Later Postscript: Exploring Possible Histories of the Future?

BOOK X - Part III

The Pursuit of Philosophy as a Discipline

Volume III

The Prescience of Philosophy as a Discipline:

Beyond Criticism:

How Should Philosophy
Progressively Perfect an Ongoing Critique of its Discipline,
And,
Through Such Constructive Insight,
Perceptively Appreciate the Nature of the Human Condition??
A Critique of Theory *versus* A Theory of Critique…

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2020 – 2026

Later Postscript: Exploring Possible Histories of the Future?[1]

0. Pre-Introduction and Introduction

Histories of the future are just as tenable, when correctly approached, as either histories of the past or histories of the present although their individualized constitutions will follow some different rules whilst remaining subsumed, at the same time, within the general, overall discipline of 'histories' understood in a plural format given the impossibility of running an all-encompassing history conducted in the singular. In this presentation let me re-visit a past presentation concerning histories of the future[2] in order to see if certain predictions made there (about the advent of this radically new era of the Contemporary) have come to pass or are immanently about to do so? (0)

Of course, some will argue that a 'history' is 'history', i.e., 'an account of something that has passed'. However, I would contend that the discipline of histories is something that needs to be conducted both in the plural and with various oscillations in temporal orientation between the past, the present, and the future without definitively settling on just a pure presentation of the past, or the present, or the future. (1)

Histories are narrated. The potential perspective/s of the specific histories being narrated are infinite in number and given an oscillation between subjective and intersubjective points of view, and between past, present, and future temporal orientations, etc., along with whatever narrational manner of the framing that is being chosen and, therein, self-referred to, it follows that a singular history would be impossible given its temporal appreciation alone, etc., would deconstruct such a singularity. (2)

Moreover, historians inevitably have motives and morals situated in the present, aiming to be taken up and understood by its current readership. Historians, in this regard, in order to make themselves relevant for a contemporary audience, their historical narrations will need to also comment, either directly or indirectly, upon an implicit aspect of the present. Last, in order to consider the possible intentions of historical actors, etc., the historian will also need to consider past, present, and future from either temporal points or periods in the past. Just as compound tenses and conditional verbs are utilized, e.g., to consider a future prospect from a certain moment in the past, and so on, and, be that considered as a possibility or as an actuality, and so forth. (3)

Furthermore, observe what is happening on the Internet today in terms of podcasts, etc., and you will find various communities of historians dealing with the past, or the present, or the future. There you will also observe a preponderance of historians deal-

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[1] For latest version of text: http://https://noelshomepage.homestead.com/pursuit.html

[2] Refer to *Pursuit*, III.VI.7X. *The Great Transformation aka The Great Disruption*: *Running Histories of the Past, Present, and Future in Order to Discern Probable Continuities, Dis-Continuities, and Non-Continuities*? (12.1.23).

ing with the past, a large but lesser number dealing with the present, and a much reduced number dealing with the future. (4)

Next, we should note the differences in how histories concerned more with the past, or the present, or the future are to be conducted. We can do this in reference to what I define, respectively, as discontinuities, non-continuities, and continuities. In dealing with the past, historians more note discontinuities, say, the death of historical figures, changes in government, alterations in climate, the decisive role of battles, fluctuations in trade and commerce, and so on. In dealing with the present, a key feature is the collation of current news items, a statistical analysis of the same, and, a focus on the crucial role non-continuities play especially in the Contemporary era with the convergence of new technologies that have had no precedence in the past like, e.g., smart phones; de-carbonization through the utilization of solar panels, wind power, and batteries, etc; the proliferation of novel genres in the digital sphere along with current advent of AI, etc. In dealing with future histories, the historian needs to assess the innovative and novel impacts stemming from current non-continuities along with those continuing facets expected to be still experienced in the future like, e.g., the ubiquitous needs for food, drink, habitation, sleep, mechanisms for generating personal and interpersonal valuation, etc. (in a distinction to be made between a futurology of bigger and better things *versus* histories of the future dealing with the impact of novel non-continuities and non-novel continuities). With the advent of the Internet, podcasting, etc., historians concentrating either on the past, or present,[3] or the future can be found in numbers not hitherto observed historically. (5)

3. Major Disruptions for Re-Consideration?

In an earlier essay,[4] 7X. *The Great Transformation aka The Great Disruption*: *Running Histories of the Past, Present, and Future in Order to Discern Probable Continuities, Dis-Continuities, and Non-Continuities*? (12.1.23) I discussed the work of Tony Seba and noted his functioning as an historian of the future. (6)

