# The Inescapable Truth about *Disinformation* and *Misinformation?* They have NOTHING at all to do with Information

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**Abstract.** The study's working hypothesis is confirmed: It is an inescapable truth that *disinformation* and *misinformation* have nothing whatsoever to do with information. The following findings summarize the details of the inquiry.

First, application of ways of knowing -- science, everyday experience-common sense, intuition, revelation, anatomical sourcing, and authority -- is an efficient, effective, and definitive diagnostic tool for investigating if there is any rational connection between the concepts of information, *disinformation* and *misinformation*.

Second, because science requires satisfying a number of methodological standards in order to produce information which is valid, verifiable, reproducible, etc., and is the only way of knowing that satisfies all these performance standards, it is a sound basis for assessing whether a way of knowing can produce information that is valid, verifiable, reproducible, etc., and which, perhaps, could be changed into *disinformation* or *misinformation,* whatever those terms mean.

Third, the science-based criterion proved to be a sound way of cutting through any possible claims about *disinformation* and *misinformation* being derived from substantive information or, conversely, being sources of substantive information.

While science, everyday experience based on science, and attained authority based on science can all produce information, none of them was found to produce *disinformation* or *misinformation* from information.

As for the non-science ways of knowing, they do not produce information, so they cannot produce *disinformation* or *misinformation* from information.

The general finding from using ways of knowing as a diagnostic tool is that there is no logical, rational connection between information and *disinformation* or *misinformation*.

Fourth, examination of many hundreds of productions reveals that due to ambiguity or uncertainty which is incorporated into arbitrary, vague and bizarre notions and claims about information, *disinformation* and *misinformation,* this element of "murk" needs to be removed.

If that is not done, then discourse is degraded to the point of imperilling not just day-to-day communications, but those which are fundamental to serving and promoting the principles of free and democratic societies.

Fifth, in order to begin expunging the ambiguity or uncertainty element which may have given rise to the terms *disinformation* and *misinformation,* a transform test is applied whereby reality is transformed to data, data are transformed to information, and information is transformed to knowledge.

The transform test is a sharp diagnostic tool for demonstrating that *disinformation* and *misinformation* have no logical connection to data, information, or knowledge. Information passes the transform test, and *disinformation and misinformation* totally fail.

Sixth, to reinforce expunging the ambiguity or uncertainty element, the term geographic is added to information creating “geographic information”.

The strength of this test is that “geographic information” is the essence of concreteness, as illustrated by the 100-plus geographic concepts which identify aspects of spatial reality that are often involved in transforms  to geographic data and then to geographic information to support decision making.

No evidence has been located to give any credibility to the notions of “*geographic disinformation*” and “*geographic misinformation*”, much less to how they could be derived from geographic data representing any kind of geographic reality. Information passes the attribute test, and *disinformation* and *misinformation* totally fail.

Seventh, Google presents more than 17 billion results for “information”, many thousands of which can readily be associated with science, everyday experience based on science, and attained authority based on science.

In contrast, Google presents about 58 million results for “disinformation” and “misinformation”*,* and keyword searches did not yield any results demonstrating how *disinformation* or *misinformation* are associated with information except through honest mistakes and unintentional term misuse but, most frequently, by falsehoods, lies, inventions, misrepresentations, deceptions, deceits, frauds, hoaxes, distortions, scams, shams, cons, claptrap, bunk, bunkum, and related fictions and fabrications.

Multiple re-examinations of the 58,000,000 Google results for *disinformation* and *misinformation* reveal that the sources of those numbers are largely vested authorities, including Internet platform corporations. No evidence was found of vested authorities making connections between information and *disinformation* or *misinformation*.

The overall result of this investigation, therefore, is that the working hypothesis has been confirmed: It is an inescapable truth that *disinformation* and *misinformation* have nothing whatsoever to do with information.

## 1. Background to, The Inescapable Truth about *Disinformation* and *Misinformation?* They have NOTHING at all to do with Information

The reasons for this investigation are demonstrated multiple times in the report, but several overriding points are made at the outset to put the remainder in context.

First, through experience in the Government of Canada, and as a consultant to governments in Canada, the U.S. and abroad, I have practical knowledge about the role of information in developing, implementing, and evaluating public policies, plans, programs and operations, as well as in challenging public policies, plans, programs and operations.

While regard for information for those purposes has continued to hold steady in my experience over 50 years, my investigations revealed a very significant “uptick” over the past several years in the presence of the words *disinformation* and *misinformation* in broadcast and social media productions, as well as in politicians’ media conferences and political party poll reports and election campaign materials.

To my knowledge the relationship between the terms information, *disinformation*, and *misinformation* has not been critically examined, and in particular not with regard to the role of that relationship in developing, implementing, and evaluating public policies, plans, programs and operations, or in arguments challenging public policies, plans, programs and operations.

Second, after examining a number of productions from Canada, the U.S., and other countries, I initially titled this report, Dismantling Misconceptions about Purported Connections between Information and Its Bastard Cousins, *Disinformation* and *Misinformation*.

Then, after several ‘sounding board’ trials, the title was changed to The Fraud about *Disinformation* and *Misinformation*? They have NOTHING to do with Information.

The first title change came about when feedback suggested that far more people understand the term ‘fraud ‘ than they do ‘dismantling’ and ‘purported’. Further, fraud may be shown to be a core part of both *disinformation* and *misinformation*, and taking that approach could simplify the story and enable me to more quickly cut to the chase. The KISS principle put to practice, you might say.

Several literature reviews were undertaken using a content analysis approach to assess the merits of the second title. Examination of objectives and conclusions found in keyword-sourced contents of search engines confirmed that the word ‘fraud’ clearly applies to many uses and users of the terms *disinformation* and *misinformation.* And it applies in particular to those with axes to grind. Examination of a number of productions containing these terms reveals that many of them ardently promote deceptions, and make false claims which are in fact deliberate parts of the fraud, so the fraud factor remains an integral part of the study.

However, fraud does not apply to all uses and users of the terms. There is the matter of what we might call honest mistakes. As a result, it was decided to adopt an optic that was less 'critically directive'.

The decision to change the title to its present form occurred as a result of re-visiting research papers that I read and wrote as a graduate student at Northwestern University more than 50 years ago, when I was in the early stages of becoming involved in the information field.

Not comfortable with either of the first two titles, I thought about key research philosophy concepts that have remained with me for these 50 years, and there was the word of words, written on many of my early research proposals: TRUTH or, more specifically, underlying multidimensional reality (UMR) by those deep into ontology and epistemology.

