent, turned Extremistan into a ground-up experiment in T.M. Scanlon's Contractualism[20]: a morality, and thus a social structure, where rational autonomous agents agree to make binding agreements from a point of view that respects each other's moral importance.

19. https://slate.com/ technology/2020/09/ state-machine-yud-hanjaya-wijeratne. html

20. https://plato. stanford.edu/entries/ contractualism/

Unfortunately, this has completely failed, and the reason that the State Machine gives is that humans are not rational agents. As a result of this failure (called Breakpoint or the Zero-Day Fracture in the city's history), the State Machine has partitioned the city into Distrikts, with each Distrikt implementing a social contract that fits a large echo chamber. Running through each Distrikt is the Migrant Train. People whose morals and attitudes do not align with that of the majority in their Distrikt are asked to leave and are recommended a Distrikt that will fit their lives better.

Extremistan[21] has Five Distrikts Major and numerous Distrikts Minor.

THE FIVE DISTRIKTS MAJOR

1.**Libria:** ultra-libertarian state, closer to the French libertine. Individuals have great power, and society is an analogue of Renaissance Italy+France taken forward. A well-paid Government and Aristocrat class is in constant flux, elected among those the public recognizes as being of extraordinary merit. The assizes (travelling courts) are relied on for upholding law and making judgement in situations where Coasian bargaining has failed; it is impossible to hide the effects of gross power imbalances between people.

2.**Terminus:** Classical Roman-Greek-style republic where the hero is voted on every four years from a public social media poll. Sees themselves as the superior civilization among all those "less enlightened". Believers of choice, one man, one vote, like to think of itself as a pure meritocracy, and an extremely capitalist society; the Market and the Common Vote are basically their god. Despite being pretty hard-hit by climate change, almost everything is matter of short-term commercial interest and long-term political power plays.

3.**The Covenant:** Abrahamic religious fusion where there are clear different sects but some consensus on God and a Pope-like leader who appoints a Champion blessed and anointed by God. Usually a female who confirms her

vows with a line lifted from Joan d' Arc: "Asked if she knew she was in God's grace, she answered, 'If I am not, may God put me there; and if I am, may God so keep me.'" Strict low-grade xenophobia and insistence on purity, but in a hypocritical way; they will often fraternize with others as if to maintain a charade of token acceptance. Also a kind of razorback Southern American politeness, good Samaritanism towards their own kind, and a certain if-god-wills attitude to life. Education is almost completely controlled by churches, as was in missionary societies.

4.**The Assembly:** an implementation of communism, with a specific role for a tamed Trotskyite "permanent revolution". Personal property exists; private property does not. A version of the State Machine allocates work and essentials according to the requirements of everyone, with a class of Administrators (who cannot vote) Workers (who can vote on decisions and) and Revolutionaries (who are charged with constantly being on the lookout for power imbalances and the emergence of a bourgeois. Citizens are rotated between the three classes; every citizen must, in their time, perform all three functions.

5.**Medium:** cosmopolitan, collectivist core that maintains the State Machine, with programmers putting up 'policy' and being voted in by the public. Welfare State where people are largely apathetic and there's a long running sense of weariness with the world, and they go about the drudge work that keeps ev-

eryone fed. Outliers are punished or removed from public view, both on low and high ends; the ideal life is the average life, and outliers threaten satisfaction with the average. A wrapper AI called Kautilya, written around the State Machine, churns out a half-nonsensical mythology calculated to make citizens feel as if they have 'purpose' – lifted from Sri Lankan myth. Citizens are given "precepts" to follow that are some neo-buddhist kumbaya combined with some socially-reinforced hierarchies that sound innocuous. People are expected to stick to 'optimality'. The nail that sticks out gets hammered. Often slandered as "Mediocristan" by the others.

Nevertheless, Medium forms the melting pot city connecting these different Distrikts Major and Minor. A strong but minority political effort is the Contractualists, who are trying to incorporate all the other utopias to merge society back into the 'functional democracy' that existed before the famous Zero-Day Fracture and rioting that made the State Machine split society apart.

THE DISTRIKTS MINOR

The Distrikts Minor are the real testbeds. Smaller than the Districts Major, but with a train connection to Medium, they are a constant series of A/B tests being conducted by a State Machine desperately searching for a new form of social contract. As such, Distrikts Minor are constantly being created, reshuffled and deleted, providing

both a trickle of new ideas into the mainstream (a play on the general nature and acceptance of new economic theories) as well as ripe space for new stories and ideas on the edge.

THE FULLISTS, THE FUTILISTS

Every society has its fair share of Fullists and Futilists, who generally embody the following two extreme attitudes towards change:

In 2020, Marc Andreessen, who should need no introduction, weighed in with characteristic optimism:

We virtually never resist technology change that provides us with better products and services even when it costs jobs. Nor should we. This is how we build a better world, improve our quality of life, better provide for our kids, and solve fundamental problems … It is hard to believe that the result will not be a widespread global unleashing of creativity, productivity, and human potential … In arguing this with an economist friend, his response was, "But most people are like horses; they have only their manual labor to offer…" I don't believe that, and I don't want to live in a world in which that's the case. I think people everywhere have far more potential.

Many others are far more pessimistic. One one flank, I give you this misanthropic Hacker News comment[22] on Andreessen's long-term utopian vision:

22. https://techcrunch.com/2014/06/21/welcome-to-extremistan/?guccounter=1

Look at the future this guy has concocted in his head: The main fields of human endeavor will be culture, arts, sciences, creativity, philosophy, experimentation, exploration, and adventure. ...it's like he's never met anyone who didn't attend a top tier university. Here's reality: The main fields of human endeavor will be copulating, hustling, consuming low-brow entertainment, eating, and the occasional lunatic running amok.

"

(The Futilists actually started out calling themselves the Factualists, and think of themselves as being real about stuff).

