

## Bad Consequences of Denying Scientific Principles

Kindly allow me to quote Galileo, who made most insightful observation that stood the test of time, to explain why the vast new Body of Knowledge (BoK) accumulated for the new branch of hard science Componentology.

“By denying scientific principles, one may maintain any paradox.” ... Galileo

This quote unambiguously suggests that it is not possible to maintain the geocentric illusion/paradox without denying/violating scientific principles of the scientific method. I learned this lesson from my first-hand experiences during the past two decades. I have been urging scientific community to not deny scientific principles.

The basis for Kepler's laws was huge data and evidences accumulated by investing 100-man-years at Tycho Brahe's observatory (see <https://en.wikipedia.org/wiki/Uraniborg>). Galileo's conclusion that Sun is at the center was based on evidence and observations accumulated for decades using 30 times more powerful telescope invented by Galileo, and no one else can make such observations without such powerful telescope.

The research community who fiercely opposed Kepler and Galileo were **oblivious** to the data and evidences Kepler and Galileo had accumulated for decades about the reality, and refused to even see the truth by using Telescope (even though Galileo implored them for an opportunity to show evidence using his telescope).

The research community in the 16<sup>th</sup> century considered that it was heresy to test and falsify the first principles of the geocentric dogma/illusion. The research community, which was oblivious to reality, wielded their numerical strength to ruthlessly suppress evidence and silence dissenting voices. Based on my years of experience, I can understand how frustrating it can be when the scientific community is hostile to look at new evidence and deny scientific principles by perceiving it to be heresy to test and falsify beliefs (e.g., Exhibits B1, B3 in Section 3.1).

Similarly, today researchers of software engineering **oblivious** to the huge BoK (Body of Knowledge) for understanding the reality, where the BoK to understand the reality (e.g., that include ideal CBPs and ideal Components that are essential building blocks to build ideal CBPs) can be accumulated by conducting basic scientific research in Componentology: <http://componentology.org/>

Similarly, it is impossible to maintain the existing illusions about real CBE for software (e.g., real CBPs and real Components that are essential building blocks to build each product as a real CBP) without denying scientific principles and suppressing evidence such as observable facts about physical CBPs and Components.

One cannot obtain a driver's license without a basic understanding of the most fundamental traffic rules, such as stopping at intersections when the traffic light is red and driving on the right side of the road to allow oncoming traffic to pass on the left. It would be scandalous if individuals were granted driver's licenses without possessing such essential knowledge. This knowledge is mandatory and not discretionary.

Similarly, knowledge of elementary principles of the scientific method is mandatory for any scientist who volunteers or is tasked with reviewing and validating fundamental discoveries.

1. Reviewers of scientific papers must not disregard or suppress valid evidence.
2. Reviewers of scientific papers must not justify using flawed beliefs as foundational assumptions (or first principles) in the theoretical foundation of any scientific or engineering discipline.
3. Reviewers of scientific papers must not justify or tolerate violations of proven principles of the scientific method, such as accepting myths and misconceptions as valid knowledge, and must ensure that knowledge is not forbidden from testing or falsification.

Knowing and obeying traffic rules is mandatory for drivers. Similarly, it is mandatory for reviewers of scientific papers to be knowledgeable about and adhere to the three scientific principles summarized above. It would be a breach of scientific integrity if scientists (i.e., reviewers) were found to be denying or unaware of the above three fundamental principles of the scientific method.

The main objective of this paper is building awareness to the objective reality about ideal CBPs and ideal components that are essential building blocks to build each product as a CBP, since today software community is oblivious to the reality (i.e., huge BoK that can be accumulated by conducting basic/pure scientific research in <http://componentology.org/>).

I could not find any evidence that anyone else in software world described (i) the essential differences between products that are ideal CBPs and products that are very far from component based (i.e., certainly not CBPs), and (ii) the essential differences between ideal components for ideal CBPs, and other kinds of parts that are far from ideal components and certainly not components.

The objective is providing links to webpages that have evidence, observations, and data, I have accumulated during past two decades, so that others can validate them, or use them to formulate RQs (sample Research Questions in Section 3.3.3) to conduct their own basic/pure research independently.

"No problem can be solved from the same level of consciousness (i.e., prevailing flawed paradigm or altered perception of reality) that created it." - Albert Einstein

By accumulating valid scientific BoK in Componentology and understanding the objective reality, it would be apparent that the existing flawed theoretical foundation (see the BoK in left side of the Table 1) is the root cause for the infamous software crisis. It is impossible to address the root cause by denying scientific principles.

Volunteering to review a scientific paper (that proposing groundbreaking discoveries) is a non-profit noble undertaking, which is an essential part of advancing scientific knowledge and progress. Any scientist who has volunteered for such a non-profit noble cause must understand his/her moral duty and obligation to investigate new evidence and data objectively with an open mind, even if the evidence challenges prevailing orthodoxies and deeply entrenched conventional wisdom.

The reason I want to build awareness about Componentology: It is essential to rely on a valid and trustworthy theoretical foundation (in layer-1 of table-2) for conducting applied research (in layer-2 of table-2). It is generally accepted that any academic knowledge that is not testable and falsifiable is untrustworthy and unreliable. Existing knowledge, such as the descriptions in Exhibits B1 & B2, is not testable or falsifiable. On the other hand, every piece of knowledge accumulated by Componentology is testable and falsifiable. Only testable and falsifiable Body of Knowledge (BoK) can create consistent and objective descriptions of reality and accurate explanations for phenomena.

There is a different heliocentric reality, and research community was oblivious to this reality until the 16th century. Meanwhile, then prevalent geocentric paradigm was riddled with inconsistent and inexplicable concepts such as retrograde motions, uneven speeds, and epicycles. Similarly, Componentology presents a distinct, useful reality, and today's software community is oblivious to it, while the existing CBSE paradox is filled with inconsistent and inexplicable concepts such as untestable and unfalsifiable descriptions for CBPs and Components for CBPs. Like the heliocentric paradigm, Componentology is a hard science that studies physical reality and phenomena, so any thing that is inconsistent and inexplicable can be eliminated by accumulating evidence and observations to explain the physical reality.

Componentology is a hard science that studies physical things and reality, which relies on objective testable and falsifiable evidence/observations to draw objective, testable and falsifiable conclusions/theories. It is impossible to draw

objective conclusions by relying on subjective or inconsistent foundational assumptions in Exhibits B1 & B2 (that are not testable and falsifiable). Most of the knowledge in the 16<sup>th</sup> century geocentric paradox was in stark contrast to the heliocentric reality, hence the heliocentric model was perceived to be strange or inconceivable. Similarly, the existing subjective or inconsistent description in Exhibits B1 & B2 are in stark contrast to the observations in plain sight in Exhibits A2 & A3, which today are perceived to be strange.