

The Next Chapter

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(Shortwave broadcast only: Roll 'Simple Gifts' id)

(Annncr:) The following program is a production of the North American Service of Radio Alexandria. (Begin domestic broadcast: Roll open theme, then under for:)

Hello Team Humanity. I'm Roland B. Hunt & you're listening to The Next Chapter. (Theme up, then under for:)

The Next Chapter looks at where we seem to be headed as a species on this little blue planet, do we really want to go there, & what are our options? On today's program I'll have part two of my interview with physicist turned farmer Marcin Jakubowski. Jakubowski wants to change the world by promoting open source technology everywhere, technology that anyone can use without having to worry about infringing on somebody's patent. Open source is destined to be a great equalizer among nations, he believes and I agree, assuming of course we don't manage to destroy ourselves first with weapons of mass destruction. (Pause for stations airing 4 min. newscast.)

The Next Chapter is about ideas. It's not about any particular religion, or joining some movement or cause, or buying gold coins or land in Belize. But if you want intellectual adventure, if you like trying to answer tough questions & solve tough problems, you've come to the right place. & if you go away from this broadcast without feeling challenged or even annoyed by some of what you've heard then I have failed in my effort to rattle cages & stimulate original thinking. We live in a dangerous age but also we're full of opportunity to advance humankind to our fullest potential. Let's seize that opportunity while we still can.

Before we get started though let's quickly review the ground rules we follow on the Next Chapter. First, we don't do religion on this program. I'm not a theologian & make no claims to be wise. Everyone is welcome here though, whether you're a fundamentalist believer, militant atheist, or anywhere in between.

Second, The Next Chapter doesn't pay much attention to conspiracy theories, Big Foot, UFOs, or who killed JFK. I keep an open mind on these subjects & once in a while I might touch on them but generally I let George Noory, Alex Jones, & others carry the black briefcase on such matters.

Third, we have nothing to sell here. No books, no MREs, no gold coins, no land in Central America. We might look at the pros & cons of owning gold, or if you're thinking of moving overseas, what factors you need to consider. But in the end it's up to you to do your own homework & make your own decisions.

Fourth & last, The Next Chapter is neither for or against any government. After living & working for much of my adult life in more than a dozen poor & often war-torn nations, I've come to the conclusion that all governments, ours included, are going to do whatever it takes to keep

themselves in power. That's what governments do. What we as individuals do tho is up to us, not blind, impersonal historical forces...or men in black.

Unlike our ancient ancestors who lived day to day & had no way to anticipate mega-disasters, now we not only anticipate & plan for them, we humans can & hav built vast underground bunkers in many countries that wil allow thousands of humans to live underground for years until conditions on the surface improve. The US has them. So do the Russians & the Chinese.

Switzerland reportedly has bunkers that can shelter its entire populashun of eight milyun for up to two years. That kind of capability is a game changer but it doesn't alter the reality that our species has cum up against som extremely dangerous problems for which we curently appear to hav no solushuns. Weapons of mass destrucshun, bioterrorism, & mass unemployment caused by the rise of inteligent machines ar just three examples.

So if for whatever reason modern civilizashun does pass into history, there wil be survivors. The question is, wil those who cum after us be able to learn from our mistakes & not repeat them?

The Next Chapter is for the elite but in this case the elite is self selecting. It's anyone who enjoys thinking deeply about serious issues. som liseners may find som of the subjects we talk about on this broadcast disturbing but u can be sure that elites in governments & private research institutes around the world ar also thinking about these issues. Our goal is to bring as many people as posible into the conversashun. In a complex technological society we can't hope to meet tomorrow's chalenges unles we understand them. (pause for stations carrying a newscast to rejoin the program)

If you tuned in last week you heard my interview with a most remarkable man. Marcin Jakubowski finished a PhD in physics but along the way he began to question whether his studies wud ever help solve pressing world problems. By the time he graduated he had decided to tak his life in a whole new direcshun. Human strife & conflict Jakubowski believes are at root caused by scarcity & greed. Find a way to bring abundance to even the poorest of countries & you will hav gone a long way toward creating a world of peace & shared prosperity.

That may sound idealistic but Marcin Jakubowski is if anything a very down to earth practical man. We'll hear mor about his ideas in a moment but befor that I want to talk for a few minutes about the whole notion of so called 'alternative facts' & the public's distrust of statistics & elites. A little later we'll hear a TED talk by statistician & journalist Mona Chalabi on how to spot bad statistics but first I want to tackle this notion of alternative facts which has much of the political establishment, especially those on the left, so upset.

'Oh is this awful?! We're descending in a world where facts and science don't matter any more! Soon we'll al be back to witchcraft & superstition!' Well I don't think so, especialy if the establishment finaly wakes up to the reality that u can fool som of the people al the time & al of the people som of the time but u can't fool al the people al of the time. Abraham Lincoln had it rite a century & a half ago & his words ar as true today as they were back then.

So let's tak a favorite example cited by supporters of the current president: Labor Department statistics on unemployment lie. The truth is that statistics don't lie but people do. Actually it's often not a matter of lying but of misleading, even if it is not deliberate.

No doubt the national unemployment number of four or five percent is accurate if, and this important, you are loose enuf in your definishun of what constitutes a job. The number cited may not hav any relevance at al to the lives of average people in this country but if it keeps the

politicians & the establishment happy that's what will get reported by the Bureau of Labor Statistics & that's what the mainstream media will endlessly repeat.