THE MIGRANT TRAIN

The Migrant Train is an extraordinary tough construct, a self-sustaining Snowpiercer-like that travels through these Distrikts, occasionally recalibrating its route to account for new or missing Minor Distrikts. The State Machine typically draws recruits for new social experiments from among the migrants. There is a class of citizens who have either changed their minds so often that they prefer the train, or have become stuck through paralysis by analysis: they're called the

Eternal Migrants, and the more physical of them become Praetors under the supervision of the State Machine, protecting passengers and their charges. The State Machine exerts a "first principle monopoly on violence" in every society they come across - not every society is happy with the State Machine's power, and the train bears scars where weapons have struck it in the past.

From the worldbuilding thread of the Science Fiction Economics Lab forum:

Yudhanjaya:

"Working on the history, @alberto. I've nuked the name of Extremistan and settled on 'Witness' for now; I was thinking along the lines of Ken Levine writing Rapture - the city of Bioshock - which was a critique of Ayn Rand objectivism, and after mucking around with syllables Witness needed to be one of the few names not taken that still felt like it resonated with the project itself: come see what we've got here. Hooked the history right into your Covenant and its first Mayor and left a few things vague (exact starting date, for example - hard dates). Let me know if I've given you enough to go on! @nadia, does the State Machine and Council give rise to the kind of substructure you were thinking of for ethnography? Congrats on your book, The Voiceless, by the way, I hear it's taught very widely in schools now. @Joriam, feel free to start thinking about arts and cultural expression in the modern-day Witness! @hugi, Avantgrid's arrival should, I feel, be a historic point here.

PS: J.C. Denton is a Deus Ex (2000) reference. As a

Deus Ex stan I want it in :stuck_out_tongue: It's one of the greatest games of all time, and -cough- takes place in "an unspecified near future, where there is a massive division between the rich and the poor, not only socially, but in some cities physically. A lethal pandemic known as the "Gray Death", ravages the world's population, especially within the United States; a synthetic vaccine, "Ambrosia", manufactured by the company VersaLife, nullifies the effects of the virus but is in critically short supply..."

"

WITNESS #2

THE SHAPING OF THE STORY
YUDHANJAYA WIJERATNE

Witness is the most populous seasteading megacity on record. Initially developed under Project Viking (which gave birth to other noted cities such as Byzantium and Vivarium), Witness grew far beyond its original physical and legal bounds, and today is considered the cultural, financial and media capital of the post-Sundering world.

Whereas most other Project Viking cities operate as a single territory overseen by a single government and State Machine, Witness operates as a collection of interdependent Distrikts that function de facto as city-states in their own right. Each city-state is an implementation of a particular set of economic, philosophical and moral social contracts, although some aethnographers have pointed out the phenomenon of boundary bleed (which is almost unseen in other cities)[23]. Between the Distrikts runs the Migrant Train, a zero-cost solution for citizens who wish to live under a different social contract. While the State Machine of Witness is de jure overseer of all territories, in reality it manages only portions of infrastructure, guides multi-distrikt disaster response, and policing in instances where inter-Distrikt conflict seems imminent.

23. The theory that portions of the populace along the boundaries of adjacent states approach either temporary compatibility or conflict, and often oscillates between them depending on the relative sizes of the populations involved. See also: coasian bargaining

THE FOUNDING

"As with all great cities, much of the founding of Witness is lost. What remains are skeleton logs preserved in machine memory, wrapped in a cocoon of half-myths, apocrypha, and clashes between rival historians. Move three districts and the stories change. On such a tenous sea we are now adrift, and it is up to us to make sense of it."

Andromache Kosovitch, Aethnography: *The New Histories of Our Times,* **the Library of St. Benedict.**

The general consensus is that Witness began as an experimental habitat conceptualized during the Post-Plague Years by one Jonathan C. Denton, an official of some import at an Old-World entity known as the United Nations. Denton, by his own admission, was involved in a collaboration between a group of private technology corporations and a sub-branch known as UN-Habitat; the goals of this collaboration were to launch twelve floating cities that could weather climate change, support a substantial population, and serve as highly mobile support stations for areas ravaged by rising sea levels and erratic weather.

Often referred to in recovered public news archives as Project Viking, the collaboration led to

Climate-KIC

Climate-KIC is supported by the
EIT, a body of the European Union

24. Partial public data trails of Project Viking, recovered primarily from the Exodus of New York, indicate the successful launch of Byzantium, Vivarium and at least three other cities

25. What We Owe to Each Other, T.M. Scanlon, archive unindexed

26. Given how drastically different names are put forth in different sources, some suggest the Missing Ten are apocryphal. Other scholars point to the more realistic construct of a a power struggle and history being written from a particular narrative standpoint

both advances in design and the development of a number of modern technologies, including what we know as the State Machine and the Ramos Harvester[24]. Initially criticized as "techno-futurist doomsday bunkers", Viking became a key point in the affairs of the Post-Plague Years.

Denton, however, became increasingly disenchanted with the utilitarian design of governance for these cities. His earliest writings explored the alternate theories of one T.M. Scalon, a philosopher who proposed a way of living based on mutual recognition of *wrongness[25]*. Along with the architect Minette de Silva, the economist Rohan Kapoor and ten others[26], Denton marshalled resources and participants for a thirteenth city, designed in a far more modular fashion: the city of Witness[27].

Perhaps in an effort to signal its departure from the finely tuned modernist designs of other seasteading cities, Denton and de Silva peppered Witness with eclectic buildings riffing off a wide variety of architectural styles. Early concept art for some of these designs survived in Denton's Manifesto, providing a fascinating glimpse at his personal aesthetics. Buildings as "Newton's Folly" (pictured above in original sketch form) eventually became bizarre and unusual meeting chambers for the governing bodies of Witness.