The significance of including truth in the title can be outlined as follows.

On the one hand, science and scientists are in a constant and never-ending search for truth, so it is consistent with that raison d'être to investigate whether there is a substantive connection between the terms information and *disinformation* or *misinformation.*

Further, and taking the terms information, *disinformation* and *misinformation* at face value, I believe that science and scientists have an obligation to lead the way in distinguishing information from *disinformation* and *misinformation,* and establishing in societies around the world the importance of respecting that distinction in our never-ending search for truth.

And, yes, I am aware of the adage, "Lies travel faster than truth", which originated more than 100 years ago when communications were hand-written or hand-drawn or manually typed, and moved at today's equivalent of snail speed by such means as ship, rail, steam boat, sled, horseback, freighter canoe, cow bell, carrier pigeon, whistle, and shank's mare.

And I am also aware of how much faster and wider lies can travel today.

By way of illustration, my examinations suggest that in five minutes today more lies can be conceived and disseminated by more sources to more recipients than could be achieved in 525,600 minutes (24 hours) just a year ago.

On the other hand, however, and as scientists everywhere know full well, conceiving and disseminating a non-trivial truth seems to be an oh-so-painfully-slow process. Fortunately, feedback reveals that a number of scientists share my concern that deceptions are frequently imbedded in uses of the terms *disinformation* and *misinformation,* and that the focus on truth in this report is timely.

In the next section I present some numbers which establish that productions mentioning information, *disinformation*, and *misinformation* are voluminous, come from a wide variety of

sources, and cover many topics, thereby injecting a high degree of societal significance into this search for truth.

## 2. Google Results for "Information", "Disinformation", and "Misinformation": Looking Beyond the Numbers

Google searches in August, 2020 yield about 17,300,000,000 results (yes, more than 17 billion) for "information"; about 13,000,000 (13 million) results for "disinformation"; and about 45,000,000 (45 million) results for "misinformation".

At a general usage level, Google registers that "information" is about 1330 times more popular than "disinformation", about 385 times more popular than "misinformation", and "information" is almost 300 times more popular than the combined results for "disinformation" and "misinformation".

In the minds of many people those may be perceived as very large numbers, and perhaps they are so large that not many people would question whether there could be something beyond the numbers which needs examination.

In my case, however, the numbers are actually incidental to a very fundamental concern: that is,

> What is the connection, actual, perceived, purported, etc., between the three terms other than letters of the alphabet, i-n-f-o-r-m-a-t-i-o-n?

The following questions are illustrative of those which are pertinent to an examination of any actual, perceived, purported, or other kind of connection or relationship between information on the one hand and *disinformation* and *misinformation* on the other.

First, with regard to information, the concept of an Information Society began to emerge in the 1950s and 1960s with the advent of electronic computing. After multiple generations of computer-communications technology over more than 50 years, and the increasingly widespread use of computer-communications technology devices among a world population now containing some seven billion people, the 17,300,000,000 Google results for "information" are not unexpected.

However, multiple searches located no rational material on the concepts of a Disinformation Society or a Misinformation Society, so one wonders about the 'legitimacy' of the Google results for "disinformation" and "misinformation".

Moreover, if the word "information" did not exist, there is no good reason for the terms *disinformation* and *misinformation* to exist. Clearly that latter two are derivatives of the former, and have no standing in its absence, since 'dis' and 'mis' are hardly significant standalone prefixes.

Hence, questions arise about Google showing some 58,000,000 results for what I refer to as the bastard cousins of information.

Or, to re-phrase, could it be that *disinformation* and *misinformation* are little more than casual conversation throw-ins, and in some cases nonsense or even fake terms, which are easily rolled off the tongue or popped into written pieces, hence their popularity, but in reality signify nothing of substantive, informative consequence? Or, is something more sinister afoot, such as deception, misrepresentation, fakery, lying, fraud, etc.?

Second, it is a rare occasion it seems to me that information-based communications by politicians, professors, business entrepreneurs, government officials, news anchors and other journalists, TV talk show hosts and panelists, pollsters, or COVID-!9 reporting agencies generate much over-the-top excitement.

Moreover, in the political arena where criticism is very much the order of the day, I do not recall a politician anywhere criticizing a politician on the other side for providing sound information about public policies, programs, plans, or operations to opposing politicians, to citizens, to the media, etc.

Further, in many ways there is a neutrality about information, that is, we can learn from it or not, appreciate it or not, apply it or not, agree with it or not, act on it or not, etc., and it is generally accepted as a fundamental component of communications in societies around the world.

The question therefore arises as to whether any of the characteristics associated with information could reasonably be associated with statements and other productions that are labelled as representing *disinformation* or *misinformation*?

Based on prior research ventures, attempting to achieve that level of grounding with these two terms does not seem advisable. This point is illustrated by asking the question,

> Is it not often the case that claims of *disinformation* and *misinformation* generate high and often extreme levels of excitement, passion, irritation, conviction, enthusiasm, bitterness, recrimination, viciousness, vindictiveness, ridicule, foul language, insults, and nastiness by <u>both</u> message senders and recipients, even though the purported root of the message is information?

In my experience of more than 50 years in the information field, I have not encountered any methodologically designed work that has tried, much less succeeded in overcoming a gap which on its face defies being bridged by rational, logical means.

And, if it is necessary to suspend disbelief when asked to accept that there are connections between information and *disinformation* and *misinformation,* is that not a signal that something is not computing?

Third, and continuing that theme, even though they are accorded numerous Google 'hits', why is it so difficult to identify productions which provide a substantive basis that attach even a shred of evaluable and verifiable empirical credibility to claims about information presumably being transformed into *disinformation* and *misinformation*?

That is, information can be rated as good, bad, or indifferent for a variety of evaluable and verifiable reasons, and there are frequent calls for more and better information.

However, I have not encountered sincere, responsible, public interest-oriented research proposals to turn information into more and better *disinformation* or *misinformation.*

Further, my research has not been able to identify such calls occurring among the general population, quite possibly because the notions of *disinformation* and *misinformation* are not consistent with the principles of civil conduct and honest discourse held by many citizens

and perhaps large majorities of citizens in free and democratic societies.

And yet, the numbers tell us that there are those who are motivated to serve and promote the notion of more and better *disinformation* or *misinformation*, whatever they might entail, circulating through a society.