So what exactly does the government count as a 'job'. Some of you listening may already know all this but I'm sure there are plenty of people who have never stopped to think about it. To get the official definition of what constitutes a 'job' I went to the Bureau of Labor Statistics website at bls dot gov. There's a glossary of terms on the website and here's what it says counts as a job opening:

Job opening (Job Openings and Labor Turnover Survey)

A specific position of employment to be filled at an establishment; conditions include the following: there is work available for that position, the job could start within 30 days, and the employer is actively recruiting for the position.

Did you notice something a little odd there? The government does not seem to care whether it's a temporary parttime job for 10 hours a week for the next month with no benefits or a long term 40 hour a week full time job with healthcare paid for, retirement, a two week paid vacation, & so forth. Most any job will do as far as the government is concerned. Then the politicians, whether Democrat or Republican, can point to how wonderful their policies are at creating jobs & lowering the unemployment rate.

Yes there are no doubt people who only want a ten hour temporary job but most people think of a job as one that is long term, pays enough of a wage to live on, & carries with it some *real* benefits. Real benefits does not include such nonsense as so called health insurance with a \$10,000 dollar deductible for people making ten bucks an hour.

What's the solution that would give more credibility to such government statistics? As far as I'm concerned it's a no brainer. The BLS can report whatever number or numbers it wants but among them will be a new number "full time job equivalents" which are defined by the standards I described earlier.

Now I predict that number will be a lot smaller, and I mean a lot smaller, than the 150 thousand or 200 thousand job creation numbers the government puts out each month but it will be a far more accurate measure of the true state of the American economy. & it will light fires under the seats of the politicians to stop trying to duck the issue & start paying serious attention to where we are really headed economically.

We are already in the age of robots & artificial intelligence. More meaningless so called job creation programs aren't going to cut it. The world of the 19th & 20th centuries is gone forever & with it old fashioned Marxism & Socialism & liberalism & conservatism. Post industrial society is going to have to go in a fundamentally new direction. Plenty of average people already understand that. It's those with deeply vested interests in the present system who want to hide from it by sticking their heads in the sand. One of the ways they do that is by batting around false or misleading statistics.

So let's listen to a recent TED talk by Mona Chalabi on how to spot bad statistics. Ms. Chalabi has worked for the Bank of England, Britain's equivalent of the US Federal Reserve system, Transparency International, which monitors national levels of corruption around the world, & the Economist magazine. She has also hosted programs on the BBC & the National Geographic channel. Currently Mona Chalabi is the Data Editor for the US edition of the Guardian newspaper. Her talk, entitled Three Ways to Spot Bad Statistics runs about 11 minutes. (Insert Chalabi, M TED talk: "I'm going to... ..thank you.") (TED talk in standard English)

I'm going to be talking about statistics today. If that makes you immediately feel a little

bit wary, that's OK, that doesn't make you some kind of crazy conspiracy theorist, it makes you skeptical. And when it comes to numbers, especially now, you should be skeptical. But you should also be able to tell which numbers are reliable and which ones aren't. So today I want to try to give you some tools to be able to do that. But before I do, I just want to clarify which numbers I'm talking about here. I'm not talking about claims like, "9 out of 10 women recommend this anti-aging cream." I think a lot of us always roll our eyes at numbers like that. What's different now is people are questioning statistics like, "The US unemployment rate is five percent." What makes this claim different is it doesn't come from a private company, it comes from the government.

About 4 out of 10 Americans distrust the economic data that gets reported by government. Among supporters of President Trump it's even higher; it's about 7 out of 10. I don't need to tell anyone here that there are a lot of dividing lines in our society right now, and a lot of them start to make sense, once you understand people's relationships with these government numbers. On the one hand, there are those who say these statistics are crucial, that we need them to make sense of society as a whole in order to move beyond emotional anecdotes and measure progress in an [objective] way. And then there are the others, who say that these statistics are elitist, maybe even rigged; they don't make sense and they don't really reflect what's happening in people's everyday lives.

It kind of feels like that second group is winning the argument right now. We're living in a world of alternative facts, where people don't find statistics this kind of common ground, this starting point for debate. This is a problem. There are actually moves in the US right now to get rid of some government statistics altogether. Right now there's a bill in congress about measuring racial inequality. The draft law says that government money should not be used to collect data on racial segregation. This is a total disaster. If we don't have this data, how can we observe discrimination, let alone fix it? In other words: How can a government create fair policies if they can't measure current levels of unfairness? This isn't just about discrimination, it's everything -- think about it. How can we legislate on health care if we don't have good data on health or poverty? How can we have public debate about immigration if we can't at least agree on how many people are entering and leaving the country? Statistics come from the state; that's where they got their name. The point was to better measure the population in order to better serve it. So we need these government numbers, but we also have to move beyond either blindly accepting or blindly rejecting them. We need to learn the skills to be able to spot bad statistics.

