Special Series on Geopolitics and Economics
Technology, Innovation and the Geopolitical System
January 6, 2022
Webinar transcription

Editor's note: This transcript was generated using a transcription service, so we cannot guarantee its accuracy. There may be some errors and typos throughout.

Meredith Friedman:

Hello everyone. Thanks for joining today for our first club GP session of 2022. Hope all of you had a great holiday happy new year's and whatever part of the world you're in. You're enjoying either beautiful weather or a lot of snow more to come here in Austin, Texas. The only thing we enjoy is Cedar fever at this time of the year, but the weather's still good. Anyway. Good to see. So many of you joining as you come in get settled. And for those who are new to us in club, as we talk, or as George talks, you can write questions into the question box Q and a box. If you don't have one or you can't find it, feel free to write it into the chat box. And then I'll read the questions off to George. When he's finished giving his talk today, we are talking about the economy and geopolitics, George, what can you tell us that we don't already know?

George Friedman:

I just made it tougher. Okay. so let me begin with reviewing that. We spent the first part of this group of seminars talking about the relationship between economics and geopolitics and elements like what is money? What does money actually do? What is its purpose and things of that sort? These are fundamental to economics. I'm not sure that economists really drill very deeply into that. Looking at financial things more often than not, but we're at it from the material, mechanical way. The world works. The essence of the economy word in Greek 'economos', the household is material. It is food and cooking and sanitation and all sorts of concrete things. So when the Greeks talked about economics they were aware of money. They had money in various forms, but they had a brilliant insight. You can't eat money. And they really were talking about the various things that made it possible to have a life.

Now, they didn't think very highly of this. Okay. They, this was the lower part. The political was the higher part and the economic, the household was the realm of the women whom they held inferior to men. And God knows I don't I don't dare. But the point was, we were looking at interaction of various things that grew out of economics, like money and tried to understand how they interacted and how they structure things. Today. We're gonna talk about a critical element of economics technology, a word, which is usually taken pretty much for headed about the latest technology you're talking about. So right now it's all about the microchip, AI and everything else. That's technology, but technology has a certain function, a certain purpose, a certain logic. It doesn't just pop up because you feel like it. In Greek, the word for technology is Teche or to put more precisely. We develop the world to technology

out of the word, Teche and Teche is what we might call implementation or practical thought or working with your hands. There's other forms like epistome, which is thinking about ideas.

George Friedman:

Now, ideas are extremely useful. Gotta have them, but woefully insufficient, having ideas does not create or shape reality satisfy your needs or anything else. So for the Greeks, epistome, ideas were profoundly important. Epis was what they called it. It was the realm, not only in which philosophy lived, that was in need higher realm, but the way in which you could start envisioning the world and the foundation of technology is the ability to envision the world. Not in some superficial way of saying, Hey, there's a house, but in some profound way of understanding how this world works, what I'm doing and it, and so on that does not yield useful things necessarily. But as a foundation, according to a degrees of useful things, if you are not thinking about what is this world like, what am I doing in it? What do I need? You're incapable of developing technology of technique.

If you only have Techne and you have no idea what to do with it you really can't do much. You can't move forward. So for the Greeks, there's a string of things. There is philosophy logos. The thing that created the United States, the idea of, of justice and so on there is that thing which thinks about the mysterious nature of the world and what we need now and how we relate to the world. And te the thing that does something about it sometimes, well, sometimes badly, there's nothing modern about technology. The Greeks were incredible sword makers. They made Spears, they created waterways. They built boats. Technology has existed ever since the first human being decided he wanted to sharpen a stone. It has become the definition of the modern, but by Def, but it's always modern because it's always creating something out of looking at the world.

So think of the cave, man, who's wandering around and he is got a savor to tooth tiger bothering him, and he needs to do something about it. And he says, I wish I had something with which I could kill the SARE tooth tiger. And he contemplates the way that it might be done. And he does it out of necessity, not out of contemplation, the way the philosophy does, there's this, you know, SARE tooth tiger living in my neighborhood and he ate my kid and I gotta stop this. And then he sees a rock and he begins to imagine what if I sharpened this rock? What if I made it this way or that way? What if I attached it to a stick? What if I did this? What I did that, and his only purpose was not to contemplate the miracle of Iraq, which belongs elsewhere, but to make it to Iraq work and he was modern.

So if we think of technology as modernity, that modern is a constant reality passing through. And as the problem changes, the solution changes. And as the solution comes up, then we are working on technology. But the point is that technology is not free. It is constrained by what is available and what is necessary. So if the guy with the rock said, I don't really want to worry about the savor zoo tiger. I want to think about the stars. He would literally be lunch meet. So technology, both frees us. And as a prisoner reality defines what the next technology will be. And reality is ruthless that if you don't manage to come up with <affirmative> or you gotta hop with the wrong thing, it'll kill you. So technology is where the rubber meets the road. It is not sufficient to solve the problem. It has a long tail behind it, a various modes of thought, but it is the place where necessity meets reality. Sometimes not. I mean there are many things like music coming outta my car radio that is not essential for me, but it's a

byproduct of some things that are essential. That's what I wanna talk about. The relationship of the out, the essential and the technical and the commodity that's sold.