As for who these people might be, the literature reveals that one group consists of psychopaths, sociopaths, unreserved pessimists, those with persecution complexes, and the civically antagonistic, disgruntled, or perverse, all of whom as matter of course and conviction are associated with the *disinformation* and *misinformation* camps.

However, there are others who regularly and consistently spawn *disinformation* and *misinformation*, including ideological and professional agitators such as domestic political partisans, bitter radio talk show and TV program hosts, deeply delusional and self-proclaimed conspiracy theorists, and hostile offshore regimes, all seeking to cause mayhem in the pursuit of their political and geopolitical sentiments.

The question therefore arises as to whether these negative, dark forces have seized upon the idea of causing havoc by wrapping all kinds of messages in the cloaks of *disinformation* and *misinformation*, and then turning them loose and letting those bastard cousins of information do their thing, whatever it might be?

And, not to be missed, much of this havoc-wreaking has gone way beyond old-school "skulking around under cover of darkness".

Instead, we now have electronic and other high-tech means of wreaking havoc upon individuals, businesses, political parties, and even upon government agencies, which are ingenious, insidious, far-reaching, often difficult to trace, and on the job 24/7.

Moreover, the havoc-wreakers have no end of ideas and targets, as well as an ever-expanding suite of means to achieve those ends through messing with data, information, and knowledge bases.

One of the more notable ventures of concern in this regard is the involvement of “offshore agents” in the 2016 U.S. presidential election, and again in the 2020 election.

Fourth, although “information” is some 300 times more popular than “disinformation” and “misinformation” combined, and, seemingly, to date no one of sane mind has proposed naming this or any era The Disinformation Society or The Misinformation Society, there must be reasons why these terms, to use a sports cliché, ‘punch way, way above their weight’ in the broadcast and social media.

Which causes me to ask, after examining hundreds of Google entries,

> Why are these two terms which seemingly have no substantive credentials, and little if any record of reputable origins, so highly popular and flung about with unrestrained abandon in lowly to lofty circles in such a relatively short span of time?

Finally, I am one among thousands of educators and researchers in the field of developing and advancing the use information who reject the notion that our work can be cavalierly used to piggy-back the bastard cousins, *disinformation* and *misinformation*.

I welcome other information educators and researchers joining in what I believe to be far more than a conversation about words.

That is, while in some circumstances Google may be a blunt rather than a finesse research instrument, I perceive that the Google numbers are pointing to the emergence of a deep threat to the principles of free and democratic societies.

The remainder of the report picks up on the questions above, and in the process suggests why the terms *disinformation* and *misinformation* may themselves be the essence of *disinformation* and *misinformation.*

## 3. Defining Information through Ways of Knowing

As noted, a Google search of the term “information” produces about 17,300,000,000 results, and electronic scanning of just several thousand entries reveals that the term “information” is used in many ways by many people to serve many purposes.

However, careful reading of just several hundred entries reveals that relatively few, viz. less than 10% of the uses are methodologically grounded.

Or, to re-phrase, after more than a century of disciplined respect, information has increasingly been depreciated in many instances to mean whatever anyone wants it to mean, which accounts in part for the vast majority of purported connections between information and *disinformation* and *misinformation.*

For older readers who recall the adage “Garbage In, Garbage Out” (GIGO) that was popularized in the 1960s, this is exactly what we seem to now have with the purported connection between information and *disinformation* and *misinformation*.

That is, when the term information is sloppily used and is easily taken to mean anything, everything and whatever, then the door is open to even  more sloppy usage as to what *disinformation* and *misinformation* mean or do not mean, and the downward spiral into the depths of illiteracy is accelerated.

Sloppiness begets sloppiness, you might say, even in the information field.

To escape the sloppiness trap it is necessary to impose discipline on the defining process, and that begins with a clear understanding that the concept of information does not exist in a vacuum, and is not some kind of low-hanging fruit dangling from a nearby tree.

Rather information it is an integral part of the field of epistemology, that is, the vast field of ways of knowing, which have been articulated and refined over hundreds of years

Long story short is that six ways of knowing are used to answer the question*, Does Donald Trump Have the Know-How to Save the U.S.A.?* (http://wellar.ca/informationresearch/)

And that approach is directly pertinent to this project, because the level of know-how that any person possesses depends upon the non-information and perceived information which is absorbed by her or him through the ways of knowing which each person uses.

The six ways of knowing used in the report, Does *Donald Trump Have the Know-How to Save the U.S.A.?* (http://wellar.ca/informationresearch/) and used here are:

**Science**

**Everyday experience (Common sense)**

**Intuition**

**Revelation**

**Anatomical sourcing**

**Authority**

I draw on that material to identify the contribution of each way of knowing to this report, The Inescapable Truth about *Disinformation* and *Misinformation?* They have NOTHING at all to do with Information.

## Science

Two primary objectives of science, among a number of objectives, are to add to knowledge, and to add to ways and means of continuing to add to knowledge.

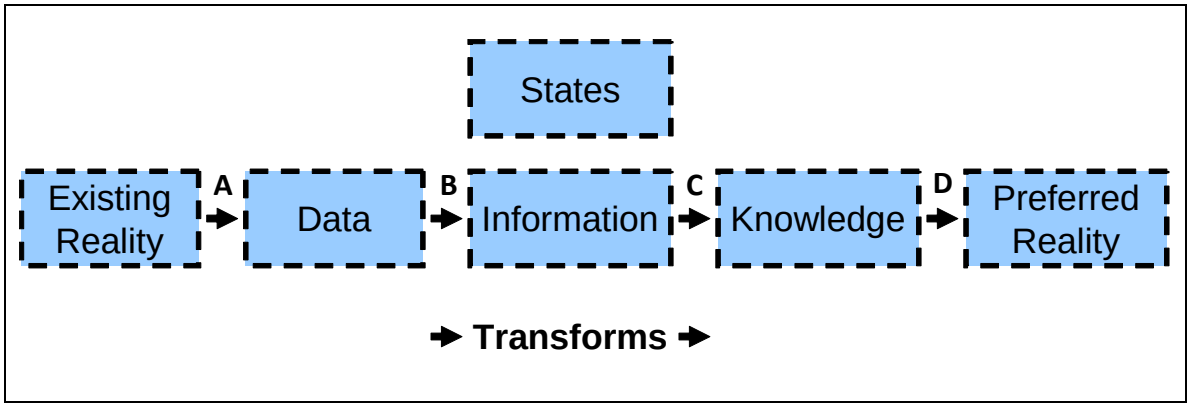
Those two objectives are the compelling forces behind designing and implementing research methods, research techniques, and research operations courses and activities in

- Dozens of academic disciplines,
- Many thousands of government departments and agencies,
- Many thousands of private sector enterprises,
- Many, many thousands of academic institutions from elementary schools to universities, and now, due to COVID-19,
- Millions of home-schooling enterprises.

