

The Need for New Mathematics in the Face of the Coming Data Explosion

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Introduction

Every year, we take a step closer to gaining a better understanding of the cosmos and a closer connection to what was previously unavailable. The pace at which we are growing in what we know and what we can do is increasing. If we use the well-known criterion of the time required to double our knowledge, we can observe that the rate is rapidly growing. Buckminster Fuller coined the term "Knowledge Doubling Curve" in 1982 to describe this concept. "In 1900 human knowledge doubled approximately every 100 years. By the end of 1945, the rate was every 25 years".

David Russel Schilling's new prediction forecasts that in the future, it will go from every 13 months to only every 12 hours. We would not just double the quantity of our information, but also should store it. Consider the data

storage and management that will be required after we arrive at that momentum.

Here's an example of what occurs every 12 hours:

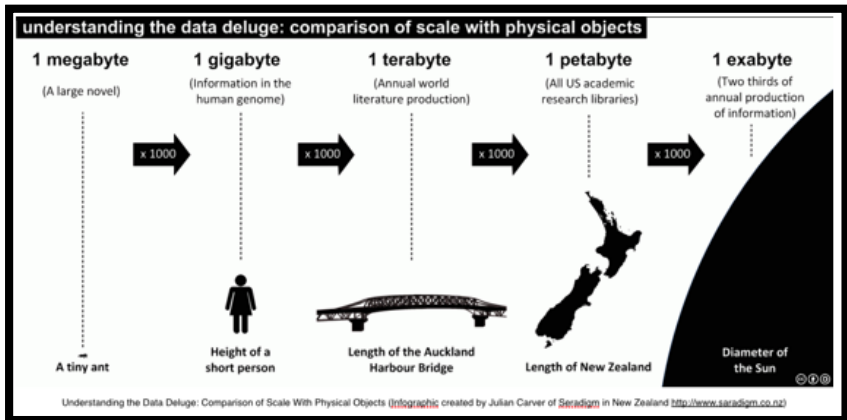
“Human Brain = several billion petabytes to index

The Internet = 5 million terabytes

Amount of Internet indexed by Google = 200 terabytes or

.004% of the total Internet”¹

The volume is represented in this scheme:



¹ Source of the statistics and image: <https://lodestarsolutions.com/keeping-up-with-the-surge-of-information-and-human-knowledge/>

This is one of the realities for which we must prepare: sustainable techniques for data storage.

Then there's the second question: how are we going to use all of this data?

We must be prepared for this if we are to make wise use of these information and avoid being sunk in their ocean.

We need supercomputing, or more precisely quantum computation, in this field.

The Sycamore of Google was recently surpassed by the Chinese Jiuzhang. We saw recently that: “China achieved “*quantum supremacy*” with the development of its Jiuzhang quantum computer, which last month surpassed Google’s Sycamore quantum device with its ability to calculate 100 trillion times faster than the fastest classical supercomputer.”² It can “can solve mathematical problems in 200 seconds that it would take current supercomputers millions of years to solve”.³

² <https://www.rt.com/op-ed/512443-quantum-leap-china-internet-network/>

³ Ibid

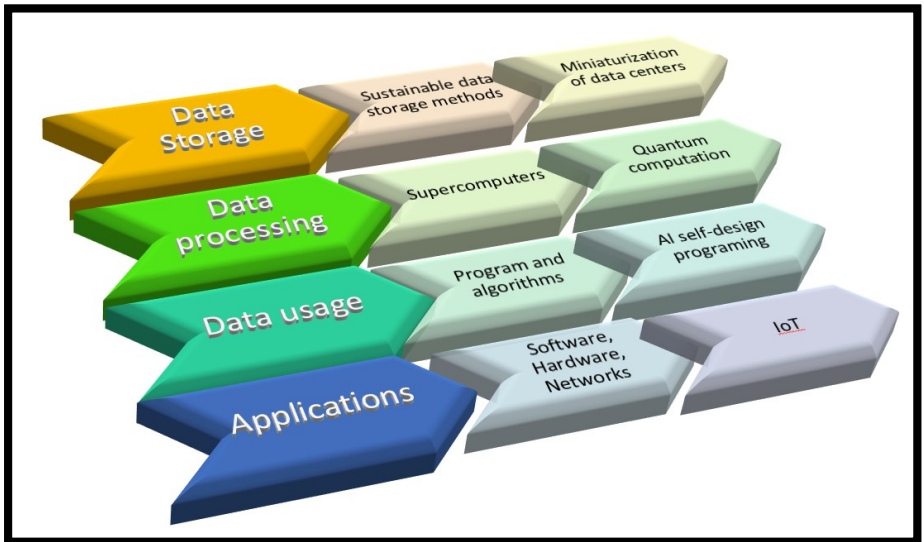
The third step is to connect the dots between the data in order to answer the current important questions and problematics. Here, we'll need algorithms and programs that take the data once it has been saved, processed by using quantum computation, and interconnect them intelligently.

