Key to the Threat Matrix

**Country** - UN Nation State (minus some smaller island nations)

**ISO** alpha 2 code for nations (possible helpful in the dictionary for coding)

Alpha 3 = 3 letter code for nations

**BioPsychoSocial** = this will be the summary statistic for all variables weighted into the matrix – and then nations can be ranked from most to least dangerous and color coded. Countries within half a standard deviation of the mean on either side, should be green. Countries +1/2 SD to 1 SD should be yellow, countries 1 to 1.5 SD above the mean should be orange, over 1.5 is Red. Countries below the mean – ½ SD should be blue, ½ to 1 should be indigo, and more than 1 should be violet. This is more nuanced that three or four colors and it is tied to an underlying meaning. This also keeps entire continents from being one color!

Red

Orange

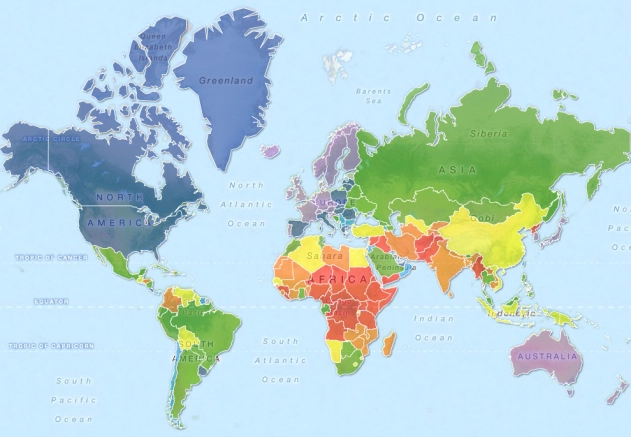
Yellow

Green

Blue

Indigo

Violet



**BioPsychoSocial + Legal** adds to the above variable the sum of Legal

BIO = sum of the biological variables

PSYC = sum of the psychological variables

SOC = sum of the social/cultural variables

LEGAL = sum of the legal variables

The next three variables listed here do not add to the matrix ranking.

**GFP** = Global fire power (not including nuclear), represents a nations ability to impose its will on others. The GFP ranking is based on each nation’s potential war making capabilities by conventional means -not nuclear. The rank incorporates values related to manpower, equipment, natural resources, and geography represented by 50+ factors. Their web site allows direct comparison of any two nations and regional comparisons. See **https://www.globalfirepower.com/countries-listing.php** (we want to collect this data on a yearly basis and use it to populate an SQL table – in a sense it is a measure of what countries can bully other countries.)

**Gender** = This composite score is given independently as a measure of how women are treated. These variables are not rolled into the sum for the rating of nations – they are reported independently because how to mitigate risk depends on the sex of the team being deployed. We use gender because it refers to social and cultural differences in the way men and women are treated on account of biological sex. (the three variables should be kept as separate variables in a Gender Table and then summed together for a Gender Score).

UNGII – UN inequality index score measures gender inequalities in three aspects of human development, reproductive health, measured by maternal mortality ratio and adolescent birth rates; empowerment, measured by the proportion of parliamentary seats occupied by females and proportion of adult females and males aged 25 and over with at least some secondary education, and economic status, measured as rate of female and male population 15 and over in the labor force. [**https://data.un.org/DocumentData.aspx?id=415**](https://data.un.org/DocumentData.aspx?id=415) **use the gender inequality index value – the most current score**

Attitude -The violence against women indicator presents you with data on: Attitudes toward violence: The percentage of women who agree that a husband/partner is justified in beating his wife/partner under certain circumstances. If the value is italicized, it was estimated using a nation with similarities. OECD Data**.** [**https://data.oecd.org/inequality/violence-against-women.htm**](https://data.oecd.org/inequality/violence-against-women.htm) **Values in this table need to be multiplied by .01**

InParVio – the percent of women who have experienced physical and/or sexual violence from an intimate partner in their life. **http://data.un.org/Data.aspx?q=intimate+partner+violence&d=UNAIDS&f=inID%3a55** if you can find more current data, use it – but this page has data for women 15 to 49 as a percent. Turn the value into a percent by multiplying by .01

**https://www.who.int/data/gho/info/gho-odata-api**

**https://www.who.int/publications/i/item/9789240022256**

**Religion =** This composite score is given independently as a measure of how people of faith are treated. These variables are not rolled into the sum for the ratings of nations – they are reported independently because how to mitigate risk depends on the mission and faith of the team being deployed.