As illustrated in Figure 1, science may be described as a transform process whereby reality is transformed to data (A), data are transformed to information (B), information is transformed to knowledge (C), and the knowledge acquired after transform C can be used (D) to change existing reality to preferred reality. The key feature is the transform arrows, A, B, and C.

These transform arrows represent the methods and techniques used in ways of knowing which enable achieving the transforms, that is, knowing **how** to transform reality to data, **how** to transform data to information, and **how** to transform information to knowledge.

**Figure 1.**
**The Data-Information-Knowledge**
**Transform Process: Simple Model**



After that, we are into the social, political, and other realms of what is done with knowledge (D).

Science as a way of knowing is very different from the other ways when it comes to elaborating information versus *disinformation* and *misinformation* distinctions.

The difference can be outlined as follows.

First and foremost, science is the only way of knowing that employs empirical research organized around laws, theories and hypotheses which are tested and re-tested, accepted and rejected, and revised and refined in order to achieve the transform process (existing reality ➡ data ➡ information ➡ knowledge ➡ preferred reality).

That distinction by itself should suffice to distinguish science as a way of knowing from the other ways.

However, because of the importance of this distinction, Table 1 contains a baker's dozen of the methodological standards or conditions that apply to science but not to any other way of knowing.

In science as a way of knowing, information is not a standalone entity.

Rather, is the pivotal link in a process whereby reality is transformed to data, data are transformed to information, information is transformed to knowledge, and knowledge is turned into thoughts, actions, initiatives, etc., to serve various educational, social, economic, environmental, personal, institutional, political, technological, medical, financial, and other purposes of individuals, and of entities such as governments, businesses, .associations, etc.

For this report, the focus is on using data, information and knowledge in developing, implementing, and evaluating public policies, plans, programs and operations, as well as in challenging public policies, plans, programs and operations.

And as closing comment about the nature of scientific inquiry, to my knowledge no body of science-based data, information, or knowledge is deemed inviolable, cast in stone, held sacrosanct -- as it was, is now, and it will always be, never to be questioned again.

Which takes me back to basic scientific principles, one of which is either unknown, purposefully overlooked, or conveniently forgotten by non-scientists, pseudo-scientists, anti-scientists, and others who cannot come to grips with a process of logical, rational, verifiable reasoning which is totally free of even a hint, a whiff, a jot, a tittle, or an inky of dogma.

**Table 1. Examples of Methodology Conditions that Apply to Science but Are Not Met by Any Other Way of Knowing**

- Scientific ways of knowing must be transparent
- Scientific ways of knowing must be evaluable by external examiners
- Scientific ways of knowing must be repeatable
- Scientific ways of knowing must allow testing for reproducibility of results
- Scientific ways of knowing must rigorously investigate alternative explanations
- Scientific ways of knowing must allow for counter-analysis
- Scientific ways of knowing must allow for counter-synthesis
- Scientific ways of knowing must be verifiable
- Outcomes of scientific inquiries must be subject to validation
- Scientific ways of knowing must take into account unseens and unknowns
- Scientific ways of knowing must be based on specifying and investigating relationships among variables
- Scientific ways of knowing must enable generalizing from a sample to a population within known limits of confidence
- Scientific ways of knowing must be based on methodological design
- Documentation of evidence produced by scientific ways of knowing (their methods and techniques) must include all meta-data or meta-information or meta-knowledge needed for counter-evidence investigation purposes.

That is, the *modus vivendi* of scientific inquiry is to ask questions, and ask them again and again if reasons arise to do so. This means that a given body of information could be challenged by conducting methodologically designed inquiries in the search for

- Alternative information
- Complementary information
- Confirmatory information
- Contradictory information
- Counter information
- Different information
- Replicative information
- Supplementary information
- Supportive information
- Validative information

or any other kind of information derived through methodologically designed research.

It may not be necessary, but to be prudent it is emphasized that re-visiting a body of scientifically sound information has nothing to do with that body of information being fake, phony, fraudulent, part of a hoax, bunkum, a scam, or other unfounded pejorative.

Rather, re-visiting is simply the practice of sound science, which includes adding to information in order to add to knowledge, adding to ways and means of continuing to add to information, and adding to knowledge and adding to ways and means of continuing to add to knowledge.

With those terms of reference, this is an appropriate place to provide a definition of “science-based information”.

As the reader may be aware, every academic discipline has its body of information, as could every government agency at every level of government, every business, every institution, and any other entity that comes to my mind.

For this report I use **geographic information** in part because everybody and everything in the physical world exists somewhere, which means that a geographic attribute applies to everybody and everything on Planet Earth, which means geographic data exist for everybody and everything on Planet Earth, which provides the potential for deriving a very large and diverse body of geographic information.

Further, because the body of geographic information can be very large, very expansive, and very diverse, it represents a fair test of the merit of notions about *geographic disinformation* and *geographic misinformation*, whatever they might mean.

In addition, use of geographic information enables me to provide a test case for others to attempt to demonstrate whether the processes of deriving *geographic disinformation* and *geographic misinformation* meet the tests presented in Figure 1 and Table 1.

In brief, geographic data are observations that identify where people and things are located, that is, the ‘where factor”, or the ‘geo-factor’ as I termed it many years ago.

As a science which has a focus on location, geography is responsible for many thousands of scientific inquiries over hundreds of years that involve deciding which people and things to observe, where and how to conduct observations, how to record observations, how to prepare what might be termed geo-databases for analysis and syntheses purposes, and how to display and disseminate geographic data as a precursor to deriving geographic information.

No doubt the reader has seen manually-drawn, machine-drawn, as well as digital maps, which represent one of the pre-eminent ways of displaying geographic data. In addition to maps, however, geographic data recording and display companions include paper forms, aerial photographs and satellite images using a variety of sensors, GPS screens, and digital

images of weather and weather-related events that are presented for 18 and more hours per day on television channels around the world.

Geographers and others who use geographic data have numerous geographic information and geographic knowledge interests.

Table 2 contains about 100 concepts which are used to transform geographic data to geographic information and, subsequently in many cases, to geographic knowledge about spatial relationships among people and things.

