

Vital Pure Science is Missing from Applied Research in CBSE

The purpose of basic research is trying to know or find new things about physical things or reality. The purpose of applied research is trying to use what is known or found in basic research to address problems or create something useful. If nothing is known about components and CBE, it is impossible to even start applied research in CBSE (Component-based Software Engineering), since there must be something known to start applied research in CBSE. If you heard and care about components/CBE implies that you know something about them. If what is known is flawed beliefs or myths, applied research that uses or relies on such flawed beliefs or myths can never be successful.

Researchers (who are conducting research in CBSE or software engineering) do not acknowledge or are even aware of the fact that there are two kinds of research, which are (i) basic research/science, and (ii) applied research. If experts acknowledge the fact that there must be a basic/pure science for CBSE, they are obligated to show what is there or known in the "pure science" (e.g., about components & CBE). It is impossible to conduct applied research (e.g., for CBSE) without having anything in basic/pure science. If something is known or there in basic/pure science, what is in there? To be not a fake science, whatever is there in "pure science" must not be baseless beliefs or myths.

The prerequisite for teaching any engineering subject (or course) is having learned or knowledge of relevant basic/pure sciences. No engineering or applied science in the world teaches any applied-science subject/course without first learning the prerequisite concepts or theories from relevant pure sciences. In the case of software engineering, no educational institution teaches vital pure science about various kinds of parts and various

kinds of components (i.e., that is approximately equivalent to Componentology). The subjects/courses for software engineering or CBSE are the only ones without having any pure science foundation. Most of the existing knowledge (comprising theories, concepts, and descriptions) about so-called components or CBE is voodoo scientific myths. Today there is a prerequisite valid pure science for every applied-science subject/course, except for the applied science courses/subjects for CBSE and software engineering.

Two vital parts (or layers) of the research ecosystem:
(1) Basic Research/Science & (2) Applied Research

Applied Research Layer#2: Applied Research for CBSE (Component-based Software Engineering) is conducted to invent tools, methods, & technologies to create real software components; & to use the components to build software products by inventing more tools, methods, and mechanisms of CBE (Component-based Engineering), by relying on the prevalent or available good or bad theoretical foundation comprising theories, concepts, axioms, or beliefs in basic science layer#1 below.

Theoretical Foundation (or basic science) Layer#1: Theoretical Foundation or basic scientific knowledge for CBSE comprises theories, concepts, evidence, axioms, beliefs, and definitions or descriptions to understand (i) essential properties of components, (ii) anatomy, construction, and structure of CBPs (Component-based Products); & (iii) methods and mechanisms of CBE (Component-based Engineering).

➔ It is impossible to even begin constructing a house in thin air, without having a good or bad foundation for it. Similarly, it is impossible to even begin applied research (in layer#2) for CBSE in thin air without having any good or bad concepts, axioms, beliefs, or descriptions (e.g., of basic building blocks such as components and methods or concepts of using components for CBE) in the theoretical foundation in layer#1.

➔ It is impossible for any applied research in layer#2 to successfully address any unsolved technological problem (e.g., real CBSE), if the basic science in layer#1 is voodoo science comprising flawed theories, concepts, methods, or descriptions, for example, about basic building blocks such as components and methods or concepts of using components of CBE.

Question-1: Do you know anything (e.g., theories, concepts, methods, or descriptions) about so-called software components and CBSE? If you know nothing (i.e., have zero knowledge) about components and CBSE, obviously you are not qualified to evaluate any paper or proposal on software engineering and components for real CBSE.

Question-2: What do you know (e.g., theories, concepts, methods, definitions, or descriptions) about Components, CBPs, and CBE? Do you have any objective evidence that can show what is known to you is valid academic knowledge that is trustworthy, tested, and reliable? If what you know (e.g., each theory, concept, or description) about software components and CBE is not consistent with valid observations and evidence about their real-world counterparts, you must admit that what is known to you is unscientific and flawed belief or opinion (i.e., unfit to rely on to conduct applied research).

It is not possible to conduct high-grade applied research in layer#2 to make the high-grade invention without having and relying on very high-grade basic science in the theoretical foundation layer#1. However, it is possible to make low-grade inventions by having and relying on even low-grade or imperfect scientific knowledge in layer#1. It is often impractical to create very high-grade scientific knowledge and insights without creating empirical evidence such as objective testbeds in the form of useful working inventions. This expertise and insights gained in the applied research and testbeds are valuable to improve the quality of scientific knowledge in layer#1, which in turn can help improve the quality of the applied research in layer#2, and so on. We have been traveling on this right iterative path for 20 years and recommending other researchers to take the right path. It is impossible to even make low-grade inventions if the theoretical knowledge is flawed, and existing knowledge about so-called components and CBE is flawed.