RELIGION = sum of %notChri, GRI, SHI, IRFA, RelPer.

%notChri = population who do not ascribe to some form of Christianity (this can be computed by taking 100 percent and subtracting the percent catholic, orthodox or protestant with the remainder being non-Christian**.)** [**https://www.nationmaster.com/country-info/stats/Religion/Christian/Orthodox/Orthodox-percent-of-population**](https://www.nationmaster.com/country-info/stats/Religion/Christian/Orthodox/Orthodox-percent-of-population) **or https://www.theglobaleconomy.com/rankings/protestant/**

GRI –Government Religious Restrictions by Pew Research laws, policies and actions by state officials that restrict religious beliefs and practices. (\*.1) **h****ttps://www.pewresearch.org/religion/interactives/religious-restrictions-around-the-world/**

SHI – Social Hostilities Index by Pew Research social hostilities involving religion – including violence and harassment by private individuals, organizations, or groups. (.1)

[**www.pewresearch.org/religion/interactives/religious-restrictions-around-the-**](http://www.pewresearch.org/religion/interactives/religious-restrictions-around-the-) **world/**

IRFA = US Commission on International Religious Freedom Tier 1 countries .66 = government engages in or tolerates particularly severe religious freedom violations, meaning those that are systematic, ongoing, and egregious, watch list for Tier 1 status .44, and .22 for countries where violations engaged in or tolerated by the government during 2021 are serious and characterized by at least one of the elements of the “systematic, ongoing, and egregious.”

RelPer = Open Doors persecution ratings – they also have an interesting system of assigning motives for persecution from Islamic Oppression to Dictatorial Paranoia. <https://www.opendoorsusa.org/christian-persecution/world-watch-list/> (this is a case where the order needs to be flipped, as the number 1 ranked nation is the most oppressive and should get fipped with Afghanistan getting .51 and North Korea .50 etc.

Sharia Law - [**https://worldpopulationreview.com/country-rankings/sharia-law-**](https://worldpopulationreview.com/country-rankings/sharia-law-) **countries**

Sharia = 1 is the country practices Sharia law – scoring should be .6 for classic, .4 for mixed and .2 for Muslims only

Major religion in a country were 50% adhere to one of the following

ISLAM

ORTHO

CATHO

PROT

HINDU

BUDDHIST

CHRIS (where the combined Catholic, Orthodox and Protestant is more than 50 percent)

JUDAISM

OTHER = there isn’t a dominant religion

**BIOLOGICAL** – this portion of the matrix considers threats to safety to us as biological organisms who depend on technology were threats are created by random incidents whose likelihood is statistical. It consists of three subcomponents, TECHNOLOGY + ECONOMY + ENVIRONMENT. We want to keep as much data in the Tables as possible.

**TECHNOLOGY** = the sum of the variables Elec, WatSanit, CellPh, Net, Infra, MDIPx. Most of our clients dwell in the so-called first world and if this means anything today, it is a technological affluence. We have come to rely on technology for everything from the GPS that shows us where, to google that tells us what, to YouTube that tells us how and smartphones that tell us when. If we are adapted to this technological environment, lack of it can compromise our basic safety and security in ways that call for risk mitigation strategies.