I started to learn some of these when I was working in a statistical department that's part of the United Nations. Our job was to find out how many Iraqis had been forced from their homes as a result of the war, and what they needed. It was really important work, but it was also incredibly difficult. Every single day, we were making decisions that affected the accuracy of our numbers -- decisions like which parts of the country we should go to, who we should speak to, which questions we should ask. And I started to feel really disillusioned with our work, because we thought we were doing a really good job, but the one group of people who could really tell us were the Iraqis, and they rarely got the chance to find our analysis, let alone question it. So I started to feel really determined that the one way to make numbers more accurate is to have as many people as possible be able to question them.

So I became a data journalist. My job is finding these data sets and sharing them with the public.

Anyone can do this, you don't have to be a geek or a nerd. You can ignore those words; they're used by people trying to say they're smart while pretending they're humble. Absolutely anyone can do this.

I want to give you guys three questions that will help you be able to spot some bad statistics. So, question number one is: Can you see uncertainty? One of things that's really changed people's relationship with numbers, and even their trust in the media, has been the use of political polls. I personally have a lot of issues with political polls because I think the role of journalists is actually to report the facts and not attempt to predict them, especially when those predictions can actually damage democracy by signaling to people: don't bother to vote for that guy, he doesn't have a chance. Let's set that aside for now and talk about the accuracy of this endeavor.

Based on national elections in the UK, Italy, Israel and of course, the most recent US presidential election, using polls to predict electoral outcomes is about as accurate as using the moon to predict hospital admissions. No, seriously, I used actual data from an academic study to draw this. There are a lot of reasons why polling has become so inaccurate. Our societies have become really diverse, which makes it difficult for pollsters to get a really nice representative sample of the population for their polls. People are really reluctant to answer their phones to pollsters, and also, shockingly enough, people might lie. But you wouldn't necessarily know that to look at the media. For one thing, the probability of a Hillary Clinton win was communicated with decimal places. We don't use decimal places to describe the temperature. How on earth can predicting the behavior of 230 million voters in this country be that precise? And then there were those sleek charts. See, a lot of data visualizations will overstate certainty, and it works -- these charts can numb our brains to criticism. When you hear a statistic, you might feel skeptical. As soon as it's buried in a chart, it feels like some kind of objective science, and it's not.

So I was trying to find ways to better communicate this to people, to show people the uncertainty in our numbers. What I did was I started taking real data sets, and turning them into hand-drawn visualizations, so that people can see how imprecise the data is; so people can see that a human did this, a human found the data and visualized it. For example, instead of finding out the probability of getting the flu in any given month, you can see the rough distribution of flu season. This is --

(Laughter)

a bad shot to show in February. But it's also more responsible data visualization, because if you were to show the exact probabilities, maybe that would encourage people to get their flu jabs at the wrong time.

The point of these shaky lines is so that people remember these imprecisions, but also so they don't necessarily walk away with a specific number, but they can remember important facts. Facts like injustice and inequality leave a huge mark on our lives. Facts like Black Americans and Native Americans have shorter life expectancies than those of other races, and that isn't changing anytime soon. Facts like prisoners in the US can be kept in solitary confinement cells that are smaller than the size of an average parking space.

The point of these visualizations is also to remind people of some really important statistical concepts, concepts like averages. So let's say you hear a claim like, "The average swimming pool

in the US contains 6.23 fecal accidents." That doesn't mean every single swimming pool in the country contains exactly 6.23 turds. So in order to show that, I went back to the original data, which comes from the CDC, who surveyed 47 swimming facilities. And I just spent one evening redistributing poop. So you can kind of see how misleading averages can be.

(Laughter)

OK, so the second question that you guys should be asking yourselves to spot bad numbers is: Can I see myself in the data? This question is also about averages in a way, because part of the reason why people are so frustrated with these national statistics, is they don't really tell the story of who's winning and who's losing from national policy. It's easy to understand why people are frustrated with global averages when they don't match up with their personal experiences. I wanted to show people the way data relates to their everyday lives. I started this advice column called "Dear Mona," where people would write to me with questions and concerns and I'd try to answer them with data. People asked me anything. questions like, "Is it normal to sleep in a separate bed to my wife?" "Do people regret their tattoos?" "What does it mean to die of natural causes?"

All of these questions are great, because they make you think about ways to find and communicate these numbers. If someone asks you, "How much pee is a lot of pee?" which is a question that I got asked, you really want to make sure that the visualization makes sense to as many people as possible. These numbers aren't unavailable. Sometimes they're just buried in the appendix of an academic study. And they're certainly not inscrutable; if you really wanted to test these numbers on urination volume, you could grab a bottle and try it for yourself.

(Laughter)

The point of this isn't necessarily that every single data set has to relate specifically to you. I'm interested in how many women were issued fines in France for wearing the face veil, or the niqab, even if I don't live in France or wear the face veil. The point of asking where you fit in is to get as much context as possible. So it's about zooming out from one data point, like the unemployment rate is five percent, and seeing how it changes over time, or seeing how it changes by educational status -- this is why your parents always wanted you to go to college -- or seeing how it varies by gender. Nowadays, male unemployment rate is higher than the female unemployment rate. Up until the early '80s, it was the other way around. This is a story of one of the biggest changes that's happened in American society, and it's all there in that chart, once you look beyond the averages. The axes are everything; once you change the scale, you can change the story.

OK, so the third and final question that I want you guys to think about when you're looking at statistics is: How was the data collected? So far, I've only talked about the way data is communicated, but the way it's collected matters just as much. I know this is tough, because methodologies can be opaque and actually kind of boring, but there are some simple steps you can take to check this.