George Friedman:

Okay. So what is the first thing that, you know, guides technology is the circumstances in which you live and the circumstances in which you live, we call geography. So if you live in a desert, the technology you need, probably isn't the same thing as if you leave the live in the rainforest is not what you need if you live in climate. So your entire life is defined by the place you live and your struggle with it. So your struggle with it can be as complex as economics or Iraq doesn't matter, but human beings are not at home. In the universe in the world. Human beings can be at home only after they reshape it. And sort of the definition of the human being is that he reshapes his environment, but also reshapes it in various different ways. All animals reshape their environment, but usually in one way or two ways, human beings can live in any environment because they attack it and transform it, or create sub zones in which they live and so on.

So when we talk about technology, it's important to keep in line one that is fundamental to being human, that it keeps us alive in the circumstances we are, or makes us happier, or what have you. And that it is impossible to have without the professor, if you will. So all the things that we've seen in technology of late, we'll talk about are things we had to have of for the circumstance we're in. Cause sometimes the circumstance we're in is a government that creates problems or an enemy that invades or an enemy we have to defeat. So there are two places where technology lives. First. It lives in a place where we live a normal life in a world where an I, 95, you could get trapped for 25 hours. Now that is a technological problem. It is one we didn't think of before it can kill us. <Affirmative> failure to understand the universe you live in is deadly, or it can be war a war in which life and death is at stake is the issue and technology has to be found to fight it. So when we think of this is life and death, it is also a cool sound system, but that's not the key that's byproduct, as I'm gonna show of a life and death struggle, human beings have, which in turn defines what the economy looks like and define what war looks like geopolitics and economics, you know, coming together.

So let's think about how technology emerge and let's think about our own country. Cause I talk about Hungary, but nobody would know what I'm talking about, including Hungarians. So what is the big, the major characteristic of the United States of north America distance, enormous distances. Now aren't the only place in the world where there's distance. But when we came here, there was no of transportation. There may have been trails the Indians, but what we came here for was to eat. We came to America because we were, if not starving, at least not doing well in the places we came from or bought from. And that required a technological fix. We came here initially to farm, to raise food, to not have the starvations of Ireland behind us. But as soon as you get to the problem of, I think I have more food than I need you get to the next point, how do I move it?

How do I get it there? Now Russia has the same problem, but they've been there for centuries and they have various ways not too efficient to move food and other things. We came to a Virgin competent from the point of view of the European, not necessarily from the point of view of the Indian, but they regard food in different ways. So our first problem was the first technological problem was transport. Now that wasn't much of a problem east of the Appalachians because ground was flat, not too difficult to have a

horse drug carriage through most of it. But as soon as we went west of the Appalachians where we had to go, because we needed more land to feed more people, we faced an enormous problem that has been the fundamental problem of the nation. The first problem we solved with how we had to solve, how do we take the agricultural plenty of the Midwest and get it to the population centers on the east coast. And the solution that was found a technical solution that was found was the Erie canal.

George Friedman:

The Erie canal was the first of a whole system of canals that we created, whose purpose was to bring food to the east coast. Now, the way it worked was the Midwest opened on the great lakes. The great lakes opened on a landscape. You could not pass. You could not get to New York Harbor. Couldn't do it. So we dug the eerie canal and the eerie canal radicalized the availability of food, radicalized the meaning of the Midwest because suddenly the Midwest became indispensable, radicalized travel. It was now possible for you to move family around on a flat boat. Whereas previously it was stretchers and dangers. So we had an obsession with that. We also had obsession of normal roads, Daniel Boone, who you've all heard of his great contribution aside from really good drunkenness. His great contribution to life was he cut the first trail to the west, through the Appalachian mountains in North Carolina.

I've been there and I've seen it. The Appalachians in North Carolina are, impasable not that they're that high, although they're pretty rugged. The vegetation is so thick that it is almost impossible to move through it. And in most of that it's still that way, what he did was cut through that barrier and open the door for settlement <affirmative> because the app, the Erie canal, well that opened up the road to harbors where you go to, but you had to populate the area. And so the United States government having funded a series of waterways to do it now funded roads to the west and the roads to the west very quickly got to relatively flat ground. And that's how the pioneers went out. So what was the economy at that point? It was the, of the unsettled land in order to feed immigrants who needed to be fed either by moving to the place where it grows or having the food brought to them.

So the American technological problem from the beginning was something Ireland didn't have. It was something German. It had, it was transportation, moving things. Okay. And that defined continues to find much of our technology. So we were Europeans invented, British, invented the railroad. We <affirmative> created the railroad that tied together, the entire continent, a vast system of railroads going north, south, east, west everywhere. Why? Because for the United States, the technical problem was moving. Okay. And the visions that we had was going somewhere else that that was the American culture. What I'm saying here is that the technical culture of the United States is fundamentally different for the technical culture of Brazil of, or Russia or anything else. Why? Because there are differences. Technology is not free. Technology is not some genius sitting in his basement, scratching his head and having an idea. It is someone grasping the profound reality of the country. The people made the railroads, Henry Ford, Henry Ford grasped that the railroads were ultimately insufficient for this country. They went to a certain place and then you had to get 40 miles beyond it. He also understood something else.