**Elect** = This variable is a measure of the scarcity of electricity use in a nation. Worldwide, the average person uses 309 Watts of electricity per year. This variable is created by taking (rounded world average 350 – country average) \*.001. The source for energy consumption was the CIA. If a country has no score for this variable, its energy consumption was above average for the word. This is a measure of scarcity, the higher the value, the less electricity used. Devices that use a lot of electricity include washing machines, dishwashers, PC/laptops, stoves, refrigerators, fans, and air conditioners. Power is the rate at which energy is generated or consumed and hence is measured in units (e.g. watts) that represent energy per unit time. A 100-watt light bulb left on for one hour will use 100-watt hours of energy.

**For example, consider India – 350 – 85 = 265(.001) = .265 or Nigeria 350-16 =334(.001) = .334**

<https://en.wikipedia.org/wiki/List_of_countries_by_electricity_consumption>

**WaterSan** = percent of people in a country who lack access to either or both potable water and sanitation. A safely managed drinking water service is defined as one located on premises, available when needed and free from contamination. Access to sanitation means having a flush or pour-flush toilet/latrine to a piped sewer system, a septic tank or a pit latrine located on premises.

[**https://ourworldindata.org/explorers/water-and-sanitation?tab=table&facet=none&Resource=Drinking+water&Level+of+Access=Safely+managed&Residence=Total&Relative+to+population=Share+of+population&country=IND~USA~KEN~OWID\_WRL~BGD~ZAF~CHN**](https://ourworldindata.org/explorers/water-and-sanitation?tab=table&facet=none&Resource=Drinking+water&Level+of+Access=Safely+managed&Residence=Total&Relative+to+population=Share+of+population&country=IND~USA~KEN~OWID_WRL~BGD~ZAF~CHN)

this table gives the percent of people in a country with access to safely managed drinking water – our variable is created from this as the percent of people in a country who do not have it. For example, for Ghana in 2020, 41.41% had access, thus 100 – 41.41 did not, or 56 percent. We will multiply this by .001 so the score for the variable for Ghana is .056

this site has an option for selecting sanitation too, for Ghana, 13.32 percent of people had access to managed sanitation, so 86.68 percent did not, or a score of .087

For Ghana, the WaterSan score would be .056 plus .087 = .143

**%noNet** this is the percent of the population which does not have access to the internet. For example, the site says that 45.9% of people in Ghana have access, so it means that 100-45.9 percent do not, or 54.1 (which we multiple by .001 to get .054.

**https://en.wikipedia.org/wiki/List\_of\_countries\_by\_number\_of\_Internet\_users**

It should be noted that just because a household has a modem, it doesn’t mean that it is working on a particular day or that the speed is matches cable internet in the US, it could be dial up.

**(we are dropping out the cell phone variable, although it would be useful to know the percent of people in a nation without a cell phone, it is more important for the team to know about their contacts – it is infact imperative to know they type of phone service and bandwidth etc. Eventually this should be its own table. Communication is very important for safety and it does no good to try and call someone with a US phone who cannot return a call from their network. )**

**Infra** = This is a rating of the adequacy of the infrastructure of a county, including its roads, airports and power grid. <https://lpi.worldbank.org/international/aggregated-ranking> for Infrastructure. Germany has the highest rating at 4.38 for infrastructure and Iraq has a 2.00, so 4.38 – 2.00 = 2.38 and this is multiplied by .01 for an infra score of .0238

**(note: we need to have a way to change the weighting of variables and to keep track of the scores that go into creating them… because we will need the original scores in the future for AI)**

**MDIP –** Multi-dimensional poverty index looks at the situation for the bottom 40 percent and it has little association with the Gini coefficient. It is a measure of how people experience poverty in terms of nutrition, education and standard of living. Indicators that make up the MDIP include whether or not an adult over 70 or child under 5 is malnourished, if any child in the household has died in the previous five years, if no member of the household over the age of 10 has completed six years of schooling, if any school aged child is not attending school up to 8th grade, if the household cooks with dung, wood, charcoal or coal, if the household sanitation is not improved or is improved but shared with other households, does not have access to improved drinking water within a 30 minute roundtrip walk, has no electricity, housing materials for at least one part are inadequate (mud walls), the household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bike, motorbike, refrigerator, and does not own a car or truck.