I'll use one last example here. One poll found that 41 percent of Muslims in this country support jihad, which is obviously pretty scary, and it was reported everywhere in 2015. When I want to check a number like that, I'll start off by finding the original questionnaire. It turns out that

journalists who reported on that statistic ignored a question lower down on the survey that asked respondents how they defined "jihad." And most of them defined it as, "Muslims' personal, peaceful struggle to be more religious." Only 16 percent defined it as, "violent holy war against unbelievers." This is the really important point: based on those numbers, it's totally possible that no one in the survey who defined it as violent holy war also said they support it. Those two groups might not overlap at all.

It's also worth asking how the survey was carried out. This was something called an opt-in poll, which means anyone could have found it on the internet and completed it. There's no way of knowing if those people even identified as Muslim. And finally, there were 600 respondents in that poll. There are roughly three million Muslims in this country, according to Pew Research Center. That means the poll spoke to roughly one in every 5,000 Muslims in this country.

This is one of the reasons why government statistics are often better than private statistics. A poll might speak to a couple hundred people, maybe a thousand, or if you're L'Oreal, trying to sell skin care products in 2005, then you spoke to 48 women to claim that they work.

(Laughter)

Private companies don't have a huge interest in getting the numbers right, they just need the right numbers. Government statisticians aren't like that. In theory, at least, they're totally impartial, not least because most of them do their jobs regardless of who's in power. They're civil servants. And to do their jobs properly, they don't just speak to a couple hundred people. Those unemployment numbers I keep on referencing come from the Bureau of Labor Statistics, and to make their estimates, they speak to over 140,000 businesses in this country.

I get it, it's frustrating. If you want to test a statistic that comes from a private company, you can buy the face cream for you and a bunch of friends, test it out, if it doesn't work, you can say the numbers were wrong. But how do you question government statistics? You just keep checking everything. Find out how they collected the numbers. Find out if you're seeing everything on the chart you need to see. But don't give up on the numbers altogether, because if you do, we'll be making public policy decisions in the dark, using nothing but private interests to guide us.

Thank you. (end of talk)

Mona Chalabi delivering a TED talk in April of this year. To summarize her 3 ways to spot bad statistics, first consider whether there's uncertainty in the numbers. When you start seeing national opinion polls reporting results down to decimal points it's time to get suspicious. In a nation with 230 million voters most polls only sample a thousand of them at any one time, occasionally several thousand but in any event a tiny fraction of the electorate. Sometimes you can see major trends from such data but it's rarely precise enough to start putting decimal points to the results.

Second Mona Chalabi suggests that you ask the question, Can I see myself in the data? Broad generalizations can hide significant differences between genders & races & ages.

& third, how was the data collected? Consider the source. Is it private or government. If private the sponsoring company probably has a vested interest in how the numbers come out because they want to sell you something. Even government data can sometimes be misleading but we need to avoid rejecting all of it because otherwise we as a society will be flying blind. We will not

be able to mak rational decishuns about our future.

I want to add just wun mor observashun that Mona Chalibi touched on but did not elaborate. She talked about how polls during elecshuns can hav an undue influence on how they turn out by portraying a candidate as too far behind to win, thereby discouraging the candidate's supporters from showing up at the polls. This mite hav been the case with the last elecshun when almost al the national polls said Donald Trump would lose to Hillary Clinton.

But if when you were traveling in the US during that period you stayed at budget motels, & I emphasize budget motels, not the Marriots and Sheratons where all the elite media hung out, you wud hav imediately picked up two critically important facts: First, Trump supporters had absolutely no confidence in the truthfulness of the polls. Second, they wer ardent, & I do mean ardent, in their suport of their candidate.

As I have reported on previous programs, every single national poll called it wrong except wun, the Los Angeles Times. & why was the LA Times alone able to cal the outcom of the elecshun corectly? Becaus it used fundamentally diferent polling methods that consciously & deliberately took into account Trump supporter distrust of the media & the establishment in general.

So instead of reporting a large number of seemingly 'undecided' voters the LA Times found Trump supporters who were wiling to participate in their poll & then got them to open up & actually state their real preferences. As for those national commentators who thot that by averaging al the national polls together they wud get a mor accurate result, it was a classic case of garbage in, garbage out. Al the other polling organizashuns used faulty methodology that mite work under normal circumstances but which utterly failed this time around becaus people who in the past never or almost never voted, turned out in big numbers.

All rite, enuf on bad statistics & elites floating around in la la land. By the way if u like commentaries lik the wun I just presented don't hesitate to spread the word to ur friends about The Next Chapter & Radio Alexandria. We don't hav anything to sell here. We just try to report the truth as best we can understand it. That means we cud care less about ideologies & political correctness. Not everything u hear on this broadcast u'll agree with but at least u know we're not out to con u or to talk u into joining som religion or movement or cause.

As for hearing our programs all you need is a portable AM-FM-shortwave receiver or access to the Internet. The Next Chapter is broadcast on shortwave radio every Wednesday night at 7 pm Eastern time on 7490 kilohertz & of course you can lisen to the podcast vershun anytime on radioalexandria dot net. With al the talk these days about so called 'fake news' & media outlets that only tell their audiences what they think their listeners or viewers want to hear, Radio Alexandria is in a whole diferent category. We're always glad to receive donations but equally important is geting the word out to friends & co-workers. If u like what u hear u mite even want to contact ur local media to see if they'll run a story about us. & of course always feel free to offer other points of view when u disagree with something u've heard on The Next Chapter.