27. Scholars such as Kosovitch have advanced the claim

that Denton chose the name out of spite, pointing to the famous undated 2nd Entry in the Old Manifesto: "There's a way forward and they're too blind to see it. Will need to show them."
and the etymological link between "see", "show", "witness" and the 42nd Entry: "From Google: have knowledge of (a development) from observation or experience.
be the place, period, or setting in which (an event or development) takes place.
be a sign or proof of (something); serve as evidence."
The entity 'Google' is unspecific: it seems to have been both a noun, a verb and some kind of all-knowing entity: some technological scholars theorize would have been accessible at the highest levels of the

THE EARLY YEARS AND THE STATE MACHINE

Historians rarely agree as to the exact year when Witness came to be, but the general consensus is that it launched around the time of the Sundering. As a result, Witness was launched with an eclectic mix of volunteers, the workers themselves, and personnel rescued from the regions around the launch point. This mix Denton would decry as "suboptimal" and spend the rest of his years managing, but much aethnographic evidence has been put forward supporting the idea that the influx of skilled workers actually helped Witness survive the Sundering and make it more independent than the rest of Project Viking.

Denton would spend his days rescuing climate change refugees from the nearby coastlands and compiling his *Manifesto*, using Witness as an argument for contractualism as the way forward. Minette de Silva oversaw constant overhauls to infrastructure, architecture and propulsion, and as a consequence may have contributed more to the ultimate functioning of Witness than Denton did. She is referred to as the first Mayor of Witness in the *Manifesto*, but only in passing; few other records remain of these years. Of other figures listed as founders of Witness - including Rohan Kapoor - very few verifiable records remain, but apocrypha is rife on the topic.

United Nations, while aethnographers frequently connect it to the similar construct of the Oracle in mythohistorical records from much earlier in history, suggesting that at recurring periods our ancestors have worshipped the same knowledge-giving entity, or different entities with extremely similar functions

28. https://slate.com/technology/2020/09/state-machine-yud-hanjaya-wijeratne.html, will fictionalize this ref later

One of the components of all Project Viking cities was the State Machine - a next-generation governance system designed to use behavioral big data to dynamically impute the needs of a populace and adjust laws and policies to suit. Most known State Machines, such as those of Byzantium and Vivarium, rely on a form of utilitarianism[28]. Denton's records indicate that the Witness State Machine was modified (by Rohan Kapoor and a team of software engineers known as the CIVICSMOD group) to support Denton's interpretation of contractualism.

While initially successful, dissent and this non-standard State Machine would lead to the events of Breakpoint and the present structure of Witness. CIVICSMOD, which took up support functions throughout this period, retained those functions over many resignations and generations of political upheaval, and is presently the dominant technical voice on the Distrikt Council.

THE ZERO-DAY FRACTURE

"If anything, Witness is the death of a singular vision and the celebration of multiplicity: the greatest living example of the hive mind triumphing over the auteur."

Andromache Kosovitch, Aethnography: The New Histories of Our Times , the Library of St. Benedict

The span of events collectively known as *Zero-day / 0D* (0 0D - 70D) is what gave Witness two its most unique characteristics: the Distrikt system and the Migrant Train. It began with community leaders Megan Rilke and Karunasalam Balraj vocalizing migrant workers' dissatisfaction with Denton's policies, which they saw as overwhelming favoring his preferential populations and disenfranchising the rest of Witness. Their work elicited both outcry from many of the original United Nations personnel and public support of notable figures such as Minette de Silva and Ebunoluwa Akinyemi, then a rising conservative activist with strong ties to the major churches that eventually formed the Covenant. A slew of speeches and petitions were subsequently ignored by Denton and his core team, leading to the First March of the Voiceless in -3 0D[29]. The marches were met with outcry and, in some boroughs, with violence.

Subsequent to the Marches, the State Machine apparently reached a calculation failure in its attempts to impose a framework that would allow everyone to operate under one government. Thus it sanctioned a divorce, or a fracture in populations. In 0.5 0D, vacant infrastructure (set aside for later growth) was partitioned into Distrikt 2. By the new year, a 12-person D2 Steering Committee had been appointed, with community leaders given seats and Karunasalam Balraj voted in as the Chairperson. The newly formed Distrikt 2 set itself up as a pure democracy, and attracted both anti-Denton dissenters and those who felt uncomfortable under the State Machine. D2 would eventually become the Distrikt we know as Libria.

29. Chronicled in The Voiceless, Catia E. Andrejas, the Library of St. Benedict. A heavily abbreviated version is available in the Standardized Syllabus taught in most Distrikts

The Zero-Day Fracture was of such significance that the Witness calendar was reset around this inciting event. The name comes from public accusations by Denton that Kapoor and the CIVICSMOD team sabotaged the State Machine by introducing logical vulnerabilities that they should have known of. The Fracture marked a significant downturn in Denton's power over Witness. Because practical communication with the State Machine was still required, the CIV-ICSMOD team, various other special interests and Distrikt 2's nominees formed the Distrikt Council, which eventually would grow into the intra-Distrikt legislative body.

For another, it was seen as a failure of con-tractualism's ability to incorporate multiple worldviews, and thus set the seeds of the State Machine's lack of power in certain Distrikts. It also led to the multi-Distrikt structure of Wit-ness today: because of its original failure, the State Machine continues to rapidly sanction and invest in economic and political experiments, in desperate search for a perfect society. Shortly afterward, in 4 0D, Ebunoluwa Akinyemi would be the first to take advantage of this experi-mental tendency and spearhead the launch Distrikt 3, which would eventually become the Covenant. By 7 0D Witness would be not one, but three floating cities in one space, tentatively rebuilding after a seven-year period of intense political tension.

THE HARVEST DIVISION

Subsequent to these events, many at times felt that critical infrastructure - especially energy generation - was not evenly distributed among the different Distrikts. A anarcho-collectivist movement known as the Microgrid Collective carried out an extremely popular campaign for decentralized, open-source, community-maintained energy generation structures to be set up throughout Witness.