Data from Open Multidimensional Poverty Index (MPI) 2022 webpage **https://hdr.undp.org/content/2022-global-multidimensional-poverty-index-mpi#/indicies/MPI** Use the data in the excel spread sheet even though it may be a few years old.

How do large numbers of people in the environment who don’t have access to running water or indoor plumbing, didn’t learn about the germ theory of medicine in school, and haven’t heard about the pandemic a safety issue?

<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fhdr.undp.org%2Fsites%2Fdefault%2Ffiles%2Fpublications%2Fadditional-files%2F2022-10%2F2022_mpi_statistical_data_table_1_and_2_en.xlsx&wdOrigin=BROWSELINK>

**ECONOMY** – this portion of the matrix considers threats to us as biological organisms because we occupy a niche in the world economy of being in the top one percent if we make an income of $32,400 a year. For desperate people live in poverty we can represent a once in a life time opportunity – and this is nothing personal about us other than the niche we occupy in the world economy.

**PPPRank** = Purchasing power parity is a metric used by macroeconomists to compare currencies through what it takes with each of them to buy a basket of goods in the market place. It is a way of comparing productivity and standards of living between countries. This file gives the ranked purchasing power parity where China and the US are #1 and #2.

<https://en.wikipedia.org/wiki/List_of_countries_by_GDP_(PPP)>

to create this measure, take the rank and multiply it by .001 so China at #1 gets a value of .001 and Ghana which is 69 gets a value of .069.

**IHDI** = The Inequality-adjusted Human Development Index (**IHDI**) combines a country's average achievements in health, education and income with how those achievements are distributed among country's population by “discounting” each dimension's average value according to its level of inequality. 2022 Report United Nations Development Programme (UNDP). Data unavailable for Islamic countries from this source was taken from a paper by a scholar on the subject. – remind me to get you this paper or the number.

<https://en.wikipedia.org/wiki/List_of_countries_by_inequality-adjusted_Human_Development_Index#2021_inequality-adjusted_HDI_(IHDI)_(2022_report)>,

To compute this score, consider Ghana with its score of .458, 1-.458 = .542(.1) = .054.

9.**Gini**= the Gini coefficient is a measure of inequality in a nation, where 0 would be perfect equality and 1 would be perfect inequality. Number from some of the Islamic nations came from a 2014 paper estimating the numbers when they were not available from the world bank. I will need to get you these numbers.

<https://data.worldbank.org/indicator/SI.POV.GINI>

multiply the most recent value by .001 – so Ghana with a 43.5(.001) gets .0435.

another source for Gini https://worldpopulationreview.com/country-rankings/wealth-inequality-by-country

10.**Top10** = percent of a nation’s wealth controlled by the top ten percent of the population.

<https://data.worldbank.org/indicator/SI.DST.10TH.10>

use the most recently available year, and take the value and multiply it by .001. For example, in Ghana 32.2 percent of the wealth is held by the top ten percent, so the value for our variable would be .0322. (and in case you wondered, it is 30.8 percent in the US).

11.**Poverty** = Percent of people below international poverty line, was raised to $2.15 per person per day in September 2022 by the World Bank.

<https://ourworldindata.org/poverty> you can find the poverty data on Git Hub. We need to know the percent of people in each country living below the international poverty line.

In Ghana in 2016 (most recent figure on the web page, it was 25.29 percent of the nation and multiply by .001 to get 0.253

You might be able to find more current data from the UN?

**ENVIRONMENT** is score of a number of underlying variables, exposure to natural disasters, road fatalities, alcohol consumption, air pollution deaths, percent of life time lived unhealthily, malaria, rank of the health care system, global health security index, vaccination rates, and number of hospital beds per 100,000 persons.