Tony Seba notes the following:

> Five fields will be especially disrupted with the advent of a convergence of new technologies, namely, Information, Energy, Transport, Food, and Materials. [2] (7)

In the short space of time since writing that essay, in January 2023, let be explore if much has happened to either align or non-align with the predicted observations made by this historian of the future (and not to be mistaken for a futurologist[5]). I will do this under the five headings supplied in the previous citation. (8)

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[3] E.g., the many historians of the present collating information in near real-time concerning the course of the Russo-Ukrainian War and disseminating it in the form of podcasst, YouTube videos, etc., often on a daily basis.

[4] *Ibid*. Where this Later Postscript will be appended,

[5] As commented by Seba, and paraphrased by myself, ‘a butterfly is not a bigger and better caterpillar, but the emergence of something distinctly different’.

3a. Information

If a statistical analysis of headlines in newspapers, magazines, journals, podcasts, etc., is anything to go by then the notable influx of stories on the topic of AI should have caught our attention. Indeed, AI, either as a topic to be informed about or as a novel facet that is moving into the course of our daily lives, this novel technology is fast becoming a ubiquitous topic of conversation. I am finding over the course of my research or as in investigating a topic of curiousity or as something I can use AI now occupies a position in my life that was not even thought about a couple of years ago. At times, the results of those searches have been quite amazing, and in quite a different league to those labourious Google searches once conducted not too long ago. E.g., my wooden gazebo half-fell down in a recent storm and I converted it to a pergola to grow some vines. I asked an AI application to make some suggestions for the following - for fast growing vines, with fragrant flowers, edible fruits, that would grow in the colder clime of Katoomba, in the Blue Mountains. Within seconds three suggestions appeared. Very useful and I intend to grow all three candidates that were posted, although, it also pays to check out the results of all AI searches as one of the hybrids suggested was actually a subtropical variety and not suitable for a colder, temperate climate. Then, in another search, it identified the seals on a Japanese screen as those belonging to a collectors who had been a Harvard academic and not the signatures of the artist as I had originally thought. So, in this regard, AI can also 'check up on us and have us heading in different directions'.[6] (9)

As noted in a later essay, it is my belief that AI as a low-hanging fruit will be quickly taken up by the commercial world and that much of that uptake has probably already occurred.[7] That it will be just too expensive and not profitable for some sectors of the commercial world to take up. That, in this regard, the hype concerning the transformative nature of AI might well be over-estimated, certainly in the short run and that given the competitive nature of this industry most investors will probably stand to make large losses. Still, over the medium and longer-term, AI will radically alter the working landscape in ways as yet to be fully appreciated. That, in a proactive appreciation of both the potential and actual consequential impacts of this technological innovation, and others allied technologies, we must rely on the intuitive and insightful work of these historians of the future. In that respect, as well, politicians and intellectuals, cultural commentators and philosophers, *et al*, will need to become more proactive and less reactive, and, in the process, steer for us the safety of a middle path through the ensuing disruptions, across a plethora of fields... as well-predicted by Tony Seba (10)

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6 Admittedly meant as a cryptic comment.

7 Refer to the book titled; *Essays on the Advancement of Democratic Governance*; *Second Essay*: *AI as a Two-Edged Sword both Politically and Non-Politically* (*Pursuit*, III.X.III.2).

3b. Energy

Tony Seba has also predicted the rise of a concept he calls ‘superpower’ where, with just a little bit more investment in an ongoing de-carbonization of energy production, the overall supply of power in any country could be doubled if not tripled. With such surplus power, a host of hitherto less financial projects could be inaugurated form desalination to aluminium smeletrs, and so on and so forth. Along with a need for only an occasional use of dispatchable power, easily supplied by suitable batteries once installed, power would become incredibly cheap. Now, my power bills are still ever rising at the moment, but, with the advent of cheaper battery technologies I would be able to better utilize the solar power that I am generating during the day. Indeed, in my instance, where I am usually creating twice the power that I am actually consuming Who would have thought ten years ago that my house would be its my own power station... (11)

Let me supply some statistics using AI on this topic of energy production. (12)

In the US, in 2025, gas supplied about 40% of its power generation followed by renewables at 24-26%, nuclear supplied 18% and coal at 17%. In 2026, wind and solar will increase to 20% from 18-19% in 2025, while coal will drop about 1-2%. to 15-16%. (and more than likely indicating am inevitable trend downward). (13)

