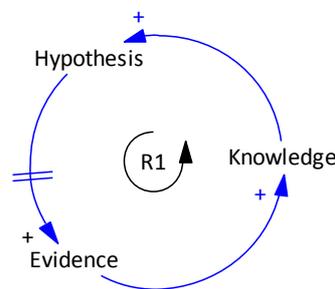


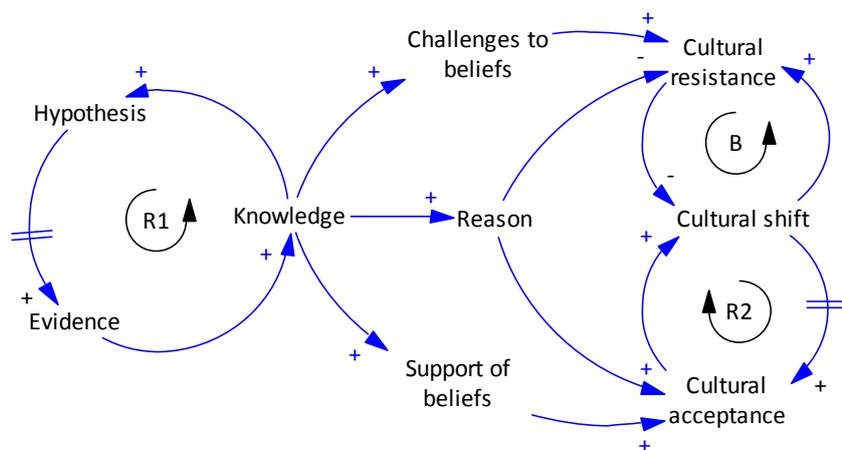
## Towards a New Age of Reason - the route from knowledge to wellbeing

The human knowledge base is built through a system characterised by continuous reinforcing behaviour. Existing knowledge gives rise to new hypotheses which are tested (e.g. through peer reviewed scientific journals) and a consensus is built around the evidence, albeit that this can take some time. The dissemination of this evidence grows the knowledge base over time (Loop R1). Reinforcing behaviour leads to exponential growth (or decline).

Buckminster Fuller created the “Knowledge Doubling Curve”; he noticed that until 1900 human knowledge doubled approximately every century. By the end of World War II knowledge was doubling every 25 years. Today things are not as simple as different types of knowledge have different rates of growth. For example, nanotechnology knowledge is doubling every two years and clinical knowledge every 18 months. But on average human knowledge is doubling every 13 months. According to IBM, the build out of the “internet of things” will lead to the doubling of knowledge every 12 hours.<sup>1</sup>