Let's take a break and when I come back I'll have part two of my interview with physicist turned farmer Marcin Jakubowski. I'm Roland B. Hunt & u're lisening to The Next Chapter, a producshun of the North American Service of Radio Alexandria.

PSA: Listener feedback

Feedback is important here at Radio Alexandria so I hope u wil tak the time to email or write & share ur ideas. Did u find urself agreeing in part & disagreeing in part? Did we mak u cheer or did u want to throw something at the radio? The whole point of Radio Alexandria &

The Next Chapter is to get people to thinking. Send us an email & tell us ur opinions. Please be concise & to the point. We can't respond personally to every email but with ur permission we may include some of ur comments & ideas in futur broadcasts. U'll only be identified by first name & the name of the state, or province, or region u're writing from.

Radio Alexandria is named after the greatest library in the ancient world, wun that was founded several hundred years befor the common era. That center of learning was burned to the ground by religious zealots in the fifth century AD so almost al of its books were lost to posterity. Radio Alexandria's mission is to mak sure that doesn't happen again. The goal is to spread ideas far & wide across the globe to the remotest village & mountain top, ideas about government, society, & the future of our species on this planet.

As a radio station we can't physically spread the great books of today but we can share the ideas contained within them. Our goal is not to tel liseners what to think but how to think, how to use logic & evidence to mak rational decishuns about the future drawing upon lessons learned from the past.

We live in a busy world so if u tuned in late or hav to leave early u can always listen to today's program as a podcast. Just go to radioalexandria dot net & click on programs. Transcripts of al the programs in The Next Chapter series ar also available on the website. Once again the web address is radioalexandria dot net. If u hav comments or questions our email address is radioshipalexandria at yahoo dot com. That's radioshipalexandria at yahoo.com.

Wun mor reminder. Radio Alexandria is in the demonstration of concept phase right now. We're distributing our programing domestically on FM & internationally on shortwave radio while we evaluate the feasibility of buying & equipping a radio ship & deploying it to the central Pacific.

If u know somthing about shortwave u've probably already figured out why we wud choose such a location. It has to do with the physics of shortwav broadcasting. Unlik conven-shunal AM or FM radio, a shortwave signal can travel thousands of miles by bouncing off a layer of charged particles in the atmosphere called the ionosphere.

The signal may bounce between the earth (or sea) & the ionosphere several times befor reaching an audience 5,000 or even 10,000 miles away. Sea water to a shortwav signal is lik a polished glass mirror compared to a very dirty windshield. It's a thousand times mor reflective than ordinary earth. If u want to put a powerful radio signal into Pacific Rim countries lik China & Russia using medium sized shortwave transmitters there is no better locashun than the central Pacific.

The reason for puting Radio Alexandria on a ship is safety. Pacific islands may bring to mind swaying palm trees & white sandy beaches but the reality is the Pacific can be a dangerous place, what with volcanoes, typhoons earthquakes, & tsunamis. The place to ride those out is not at anchor in a harbor. A small ship lik a converted trawler or lightship can put to sea on short notice & has the endurance to withstand severe punishment on the open ocean.

The programs u hear now ar typical of what u wil hear if we decide to go ahead with the next phase but first we need to know if there wil be enuf liseners to justify such a large project. If u hav som ideas or suggestions for foundashuns or other organizashuns which mite fund a project lik Radio Alexandria pleas feel free to share them with us. Also we're accepting donashuns from liseners so if u wud lik to suport our eforts to build a mor enlightened world just go to radioalexandria dot net, klik on 'programs', & then the 'donate' button.

Rite now our greatest out of pocket expense is paying for airtime. If we had additional funding we cud buy mor airtime to beam Radio Alexandria into Europe & Russia. The longer

term plan is to offer The Next Chapter not only in English but in other languages as well. The goal is not to gettled in the domestic politics of countries. They have to solve their own problems. What we at Radio Alexandria are trying to do is look at issues all modern governments are confronting & see if there might be some common solutions.

Transparency is such an issue. It's one of the best ways to combat political corruption & boost popular confidence in democratic government. There's a major anti-corruption campaign going on in China right now because the current administration understands that they're not going to be able to keep the Mandate of Heaven unless they govern responsibly.

The USA & other western democracies are also suffering from a major lack of public confidence in their political institutions. The presidential election here in the US as well as elections in Europe show deep dissatisfaction with elites & the kind of leadership they have provided in recent decades.

Humanity is entering a period of profound change, driven by technological forces we have never before encountered as a species. Radio Alexandria's mission is to explore solutions that will benefit all in society, both individually & collectively.

In the coming months we may try some crowd funding to begin raising the money to implement these plans. In the meantime all of you as listeners can do your part by spreading the word. Tell your friends about our website, transcripts, & podcasts. Also the podcasts are available free for rebroadcast on non-commercial stations in the US. If you'd like to see The Next Chapter more widely available in your community tell your local community or public station about us.