In Australia, renewables in 2025 were about 40% with solar being about 20%. Australian Government aims for 82% renewable by 2030. (14)

In Aotearoa New Zealand, renewables constituted, in 2025, 88.4% of power generation. In a breakdown of this figure we have hydropower supplying about 60%, geothermal at about 20%, wind at 7% and solar at 1%. (15)

In China the breakdown for 2025 is coal at about 54-60%, natural gas at 3-9%, hydropower at 13-14%, solar at 12%, wind power at 11%., and nuclear at 4-5%. (16)

On a world level, renewables make up approximately 33.8% of global electricity generation and is projected to grow by over 8% in 2026 to become the world’s large source of electricity overtaking the use of coal. It also appears safe to assume that global power production through renewables is accelerating rapidly. (17)

The world appears to be heading towards a decarbonization of electricity production, more or less, in an alignment with the predictions made by Tony Seba. (18)

3c. Transport

Although current regulations and legal requirements are not settled in Australia, around the world, in many locations, autonomous driving in the form of private cars, taxis, and buses is being rolled out. The ramifications of this radical transition in the nature of how transport will operate will be profound and have been highlighted by Tony Seba. He has suggested that people in conjected urban centers will, in all probability, hire au-

tonomous vehicles rather than own them, and, that taxi companies with fleets of vehicles will probably invest in this field given the extremely low maintenance costs of EVs. (19)

Some statistics on the uptake of EVs. Quite divergent percentages are to be observed with Australia at 25.8% in 2026 (up form 12.1% in 2025), Aotearoa New Zealand at 27.9% (up form 12.3% in 2025), the European Union at 27% (form 16% in 2025). In the US, with their has been a steep decline following the end of feneral taz incentives with 10% in 2026 declining to somewhere between 6-7.1% in 2026. China continues to lead production, manufacturing roughly 75% of all global production.In 2025 55% of new car sales were Evs, expected to climb to 60-63% in 2026. (20)

With respect to such statistics Tony Seba appears to be correct? (21)

3d. Food

What percentage of global food now utilizes precision fermentation processes? About 1%. However, the domain of substitute milk products takes up about 50% of that 1% and is projected to expand quickly through the early 2030's, though it is currently starting from a niche baseline. (22)

Currently, less than 1% of the global meat market has been directly replaced by precision fermentation. In the US that percentage is roughly 1.4%. As for a future outlook, it is projected that about 4% of global protein production will be arrived at by 2025. However, other more optimistic industry reports estimate that precision fermentation, alongside cultivated meat, could capture up to 22% of the global market if infrastructure scales significantly.[8] In this regard, Tony Seba may be only partly correct when he envisaged the bankruptcy of dairy and livestock farming in the 2030s. I would contend, that if price curves favour this form of food production, and the market is better regulated, then the 2040's might finally prove Tony Seba to have been belatedly correct? (23)

3e. Materials

I don't wish to proffer an opinion here other than to note how new materials, from computer chips built up from only a few layers of atoms at a time to precision drugs targeting specific enzymes and chemical pathways, etc., do appear to be the general trend, and a trend taking an upwards exponential curve. In the same manner, we are also witnessing a succession of batteries, e.g., that are rapidly improving on their energy densities, durability, etc., and on such a scale with decreasing cost curves that an eventual global decarbonization of electricity production will occur purely as a cheaper alternative to dispatchable power utilizing coal, oil, gas, or nuclear forms of production, etc. (24)

It does not take too much imagination to envisage that an over-investment in renewables and better batteries will head those, who invest in such modes of energy pro-

[8] In something akin to Moore's Law, if scaling in production doubles, then costs reduce by about 20% resulting in an exponential, non-linear cost-cutting curve.

duction and storage, into this much cheaper realm of ‘superpower’ as argued for by Tony Seba. (25)

To these five headings we can add three more, namely, Health, Finance, Politics, and Climate. (26)

3f. Health (Both Proactive and Reactive Forms of Medicine)

Theoretically, through suitable forms of investment and education, medical treatments should become cheaper over the long term. Reduced costs could also come about through better modes of testing, the use of AI diagnostics and treatment, etc. (27)