What he understood was these cities that were created full of factories, that and people living there unbearable, and he understood that something had to be done. Now, Thomas Edison looked at that and said, for one thing, you gotta have lights. You can't at night be in the dark because they become deadly

dangerous places. And so he invented not invented electricity. He didn't invent electricity. He made it into a technology that could solve a problem. His good friend that I've been to see their houses in Florida Edison and Ford lived next to each other. <Affirmative> Hey, talk Ford came up with a model T and he came up with a model T and that changed the entire dynamic of America building on its individualism. People didn't wanna be sitting with other people. They wanted to be in their own cars, going to their own place, stopping when they wanted and so on.

George Friedman:

And he invented a uniquely American car. They didn't invent it. A guy Frenchman invented it, forget his name, but France didn't need the cars. At that time. What the United States needed was a transport system that would allow you to move on your own. What a Henry Ford invented the most important thing, the car dealership. He wasn't gonna sell the cars personally, but you could get a dealership, sell the cars and make your real money repairing them because they always broke down. In other words, technology is not simply the mechanical item. In the case of Henry Ford, it was the dealership. The question of how do you sustain and support an automobile? He understood that they were break. He understood they couldn't sell them unless he had somebody close to the customer who knew how to fix the car. And that guy had to have a, a share of the deal.

And he did that. Now at about the same time this was happening, Dwight Eisenhower, then a captain in the army was given the orders of taking a column of troops. I think it was a battalion from one end of the country to the other to take them from the Atlantic coast to the Pacific coast. The military reason you can see it took him over 90 days to get from one side of the country, to the other, from a military point of view, this was an impossibility couldn't happen. Okay. And he reported back that we cannot have a single army defending both coasts. You're gonna have to have two armies, completely supported in different ways because we don't have roads jumping way ahead. The interstate highway system was funded by Eisenhower's president to cover the entire country. And his reason was not so that you go to the grand old Opry, but that forces could move from the east coast to the west coast, very rapidly after world war II, he had seen what they'd done in Germany and he built it here. Where did the concept come from? Did he know how to build a road? No idea. Maybe some, I don't know. Okay. But it came from necessity of the thing that kept them awake at night, which had been what Japanese land in California and the Germans land in New York. How do we move forces back and forth? So you take these people. Ford. Ford is the person who follows the Erie canal. His found is there. He may not know it, but he's obsessed with the movement of people in a formally empty country.

His good friend, Tom Edison is obsessed with making city's livable. Now, now out of the two of them came the real invention, a real transformation of land use problems. The suburb you had to live very close to where you worked because you couldn't get around. And then the factories had to be very close to each other because the supply eye chain had to move things between the factories and this is all necessary. Okay. And out of Henry Ford, not personally, but a man called Arthur Levit, who is a little remembered who outside of Philadelphia, and then outside of New York built a suburb. He took advantage of the fact that there vast amounts of land in the country. Cities were not really great places to live. And the cost of land was staggering in the city. So you can't build new factories. So he decided to go outside of this to great places like New Jersey and long island and build these homes.

George Friedman:

These factories allow the land to be used differently. And then the automobile became the God. The what Henry Ford thought about became the God of the, of the re of, of America. And now we have a problem with global warming. And what is the one thing we care about cars? And what is the one thing that they're working on, like to your cars. Now I will ask the question of how the electricity is generated. Cause that's highly embarrassing and I should never bring up such matters, but it is still the obsession. We are obsessed with movement. And that makes us very different. Here's a difference in Hungary, in ill or something, you will live your life near your family. Even today, you will, your parents have an apartment so far here, then down the block, you get your apartment. When you get married and grandma takes care of the children and it is an integrated family system in the United States.

There is no such or the system breaks down. Now, when we came to the United States, my sister got married and she lived right next to my parents. By the time our children are there, one is in Massachusetts. One is in Rochester, New York. One is in Florida and one is in Dallas. It is a family structure unknown in the world. So technology trans comes out of necessity, out of economic need and all sorts of other things, and then transforms your existence. But no one who invented the car ever envisioned this would happen. Levitt may have some chance. I don't know. But did he realize that at this point in American history, you go not with your family, but with your job in the United States, unlike other countries, your job determines where you live and you go where you must have that job. And when you go to these places, you don't give up your family. Now you zoom or you call every once in a while because what you are committed to is basically a family designed by the geography of the United States and facilitated by the technology that was created. Okay. And you can go through this over and over again and see this incredible ballet between life necessity and technology. And now it gets to the point that it's no longer sharp rocks to get rid of a tiger. It's doing something more radical, okay? It is redefining our relationship to the earth. It is redefining our relationship to family.