**Table 2. A Selection of Concepts which Are Used in Geographic Research to Derive Geographic Information and Geographic Knowledge about Spatial Relationships among People, Places and Things**

| | | | |
|---|---|---|---|
| Accessibility | Distance-social | Location | Scale |
| Adjacency | Distribution | Lot | Section |
| Area | District | Margin | Segregation |
| Block | Edge | Migration | Separation |
| Border | Elevation | Morphology | Shape |
| Boundary | Encroachment | Movement | Site |
| Buffer | Environs | Near | Situation |
| Center | Far | Neighbourhood | Slope |
| Centrality | Flow | Network | Space |
| Circle | Fringe | Nexus | Spatial |
| Closeness | Function | NIMBY | Sphere |
| Cluster | Geometry | Node | Sprawl |
| Commutershed | Grid | Orientation | Spread |
| Compactness | Gridlock | Origin | Strip |
| Concentration | Habitat | Parcel | Structure |
| Concentric | Hinterland | Partition | Surface |
| Congestion | Integration | Path | System |
| Connectivity | Intensification | Pattern | Territory |
| Contiguity | Interaction | Pedshed | Topography |
| Core | Intersection | Perimeter | Topology |
| Crossing | Island | Periphery | Walkway |
| Density | Isolation | Place | Walkshed |
| Depth | Land | Proximity | Ward |
| Destination | Landscape | Quadrant | Watershed |
| Diffusion | Lane | Region | Where |
| Dispersion | Line | Right-of-way | YIMBY |
| Distance-physical | Link | Route | Zone |

As for the tools used in scientific research to derive geographic information from geographic data or other data for that matter, a selection of the methods and techniques employed in geographic research, training, education, and applications is listed in Table 3.

This is a small selection of the geographic research methods and techniques which can be found in the applied and theoretical geographic literature, including learned literature, professional literature, association literature, and technical literature, as well as popular literature such as broadcast and social media.

In this scenario, for *disinformation* and *misinformation* to be something other than the bastard cousins of information, their users or proponents are obliged to first articulate the characteristics of the data which comprise the base or bases for applying research methods and techniques to derive *geographic disinformation* and *geographic misinformation*.

As noted above, there are various ways to display geographic data used to derive geographic information. If the same display capability cannot be achieved to create a base or bases for deriving *geographic disinformation* and *geographic misinformation*, then the bastard descriptor seems appropriate.

And that is the easy part for anyone who takes up the bastard challenge. Specifically, there are 100 or so concepts in Table 2 which are among the many concepts used to direct the derivation of geographic information from geographic data.

If the proponents of *disinformation* and *mis*information are to attain a degree of non-trivial credibility, then it appears reasonable to expect that they could produce lists of concepts to make explicit the *geographic disinformation* and *geographic misinformation* to be derived from whatever geographic data base underpins their position.

The lists are awaited.

Similarly, Table 3 presents a major challenge to proponents of *disinformation* and *misinformation*, because data are data, and information is information, and that gap is bridged by scientific methods and techniques which enable the transform.

When scanning the Google results with keyword combinations, I did not see any listing which serves that purpose, but perhaps it is in there somewhere.

If such methods and techniques are not among those identified as results by Google or other search engines, then this is an opportunity for proponents to “step up” by filling this massive credibility gap and revealing the methods and techniques they use to transform whatever data basis or data bases they have into whatever they might mean by *geographic disinformation* and *geographic misinformation.*

**Table 3. A Selection of Geographic Research Capabilities, Methods, Techniques and Tools Used to Transform Spatial Reality to Spatial Data to Spatial Information to Spatial Knowledge**

- 3D mapping
- 3D modelling
- 3D scanning
- Aerial photo interpretation
- Change detection mapping
- Climate change monitoring
- Cluster analysis
- Cross-lagged correlation
- Data conversion processes
- Data models
- Decision support information systems
- Digital elevation models
- Digital mapping
- Digital surface models
- Digital terrain models
- Distance decay mapping
- Earth Observing System Data and Information System)
- Enterprise GIS
- Expert and knowledge-based information systems
- Extract, Transform, Load (ETL)
- Factor analysis
- Geo-coding
- Geographically weighted regression (GWR) data analysis
- GIS
- Geo-mapping
- Geospatial data extraction tools
- Geostatistics
- Global positioning systems
- Graph theory
- Hazard mapping
- Heat mapping
- Image analysis
- Impact assessment techniques
- Information and knowledge bases for decision-making
- Interactive mapping systems
- Internet GIS-Web mapping
- Location analysis
- Models of spatial point pattern processes
- Network analysis
- Object-based image analysis
- Optimization techniques
- Parametrization of spatial density functions
- Pattern analysis
- Proximity analysis
- Regional information systems
- Relational database mapping
- Satellite remote sensing
- Spatial autocorrelation
- Spatial allocation models
- Spatial decision support
- Urban data models
- Urban density functions
- Urban information systems

**Note:** For an expanded list numerous productions of the Urban and Regional Information Systems Association (https://www.urisa.org/), including its 50th anniversary publication, ***Foundations of Urban and Regional Information Systems and Geographic Information Systems and Science publications of the Urban and Regional Information Systems Association.*** (https://pdfs.semanticscholar.org/48aa/b57b86ef2b0571f674ef24be3623c82392c4.pdf)

Again, I choose to deal with geographic information rather than information in the abstract for purposes of concreteness. And, as some readers already know, I have been engaged in the geographic reality ➡ geographic data ➡ geographic information ➡ geographic knowledge ➡ preferred geographic reality transform process for more than 50 years, so I have direct research, education, training, and applications experience in the topic.

However, this is by no means an exclusionary approach, and I welcome learning whether *disinformation* and *misinformation* have found a scientific research home in any other fields which engage in developing, implementing, and evaluating public policies, plans, programs and operations, as well as in challenging public policies, plans, programs and operations.

Fields which come to mind include agriculture, anthropology, applied mathematics, biology, climate change, communications, computer science, criminology, demography, development, ecology, economics, energy, engineering, environmental studies, epidemiology, forestry, geology, housing, land use, management science, medicine, operations research, planning, psychology, physics, political science, sociology, statistics, systems science, transportation, and water resources.

The bottom line, therefore, is that using a dozen conditions of scientific inquiry for context, applying an information-centered transform test, and using geographic information as the diagnostic test case, I have been unable to ascertain if the terms information and *disinformation* or *misinformation* have anything in common of a substantive, verifiable, evidentiary nature beyond the letters i-n-f-o-r-m-a-t-i-o-n.