Due to resource constraints, their goal was not met, though the Distrikt currently known as the Assembly both uses this design for their energy grid and directly credits the Microgrid Collective for it. At the time, the general unrest created by the Microgrid Collective led to fears of sabotage, which would have spelled the end of Witness. Thus limited resources at the time, and the now-distributed engineering skills, were channeled by the Distrikt Council into creating a single central power station, built on neutral ground, politically agnostic and bound to supply each Distrikt with an minimum (and equal) amount of energy. In return, each Distrikt would contribute to the upkeep and maintenance of said division, and accord its workers maximum protection under their laws. Any energy requirements beyond the yearly calculated minimum would be the responsibility of each Distrikt.

This unit was called the Harvest Division. Gregory Ramos, Joriam Vidal and S. A. Helani Saranasekara - engineers representing each Distrikt - were brought on to lead the newly-created unit. The Harvest Division is both a politically and geographically important structure in Witness, as it sits at the physical center of mass of Witness and extends connections to practically every Distrikt, new or old. Seaside and Harvestside are often street slang for road directions. As Witness grew, the Harvest Corps began to lend engineering support and technical oversight to other projects, turning into an infrastructure-related political power in its own right, albeit one with a reputation for impartiality. Such is the power of the Harvest Division that the traditional three-way leadership at the top is informally known as the Troika. Harvesters - distinctive in their blue uniforms - are often welcome, or at least left alone, throughout Witness.

WITNESS #3

ECONOMY OF THE COVENANT
ALBERTO COTTICA

The distinct features of modern-day The Covenant began to appear under the leadership of Distrikt Mayor **Ebunoluwa Akinyemi,** who gained the very first mayoral elections of what was then still called Distrikt 3. Herself a **Roman Catholic**, she run on a platform that mixed a certain social conservatism (described as paternalism by the opposition of the time) to a strong emphasis on religious freedom. Akinyemi's policies emphasized the autonomy of religious institutions from the Distrikt's government. As a result, many of the **City's Churches and Monastic Orders** chose Distrikt 3 as their main home. The more devout of the migrants to early-days Extremistan followed suit.

This move cemented Akinyemi's vision into a solid reality. With a large population of believers, and a strong presence of religious institutions in all main areas of public life, Distrikt 3 consolidated as the religious center of the City. In the course of Akinyemi's third term, the Distrikt

Council voted to adopt **Resolution 430**, which reformed the Distrikt's governance to take the new reality into account. Among other decisions, Resolution 430 gave permanent council seats to the representative of religious institutions, assembled in the **Episcopal Conference of Extremistan,** and changed Distrikt 3's official denomination into The Covenant, a nickname originally used in a derogatory sense by progressive media.

Religious leaders welcomed a stable environment that would respect the spiritual quests of their flock, and supported Resolution 430 discreetly, but unambiguously. Once it was approved, however, they adopted the view that it was inappropriate for members of the clergy and monastic orders to get directly involved in Distrikt leadership and administration. To this day, all elected officials and civil servants in The Covenant are lay people. The voice of religious institutions in the Distrikt's politics is heard through the permanent Council seats. Moreover, city officials often request that priests, nuns or monks serve as their expert advisors, under special dispensation from their religious superiors.

(Source: *https://en.wikipedia.org/wiki/The_Covenant#Economy*)

The Covenant's economy is robust and diverse, with an unusually high presence of manufacturing. The service sector is also strong, notably in higher education, health care, and finance. The Covenant hosts the headquarters of several

large utilities, that serve not only the Distrikt itself, but also run some critical infrastructures of other Distrikts. A unique feature of The Covenant's economy is the strong role played by monasteries and other religious institutions.

While by no mean numerically prevalent, these institutions tend to be over-represented among the most advanced, most successful operations. This observation led economist **Malivalaya Nut** to describe The Covenant as a dual economy, where two sets of economic agents with completely different objective functions co-exist. In a series of empirical investigation of The Covenant's economy, Nut discovered a pattern: the economic activity of religious institutions tends to be amplified by businesses that are legally part of the saecular economy, but have evolved for taking advantage of the turbulence created by the existence of the religious institutions themselves – for example lifting innovations invented in the monasteries and re-engineering them for saecular markets.

The number of jobs in The Covenant is estimated at over 4 million, though estimates are highly sensitive to whether the numerous monks who participate in economic activities are classified as "workers".

MANUFACTURING

The Covenant has a strong manufacturing base, with the highest e**conomic complexity index** of all Distrikts Major. In part, this is an effect of the strong presence of the **Benedictine Order,** whose motto "ora et labora" makes them extremely good at the manufacturing of high-quality products since the early Middle Ages. Since they view labor as a devotional activity, the monks refuse to build anything that is not top-quality, and build to last potentially forever. For the same reason, however, they are unwilling to expand production in response to demand. They are also unwilling to raise their sales prices, because the **Rule of Saint Benedict** explicitly forbids it, on grounds of greed being a sin. This creates a rationing problem for the high-quality, fair-priced goods produced in the Monasteries.

The problem has been solved by the rise of clusters of startups, which huddle around the monasteries implementing the business model known among venture capitalists as "Grow and Multiply": reverse engineering products of the monasteries, and adapting them for large-scale industrial production. They have an aggressive hiring policy targeting lay Brothers and Sisters, or individuals that, after an apprenticeship in a monastery, decide to remain in the saecular world. This symbiosis of religious and lay manufacturing activity is an example of dual economy. Much of these activities takes place in the Kyrie District Minor, home to most of The Covenant's

Benedictine monasteries. **Kyrie** has become the City's workshop, playing a role equivalent to Shenzhen in the 21st century.

EDUCATION AND FINANCE

The **Jesuit Order** runs several higher education institutions, called *Collegia*, in The Covenant. Though each only admits a small number of students per year, they enjoy a high prestige. It is common for graduates from the Collegia to be quickly hired into senior research and teaching positions by larger universities, both in The Covenant and in other Distrikts, which in turn educate and advise the élites of Extremistan. Collegia alumni maintain strong networks with each other and their former Almae matres, so that the influence of the latter on the city's academic community is much larger than their size.

