INTEGRATED FUTURE(S)

LOOKING FORWARD

Emerging technology and the impact it will have on science, medicine and us

Welcome to Integrated Future(s), IF.

IF is a weekly newsletter about the future, developments in emerging technology that may play a role in that future and the impact they will have on science, medicine and society. This tech will include artificial intelligence, machine and deep learning, robotic process automation, blockchain and other distributed ledger technology, quantum and neuromorphic computing, robotics, nanotech, neurotech, augmented and virtual reality, new juxtapositions of legacy tech and science, along with other things not yet identified. We won't be looking at these in isolation, but instead trying to understand how they will integrate with each other and with the infrastructure of science in our society. This tech/science infrastructure is known as technoscience.

We'll look at new developments. I'll tell you what it means. That's the simple plan. We'll see where it takes us. Please remember that the map is not the territory.

- Sean

THE FUTURE IS DARQ BUT BRIGHT

https://cio.economictimes.indiatimes.com/news/strategy-and-management/the-future-is-darq-but-bright/72973537

Artificial intelligence (AI) and its constellation of technologies are front and centre in producing technology-driven business and customer interactions more efficiently, faster, and at lower costs.

This is a great place to start. The article takes a similar look forward and gives us a brief description of several emerging tech areas. It also gives us a first look at categorization, naming and framing. Bundling the array of tech and associated non-tech processes is a convenient cognitive and communications tool. It can also be unnecessarily exclusive or inclusive for the sake of a pronounceable acronym (the value of which is not to be discounted but not absolute). This article and the DARQ acronym cover most of the big rocks from an information tech perspective.

NAMES OF THINGS

Names mean things, but names and meanings also change across time and context. For example, in the 1970s blockchain(ing) was a verb/gerund with slightly different meaning. In the 90s Haber and Stornetta gave it the modern meaning while notably applying it in the analog and centralized New York Times. Satoshi's Bitcoin integrated it with other moving parts and made it synonymous with maximum viable decentralization for a time. Popular consensus has forked the meaning back to the general 90s definition for most. IF is about ideas more than technical distinction. Sometimes distinct technology definitions will be important. Other times the context is what matters. Don't get lost.

SUPPLY CHAIN IOT NEEDS BLOCKCHAIN TO FULLY MATURE

https://www.iotworldtoday.com/2020/01/11/supply-chain-iot-needs-blockchain-to-fully-mature/

In the supply chain industry, the Internet of Things generates data that will benefit from greater centralization and security. Enter blockchain technology.

We'll conveniently sidestep the seeming contradiction of the statement of blockchain providing greater centralization for now (but what if they meant the real bottleneck in supply chain in need of disintermediation is actually the ad hoc decentralization? Whoa!). This article is a simple example of two distinct emerging tech areas, IoT and blockchain, integrated in a single industry. This one plus one integration is the natural learning progression in a step by step fashion. Having a more comprehensive vision of a multi-variable integrated system for each industry is also critical.

50+ REASONS OUR FAVORITE EMERGING TECHNOLOGIES HAD AN AMAZING 2019

https://singularityhub.com/2019/12/31/50-reasons-our-favorite-emerging-technologies-had-an-amazing-2019/

This is an amazing 2019 review of news and happenings across many information-based and physical/energy focused emerging tech areas. The technology singularity is a hypothesized point in the future when tech advances become self-perpetuating, mostly driven by the arrival of artificial general intelligence. This is good, bad or other depending on perspective, but it is an important concept in looking at the integrated future of tech. Ray Kurzweil's 2005 classic *The Singularity is Near* is a solid place to start. He and others put the date as likely between 2040 and 2050. We have time.

TINY LIVING ROBOTS MADE FROM FROG CELLS COULD SOON SWIM INSIDE YOUR BODY

https://www.cnet.com/news/tiny-living-robots-made-from-frog-cells-could-soon-swim-inside-your-body/

A fascinating article. It is also a reminder that IF you think you have a full grasp on where the integration of emerging tech and legacy science systems is going, you don't. Aren't you glad we are getting out in front of these things?

That's it for this week. We'll continue the conversation next week including diving into the peer-reviewed literature, reviewing the history of technoscience, understanding the Open Science framework and looking at the future of science. Share as you like. Questions and comments to seanmanion@sciencedistributed.com. Thanks for reading.

Sean T Manion PhD is a neuroscientist, former federal research admin and bureauscientist, and technoscientist with a focus on blockchain and other emerging tech. He is a Chief Editor at Frontiers' Blockchain for Science, a Fellow at the British Blockchain Association and co-author of the book Blockchain for Medical Research: Accelerating Trust in Healthcare with Yaël Bizouati-Kennedy (CRC Press, April 2020). He is currently performing the duties of self-appointed strategic planner for science.

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