12.**Exposure** – World Risk Index Exposure variable – the vulnerability of a country to natural disasters.

<https://weltrisikobericht.de/wp-content/uploads/2021/09/WorldRiskReport_2021_Online.pdf>

multiple the World Risk Index for a country by .001 – so Ghana which has an index of 9.23 gets that multiples by .01 for a score of: .0923

Angel this is where I stopped putting in data sources, I will continue working on updating this guide for you. This should get you started thinking about how to capture this data for our data base.

13.**RoadFat** = Road fatalities per 100,000 people. Data is from the World Bank.

14.**Booze** = liters of pure alcohol per year per person over 15 years of age (data 2016).

15.**AirDeaths** = saved in a file from https://gahp.net/wp-content/uploads/2019/12/PollutionandHealthMetrics-final-12\_18\_2019.pdf

16.Y**rsUnhealthy** = years of unhealthy life

17. **Malaria** incidence – https://www.worldlifeexpectancy.com/cause-of-death/malaria/by-country/

18.**WHOrank** – WHO ranking health care https://worldpopulationreview.com/countries/best-healthcare-in-the-world

19. **GHSI** = Health Security Index (GHS) from John Hopkins assesses a country on health security and capabilities across six categories, 34 indicators, and 85 sub-indicators. In addition to the global score, there are other measures we can take from it, including.

20.**Shots** = vaccination rates.

21.**Capacity** = 4.1 health capacity in clinics, hospitals, and community centers.

22.**Beds** = 4.1.2a hospital beds per 100,000 people.

**PSYCHOLOGICAL**

**Cultural** – this measure is a composite sore of the amount of **ethnic**, **religious** and **linguistic** diversity present in a country, also called fractionalization. The more diversity, the more complex the possible networks of relationships to negotiate and the more ways to inadvertently offend another or to appear to play favorites by picking a driver from group x instead of group y. The original work was done by Alesina et al on fractionalization for a190 countries.

**Hofstede –** Geert Hofstede defines culture as the collective programming of the mind that distinguishes members of one group from those of another. His research identified factors on which cultures differ. The score here is the sum of the absolute difference between scores from someone from the US and another nation. Dimensions include how less powerful members of a country expect and accept unequally distributed power, degree of interdependence in a nation, whether people want to be the best or to be liked, the degree to which the culture has developed ways to avoid feeling threatened by the unknown, past or future oriented, degree of impulse control.

**GPI –** global peace ranks states and according to their level of peacefulness**.**

**IQ difference –** white many factors influence performance on assessment instruments including prenatal malnutrition, early life experiences, and access to educational opportunities, it remains true that during a crisis the reasoning ability of helpers is an important safety consideration.

**SOCIAL**

**Crime –**

**Murder -**homicide rate per 100,000

**Crime rate –** violent crimes per 100,000

**LawOrder** Gallops law and order index is based on interviews with n = 1000 people on four questions 1) in the area where you live, do you have confidence in the police, 2) do you feel safe walking alone at night in the area where you live, 3) in the past 12 months have you or another household member had money or property stolen from you, 4) within the past 12 months have you been assaulted or mugged. (2017 data as later data is only available if we buy it).

**Kidnapping** – rate per 100,100 from UNODC

**US** = US State Department risk to Americans –these are for 2020 during COVID

**Genocide** = Genocide Watch exists to predict, prevent, stop, and punish genocide and other forms of mass murder. The issue three levels of alerts, genocide watch (.125 in our matrix), genocide warning (.250) and genocide emergency (.5 in our matrix). Visit their site for additional information.

<https://www.genocidewatch.com/countries-at-risk>

**Prices** = Haverscope’s data on blackmarket drug prices for cocaine, heroin and marijuana where cheaper is considered more dangerous. - UNODC drug prices are only up to 2016 dollars.