The **Institute for the Works of Religion** relocated to The Covenant in the years following the approval of Resolution 430. The Distrikt Council's and Mayor's Office's hands-off approach to religious institution has encouraged the IWR to engage in substantial financial innovation, though, for the same reason, much of it remains relatively little known. A swarm of brokers, almost all of them AIs, has formed around the IWR's activities.

SPECIAL PROJECTS

The Distrikt Minor of **Viriditas,** located in a narrow peninsula at the extreme periphery of The Covenant, is home to a large congregation of **Teilhardine monks.** This is a reclusive order inspired by the works of the biologists-saints **Hildegard of Bingen, Pierre Teilhard de Chardin and Stuart Kauffman.** The Teilhardines farm both the land and the sea, using minimally invasive techniques that make large use of **genetically engineered organisms,** but in Viriditas they live only at sea. They have built a large monastery, dedicated to Saint Hildegard, out of connecting a large number of boats and raft. This technique gives Saint Hildegard its peculiar appearance, and has earned it the nickname of Floatsam. They have announced that their mission is to build and launch the **Saint Cristopher,** a slower-than-light starship for interstellar colonization, conceived as a deep space monastery. The project has an estimated duration of 400 years, with the first 300 dedicated to developing blueprints and the ancillary technologies.

WORLDBUILDING ACADEMY

GRAPHIC NOVEL DESIGN AND DRAWINGS BY MICHELA DE DOMENICO AND MARCO LO CURZIO

Economics, as we know it currently, has changed from a place to imagine new and better worlds to a discipline which re-enforces and improves itself in a single model. Much "blue sky" economic thinking is now done in strange contexts.

Science fiction is one of them. Another one is local communities who attempt to reboot their economies in more humane and long-term resilient ways.

The Science Fiction Economics Lab papers track down and investigate examples of systemic innovation or radical rethinking of the current economic model.
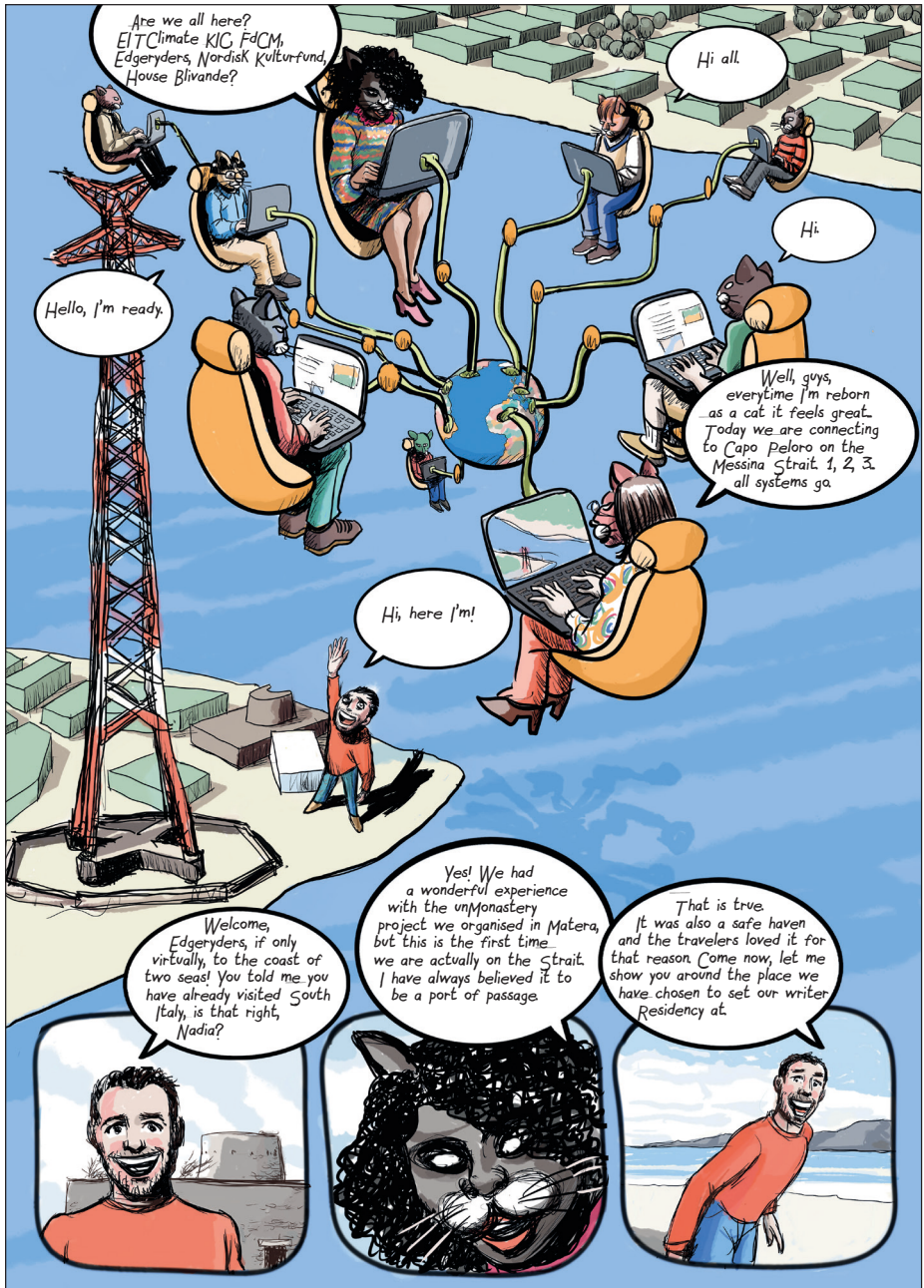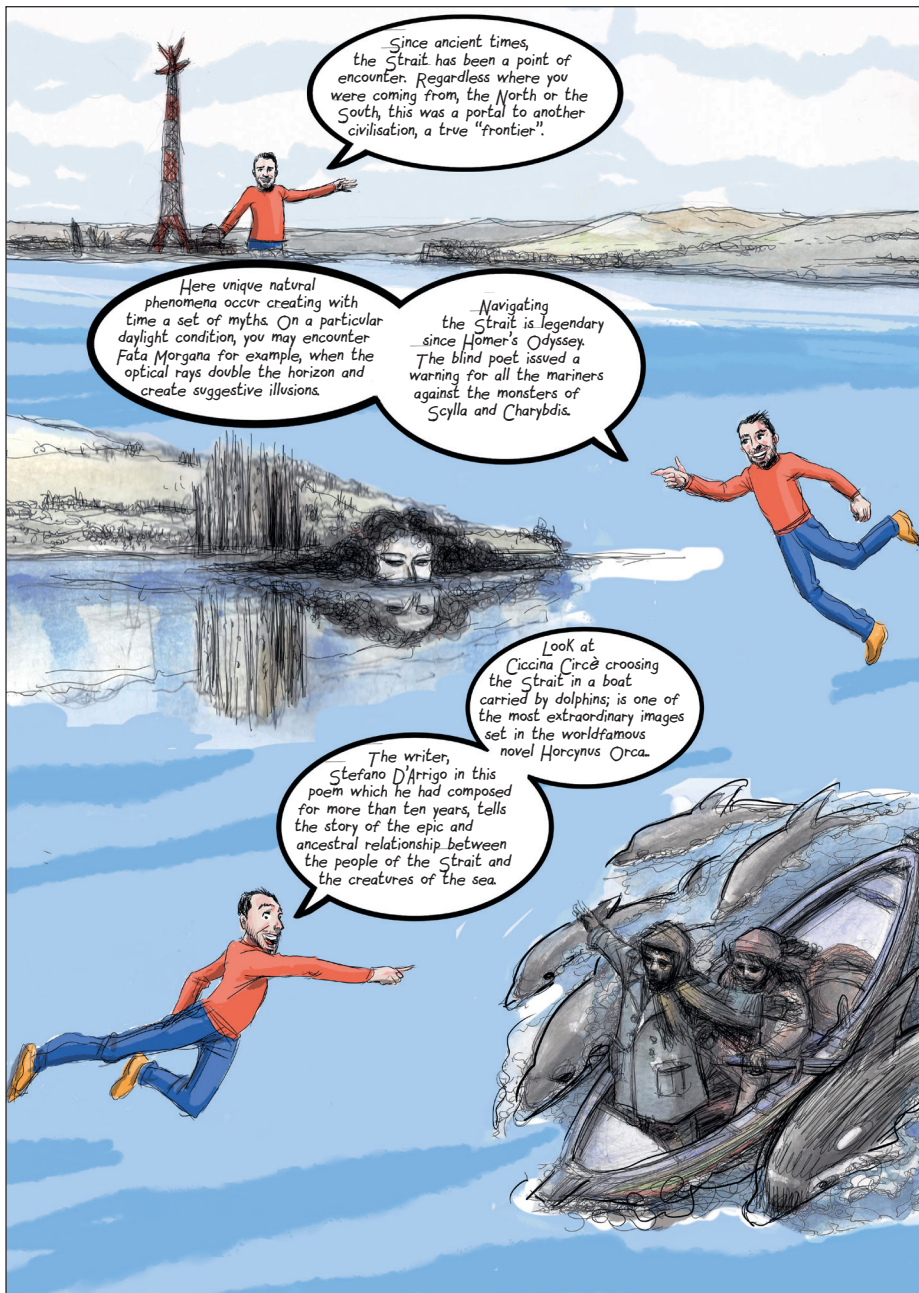
the social iceberg