It is redefining everything. I left home to go to Cornell and I have not visited the slum. I was raised in once we were watching on TV a crime and what's it called Meredith law and order law and order. A lot of which takes place in south in the old they would. And she said, don't you ever wanna go back and see it? And the answer, hell no. I've seen all of it I ever wanna see. And so our entire fabric of relationships of memory, of everything shifts because of technology, techne is indispensable. But behind the technology was the founders envisioning what could be done here. And Thomas Jefferson and the Louisiana purchase buying the Midwest for the United States and kicking the French out, which was found by me. This was, is all tied in together. So technology rather than simply arising, surprisingly and changing things, a arises out of necessity.

So I'll give, give you an example. War is a necessity. Now this is a lecture I gave in Budapest to a bunch of millennials, which I truly enjoyed. I said, you don't like war. You don't like conflict. You like peace. And you like your phone. So let's talk about your phone. Your phone is built around the microchip. The microchip was developed in its final technological form to power the computer on the F 14 fighter and to guide submarine launched cruise missiles. Many of them with nuclear warheads. Now, you, you like it in here, but it's not exactly what you thought of it, but you know, you had other parts of it. For example, the phone, the cell phone was first deployed in 1986. I believe at Fort PO Louisiana and was deployed in desert storm. The cell phone was developed for the us army facilitated communications.

George Friedman:

And it's very not that you know, you pose war, but why are you carrying this in your pocket? Now you have a camera. And that camera is a wonderful thing to have in that I actually said, I don't see why anyone in their right mind would want a camera in their phone. That's how good I am at this. This camera who's developed is a, a digital camera that was first launched on ay satellite in the late 1960s. And because the only other way to take pictures of Soviet satellite installations had been Kodak camera film dropped out of an airplane after AF out of a satellite and caught in midair by a fighter plane that would take it back. This was a lot of fun for the fighter pilots, but not really an efficient way to detect the Soviet launch. So what was created was the digital camera, a camera that could operate by sensing light store that in a memory provided by microchip and then transmitted back to earth in real time.

So when you take a picture of anyone else and smiling children and everything else always remember that your phone was created to manage a nuclear war. Now you get lost. You're walking around your city, you're re driving and you want a, some direction you reach in here, turn on your GPS. And you know where you are. You can tell where you're going. It'll take you there. That is a great invention invented by the us Navy, their nuclear submarines had to know precisely where they were in order to launch their missiles. So how would they know where they were, if the stars, when surfaced couldn't be seen and how would they know if they had to surface that there wasn't a Soviet destroyer nearby? Well, they didn't. So they ordered a consolation of satellites called GPS and created a system that allows the submarine to know exactly where it is.

And the purpose of that was to have perfect targeting of Soviets in these, the point I'm making here, or I'm going to a different place here is when we look at this and we get on the internet. Some of us may forget that the internet was developed by DARPA defense, advanced research projects, agency, a place where you don't have, Techne nearly as much as EPIs, you know, thoughts are gathered and then you have to drag it out of their arms to actually do something. Why was DNA dead invent? Because we had national laboratories all over the country and we had to get information between them right now, when it was invented you know, back in that early, late 1970s call that it was invented because otherwise it was only special delivery mail. They could get it there or potentially, you know, special carriers. The internet was developed to move classified data between national laboratories to develop their projects. So the internet, which makes all of this possible, everything gets hooked in through debt was a military project. Now we've been talking about how land and our lives are linked together, okay. With technology. But we should also consider the fact that the most constant activity of human beings is warfare.

And many of the things that are developed are developed for the purpose of warfare, your cell phone was not developed in the hopes that you could call your girlfriend or boyfriend, depending on what you want. It was developed in the context of nuclear war, with various components that had to be done in war. There is necessity that you have, you have to be able to kill your enemy. Your enemy has the ability to kill you. You have to find ways to kill them faster and better. Think about airplanes. The airplane was an interesting invention by the Wright brothers that nobody much cared about until world war I and world war I, they were used for artillery. Spotters then were used to shoot each other down. Then the war ended and they were used to deliver the mail in the United States. Couldn't find uses for it until PanAm comes along and then an aircraft would longer range and reliability.

George Friedman:

That'll carry passengers to Kip the clipper. When you get on board a plane now, and you get on board, a jet aircraft, you are getting aboard a system that was created by the us air force, actually, Germans first, they're really good at this. And you're flying courtesy of war. War guarantees the security of the nation. It also constantly creates inventions that transform your life. It is amazing to see how many peace time uses like the cell phone, have their origins in war and preparation for war. So technology shows itself in two ways with the direct consideration of the physical nature of the universe and solving the problem. And secondly, as a secondary outcome from life and death struggles in war, and both of them kind of converge. Now, when you look at Facebook, what do you see? You see the internet, the microchip, a database, a bunch of things, pretty simple, which has enormous impact on people's lives. When you take a look at Tesla, its origin is in our physical need right now to have this sort of car and technologies that are rooted in war.