In the absence of any substantive association between *disinformation* or *misinformation* and scientifically-derived information, closing comments about fraud are appropriate.

1. *Disinformatio*n and *misinformation* are at best meaningless collections of some letters of the alphabet, and claiming that they are anything other than meaningless is an exercise in crooked thinking at best, with an exercise in fraud not far behind;
2. It is a form of seriously crooked thinking, with fraud not far behind, to maintain that *disinformation* and *misinformation* have any substantive connection to or relationship with scientifically derived information;
3. The time is long past to ask those who associate the terms *disinformation* or *misinformation* with science in any way to reveal which of the conditions in Table 1 are satisfied in deriving bodies of *disinformation* or *misinformation*. And, if that cannot be done to the same degree as is done for deriving information through scientific inquiry, one word that lends itself to mention of *disinformation* or *misinformation* in the same breath as science is, fraud.

## Everyday Experience-Common Sense

Statements are frequently made under the umbrella of “common sense”. However, these claims often ring hollow because, and perhaps unbeknownst to many claimants, this way of knowing needs to be earned, and does not magically present itself by appearing out of the ether. Or thin air. Or a pumpkin patch. Rather, it has very specific origins. For everyone.

What is claimed to be known due its common sense nature is based on an individual’s everyday experiences as he/she proceeds through life. These experiences are the reality of the common sense way of knowing, and provide the entries in a life experience database for each individual.

So, at best, and using the strongest array of investigative methods and techniques that scientific inquiry can offer, any common sense information derived from an individual’s database is pertinent to that individual and only that individual, as is any common sense knowledge. And that is the full breadth, depth, and extent of this way of knowing. That is, it pertains only to the affected person.

The question therefore arises as to

> Whether and in what kinds of circumstances or situations could a database consisting of an individual’s everyday experiences, or a group of individuals’ everyday experiences be queried in search of common sense information to assist in the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations?

A number of literature searches using combinations of keywords did not produce any productions in which cross-sectional or longitudinal data series representing the reality of everyday experiences are created as possible sources of common sense information pertinent to the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

Consequently, the absence of data means that no productions based on everyday experiences were identified in the open literature which could contain scientifically derived common sense information to assist in the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

It therefore appears fair to say that since no evidence was found of common sense information contributing to the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations being derived from the everyday experience-common sense way of knowing, it is not a source of scientifically derived *disinformation* or *misinformation*, whatever they might be. Of course, I await being informed of any oversight on my part.

## Intuition

Intuition as a way of knowing is based on how one feels about this, that, or the other person, event, situation, circumstance, process, etc., including how one feels about the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

Possible feelings in these regards could include comfort, enjoyment, confidence, ease, happiness, joy, pleasure, rapture, etc., on the one hand, and concern, discomfort, fear, loathing, unease, shame, embarrassment, humiliation, and worry on the other hand about what is being done, how things are being done, when things are being done, for whom things are being done, where things are being done, at what cost things are being done, with what benefits things are being done, and so on.

Since intuition is a completely internal way of knowing through feelings, the process of making and recording observations to create a data base is totally restricted to the person with the feelings.

Therefore, the process of transforming reality as it is known by feelings into data observations and records be cannot be performed externally or validated externally, even in one-on-one sessions with the self-styled ‘super psychics’ and the self-proclaimed ’evangelically blessed’ who may wander among us.

Consequently, since intuition as a way of knowing does not achieve the data stage set out in Figure 1, and it cannot satisfy any of the scientific conditions in Table 1, information of the kind described above in the **Science** section cannot be produced.

Further, to complete the analysis of intuition as a way of knowing to use in the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations, no evidence has been located to establish that intuition as a way of knowing can provide entries similar or comparable to those in Table 2 and Table 3.

The irrefutable bottom line, therefore, is that regardless of what *disinformation* and *misinformation* are deemed to mean, they are not associated through information with intuition as a way of knowing for an indisputable reason.

That is, knowing through intuition does not yield data and, therefore, by definition it cannot be a source of information.

## Revelation

Experiences involving revelation are variously described by such terms as a “eureka” moment, an “aha” moment, a “flash out of the blue”, a “bolt of lightning”, a “vision”, and a “spiritual awakening”.

Like intuition, revelation is a completely internal way of knowing, and no documentation has been found about the process of observing and recording data by means of revelation, much less about any actual bodies of data regarding the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

As a result, because revelation as a way of knowing does not yield data which can be externally validated, it cannot yield information, period, much less information that meets the tests of science in Table 1.

Consequently, and regardless of what *disinformation* and *misinformation* are deemed to mean, they are not associated with revelation as a way of knowing through information for an indisputable reason.

That is, knowing through revelation does not yield data, and therefore by definition revelation cannot be a source of information.

### Anatomical sourcing

Many years ago I coined the phrase “anatomical sourcing” as a way of knowing when investigations into statements by politicians in Canada and abroad, including the U.S. in particular, seemed to be based on thinking that came from outside and sometimes from way outside the traditional body of epistemological literature on ways of knowing.

Anatomical sourcing includes the brain, but this research gives explicit recognition to other parts of the anatomy which take over or become the default decision mode when the brain cramps, malfunctions, comes up short, or people are implicitly and sometimes explicitly admitting or claiming that a statement is not the result of using a brain-based way of knowing.

Like intuition and revelation, anatomical sourcing is a completely internal way of knowing, and no documentation has been found which describes the process of observing and recording data by means of anatomical sourcing, much less documentation which reports on actual bodies of data used in deriving information to serve the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

Consequently, since sourcing one’s anatomy (external to the brain) does not yield information, *disinformation* and misinformation are not connected by anatomical sourcing to information.

### Authority

There are two kinds of authorities: individuals who attain standing as authorities, and institutions, organizations, corporations, agencies, offices, political parties, or other entities in which authority is vested.

Examples of individuals who are qualified as authorities for reasons of education, training, accreditation, experience, and other substantive measures of demonstrated, external, critically evaluable competence include sworn-in expert witnesses, professors, planners, engineers, geographic information system professionals, statisticians, finance officers, high-tech professionals, physicians, COVID-19 professionals, and lawyers.

In the case of attained authority as a way of knowing, it can be based on application of the scientific way of knowing; it can be based on everyday experience which is formalized through education, on-the-job training, accreditation, and other substantive measures of demonstrated, external, critically evaluable competence; and, it can be a combination of those two ways of knowing.