3g. Finance

The world of finance, unfortunately, is still beholden to booms and bust, the proliferation of new financial products, short-sighted forms of greed, and so on. Then, given the expansion of neo-liberal policy settings, promoted, e.g., through donations from the financial sectors, etc., we can only expect a future worsening of the Gini coefficient, a measure of inequality, and the potential destabalization of our democracies in its wake unless such a trend is reversed in a positive evolution of policy settings or abruptly disrupted by revolutionary changes in either government and/or governance. However, we could also balance such pessimism with an optimism that in moving from an extractive economy of relative abundance such adverse trends in inequality could well be reversed if politically handled correctly. In this regard, the concept of ‘superpower’ is promise that all over this planet the imminent prospect of cheap, renewable power permanently working for us without additional costs, coupled with an unlimited access to information, and so on, must inevitably remake both th financial and political landscape and one must hope that legacy industries, e.g., etc., do not effectively disrupt such a transformative transition. If anything, that other towns and cities, other companies and nations decide to take up such innovations will become an economic force in itself that cannot be forever ignored by the less innovative parties... (28)

3h. Politics (International and National)

As intimated under the previous heading, finances and politics go hand in hand in the coursing of both national and international political-economics. As I have argued elsewhere, the competitive nature of a neo-liberal major discourse, if allowed to run to its ultimate conclusion, will oversee an economy with increasing degrees of inequality, along with forms of political instability plus a progressive de-stabalization of democratic governance (as argued by the economist Thomas Pickety, e.g.). However, these new convergent technologies could also become more democratically re-empowering and re-enfranchising by virtue of their decreasing costs of uptake, etc., and where the differentials of geographies and the previous accumulation of capital and assets would no longer be either and incentive or barrier to the uptake of such radical innovations. (29)

3i. Climate

The scientific consensus is that there is increasing global warming, that it is primarily induced by human activity, and that it is accelerating. (30)

E.g., if the waters of the Gulf of Mexico were to rise on average by one degree it is predicted that this should increase hurricane wind speeds by 5-7% and significantly boost extreme coastal damage. Warmer waters create higher evaporation rates, which pumps more energy and water vapour into developing storms. This elevation in temperatures can also increase the more rapid intensification of storms, but, overall, should not create a greater annual frequency of major storms... (31)

But, the advent of clean, abundant, renewable 'superpower', etc., also proffers a 'promise' that we no longer need to operate extractive economies that are damaging the environment, and, instead, that we would then have the ability to reverse such damage over the longer-term... (32)

4. Provisional Conclusions, Observations, and Comments

What can we conclude? That a number of Tony Seba's predictions are coming to pass whilst other prediction concerning, e.g., agriculture and the food industries, may well appear, thankfully, to be somewhat retarded in their uptake. Although, I suspect, with an internal logic promoted by inevitable reducing cost curves, etc., that will make them equally as inevitable over the longer term? (33)

Tony Seba is an excellent example of an historian of the future. Against the backdrop of both current non-continuities and future continuities, in line with the usual uptake of innovations, usually promoted by continual patterns of cost-cutting, upscaling, etc., these trends, as argued for, are occurring, albeit at varying rates of uptake, but, with an historical inevitability that is starting to surprise people in general. In the space of only a few years the evolution in the development of AI, and its applications, has caught the public imagination in a manner that is not altogether positive. As ever, new forms of technology are like 'two-edges swords', and, need to be treated accordingly. The regulatory environment needs to successfully take a middle path. Unfortunately, most politicians are reactive and not proactive and it may well be that adverse circumstances will promote the requisite degree and manner of legislation suitable to the eventual overseeing of a profitable pursuit of this Contemporary era (as characterized by the innovations of novel non-continuities like, e.g., smart phones, AI, precision fermentation, superpower, autonomous driving, and so on[9]). (34)

In his latest book,[10] co-authored with James Arbib, titled *Stella*: *A World Beyond Limits and How to Get There*, Tony Seba argues that the political landscape (and non-

[9] Here we can also add resonant-hybrids as explored in *Pursuit*, III.XII.Parts 4 and 5.

[10] The flowing link is an introduction in podcast form to this book titled*: Stella*: *A World Beyond Limits and How to Get There*: https://youtu.be/w9iVfZr3eUg?si=LKliyI_nmVf72LKl The following link is

political landscapes as well) will radically shift from an extractive economy to an economy no longer so limited by a scarcity of economic good and services. With the advent of superpower, unlimited access to information, and so on, the traditional valuations placed on land, labour, and capital will have to be seriously re-considered. The metaphor behind the title is that 'stella objects', like our Sun, e.g., once they reach a point of ignition, 'basically burn with unlimited energy for a very long time'. Unfortunately, this transition from extractive economies to a relatively non-extractive world will undoubtedly not be without its own difficulties… (35)

All in all, it would seem we are in for a 'bumpy ride', and it is to be hoped that organized individuals forming proactive communities, operating within a well-functioning democratic framework, will rise to successfully meet these inevitable challenges..!? (36)

Noël Tointon, Penrith, 5.10.26.