**%Slavery=**percent of people in the nation who are in modern day slavery. Global Slavery Index has not been updated since 2018

**Political**

**Unhappy -** The World Happiness Report is a survey of the state of global happiness that ranks how happy their citizens perceive themselves to be. The rankings of national happiness are based on a Cantril ladder survey. Nationally representative samples of respondents are asked to think of a ladder, with the best possible life for them being a 10, and the worst possible life being a 0. They are then asked to rate their own current lives on that 0 to 10 scale. Our value is computed as the difference between a nation’s score and Finland’s 7.8 (\* .01).

**GTI –** Global Terrorism Index. The GTI therefore defines terrorism as ‘the threatened or actual use of illegal force and violence by a non‐state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation.’

**PolRisk** – Control Risks 2020 Risk Forecast – likelihood of government interference and political instability, and their impact on the business environment. Political risk assesses general political stability and policy issues such as regulatory change, high-level corruption, reputational risk, expropriation and nationalization, contractual interference, sovereign default and non-payment, and international sanctions.

**Corruption** - The index ranks 180 countries and territories by their perceived levels of public sector corruption, according to experts and business people. The value here is the rank, so the most corrupt countries rank last on the list. This is an annual measure done by Transparency International, data for 2019. When a nation didn’t participate, we went to the last available data.

**fracElites** – this is a measure of the fractionalization of the elites in the nation, which contributes to state fragility. The Factionalized Elites indicator considers the fragmentation of state institutions along ethnic, class, clan, racial or religious lines, as well as and brinksmanship and gridlock between ruling elites. Data is from Fragile State Index by the Fund for Peace for 2019 obtained from the.globaleconomy.com.

**polyStab** – The is from the World Bank – this index is from Political Stability and Absence of Violence/Terrorism. It measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. The number is the upper bound 90% confidence interval, inverted, in percentile rank. Example – South Sudan was 5.24, so for our measure (1-5.24)\*.01

**Passport** – This value is based on the Henley Passport Index, which is the number of destinations a passport holder can access without a prior visa. The ranking is based on data from the International Air Transport Association. Our measure is the inverse. For example, a citizen from Japan can enter 191 countries without having a prior VISA (obtaining it at the airport) while a citizen from Afghanistan can only enter 26 countries without a prior visa – so (191-26)\*.01=1.65 vs. 0.07 for a person from the United States.

**PolTerr** - The Political Terror Scale meas­ures levels of polit­ic­al vi­ol­ence and ter­ror that a coun­try ex­per­i­ences in a par­tic­u­lar year based on a 5-level “ter­ror scale” ori­gin­ally de­veloped by Free­dom House. The data used in com­pil­ing this in­dex comes from three dif­fer­ent sources: the yearly coun­try re­ports of Am­nesty In­ter­na­tion­al, the U.S. State De­part­ment Coun­try Re­ports on Hu­man Rights Prac­tices, and Human Rights Watch’s World Re­ports. We used the most extreme rating from any of these sources and multiplied it by .1.

**ruleLaw**  -The World Justice Project Rule of Law Index relies on surveys of households and legal experts to measure how the rule of law is experienced and perceived worldwide. When a score was not available from that index, we used the World Bank rule of law ranking and found a country near the same rank and used that score on the index.

LEGAL

**cyberTota**l – cyber totalitarianism total score

**occupancy** – percent incarcerated reported by a country and note that this doesn’t account for the average size per person that a nation considers adequate. World Prison Brief

**Pretrial** – percent of those incarcerated awaiting trial World Prison Brief

**Judicial** – Judicial effectiveness from Heritage Foundation. Their score for judicial efectiveness component is derived by averaging scores for the following three sub-factors, all of which are weighted equally: Judicial independence, •Quality of the judicial process, and Favoritism in decisions of government officials. We invert this score so a higher value is assigned to less effective judicial systems. The Index relies on the following sources in assessing judicial efectiveness: World Economic Forum, World Competitiveness Report, and World Bank, Doing Business.