Now, when we look at technology of an airline, when we look at technology of apple, we're talking about the economy in its highest sense of the term, the integration of TechNet of ideas out of EPIs into product, which is then does something very interesting. We go to selling now selling is something that we have done time immemorial, okay? But this selling is interesting in that you're selling to a vast global population simultaneously without ever knowing them. And you are creating a system of relationships that didn't exist before. So when you take a look at economics, as it was normally understood, and you take a look at a Facebook, please notice that Facebook has generated massive controversy, animosity, and everything else so that the political system will go back and change the rules under which it operates just as it intervened and changed the rules of how at and T works just as it changed the rules of the oil industry.

So there's this dialectical interplay. Okay. On the one hand, the thought comes to mind of what could be Zuckerberg sitting in it. Bunch of people techne creating it, the creation, changing the world, the political system climbing into this S world changer and redefining what it can and can do. In other words, the economic dimension that emerges that narrow scope in which Zuckerberg gets really rich, okay, is a transitional point. If it's a great technology to government intervention, in other words, in a democratic society or not the consequences of technology and their economic consequences, financial consequences all have to be managed. So what I'm trying to get to in this is to see the degree to which everything is that this is not a system where a technical company emerges. Apple didn't invent anything. They figured out how to package it. And they figured an enormously efficient way for using it, unlike the way the army would.

And they figured out to price and sell it. Those are all important things. And in due course, apple will suffer the fate of all large companies. Those who said, what is good for America is good for what is good for general motors is good for America. Well, how is GM doing these days? All of these in the D economy shift, partly because the technology shifts the problem shift and everything shifts. Okay. When you look at all of the problems that each one of these technologies gives you, you can begin to understand the unfolding of things. You can predict things, a and you can predict things that really matter, because there is no way that social media could sustain itself because most people are stupid. And if you let them talk, they'll say stupid things. Now I'm not stupid. So I should be allowed to talk all I want, but Meredith is telling me to shut up. So I'll stop here and take any questions you might have.

Meredith Friedman:

Actually, I was only letting you know that we've got 30 minutes left for questions and let's get to them some really good ones here. Alessandro Santa asks, So technology can be determined by political agendas and economic interests.

George Friedman:

And when you take economic interests and desegregate him into necessity, okay? So if you take a look at the United States, the economic interest doesn't work until you deal with the distances involved and now you invent things to deal with them. So yeah, it is constrained by a range of forces, but the thing that drives the first stage, oh, this to me, the recognition of this country is so vast and we're not gonna be able to exploit it unless we have roads if we

Meredith Friedman:

Have. So that, that actually leads right into the second question from Paul. When does geography stop being a driving factor for technology in the us, or is it always gonna be that way? In other words, with the, a refinement of the airline industry combined with interstate tracking, continued railroads has geography being conquered in the us. So there's a new reality that needs to be solved now,

George Friedman:

Airplane. Well, there's always a new reality, but airplanes fly on fuel. Airplanes require people to travel, to work and fly. And given the supply chain situation we have right now, the question of flying somewhere is not a given what will happen will happen. So intermediate problems come up. We would say that most of the geographical problems are solve, but there's one problem that aircraft don't solve. They are relatively expensive to operate. And the cost of transportation only is justified by high value products. There are other low value products that you really need, like Kelloggs cornflakes used to be. And they can't be flown there. So there's a dimension that airlines solve other things that are not solved. You know, getting grain from the Midwest to the port of New York is not something that aircraft solves. You still different dimensions. What the aircraft did was create a new dimension of transportation with certain limits and certain possibilities. So two things, one, you can't fly a plane without many other resources. And secondly, it's a layer on top that doesn't eliminate the other layers.

Meredith Friedman:

Yeah. When you mentioned it took 90 days for Eisenhower to move troops across the, the country from east to west. And thinking about what we do today and 90 days, that's pretty Paul Jackson asked, could we regard the Erie canal as the model for the system of transport that the Mississippi is today?

George Friedman:

Very much so. Yes. What the Mississippi has is not only tremendous reach, but branches, the Missouri, the Ohio, everything that can come in now, when the Erie canal was created, one of the questions was how to connect it to the Mississippi. They didn't do it all the way, but in reaching the great lakes, the Mississippi actually starts in Northern Minnesota. You can take a road down in ways and then get back on it. But yeah, the Mississippi is one of the miracles of the United States because it allows us to transport goods, even today, very heavily on the Mississippi and the Erie canal gave it, reach east of the Appalachians. I think very few people understand how much of our goods are sent out of miss of the

Mississippi out of Houston, out of other ports, Beaumont that's most majority of goods go out there. It's the Gulf of Mexico. It still is the place where goods come in and go out and sit living in Texas. I want, you all know that.

Meredith Friedman:

So staying with the idea of geography for a minute Frank asks America's transportation system assisted the radical dispersion of the nuclear family. People lived where the job was, as you pointed out many times, our transportation and communications infrastructure is just keep the traditional family ties together. How revolutionary do you think zoom will be? And Microsoft teams and other such software programs in remote video conferencing and how will they affect job location and family traditional ties and closeness?