surface culture

deep culture

Food
Flags
Music
Festival
Fashion
Performances
Holidays
Games
Dances
Language
Arts and Crafts
Literature

Communication styles and rules
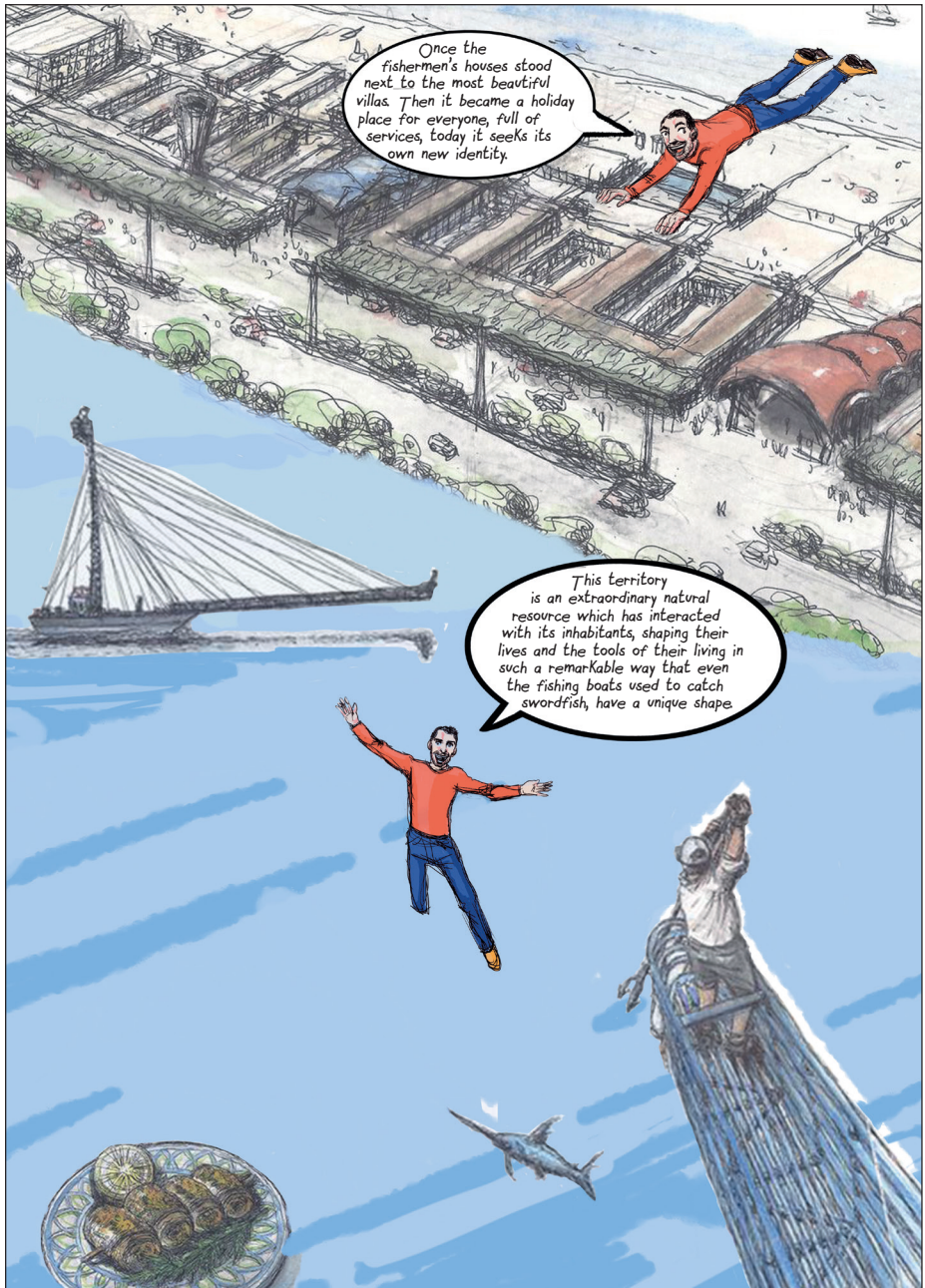facial expressions, gestures, eye
contact, personal space, touching,
body language, conversational
patterns in different social situations,
handling and displaying of emotion,
tone of voice