PS. Note I have enclosed my earlier essay citing Tony Seba's arguments, observations, and conclusions, N.T. (37)

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to a podcast discussing this same book: https://youtu.be/-leMtnkTKTs?si=hM7jR60yZfzpZRpq The latter podcast is by The Electric Viking (Sam Evans).

7X. The Great Transformation aka The Great Disruption:
Running Histories of the Past, Present, and Future in Order to Discern Probable Continuities, Dis-Continuities, and Non-Continuities?

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7X. The Great Transformation aka The Great Disruption: Running Histories of the Past, Present, and Future in Order to Discern Probable Continuities, Dis-Continuities, and Non-Continuities?*

1. Introduction and Summaries[11]

In a recent set of presentations, to be found on YouTube, the podcast presenter, Tony Seba, argues that we have begun a period that he nominates with the title as 'The Great Transformation' which I believe might be better known as 'The Great Disruption'. In these brief notes that follow, for the discussions of an open forum, let me highlight some of the startling points he has made in these short videos. Then, I will list a number of issues that appear to be co-associated with his well-formulated narrative which I would like to treat as illustrative of how we might successfully be able to conduct a 'history of the future'. (0)

Every generation claims that the current generation is experiencing even faster forms of change, as occurred e.g., in the Twentieth Century. But, to put it succinctly, "you have seen nothing yet." (1)

Five fields will be especially disrupted with the advent of a convergence of new technologies, namely, Information, Energy, Transport, Food, and Materials. (2)

Old technologies always reach a point of relative equilibrium. E.g., the power grid has been around for over 100 years. However, with the advent of continuing improvement in the technologies of solar, wind, and (lithium) batteries we could note that the generation of power has and will further become an increasingly de-centralized and a more multi-modal affair. A number of networks rather than 'the' traditional network. (3)

However, with convergence, e.g., of batteries and small screen technologies in 2007 both Apple and Android seized the opportunities to invest in smart phones (an innovative and entrepreneurial move not taken up by either Blackberry or Motorola, and was dismissed at Microsoft). (4)

As this presenter states on a number of occasions, in the form of an aphorism, 'A butterfly is not a faster caterpillar!', and, 'is not a caterpillar with wings'. (5)

This presenter argues, metaphorically, but, from an accumulating evidential perspective, that cost-cutting curves work like' magic', have an inevitable 'gravity' to the extent that costs per unit will 'inevitably' fall. E.g., electric vehicles are now equal in cost to petrol engines, but, are far, far more efficient. E.g., where a petrol-based car operates, on average, for over 140,000 hours, recent EVs are slated to work between half a million and one million hours (rendering the buying of EVs as a more cost-effective strategy for

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* For latest version of this text: www.homestead.com/noelshomepage/noels homepage5.html

[11] Although the title announces 'running histories of the past, present, and future' in this set of notes for an open forum there is a greater emphasis upon exploring a history/histories of the future.

the owner, e.g., of car fleets. In effect, incentivizing their ownership by taxi companies, etc.). A trend where even owning a car will also eventually fall by the wayside. (6)

Innovation becomes the new equilibrium and where the old equilibrium crashes. E.g., in the advent of automobiles, at the start of the Twentieth Century within twenty years ninety-five percent of all horses were gone. Then, most of that change occurred in the space of only ten years. (7)

Hence S-shaped curves in the uptake of new innovations. Not a linear style of replacement. New systems come into play that, when successful, generate shock waves, indications of a phase change, and not some form of a 1:1 replacement. New business models follow in the wake of such innovations. E.g., with the convergence of the Internet, smart phones, and taxis a niche for Uber was created, and, that, within the short time of seven years, had more business than all the traditional taxi companies put together. (8)

The uptake of successful innovations (almost) always assumes an S curve, whereas, in contrast, the demise of a traditional business model with the advent of the new, is a reversed S curve… where that type of old traditional business crashes. E.g., in 2018, the valuation of the well-known company General Electric crashed 70% in the light of innovations created in its own area of business expertise and still have not recovered to that level prior to its collapse in 2018. It should have had all the knowledge needed to get into those areas of innovations (being in the wind-turbine industry), but failed to do so. (9)