The crucial concept is to realize that we will never be able to program in the usual way. We could not catch up with the data doubling every 12 hours or so. As a result, we need to use a third element, such as Artificial Intelligence (AI), to self-design new programs and algorithms that will be charged with connecting new and old data every 12 hours or even less.

This feat will be producing the output that will itself grow the amount of data. Then we'll work on cutting the doubling time down to 11 hours, then 10 hours, and lastly minutes and seconds. Every few seconds, humanity's

total knowledge will be doubled. As long as we don't ruin our civilization, there is no limit to such a take.

Finally, there's the question of how to put all of this new data collection and processing information to good use. We will employ technologies like the Internet of Everything (IOT) to implement these outputs in software, hardware, and networks.



What we've drawn above are only the broad strokes of a larger plan for our future. But, for us, the question is how *Infinitem* may aid in this process.

Our recommendations are as follows:

We understand that once we reach those high levels of data and knowledge generation, we will quickly hit a momentum that will result in a limitless amount of data and information. A traditional worldview would be incapable of dealing with all of this. To analyze, treat, and utilize all of the data that will be doubled every few hours, and eventually every few minutes or seconds, we will need a considerably stronger stance.

- We require a fundamentally new scientific perspective, one that goes above any outdated norms and regulations imposed by a science based on static mathematics.
- The idea of Infinitism was devised in such a way that it can provide the foundations for such a novel approach. Here are some useful Infinitism's statements for such a task:

- There is no limit to how far an intelligent entity can advance.
- The static mathematics was appropriate for a world with an arithmetic progression rhythm of development; however, once we reach geometric progression momentum, we will need a dynamic mathematics.
- As a result, we must develop a mathematics that will serve as a foundation for our science and technology at the time.

In our prior works, we developed several concepts of this new mathematics that could be a fundamental source of such a new mathematical approach.⁴

⁴ For instance, please refer to:

- ERFANI, Korosh; *Infinitylogy: Foundation of a New Discipline*, ILCP Publishing House, 2021, Chapter IV: *Primary Principles of Dynamic Mathematics*, pp.82-119.
- ERFANI, Korosh; *Infinitude in Action: Exploration and Utilization of Infinity*, ILCP Publishing House, 2021, *About Mathematics*, pp.137-148.

The principles of dynamic mathematics must be created, but first an axiom must be established as the foundation for these principles. This is the basis for that axiom:

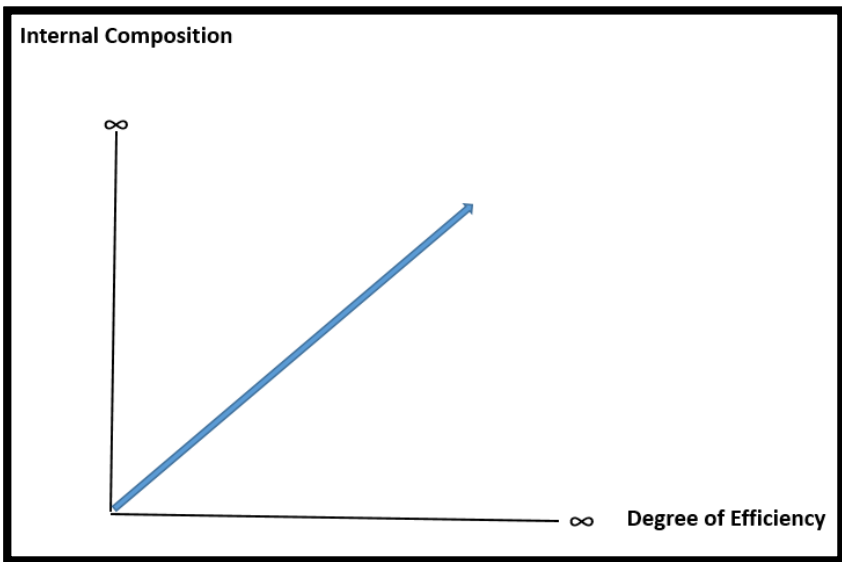
Mathematics is based on numbers. The things are counted, measured, and labeled using a number. Each number in static applied mathematics represents a single reality.