If you see something you think your friends would find interesting, copy it off the website & share it with others. Maybe you see something you disagree with. That's fine too. Radio Alexandria is not the source of all truth. We're all about looking *for* the truth, wherever it may be & whether or not it's politically correct.

By the way free Radio Alexandria buttons are now available so if you'd like you can just send us your mailing address & we'll get you one. You can see a sample on our website radioalexandria.net. Just click on 'resources'. The buttons are an experiment so supplies are limited. Our email address once again is radioalexandria@yahoo.com.

If you find value in what we are trying to do & would like to help financially just go to radioalexandria.net, click on programs & then the 'donate' button. Any financial assistance you choose to make will be gratefully appreciated. Radio Alexandria is radio for the future. (end promo)

Last week on The Next Chapter I had part one of my interview with Marcin Jakubowski, physicist, farmer, and the Director of Open Source Ecology. Marcin believes we can change fundamentally the way the world works by using open source technology. Open source is the key because there are no patents and most anyone anywhere with a reasonable amount of skill & determination can put it to work to raise their standard of living. & now with open source 3D printers people can make on the local level most anything they need.

To prove the open source concept Marcin Jakubowski bought a farm in northwest Missouri & set about to equip it completely with open source machinery that he made himself with local materials. First he built a high pressure hydraulic brick press which he then used to build a workshop and a modular house. Then he built his own tractor and several farm machines to go with it. His latest project is a 3D printer which has advanced to the stage where he holds one-day workshops for people to come & build their own printer at about half the cost of a store bought one.

Marcin's goal is to spread open source technology all over the world. To do that he created

Open Source Ecology & the Global Village Construction Set. So far he & volunteers have prototyped some 20 machines with plans to add another thirty.

Why is mechanization so important? Because with it we can go far beyond subsistence agriculture to create food surpluses large enough to support towns and cities and with them an advanced civilization.

But technology & machines are only one part of the story. Marcin wants to go further by creating a new economy using a new currency. In part two of my interview I asked him why we would need such a currency & how he would go about setting it up.

(Insert Jakubowski, M - pt 2: "The idea... ...collaboration tools.")

MJ: The idea is that the current currency system has an artificial currency built on top of a real economy and the derivatives and the funny money business is about a quadrillion dollars in worth whereas the GDP of the world is about a hundred trillion. There's an entire derivative fake economy on top of it. It's ten times as large and that's kind of disturbing because there's this whole artificial world devoid of any reality and that's really troubling. I think that that cannot last and I think we're asking ourselves well if that's not sustainable, well just take the stock market. A company issues stock to fund itself and then there's a whole secondary market of people just trading it back and forth and depending on which aspect of that you take a look at, suddenly there are zero sum games where one person gains, another person loses but overall what is produced? Nothing.

RBH: Zero, nothing. It's just moving money around but there's no output. There's nothing produced by that except to enrich a few people.

MJ: Right, it's a built in mechanism of power concentration, wealth concentration and then we say well okay that really cannot last, it's not ethical. Once again we evolve as a species. We start asking ourselves is this ethical. It's absolutely not ethical. If it's a mechanism that simply concentrates power certainly at the expense of most people so then the question becomes if we design an economic system of the future that actually works what will it look like? How are we going to take care of that money system?

I think there are ways derived based on the current economy which okay you're supposed to have a currency that is backed by some tangible asset. Well we'll simply have to recreate that within the next open source economy. So how do you have the currency? How do people have the means of that exchange and credit that they can trade with? Well there would have to be a mechanism certainly facilitated by computer technology such as block chain which is simply transparent record keeping for those who are afraid of that word. All blockchain is is that you can replace it with transparent record keeping that's incorruptible. So put that into the equation and you've got the open source economy of the future.

I think we can really come about to a meaningful money system as well. I don't know exactly how that will look, how that will manifest but my initial thoughts are that if for example you are a productive individual, things are transparent, and you document your productivity. So say you are a source of open source ecology or some entity or enterprise and we can say okay. On the internet we publish we've got these resources, we've got these productive capacities. This is worth x dollars and create some formula which is safe meaning that it's like five or ten percent of what you can produce. Okay I'm going to coin my money. I'm just going to declare it just like

the Fed declares money out of thin air. We declare. We have money and then you can trade because in a transparent system we know what other people have as far as their worth.

For trade you only need a little bit of the value you can produce in order to trade but that's under the assumption that there's a real and tangible economy that supports these economic entities. Say I have factory farmers and we can produce stuff. We can produce tractors. We can produce potatoes. we can produce charcoal. We can produce cars, whatever. That in itself would be the basis for backing a means of exchange. Think about that as multiple nodes worldwide that accept that as the next operating system. So basically trade could go on because we want to trade. Trade is good. I believe trade is good as long as you are not trading on things that are not absolutely essential to you. Like regions should be able to produce things like food, energy, and housing. You shouldn't be dependent on somebody else absolutely to get that.

So that's my initial ruminations on the subject of money. I don't how much that makes sense but certainly within the blockchain, the bitcoin, all those people, with the blockchain technologies I think that there's a lot of excitement with people talking about new ways that trade can be simply accounted for.