notion of:
courtesy and manners,
frendship, leadership,
cleanliness, modesty, beauty

concepts of:
self time, past and future, fairness
and justice, role related to age, sex,
class, family

attitudes towards:
elders, adolescents, dependents,
rule, expectations, work, authority,
cooperation vs. competitions,
realtionship with animals, age, sin, death

approaches to:
religion, courtship, marriage,
raising children, decision
making, problem solving

Among my friends,
particularly those who write
fantasy there is talk of this
iceberg theory of world building.
And the idea is that an iceberg is
something that you see a little bit
of on top of the water.

Beneath lies
a whole other mass
that supports that top, that
supports a story. For example,
your main character, in a market,
passing through strangers: That
is the top of the iceberg.

Below that lie
the economic systems,
currency, the language that
they use, the uses of their
trade, the lives of those people
who are trading and the lives
of markets like this.

What we're trying to do here is
create the base of an iceberg like
that. And we're trying to create
it in two ways. It has to have two
objectives.

The first is that anyone can take
it, take that base and build an
iceberg on top and tell a story and
explore systems that are in here.
And the second is anyone can keep
adding to that base.

No fictional world is perfectly
realized and what we want to do
is create a base that others can
also contribute to. Modular.

And we even want to add gaps on
purpose because we don't want
to create this world on our own.
We just want to have enough
structure so that all sorts of
people can interact with this work

"As with all great cities, much of the founding of Witness is lost. What remains are skeleton logs preserved in machine memory, wrapped in a cocoon of half-myths, apocrypha, and clashes between rival historians. Move three districts and the stories change. On such a tenous sea we are now adrift, and it is up to us to make sense of it"
Andromache Kosovitch
Aethnography: The New Histories of Our Times
The Library of St Benedict

Witness is the most populous seasteading megacity on record. Initially developed under Project Viking (which gave birth to other noted cities such as Byzantium and Vivarium), Witness grew far beyond its original physical and legal bounds, and today is considered the cultural, financial and media capital of the post-Sundering world.