George Friedman:

Well, if you read site fiction or red science fiction alone, the idea of the telephone with visuals in it, you could see people was an old, old theme. And the argument was by seeing people, you would not have to be close to them. The introduction of Skype really introduced the first beginning of it. Zoom has, from my point of view, perfected it. We will now have new capabilities that will complicate it beyond any belief of what we have, but that's the way it works. But I think zoom represents the old concept, the epi of the science fiction novels and I, and as FaceTime, I suppose also but yeah, I mean, this has made a huge difference. So you have the breaking up of the nuclear family. You also then have tools that can bridge that to some extent imperfect that it may be.

Meredith Friedman:

That makes me think about something that we were doing last night, which was, you were doing a Bloomberg interview from zoom in your study right there where you are now four years ago, we spent maybe $15,000 building a home studio digital home studio so that we could hook up with the networks. George could do interviews on TV through this relay company in New York city and earlier this year, well, last year now we dismantled that we, because it was already obsolete, everybody just was using zoom or Skype TV stations, and now using zoom or Skype. So the technology had advanced even beyond that of a digital studio. And there was no point in having it. Plus I have a bedroom or an extra study out of that. Lee prior asked a very good question. How will technology affect the geopolitics of China?

George Friedman:

Well, China has two geopolitical problems. The first is that the coastal region is relatively prosperous. The interior is very poor. It is, is the 76th per capita income nation in the world. In other words, it ranks with third world countries. That is a geopolitical problem because it creates potential. Geographical raises. The second one is a vulnerability militarily, which is it ships through a ports on the coast. And if anyone closes those ports, it can't ship. So China has to find a way to enrich to some extent, the interior of China, if you see what the Chinese are doing now, they are CLA down into high tech businesses that were the strategy of becoming a world power limiting their access to capital. And as G has said, you know, equalizing the wealth around the country, that's his program. The other question, the military question of it is solved by the Chinese, but they have backed off for a while.

We don't hear them talking about it. What they're obsessed is how do they hold a country together during a time of economic decline? And that economic decline was an EC, was really a geopolitical problem, which is they depended. It de created dependency on exports and during COVID exports became problematic, but also they were competing with some of the most powerful, innovative con companies in the world, in the United States, in Japan, in Korea and Germany. It's not that they're not competitive, but where they they're the only ones that sell cheap lipstick 30 years ago, there are a lot of people selling the things they're trying to sell. So they are under heavy pre pressure because they never really solved the internal geopolitical problem that they had. They allowed the coast to become very wealthy. They neglected the interior. The interior has far more people than the coast, and now they are scrambling to try to settle this issue if they can, I'm betting they can't, but we'll see.

Meredith Friedman:

Oops, almost forgot to turn off mute. Okay. This one is from Andreas. You've explained how the British invention, the railroad and a French invention, the car reached their four potential only in the us, Peter Z, who we know who used to work for us. He developed a thought into this idea that for every technological age, there is only one particular geography that can utilize the defining geo technology of that age to its full extent. So, for example, during Egypt, the age of Egypt, the Nile river valley was the best geography in the age of deep water navigation and Britain was ideally located. America had the best geography for the industrial age question is what would be the optimal geography for our information age? Do you have any thoughts on that?

George Friedman:

Well, the railroad did not reach its height only in the United States. It reached Europe was covered by railroads. Russia was covered, but it made the most impact on the United States because of the geography of the United States. There were other ways to move around Europe, not here. I, I think that there are certain geographies that define Europe right now. I think it's the microchip. I think the microchip is not obsolete, but well, past this prime, it's like the automobile was in 19 65, 50 years after its invention it's introduction. It, it was no longer that exciting. The, you started in the seventies where nobody's waiting for the next feature. There's in, in the industry and the microchip industry, there's a scramble to find new uses. And some of them are fairly odd. I'm not saying that it's exhausted, but we are bound for it.

So I would, unlike Peter really argue that geopolitically technology is exhaustive utility in the sense they remain useful, but really are not driving the economy. I think that's the case of the micro ship at this point. Now I think many countries benefit some countries have a larger Delta. For example, the Delta for the United States was much larger than Delta for Britain of the railroad, the British geography allowed for movement, but they still had covered the country with the railroads for the United States. It transformed the possibilities. So I mean, Peter's idea is I think very interesting to, to look at, but I think I see geo geopolitics more as a process of absorption and movement and slow dissipation and not as, you know, re rigorously divided. Okay. So I think every country benefited a railroad, every country benefited from the microchip, but some benefited more than others.

And that has less to do with geography, I think, than a culture America was built on technology. It did not exist except for technology. It is a technological nation and growing up the transistor radio was a

magnificent final step in everything we knew. My Hungarian side is far less enamored by technology because his it's a small country. I can drive to see my parents, you know, all these things. And there, you, you really get this part. That's interesting, but the United States has continually had a cultures technology, and it's very hard to find any country to sustain this culture the same way. So it would be the cultures technology, or rather than a technology.