RBH: It's certainly very interesting. I guess we sort of ground ourselves in harsh reality in what I do on these programs and while all that is extremely interesting intellectually if civilization goes down there's not going to be, I mean maybe there will be someday, the internet and the web and stuff will cease to exist along with Google, Facebook and all the rest of it. So eventually at some point, we don't know how long that will take, but at some point it'll be recreated and maybe we can avoid making the mistakes we made the last time when we recreate civilization but all of that, blockchain and the rest of it really does, it seems to me, depend on advanced technology and global communications and all of that kind of thing.

MJ: Right. My opinion on the topic is a little different. I've been exposed to this world of technology. I've lived a lot in it studying what appropriate technology is. And having been exposed to a broad range of all kinds of technologies I don't really believe there's going to be a collapse scenario as most people talk about it, meaning that it's all going to go to zero and then we're going to rise back from the ashes. I think that it's relatively straightforward that certain nodes will keep alive no matter what because that technology is so advanced right now.

A lot of advanced technology is going to happen on a much smaller scale with different nodes. Like take your example. Like shortwave or ham radio. Think about it as a model for transmitting your internet as it goes down or there's going to be nodes of internet that when big centralized operations go down there's going to be ones that are smaller that have mastery over their technologies, especially if those technologies are open source. So say that there's open source technologies out there that okay the world collapses and you've got these people who like ourselves okay no problem we'll just turn this on, flip the switch and we've got our alternative systems of all types and some of them are quite advanced. I don't think there's a limit to how advanced they could be.

So I think there's going to be enough diversity on the planet that you can't really squash out the whole thing even though it is a big centralized system and it's getting more centralized in terms of power or economic distribution. I think there's enough diversity out there in small nodes that we'll just keep living. That's kind of how I see it.

RBH: Well, I do too and we can discuss how many nodes there are and how advanced they are or still be or can recover, but basically I agree completely with you. That's one of the premises we operate (on). No matter what happens there will be survivors and we will rebuild and it's only a question of what level do we rebuild from. And just as you say there may be nodes out there that are more advanced than others but they'll still be there and technology probably will survive at different levels in different places but humans are pretty clever and resilient.

MJ: So just to add on that just insert the concept of open source. So open source a given technology. So now because of our work there's going to be tractors guaranteed when a collapse happens. Things like that. Or things like 3D printers that are fully open source. You know make them from a lot of local sources. We can't do the microchips at this point. That will have to come up but did you know there are projects like open source ship fab or open source integrated circuit design? Those are projects that are out there. There are some really complex stuff that's becoming open source and when it's open source if the collapse happens you can just follow the blueprints and redo it.

RBH: And you'll still have enough machines left over somewhere from the old civilization and now you got the software to plug in so you can actually start making new things.

MJ: Or take for example a look at a realistic scenario. The induction furnace. It's part of our Global Village Construction Set. Okay the world collapses. Everything turns to a pile of metal. Say there's a big explosion. Say we've got our facility, we've got an induction furnace. We can melt any metal to make virgin steel. From steel you can go to advanced machines and so forth. I don't really see any case for collapse because once you have steel, steel is really the industrial age.

RBH: Right.

MJ: And from that you can bootstrap without much issue. So that's where open source comes in and that's also where I think for our work it's simply inevitable or just necessary that we create these nodes of sanity like centers which are training and open source communities that actually have the knowhow to survive. So our model for replication is that we would like to do this as basically a campus for teaching people so that that technology is definitely open source and growing within the different campuses worldwide and replicated widely so that no matter what happens there's all these points of light no matter what happens.

RBH: I had a couple of questions, one practical question. You were talking about the high pressure tubes that you use for the hydraulics. I presume that at this point at least you have to buy those or can you make them?

MJ: Absolutely you have to buy those but 3D printing gets you there. You can 3D print rubber. Rubber is a thermoplastic elastomer. And Dr. Joshua Pearce (at Michigan Tech University) just figured out to lay metal threads in plastic latices. So you can 3D print your hydraulic tubes.

RBH: Wow!

MJ: So it's our imagination that's the limit. Really, don't sweat it. We'll have the technology.

RBH: I'm just curious, because I try to keep up with these things, and your operation there, Open Source Ecology, is really the only one I've come across that's so advanced. Is anybody else doing

this in other places around the world that you know of?

MJ: We don't know of any open source product development effort out there. There's individual projects that work on certain things but we do not know of one that's a dedicated open source pipeline like ours.

RBH: May I ask where that is?

MJ: I mean there are individual projects such as open source laser cutter. Rep-Rap is an open source 3D printing community. There's WikiHouse that makes open source digitally fabricated housing.

RBH: I guess I was wondering if there's some integrated effort like yours?

MJ: I'm really hard pressed to think of one. Someone who endorses open source and who is involved in open source technology development as a platform. I don't know of anything.

RBH: Okay. That's fine. You're on the leading edge. It's great that you've made such great progress and especially in a relatively short time.

MJ: Yeah, I mean we're babies. We're at the beginning of this. There is so much work to be done so join us as relative developers. I mean basically we started the development program just this year. A lot of times we had a lot of ad hoc contribution and continuity is of course an issue from the strategic and business perspective. It's just been insane. We wasted a lot of time by people just coming in and going. So it's really right now we're becoming much more organized in a way we do things so that the continuity and enterprise development happens. And I think either way the project is going to roll forward to scale is not through foundations or donations. The support is going to be bootstrap by the financial returns of the process such as the extreme manufacturing workshops where you build with extreme efficiency and you produce real products. That's the way I think it's going to have to go forward by earned revenue because you cannot fund revolution.