According to Infinitism *everything is either infinite or not*. As a result, any single reality that is represented by a number is an infinite reality that static mathematics cannot integrate.

For apprehending the reality with its infinitely composite nature, we need a mathematics that is able to integrate this infinitude that resides in it. Every reality integrates an infinite number from which we treat only one. We therefore miss all other possibilities to be able to deal with this. But in

a realistic approach the greater part of this countless composition we treat the more efficient we will be.

We need a mathematics that can integrate the infinitude that exists in reality in order to comprehend it with its infinitely composite nature. Every reality has an endless number of variables, of which we only consider one. As a result, we overlook any alternative options for dealing with this. However, the more of this vast mixture we tackle realistically, the more efficient we will be.

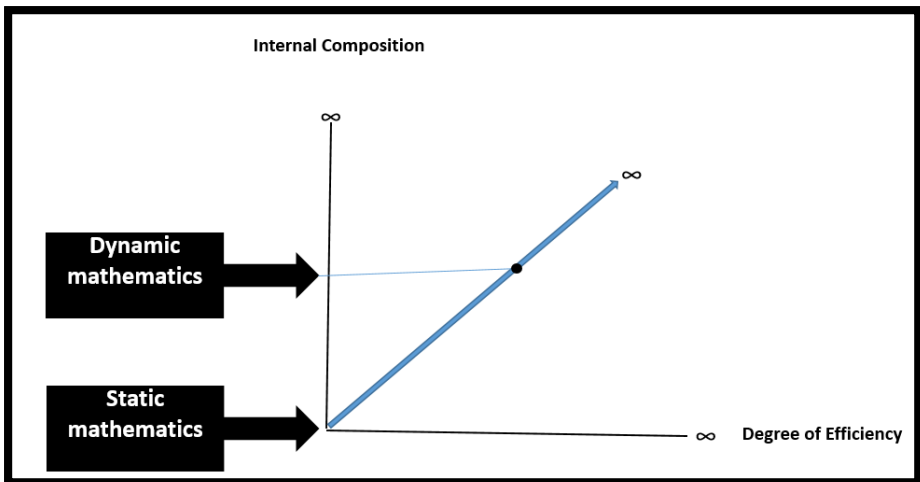


Each number has an unlimited value.

In mathematics, each number represents an endless reality.

Each number in [dynamic] mathematics represents the infinite units that that reality integrates.

Because the infinite is untouchable, dynamic mathematics attempts to grasp it theoretically, but the actual point at which it reaches is determined by technological advancements.



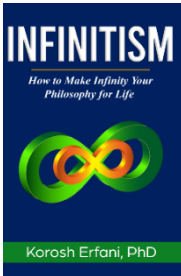
The level of handling of a phenomenon according to static and dynamic mathematics is compared.

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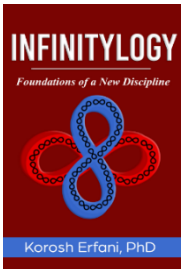
In conclusion, we must be aware of the direction in which our civilization is heading. We shall be caught off guard by the data explosion if we are not knowledgeably and practically prepared. Infinitism depicts such an unavoidable situation and advises taking proactive measures.#

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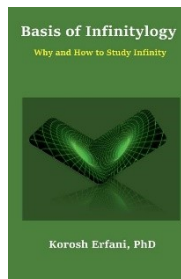
Books published so far:



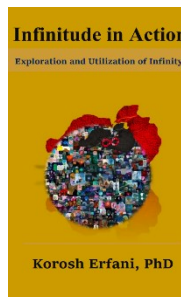
Infinitem: How to make Infinity your philosophy for life, ILCP Publishing House, 2021, 375 pages.



Infinitylogy: Foundations of a New Discipline, ILCP Publishing House, 2021, 148 pages.



Basis of Infinitylogy: How and why to study Infinity, ILCP Publishing House, 2021, 148 pages.



Infinitude in Action: Exploration and Utilization of Infinity, ILCP Publishing House, 2021, 200 pages.

Our books in other languages



● *Infinitism: The Philosophical theory to change*, (Book in Persian), ILCP Publishing House, 2020, 1018 pages. (possible translation in the future)



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- The CRDI plans translating these mentioned English books in French in the future.

www.thecrdi.com



Our Websites



- Website on the philosophical theory of *Infinetism* and its applications.

www.infinetism.info

- Website on *Infinitylogy* as a new discipline and its establishment:

www.infinitylogy.com

- Website on the *Center for Research and Development of Infinitylogy* (CRDI)

www.thecrdi.com

- Website of the ILCP Publishing House

www.ilcpbook.com