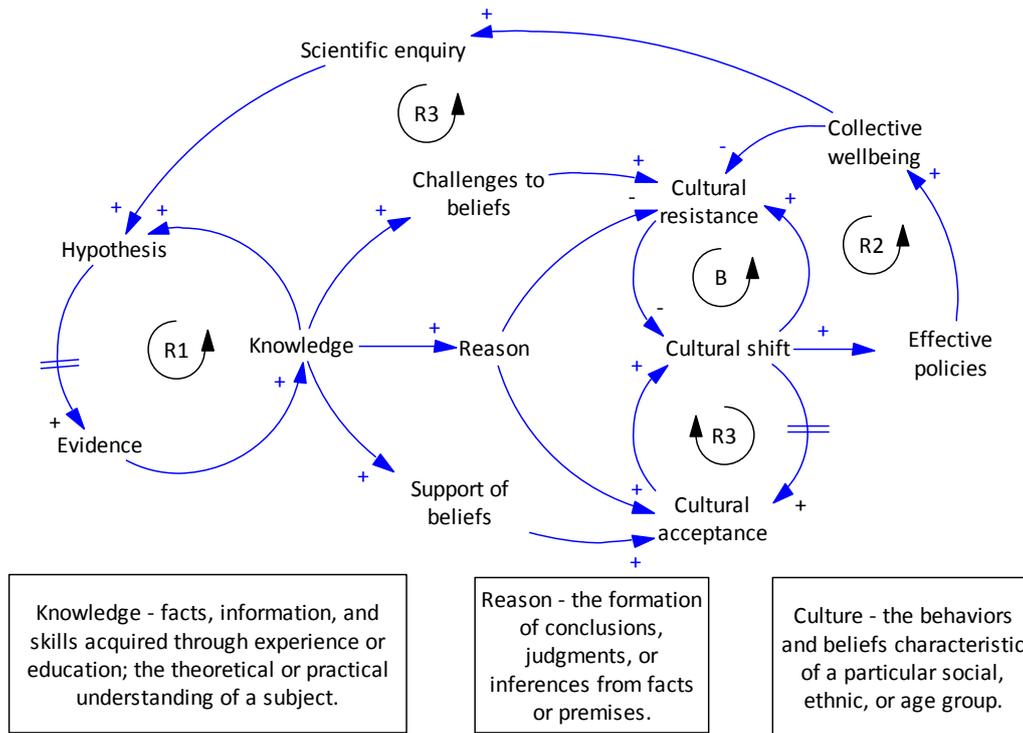
New knowledge that challenges the belief systems of the prevailing culture will be resisted (Loop B), often without recourse to the evidence. New knowledge that supports the prevailing belief systems however will readily obtain cultural acceptance (Loop R2). The balance between cultural acceptance and resistance to new knowledge is the determinant of the rate of broader societal cultural change. However our ability to reason is also reflective of new knowledge (e.g. advances in cognitive psychology and neuroscience). The application of reason therefore also influences whether or not new knowledge is embedded in culture.



<sup>1</sup> <http://www.industrytap.com/knowledge-doubling-every-12-months-soon-to-be-every-12-hours/3950>

<sup>2</sup> Arrows with negative polarity indicate inverse causation over time (e.g. an increase in reason reduces cultural opposition - ceteris paribus), all other arrows indicate positive causation. Arrows with double lines crossing

Effective policies flow from a cultural acceptance of knowledge but these policies are simultaneously resisted (to some degree or other). Of course there are vested interests that also resist effective policies but their influence can be said to reflect the prevailing cultural norms. In this context effective policies are those that improve the collective well-being of society. Over time acknowledgement of the societal benefits derived from those policies, and our improvements in the ability to reason (e.g. the diminishing influence of astrology) reduce opposition and reinforce acceptance of those policies (e.g. the abolition of slavery) –Loop R2.



Continuous improvement in the collective well-being of society has led to increases in prosperity which allows for the resources to drive scientific enquiry and hence new knowledge, thus accelerating the rate of knowledge growth (Loop R3).

The above is a plausible hypothesis for the historical advancements in human society that have greatly increased the human population, average living standards, and reductions in violence (Pinker). The knowledge base itself determines the potential for effective policies for improving collective well-being. However the realisation of this potential is primarily influenced by the prevailing culture. For example there is no credible doubt about the science of global warming. However our political and policy culture (including the influence of vested interests) prevents the application of our knowledge to properly address the problem, which indicates the powerful influence of Loop B.

There is a natural human psychological resistance to the acceptance of facts that challenge our prevailing worldview (Kahneman, Trivers). Worldviews in turn are a reflection of prevailing culture, of which there are many in our diverse world. This resistance can only be addressed by increasing a commitment within all cultures to derive policies from **the application of knowledge about how the**

---

them indicate a delay between cause and effect. R loops indicate reinforcing system behaviour; B loops indicate balancing (or offsetting) system behaviour.

**world works, including how the human mind works;** in other words, to evidence and reason based policy formulation. Presently the knowledge loop is whirring away but the output is not adequately reflected in policy. Reason is therefore the key leverage point in the system at this point in human history, rather than knowledge. The pursuit of human well-being therefore requires a much stronger commitment to the application of reason to the human knowledge base as a basis for policy formulation.

This requires society to listen more to those who have the knowledge and less to those whose positions are not supported by the evidence - **a New Age of Reason.**

**Bill Grace**      *January 2015*