Each of these supportive ways of knowing involves transforming reality into data, and data into information, and therefore the transform condition for an individual being designated an authority is met.

In my experience of more than 50 years, which includes having attained authority as a professional planner, a geographic information systems professional, a professor, a senior economist-statistician, and an expert witness for a number of civil actions in several jurisdictions, I have witnessed information being a central part of many thousands of productions, including written reports, videos, testimonies, evidence-in-chief statements, cross-examination questions and answers, and verdicts.

However, not once in all those instances or examinations of productions of any kind that involved attained authority as a way of knowing by individuals did I ever encounter the terms, *disinformation* or *misinformation*.

And by that I mean they were not used by anyone. Not by individuals with attained authority, nor by anyone else, including those who conducted cross-examinations, led hearings, recorded minutes, and rendered verdicts on matters involving these authorities.

Therefore, with regard to the way of knowing represented by attained authority, in my experience and as a result of multiple keyword-based search engine inquiries, *disinformation* and misinformation are not connected to information by attained authority.

As for authority vested in entities such as a religious order, a political office, a court, and a lift-bridge operator, their authority exists due to conventions, mores, customs, fiat, legislative rulings, mandates, job descriptions, and other terms of reference which enable them to do things because of what they are designated to be, and what they are designated to do.

With those assets, entities could become involved in the scientific and everyday ways of knowing but, and this is a large but, only through having access to attained authority, which brings us back to the point made above.

While it was previously demonstrated that these two ways of knowing are information-driven, it was also noted that no evidence has been found which associates *disinformation* or *misinformation* with these ways of knowing.

Consequently, *disinformation* and *misinformation* are not associated with information through vested authority.

Which brings us to the possible relationship between vested authority and the other three ways of knowing, namely, intuition, revelation, and anatomical sourcing, none of which meet the reality-data-information transform tests.

Before providing that analysis, it may be useful to recall that there are about 58 000,000 Google results for “disinformation” and “misinformation”, and they must be attributed to some way of knowing.

That is, presuming Google did not manufacture the numbers of 13,000,000 results for “disinformation” and 45,000,000 for “misinformation”, the 58,000,000 results in total had to come from sources other than the ether.

By default logic, therefore, it seems apparent that many of those results had to arise via the vested authority way of knowing, which in turn had been based on the other three ways of knowing, that is, intuition revelation, and anatomical sourcing.

Which brings me back to a brief comment on the possible relationship between vested authority and the other three ways of knowing, namely, intuition, revelation, and anatomical sourcing, none of which meet the reality-data-information transform tests.

As noted, all these ways fail reality-data-information transform tests, and they cannot meet conditions such as those in Table 1 which establish a general basis for deriving information from data, which are produced from observations of reality.

Examples of vested authorities which generate and disseminate productions containing the terms *disinformation* and/or *misinformation* are presented in Table 4.

And, to complete this sampler of vested authorities, we now turn to Internet corporations.

My research reveals that these corporations generate and disseminate volumes of words and images at scales and rates that were unimaginable even three years ago, and have users, subscribers, members, followers, participants, etc., in daily numbers that run into the billions.

As for any distinction made among the three terms “information” and “disinformation”, or “misinformation”, it appears to be the general case that these entities do not go much beyond assigning the terms separate identities as words.

**Table 4. Examples of Vested Authorities which Generate and Disseminate Productions Containing the Terms *Disinformation* and/or *Misinformation* (Alphabetical order is used for convenience)**

- Anarchists
- Anti-establishment groups
- Business organizations
- Conspiracy communities of various stripes
- Cults
- Extremist groups of various stripes
- Faith groups
- Fascist groups
- Fraternal organizations
- Fringe groups of various stripes
- Governments-Domestic
- Governments-Foreign
- Government agencies-Domestic
- Government agencies-Foreign
- Gun associations
- Lobby groups
- Media organizations
- Nazi groups
- Political action committees
- Political organizations
- Political parties
- Politicians
- Politicians' agents
- Politicians' officials
- Protest movements
- Religious institutions
- Religious organizations
- Private interest groups
- Public interest organizations
- Social groups
- Trade groups
- Vested interest groups

Examples of major Internet purveyors of productions containing text and image representations that make at best limited distinctions among "information" and "disinformation", or "misinformation" include

Google;
Facebook;
Alphabet;
YouTube; and
Twitter.

My examination of corporate material did not reveal any statements about substantive distinctions being made, and site searches did not enable me to become any the wiser. But, that could be due to error on my part.

In the event I am wrong about a corporation which makes explicit the distinction between "information" and "disinformation", or "misinformation", and rigorously and vigorously moderates the dissemination of so-called "disinformation", or "misinformation", then I invite correction at the earliest moment, with operational details please, so that I can amend my error in a follow-on report.

The results of our investigation into whether d*isinformatio*n or *misinformation* can be connected to information through ways of knowing are summarized in the next section.

## 4. The Inescapable Truth about Disinformation and *Misinformation?* Based on a Diagnosis Using Six Ways of Knowing, They Have NOTHING at all to Do with Information

The six ways of knowing used as the diagnostic tool to examine whether *disinformation* and *information* have anything to do with information are science, everyday experience-common sense, intuition, revelation, anatomical sourcing, and authority. The findings for each way of knowing are recalled and assembled as a group for comparative purposes, followed by a summary comment.

### Science

From a scientific perspective, and using geographic information as the diagnostic test case, I have been unable to ascertain if the terms information, *disinformation,* and *misinformation* have anything in common beyond the letters i-n-f-o-r-m-a-t-i-o-n.

As a result, it appears fair to say that from a scientific perspective:

1. *Disinformatio*n and *misinformation* are at best meaningless collections of some letters of the alphabet, and claiming that they are anything other than meaningless is an exercise in crooked thinking at best, with an exercise in fraud not far behind;
2. It is a form of seriously crooked thinking, with fraud not far behind, to maintain that *disinformation* and *misinformation* have any substantive connection to or relationship with scientifically derived information;
3. The time is long past to ask those who associate the terms *disinformation* or *misinformation* with science in any way to reveal which of the conditions in Table 1 are satisfied in deriving bodies of *disinformation* or *misinformation*. And, if that cannot be done to the same degree as is done for deriving information through scientific inquiry, one word that lends itself to mention of *disinformation* or *misinformation* in the same breath as science is, fraud.