RBH: (laughs) Very good. Any thought to at least for some of these things kind of an intermediate step where you produce kits for people who want to get involved but maybe not quite to the depth that you're talking about?

MJ: Right. So kits. Right now we're setting up a 3D printing cluster to do things like 3D kits for the 3D printer. We're working on the CNC torch table so we can sell kits of our other machines. So that's definitely a business sideline that can happen but we don't really sell kits now. The way we are bootstrapping it is through the workshops where you come and build with us but kits are definitely on our roadmap and whoever wants to produce kits you're welcome to do so. We've got all our open source blueprints on line so it's a call out to anyone who wants to engage in that enterprise.

RBH: Great. Do you have a team of people or a group of people who actually live on your campus there or your farm?

MJ: There's only two of us permanently on site, my wife who's running the Open Building Institute. OpenBuildingInstitute.org. That is the extreme builds of the housing, the seed ecohome with aquaponic greenhouse. So basically affordable eco construction for everyone. That's the name of that project so there's a huge market there that we're basically trying to create

capacity by training people so that other people can have these houses built wherever they are. But it's two of us on site and otherwise it's a wholly globally distributed team. We work together on Google hangouts or Gypsy meet hangouts. We actually migrating from Google Hangouts to Gypsy Video Bridge as we speak which is an open source platform. But it's global collaboration with open source CAD software and other remote collaboration tools. (end of interview)

Marcin Jakubowski, speaking with me via skype from his farm in Missouri. Marcin's website is [opensourceecology dot org](http://opensourceecology.org). That's [opensourceecology dot org](http://opensourceecology.org). On the website u'll find informashun on upcoming workshops as well as plans for building a number of open source machines.

As u heard in our interview Jakubowski believes that even if humanity were to suffer som global catastrophe there wud most likely be pockets of survivors. Som of those groups of survivors wud continue to have the necessary technology & skills for humankind to build a new civilizashun. And equally important I wud argue is the knowledge necessary to learn from our mistakes & not repeat them. Which is of course the misshun of Radio Alexandria.

My friends I must tell u that in the last few months I've had the distinct feeling that we're running out of time. It wud be nice to solve al the many problems that confront this present civilizashun but there are just too many forces building that are capable of bringing us down.

Whether it's a global economic colapse that triggers a war between the major powers in the Middle East or the South China Sea, or even a natural event lik the eruption of a supervolcano or a comet strike, our present world is just too complex & too interconnected to survive even a modest shock. Domino efects wil be our downfall.

I wish I cud offer a solushun but I can't. No doubt som wil dismis such thots as fearmongering. All I can suggest is to look calmly & objectively at the world around u & draw your own conclusions. The good news is that the hammer hasn't fallen yet. There's stil som time, however brief, to prepare for what's coming. Whatever u do don't try to go it alone. Groups of like minded people & not individual families ar far mor likly to survive. U can be sure that there ar quite a few people in your comunity thinking seriously about these issues. Ur challenge is to link up with them.

Regardless of which way the future taks us I believe that if we're ever to hav any hope of surviving as an intelligent species we hav to start acting lik wun. A shared vishun of species consciousness is the key, a vision that must transcend our identity as members of a race, or ethnic group, or nationality. It's not that those ar not important or that we must giv them up. But in an age that understands the imensity of the universe & our smal place in it, the time has cum to adopt a new & mor sweeping vishun of human existence.

If we can spread the idea that we ar members of wun intelligent species among many in the universe, working toward a comon goal of greater enlitenment...if we can spread that idea to the remotest village & most isolated hamlet on our planet, then no mater what catastrophe mite befall us in the coming years, those who survive wil hav a common vision of humankind, a shared ideal of who we ar & where we want to go in this adventure we cal life.

This is our planet & we ar its stewards. Everyone has a part to play in the drama that is human existence. & that's what Radio Alexandria is al about. U, our liseners, ar the wild cards. History cud wun day turn on ur knowledge & insight. Until next time think deeply & act wisely. The future is in our hands Team Humanity. Let us embrace it! (music up until end) (anncr:) U've been lisening to The Next Chapter with ur host Roland B. Hunt.

A transcript of this broadcast is available at our website [radioalexandria dot net](http://radioalexandria.net).
Tune in again next week at this time for a new explorashun into alternative futures on The Next Chapter, coming to u from Radio Alexandria.

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Definitions of commonly used terms on The Next Chapter:

The Hunt Paradox, sometime called the Strangelove Paradox, was inspired by the famous 1964 motion picture *Dr. Strangelove or How I Learned to Stop Worrying & Love the Bomb*. The mor advanced an intelligent species becums the mor likly it is to destroy itself.

The Hunt Paradigm is a conjectural premise that states there ar quite a few carbon based intelligent species in the universe. After reaching a certain level in their evolushun they al go thru a similar process of development until the point they encounter the Hunt-Strangelove Paradox. som find a solushun to the paradox & advance to a still higher level. Others do not & destroy themselves.

Note: It is not necessary that the conjecture be tru. It is merely a useful mental construct for integrating ideas about evolushun with ideas about the rise & fal of civilizashuns.