The now-distributed engineering skills were channeled by the Distrikt Council into creating a single central power station, built on neutral ground, politically agnostic and bound to supply each Distrikt with a minimum (and equal) amount of energy. In return, each Distrikt would contribute to the upkeep and maintenance of said division, and accord its workers maximum protection under their laws. This unit was called the Harvest Division.
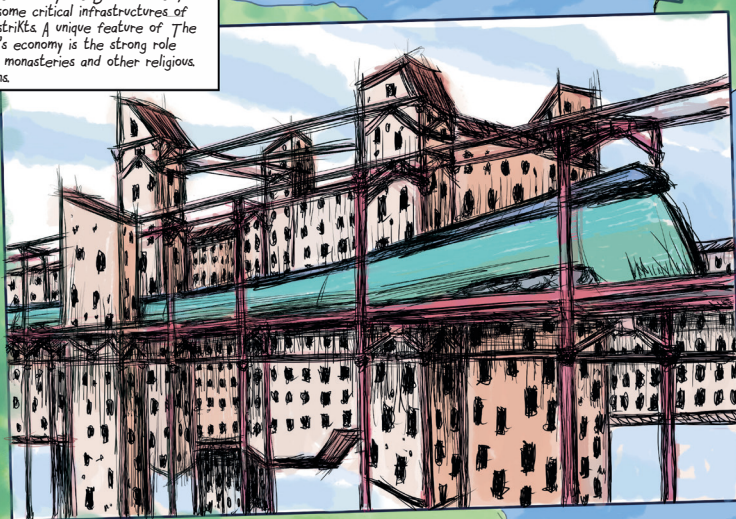
The districts are connected with the Migrant Train. Of extraordinary workmanship, it changes its course to the needs of the smaller districts. It often serves as a recruiting pool for new social experiments as the majority of migrants try to change their status.
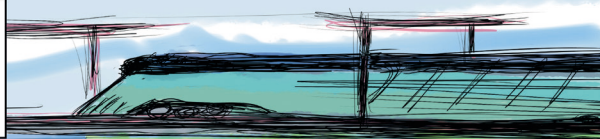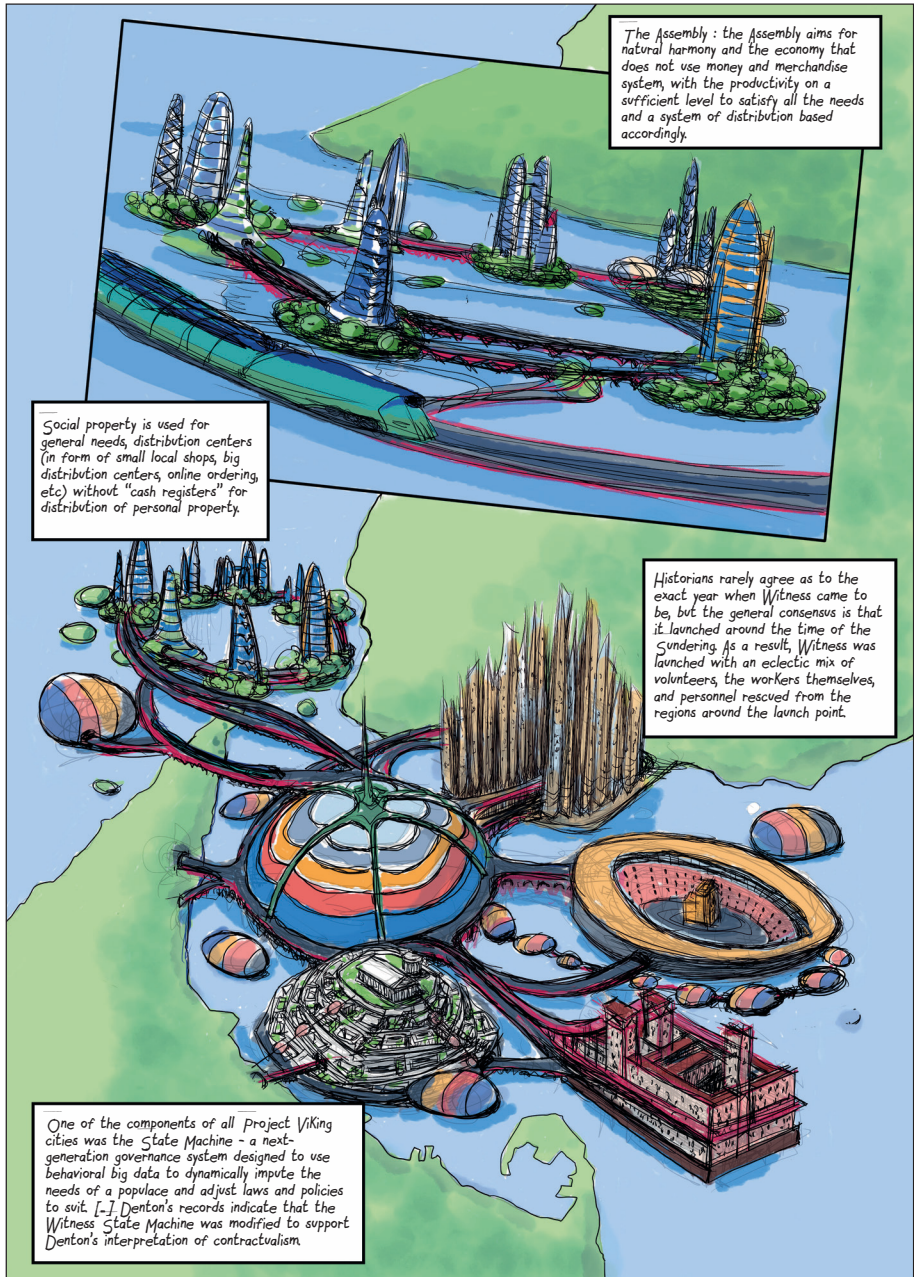
Libria is an ultra-libertarian state where individuals have great power, like if the Italian communal system has evolved on a larger level. A well-paid Government and Aristocrat class is in constant flux, elected among those the public recognizes as being of extraordinary merit. The travelling courts are relied on for upholding law and making judgement in situations where Coasian bargaining has failed; it is impossible to hide the effects of gross power imbalances between people.

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The Assembly : the Assembly aims for natural harmony and the economy that does not use money and merchandise system, with the productivity on a sufficient level to satisfy all the needs and a system of distribution based accordingly.

Social property is used for general needs, distribution centers (in form of small local shops, big distribution centers, online ordering, etc) without "cash registers" for distribution of personal property.

Historians rarely agree as to the exact year when Witness came to be, but the general consensus is that it launched around the time of the Sundering. As a result, Witness was launched with an eclectic mix of volunteers, the workers themselves, and personnel rescued from the regions around the launch point.

One of the components of all Project Viking cities was the State Machine - a next-generation governance system designed to use behavioral big data to dynamically impute the needs of a populace and adjust laws and policies to suit. [...] Denton's records indicate that the Witness State Machine was modified to support Denton's interpretation of contractualism.

I can already imagine an economist-
philosopher sitting by the docks, trainside,
by the light of a dying sun, with a fat
and angry-looking cat next to her.
She has black hair and a left hand
that looks badly scarred. For the last
so many years she's been advising the
Migrant Train Committee on the yearly
train-route optimization, which at its
basic level is a variant of the Traveling
Salesman Problem with some political
tension thrown in.
She's been using the number of
connected districts - and the radius of
the train-circle -as a measure of how
diverse this floating megacity is, but
she's also wondering whether size is
a reliable indicator of diversity, given
recent events; distrikts have seceded
in the past, and she is deep in thought
about whether there is an optimal
arrangement of distrikts that enables
even to most polarized of them to
connect to the superstructure without
fighting too much. Every so often she
looks up as the train passes by and pets
the cat absent-mindedly.

MICHELA DE DOMENICO

||||| worldbuilding academy |2020

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