Meredith Friedman:

So two questions on China and North Korea. One is both China and now North Korea seem to develop hypersonic missiles. Is the us behind on this? Or if we just not advertised our level of development. And then the second one, how much does

George Friedman:

Technology let me do the first but first. Okay. Okay. I wrote a book in 1993. I think it was the future four with long chapters on hypersonic missiles. And how I found out about I confirmed. I knew that they were there is I went to the department of agriculture budget and found an entry for the project that was developing hypersonic missiles, which is kind of cool. I love it. On the other hand, we've been working on hypersonic technology since the mid nineties, we had a problem in operation desert storm. It took us 60 days to be able to move into a position to launch it offensive. In those 60 days, we were up against who didn't intend to attack. So it worked, but if our wars are gonna be in the Eastern hemisphere and surprise wars, we have to have faster.

So in his book hypersonics and interestingly enough various projects that I knew existed suddenly didn't exist when projects that I know existed suddenly don't exist back in the eighties. You know, that they're existing, but we're not talking about 'em. So I don't know anything classified about hypersonics at this point. I know it was a subject of intense discussion almost 40 years ago. And I also know that it did the usual over from white, from light to back black as an operation. So I would assume that if we don't have some really interesting weapons, there are cart marshals that need to be held and I'd be happy to, but I'm pretty sure we have some really good stuff.

Meredith Friedman:

And I know you none of us believe that the north Koreans developed the technology on their own, obviously they didn't. But the second question from Tim is how much has the technology become an influence in security and economy impacted innovation, such as North Korea testing its hypersonic ballistic missiles.

George Friedman:

Firstly, the, the term hypersonic missile has two dimensions. The first it must achieve a speed of mock six, seven second. It must be maneuverable. Now maneuverable part. I mean, other is just the missile that gets there 15 minutes earlier to get a, you know, the ability to maneuver was always the problem. The problem became a problem of material science. If you have sensors in the front of a missile, traveling at mock 10, which I, I thought was the optimal speed. I dunno if they reached it, how do you collect information? None of the materials function properly so you can cite or anything like that. So they had to have a whole generation of these things, many things in addition to speed make of

dismissal. So the missile I looked at seemed to be a high powered ballistic missile, which is not high percent, but at this point, hypersonic as anything that any that goes fast, not even discussing how fast.

Meredith Friedman:

Okay. got a few more questions here and some comments, but one interesting point, Harry makes is his surprise. Religion was not mentioned as a driver of technology, for example, the back in Luther's time. Why didn't that make the cut?

George Friedman:

Well, I was thinking of having a series and religion in geopolitics, but I'm not sure that anybody carries about, but yes, I mean, religion, as it was developed was however, a political force. It was developed and utilized not just by the religion because the religion was a political force fighting the church, the Catholic church. And so at interesting points is the technology something used by a religion or is the religion really a political force to be used in other ways, religion is enormously powerful. You can't understand geopolitics without religion, but that particular case Luther was waging a religious struggle. He was also waging a political struggle. And which one is it? So yeah, the answer is to do the religious side of this is vital.

Meredith Friedman:

Another interesting question from Doug in Florida, given the ubiquity of computers and internet connectivity and dramatically increase cyber threat surface areas, how would you characterize the relative geopolitical importance of geography to the cyber landscape, particularly in light of grey zone warfare?

George Friedman:

Well, is, does Doug in Florida? Anybody I know?

Meredith Friedman:

We met once or twice in key west.

George Friedman:

Oh I, well, I'm not sure what the gray zone of warfare is, is warfare and there's not warfare. But look, we have been dealing with the question of jamming communications of intercepting communications of spoofing communications. And so on the technical problem has become war complex. But the fundamental issue such as, you know, hybrid warfare, I mean the BBC was carrying out hybrid warfare throughout the world war II, telling truths and sometimes lies to people. Okay. I don't see any of the problems of warfare in principle changing the technology in the manner of manipulation becomes somewhat more complex, somewhat easier. And that changes all the time. But I don't, I don't see that the techno the principles of warfare are very static. The application of those principles are not. So my it's not my son-in-law who's in Florida. Right. Meredith, okay. Sorry.

Meredith Friedman:

No different one. Okay. Let's see where we go here. Fred asks today is the anniversary of January 6th, many claim. This was a watershed event in the experiment in self government. Oh, I think I know he's taking us off track here yet for all of the sophisticated technological, we cannot agree on. What is fact, what is truth? What might the geopolitical consequences be? Good question,

George Friedman:

Fred. Thank you. My entire life there's been a debate on what's true and what's not true. Is the United States engaged in an Imperial project to dominate the world is the Soviets would say, were the Soviets engaged in a vast conspiracy to draw so to Vietnam? No, there were those who said one and the others thought they were liars and vice versa. Controversy exists. What's really happened to change. That is that the media has intervened to deter what is false and what is true. Now they did it during the Vietnam war too. They would intent, they declared it a massive defeat when it was more complex than that. So the problem that we have is the media generally consists of people who have views on things, but no, don't see the subtle complexities. So not getting involved in any current issue. But to one far as least as intense, which was the Vietnam war the media took sides against the war and really never allowed discussion to develop into anything more than a shouting match so that all there was, was two views, one liar. So it is possible that there is some crime involved in the election fraud. I come from the Bronx in the Bronx fraud was national with the Yankees. Okay. Do I know there was no. Am I saying there was no, but it depends what you're really saying.