Often it would appear that such successful innovations occur around the 'edges' and not in the traditional center of a field of expertise… basically the old business models rule and innovations are just not recognized, and recognized quickly enough (because of their rather reductionist, conventional, linear style of thinking). (10)

Video: Part 1 – Summary[12]

Key technologies are converging, for example, the five foundational aspects of our economies, namely, Information, Food, Energy, Transport, and Materials. (11)

All are being subjected to **phase change disruptions**…on all levels: from products to services, all sectors, on a social level, at the level of economies themselves. (12)

The characteristic change is a disruption of equilibriums, e.g., the electric grid. (13)

All technologies are improving at different rates. At some point these technologies converge. Then a period of sudden change is instigated. Not seen by incumbents, but seen by entrepreneurs, artist, etc. The old rules no longer apply. New rules need (time) to be articulated. (14)

[12] Links to podcasts published by Tony Seba's Webpage: https://www.tonyseba.com/

The new emerges with higher levels of capability, new capabilities, often at lower costs. Then a new equilibrium is realized. Not a 1 for 1 substitution of 'new' for 'old'. (15)
Convergence exemplified by the smart phone. Essentially converged 2007 – then Apple and Google both essentially developed the smart phone. Convergence opened up a new space. (16)

Technologies usually developed around the edge, not in the center. Follow an S curve. The observation of S curves has them accelerating. Adoptions are never linear, S curves. Old technologies collapse as reversed S curves. E.g., the coal industry. Produces 'market trauma'. Can happen very quickly. E.g., General Electric in 2018 as cited. (17)

When a new possibility space develops, new business models follow. E.g., Uber. This is happening in all sectors. That such developments then far eclipse the worth of older industries. 'A butterfly is not faster caterpillar, a caterpillar with wings'… has to go through a phase change. E.g., the car that displaced the horse. (18)

Video: Part 2 – Summary: The Disruption of Transportation

Cost curves have pointed out the eventual and inevitable uptake of EVs. (19)

Happened as predicted, if not quicker. EVs with 200 miles range now around $10,000. Spells out the end of the petrol-based engines. Indeed, a model can now be bought for $9,200. An example of a phase disruption. Also, now function three to seven times longer than petrol-based cars. Such vehicles very attractive for fleet owners. Such vehicles are superior. (20)

Re cost curves. 'Not if. but how fast'. (21)

Can also power your home with an EV. E.g., for up to three days. (22)

Phase Two is coming – autonomous driving. 'Transportation as a service.' The first company with an operating system that is approved… 'off to the races'. Already safer than the average American driver. (23)

The cost of using *versus* owning a car will drop ten times. So, cars will be 'hired' rather than 'owned'. Will cause another major phase change! Cost per mile much cheaper than just the cost of using gasoline alone. (24)

By 2035 95% car miles will be by EVs. End of the petrol industry re cars. Important implications for oil industry. Peak in 2019. A major disruption for an oil-producing country like Russia! (25)

Computing power also improving exponentially. AI too. (25)

Video: Part 3 – Summary: The Disruption of Energy

Solar is the cheapest source of energy, in history! Even cheaper than just the mere running of a coal-power plant. Vast improvements in costs per output. Dropped 80-90% over the last decade. Today, 90% of new power projects are solar or wind. Storage heading over to batteries. Obviously, not liked by power companies! (26)

Generation on demand will fall below the cost of transmission. Already there. Parity! Solar panels so cheap they can even be used as roofing material. (27)

Solar, wind and battery 70% cheaper by 2030. Disruption is inevitable! (28)

Oft repeated: "You cannot have a full year of solar, etc., without some form of power disruption?" But, real-world data across the US, and world disproves this! It was possible for a system to be 100% solar, etc. Yes – can have such energy systems for 100% of the time... and they are cheapest. Might only need dispatchable power for a few days. Under 4 days at most. But can be covered by more batteries. But, over build, need less batteries. Texas would only need two full days of storage. As a U curve. Even in Alaska – studied three regions (one north of artic circle). 100% met (including hydro noted… even north [13]of artic circle). Same around the world. (29)