### Everyday Experience-Common Sense

No productions based on everyday experiences were identified in the open literature which could contain scientifically derived common sense information to assist in the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

It therefore appears fair to say that since no evidence was found of common sense information contributing to the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations being derived from the everyday experience-

common sense way of knowing, it is not a source of scientifically derived *disinformation* or *misinformation*, whatever they might be.

### Intuition

The irrefutable bottom line is that regardless of what *disinformation* and *misinformation* are deemed to mean, they are not associated with intuition as a way of knowing through information for an indisputable reason: That is, knowing through intuition does not yield data, and by definition it cannot be a source of information.

### Revelation

Because revelation as a way of knowing does not yield data which can be externally validated, it cannot yield information, period, much less information that meets the tests of science in Table 1.

Consequently, and regardless of what *disinformation* and *misinformation* are deemed to mean, they are not associated with revelation as a way of knowing through information for an indisputable reason: That is, knowing through revelation does not yield data, and by definition revelation cannot be a source of information.

### Anatomical sourcing

Like intuition and revelation, anatomical sourcing is a completely internal way of knowing, and no documentation has been found which describes the process of observing and recording data by means of anatomical sourcing, much less documentation which reports on actual bodies of data used in deriving information to serve the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

Consequently, since sourcing one's anatomy (external to the brain) does not yield data, and therefore cannot yield information, *disinformation* and *misinformation* are not connected to information through anatomical sourcing.

### Attained Authority

Individuals who attain standing as authorities for reasons of education, training, accreditation, experience, and other substantive measures of demonstrated, external, critically evaluable competence are recognized as authorities as a result of their regard for scientifically derived information. In my experience as an attained authority (professional planner, geographic information systems professional, professor, senior economist-statistician, expert witness), I have encountered many hundreds of individuals with attained authority. However, not once in all those encounters and examinations of productions did I ever encounter use of the terms, *disinformation* or *misinformation*.

Moreover, numerous keyword-based search engine inquiries also failed to yield any results of individuals with attained authority using the terms *disinformation* or misinformation in reference to information.

### Vested Authority

Through the engagement of individuals who have achieved attained authority, entities with vested authority could use science, everyday experience, and attained authority in the formation, development, implementation, evaluation, etc. of public policies, plans, programs or operations.

However, while these ways of knowing are information-driven, no evidence has been found which associates *disinformation* or *misinformation* with those ways of knowing. Consequently, *disinformation* and *misinformation* are not associated with information through vested authority.

Which brings us full circle back to the 58,000,000 Google results for “disinformation” and “misinformation”*.*

Because *disinformation* and misinformation have nothing to do with scientifically derived information, by default the 58,000,000 results are due to the three remaining ways of knowing (intuition, revelation, anatomical sourcing) and/or some other way of knowing which I have yet to consider.

Further, and also by default, many of the 58,000,000 results for “disinformation” and “misinformation” are the product of vested authorities, including the Internet platforms which compile and disseminate the materials comprising the 58,000,000 results.

As the reader may have gathered, what we have here is a seeming conundrum of significant proportions.

That is, on the one hand Google is currently displaying 58,000,000 results for the terms “disinformation” and “misinformation”, and there are already signs that this number will rise considerably as the U.S. presidential election campaign proceeds.

On the other hand, however, none of the ways of knowing -- science, everyday experience-common sense, intuition, revelation, anatomical sourcing, and authority -- is found to provide any rational, substantive connection between information and *disinformation* or *misinformation,* which prompts the question:

> What is the explanation for Google’s 58,000,000 results if the terms *disinformation* and *misinformation* are not associated with information through any way of knowing?

It seems that solving this conundrum needs to begin at the beginning, and that means asking those who use either term to explain exactly what he or she means, and the evidence to support making such a statement.

Once that process begins in earnest, it is possible that the surge in Google results **for** *disinformation* and *misinformation* could slow considerably. However, to the extent that *disinformation* and *misinformation* have taken on "Lives of their own in a world of babble and misrepresentation", slowing down the surge could take a while. But that is par for the course in the world of science, so nothing new there.

## 5. Conclusion

Based on the findings compiled by this study, it appears fair to state that the working hypothesis has been confirmed, namely, it is an inescapable truth that *disinformation and misinformation* they have nothing whatsoever to do with information. The following findings summarize the inquiry.

First, using ways of knowing -- **science, everyday experience-common sense, intuition, revelation, anatomical sourcing, and authority --** as the diagnostic tool for ascertaining if there are any rational connections between information and *disinformation and misinformation* proved to be a very efficient, effective, and definitive research design decision.

Second, the term "information" is frequently taken to mean whatever transmitters and receivers deign it to mean. Replacing "information" by "geographic information" removes the sloppiness factor, and provides a precedent that seemingly can be used for any other information descriptor.

Third, information does not exist in a vacuum when it is put in the context of a transform process whereby reality is transformed to data, data are transformed to information, information is transformed to knowledge, and the knowledge acquired can be used to change existing reality to preferred reality. The transform process proved to be a sharp-edged diagnostic tool which cuts through *disinformation and misinformation* bafflegab the way a hot knife melts through butter, and Connor McDavid zips through defencemen.

Fourth, because science satisfies a number of methodology conditions that must be met in order to produce information which is valid, verifiable, reproducible, etc., and is the only way of knowing which satisfies all the conditions set forth in Table 1, it is shown to be an excellent basis for assessing whether any other way of knowing could produce information, which in turn could somehow be changed into *disinformation* or *misinformation*. As demonstrated, none of the ways of knowing considered in this report make any logical connection between information and *disinformation* or *misinformation.*

Fifth, Google presents more than 17 billion results for “information”, many of which can be associated with science, everyday experience that could be based on science (not an easy task), and attained authority based on science, and about 58 million results for *disinformation* and *misinformation,* with likely fewer than several dozen having any connection of any kind to information. The science-based criterion proved to be an excellent way of cutting through possible claims about *disinformation* and *misinformation* being related to substantive information.

Sixth, after multiple re-examinations of the 58,000,000 Google results for “disinformation” and “misinformation”, it appears fair to say that the sources of those numbers are largely vested authorities, including Internet platform corporations, which are far more interested in serving such self-interests as votes, power, market share, and advertising revenues than they are in serving the search for truth on behalf of the public interest.

Finally, this is a topic which requires considerably more attention, study, and action, and sooner rather than later.

The cause of urgency is that the Google results for *disinformation* and *misinformation* will increase considerably due to the launch as the 2020 U.S. presidential election campaigns, and vested political campaign operatives pull out all the stops to deep-six information and, by extension, respect for truth.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