Now what was said on the question of fraud in the election was very bluntly put and has been labeled untrue. Well, is, are there complexities? So one of the problems that Americans have in all times is the lack of subtlety. They take positions and almost all positions are wrong because they have to be explained in hours like I do here, carrying on. So all, all of them are wrong. So I don't think they're in a particularly odd place. I mean, the civil war was really a intense place. We're not there. We simply, and I, I really blamed the media for this turn an issue into yes or no. When what you really need is an extensive conversation that no one has. So, you know, J J Jackson accused Adams of stealing the election. Now it out in history that he did steal the election, but at the time only redneck pioneers would believe that whereas Eastern backers would never believe such a story. So the time there was no question what was true, but we, we do this all the time. And the other thing we do is we say, I've never seen it like this, and boy. Yeah. American history is full of crazy stuff.

Meredith Friedman:

Two more questions. I think we have time for maybe three Edwin asks, how do you factor in space in the age of hypersonic missiles? Doesn't geopolitics get expanded beyond traditional geography and how do you and participate the effect of that, of space on future relationships?

George Friedman:

Well, to give something, I'm writing a book on space warfare and economics of space and so on with my friend Jacek from Poland was clear in mind cuz I don't have anything in space. Obviously geography spreads the Eastern hemisphere spread to the Western hemisphere and changed GE geography of the Eastern hemisphere as a result. Okay. So space is an extraordinary dimension where just the moon, which now we know has water has so many possibilities. We will go there. And when we go there, there

will be war because we're humans. So the next generations will, you know, see this, my view, however, is that it will not be, we are already in space given the type of war we have because we do great many things in low earth orbit and in Joe orbit that affects, affects the combat. So we're there, but it's gonna get far more interesting. And I really have to write this book already. So stop talking about it. All right.

Meredith Friedman:

Thank you. One more question here from mark. Why do you think graphers by and large, do not address these questions as much today as they used to such as in the time of political geography seems to be more like political science rather than geopolitics.

George Friedman:

It's very hard to answer that, but I think if I take a shot at it, it's the growth of geography as a weapon to use in pretty low level politics. So in the way that, for example, events like the civil of war events, like slave trade have been addressed, it they're dressed with a simplicity. That's not there. I'll give you in one example, the slaves did not kidnap for the most part, black slaves. They bought them because slavery was common to Africa. Now in the discussion, there are two groups, those who don't wanna talk about slavery and those who want to make slavery, the monstrous issue for the United States, the true answer is very complex and graphers are like other academics. They have little flexibility and thought and can't face what I just said. So I would, if I was a professor still, I would not be a professor anymore if I said that because that is not a central.

So a lot of thought from formal institutions has deteriorated from the newspapers, from the universities some of the best thoughts from the military, whether it ever sees the light of day unclear, but we are in the crisis of our time is not freedom of speech or anything like that. It is that dogma has taken over very radically and it's impossible to really break that dogma and still get invited to parties. Fortunately, I don't get invited to parties and don't wanna go anyway so we can do that. But this is a problem that I, I have to tell you that this organization was designed to overcome. My intention is to speak my mind and not go up for tenure. Now that's a pleasure. But this problem of speaking complexity that make the Twitter makes impossible. You have three lines for something that should be look right and shouting at each other in simple lines, this is our problem. And the problem is that we don't expect more and demand more from those who, you know, are supposed to be the living the life of the mind. You know the EPIs.

Meredith Friedman:

Thanks, George. Our time is up. There's a one last question, but it's not a, a quick one, but see if you can answer it in 60 seconds. Robert asks, if the Chinese can't solve their problem of spreading wealth away from the coast to the interior, what do you see as the consequences?

George Friedman:

Well, if China could enrich the coast, China will be without a question, the world's leading power. It is vast, it has loose Jewish population, but they can't do it. They can't do it because when you sit down with the numbers, it means gutting the coast. And if you gut the coast, well, that's the engine generating cash for China. So yeah, I mean, if they could do this, but they have never in their history, been able to do this. The west was, I was poor and the coast was poor or rich, but he'd never been able to make everyone wealthy and there were reasons.

Meredith Friedman:

Okay. Thank you all for joining us today. We're oh, I have one hand up here. All right. Anybody who needs to leave can leave, but I hate moving with any, anybody you can't

George Friedman:

Tell that to people cause they gotta do it. Whether you tell them to.

Meredith Friedman:

<Laugh>. Well, Kamel is now here. If you wanna go ahead and ask you a question, I guess that's why you're on the screen.

Speaker 5:

I was suggesting that people should read George's book. The next hundred years it talks about it about space war and that from how many years ago, George? 15 years ago?

George Friedman:

No, it was probably 2009.

Speaker 5:

Close to 15 years. Yeah. All right. 12 years. But you know it's your forecast of what would to come. So it was wonderful.

Meredith Friedman:

And, and that folks was not a pre-planned organized marketing ad for George's book the next 100 years. So thank you for that. Everybody, thank you for joining today and hope we'll see you very soon in another club session. Take care. Stay well. Thank you.