A 100% Solar, wind and batteries is a phase change disruption. Such a system can also supply what this podcaster calls 'superpower'. So much more capacity, vast amounts of energy in addition to meeting current needs. That additional power is almost 'free'. Disruptive to all forms of energy. (30)

Then, a 20% extra investment can give, say, 200% energy over-production. Then, what business model innovations will flow in the wake of same? Superpower changes everything… with considerable international geo-political consequences! (31)

Video: Part 4 – Summary: The Disruption of Food and Agriculture

The example of artificial human insulin, from animal insulin harvesting, as an example of precision fermentation. (32)

Precision fermentation. E.g., beer production. The difference, genetically modify the enzymes, etc. (33)

Milk – basically water. 3% is proteins. The disruption of the dairy industry will follow. Bankrupt by 2030. The transition is already happening now. (34)

Cows – most inefficient agricultural unit. But the costs of precision fermentation will soon reach parity with the cow around 2024. This is the 'rupture point'. The inevitable nature of S curves. (35)

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[13] Look at the new products in the supermarkets.

Coke – the change from sugar to corn sugars occurred over four years with no change in consumer behaviour. (36)

Precision made proteins need one hundred times less land! Will remove the land space equivalent to the land mass of China, US, and Australia combined. (37)

In Canada will only need 344 acres to replace the equivalent of their one million cows. By 2024 precision fermentation can produce milk proteins as cheap as produced by the dairy industry. (38)

Such factories - the new farms! Food as 'software'. Can design food like an app. (39)

12 plants and five animals account for most of our food consumption. (40)

Major disruption of diary, sugar, meat industries. All animal-based food production. Will occur over three phases – ingredients first. Then, more complex proteins, then total products. The inevitable total eclipse of traditional products? Already happening… (41)

By 2035 all animal industries will be gone! Dairy bankrupt by 2030! (42)

Video: Part 5 – Summary: Implications

Building new energy, transport, and food industries (cellular agriculture). (43)

Global land use - the great land liberation! 2.7 billion hectares will be free up over the next ten to fifteen years… by 2040, equal to the size of China, US, and Australia. Great for the climate. Easily 90% decarbonization of our economies. (44)

These industrial disruptions are massively deflationary! The cost of energy, transport, food, etc., will drop… to about $US250 per person per month. Poverty will be more a political choice..? (45)

Not another industrial revelation. A radically new system. No longer 'breaking down' of resources to a 'creating/building up' of resources. From centralization to networks. We are already past that rupture point! (46)

An opening up of an opportunity space for humanity. Building a new age. What will transpire. Need to experiment. A need for a new mindset. A phase change transformation like none that went before it!! (47)

2. Possible Points of Concern, Contention, Consternation..?

Is this ‘history of the future’ too optimistic? (48)

Is his understanding of vested interests too naïve? Is the so-called ‘gravity ‘of cost-cutting curves enough to circumvent the potential obstruction being exercised by those institutions with a long history of very effectively practicing various forms of obstruction, monopolization of the market, legally enshrining their dominance, etc? (49)

Just what are the implications for Australia, Aotearoa New Zealand, US, etc., if they were to lose its dairy, meat industries? 2030-2035 is only the space of a decade! Along with the loss of our coal industry? (50)

Will politicians and our political systems, etc., be up to such transformations and disruptions? (51)

How are such innovations going to affect education? Vocational training? (52)

Will we need a basic income? How can this comparatively greater wealth creation be taxed, be utilized to create wealth transfers, etc? How are our ideas of work, etc., going to be reconstituted, will need to be reconstituted? (53)

What can we do to personally prepare for such transformations/disruptions? (54)

On balance, should we fear such transformations/disruptions? Will we gain more or be left with less? How might we deal with ‘market trauma’ as a society? (55)

When will our power bills fall? What will be the implications of the possible bankrupting of traditional power companies? (56)

What are the social ramifications of such changes? The net effects of such superchanges when collectively viewed? (57)

3. What Ramifications do these Ideas Have for Conducting a History of the Future?

In this type of task, in attempting to articulate a highly plausible history of the future, we are very much focusing on our perception, or apperception, of highly probable trajectories; trends that we can envisage as altering either a history of the past and/or a history of the present. In effect, articulating a credible consequential reading in which we must pay attention to how things are more likely to be different, rather than left relatively unchanged, etc., whilst also accepting, as a contrast, that much will also remain relatively stable. In this regard, we can observe that Tony Seba, as a ‘future historian’, has stressed a number of concepts that could well be adopted and adapted by ourselves in the pursuit of a similar form of practice. E.g., his use of cost-cutting curves, as S curves, as possessing an inevitable ‘gravity’. The ‘idea of equilibriums that become unsettled’ through

'a convergence of technologies'. The ensuing 'collapse of traditional forms of practice' as 'a reversed S curve'. The point at which this transformational-transition occurs, and predominantly takes over, as the point of 'rupture'. That the ensuing effects of such technological revolutions as inducing forms of 'market trauma', and so on. All in all, a very useful set of conceptual-tools to work with that might well be able to put a rather discredited 'futurology' on a more forward looking and productive keel? (58)

Hence the need to focus on which current trajectories could be argued for as being more relevant and which trajectories are to be treated as less relevant in conducting such envisaged projections? (59)

A need to note which aspects of the constitution, say, of an organization, society, product or service, etc., that could be envisaged as surviving these potentially disruptive transformational-transitions, and, conversely, which facets will not survive. I.e., determining which aspects are preserved (continuities), not preserved (discontinuities), and, in what manner we might envisage novel forms of constituted states that have no direct precedents (non-continuities). On the understanding that although innovations are incrementally instituted, but, are non-incrementally realized chaotically. I.e., implying that some changes will be transitions that are non-continuous, will give rise to non-continuities. E.g., just as the smart features on a modern mobile phone just had no precedents when phones were not 'smart'. That, although all processes of innovation are incrementally organized, still, the ensuing processes of chaotically inspired re-self-organization can produce forms of novelty that cannot be reductively referred back to this incrementally re-self-organized basis prior to the innovative formation[14] of such relative non-continuities.[15] (60)

With the implication that in conducting a history of the future we need to delineate trajectories with consequences that are either characterized as either 'continuities', 'dis-continuities', and/or 'non-continuities'. Initially I thought 'continuities' would naturally invoke histories of the past; that 'discontinuities' would invoke the need for histories of the present; and, 'non-continuities' would then invoke the need for histories of the future. **However, invoking an archetypal economic perspective,**[16] **as explored elsewhere, I have had to reconsider how I would assign a temporal orientation to such differing forms of iteration. 'Continuities', as a 'processes of mere iteration', i.e., 'reiteration', would be automatically assigned a 'future orientation' by virtue of their consonant, background like associations; the 'existential nature of chaotic processes of relatively radical re-direction' would necessitate being assigned a 'present orientation'; whilst, 'discontinuities', through possessing a sense of 'difference', as distinctive 'iterations', would be critically assigned a 'past orientation'…**[17] (61)

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[14] Effectively channelling a 'pragmatic philosophy' that, hopefully, is also 'existentially oriented'.

[15] Recasting a more viable 'futurology' as not so much 'as more of the same, but better', but, rather, as 'less of the same, and more of that which we may not even be able to currently envisage'. On the other hand, the fault-lines of such possible innovations are obvious, namely, those areas subjected to some form of a relatively stable equilibrium once successfully subjected to inevitable processes of disruption.

[16] These considerations are looked at in much greater depth in 7Z. *A Pragmatic History*? Parts I & II.

[17] *Pursuit*, III.7X.59-61. I have stressed the primary points being made here in my additional use of bold.

Then, putting together such projected speculations, we can attempt to understand the evolving synergy or non-synergy to be envisaged between such individual transformations, etc? Computing the apparent, overall pluses and minuses that could be realized in this regard? Again, entertaining such probable simulations in the form of an evolving history/histories of the future. (62)

Recognizing that the simulation of all forms of historical appreciation have an intersubjective basis.[18] That, by engaging such disciplinarians, be they either professional and/or amateur, we should be better able to advance this type of research.[19] That in such speculations we are not alone![20] (63)

In effect, however, in order 'to think the future' we need 'to think the impossible'! Best of luck..!! (64)

Noël Tointon, Wentworth Falls, 12.1.23.

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[18] As an observation of Social-Media, etc., we might say that there are more historians of the past than historians of the present, and more historians of the present than of the future? But, certainly, that such communities already exist!

[19] The type of observation as noted in the recent essay titled: 7Y The Hermeneutics of the 'Virtual' Re(-)Presentation of the War in the Ukraine, paragraph 60-61.

[20] That a public reception of these podcasts by Tony Seba actually highlights just this point – that the work of any discipline is 'intersubjectively organized' whether we accept that fact or not. I.e., there can be no totally isolated disciplinarians.