

Society 5.0, SDGs, ...

October 2023

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Notes

Just some introductory information
and ideas to begin with.

Industrial Revolutions

- Industrial Revolution 1: Mechanization
- Industrial Revolution 2: Electricity
- Industrial Revolution 3: Information
- Industrial Revolution 4: Cyber-Physical

Societies

- Society 1: Hunting and Gathering
- Society 2: Agrarian
- Society 3: Industrial
- Society 4: Information
- Society 5: Emerging (Human Centered)

Society 5.0—A Definition

- A human-centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space.
 - Societies emerge from industrial revolutions

Society 5.0—A Definition from IGI Global

- **Society 5.0** refers to the social level that caring for well-being of the human and that the needs and expectations of all segments of **society** will be met with help of the technological opportunities offered by Industry 4.0. [Learn more in: Digital Management Towards Society 5.0: A Review of the Framework for Kurt Lewin Theory During COVID-19 Pandemic](#)
- Sustainable **society** to support human well-being and security through the use of socially conscious, ethical cyber-physical systems. [Learn more in: Manufacturing Education for Society 5.0: Reframing Engineering and Design](#)
- A human-centered **society** characterized by cyber-physical-social dynamics that seeks to implement a continuous improvement process for an increased quality of life. [Learn more in: Redefining the Meaning of Learning](#)
- Anthropocentric **society** that strongly integrates cyberspace and physical space to balance economic and technological progress with the resolution of human social problems by promoting the idea of a Smart **Society** based on the use of ICTs, in line with the future sustainable strategies developed in the framework of the 2030 Agenda for Sustainable Development. [Learn more in: Towards a Smart Cultural Heritage in a Post-Pandemic Era: Enhancing Resilience Through the Implementation of Digital Technologies in Italian Heritage](#)
- **Society 5.0** has emerged with the expansion of the vision of Industry 4.0 from the optimization of production processes to solving social problems in order to establish a thorough collaboration among technology, artificial intelligence and human beings. [Learn more in: Technologies for Connected Government Implementation: Success Factors and Best Practices](#)

Society 5.0 Characteristics

- Society 5.0 aims to contribute to the UN's Sustainable Development Goals (SDGs) by addressing social challenges and enabling the peaceful co-existence of machines and nature.
- As per the Japanese government literature, Society 5.0 should be one that, “through the high degree of merging between cyberspace and physical space, will be able to balance economic advancement with the resolution of social problems by providing goods and services that granularly address manifold latent needs ...”
- A technology-based, human-centered society, emerging through the fourth industrial revolution.
 - Japan’s Concept

Society 5.0 Goal

- It is the goal of Society 5.0 to create a human-centric society in which both economic development and the resolution of societal challenges are achieved, and people can enjoy a high quality of life that is fully active and comfortable.
- It is a society that will attend in detail to the various needs of people, regardless of region, age, sex, language, etc. by providing necessary items and services.
 - Source: Society 5.0: Aiming for a New Human-Centered Society, By Mayumi Fukuyama

Transitioning to meeting the SDGs is one way to achieve these goals. More than ICT will be required.

Society 5.0 in Education

- In the educational world, to realize society 5.0, students must have three high abilities namely: **problem-solving skills, critical thinking, and creativity**. These three abilities are obtained through high-order thinking.
 - Seems we should include systems thinking, scientific thinking, writing, and oral communications skills

Sustainable Development Goals

SUSTAINABLE DEVELOPMENT GOALS

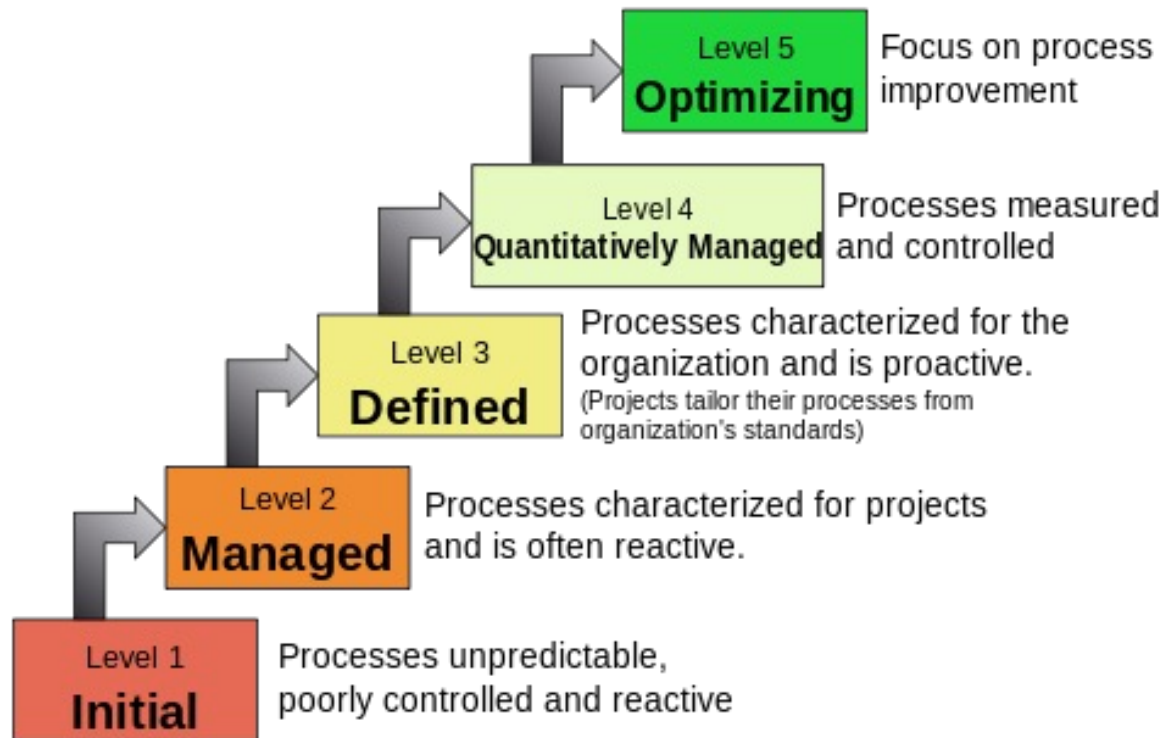


Smart Cities—A Definition

- A smart city uses information and communication technology (ICT) to improve operational efficiency, share information with the public, and provide a better quality of government service and citizen welfare.
 - Source: TWI
- A smart city is a framework, predominantly composed of Information and Communication Technologies (ICT), to develop, deploy, and promote sustainable development practices to address growing urbanization challenges.
 - [Source: https://www.thalesgroup.com/en/markets/digital-identity-and-security/iot/inspired/smart-cities](https://www.thalesgroup.com/en/markets/digital-identity-and-security/iot/inspired/smart-cities)

Smart City—Capability Maturity Model

Characteristics of the Maturity levels



- Optimizing
 - Focus on city process improvements
- Quantitatively Managed
 - City processes measured and controlled
- Defined
 - City processes are proactive
- Managed
 - City processes may be reactive
- Initial
 - City processes unpredictable

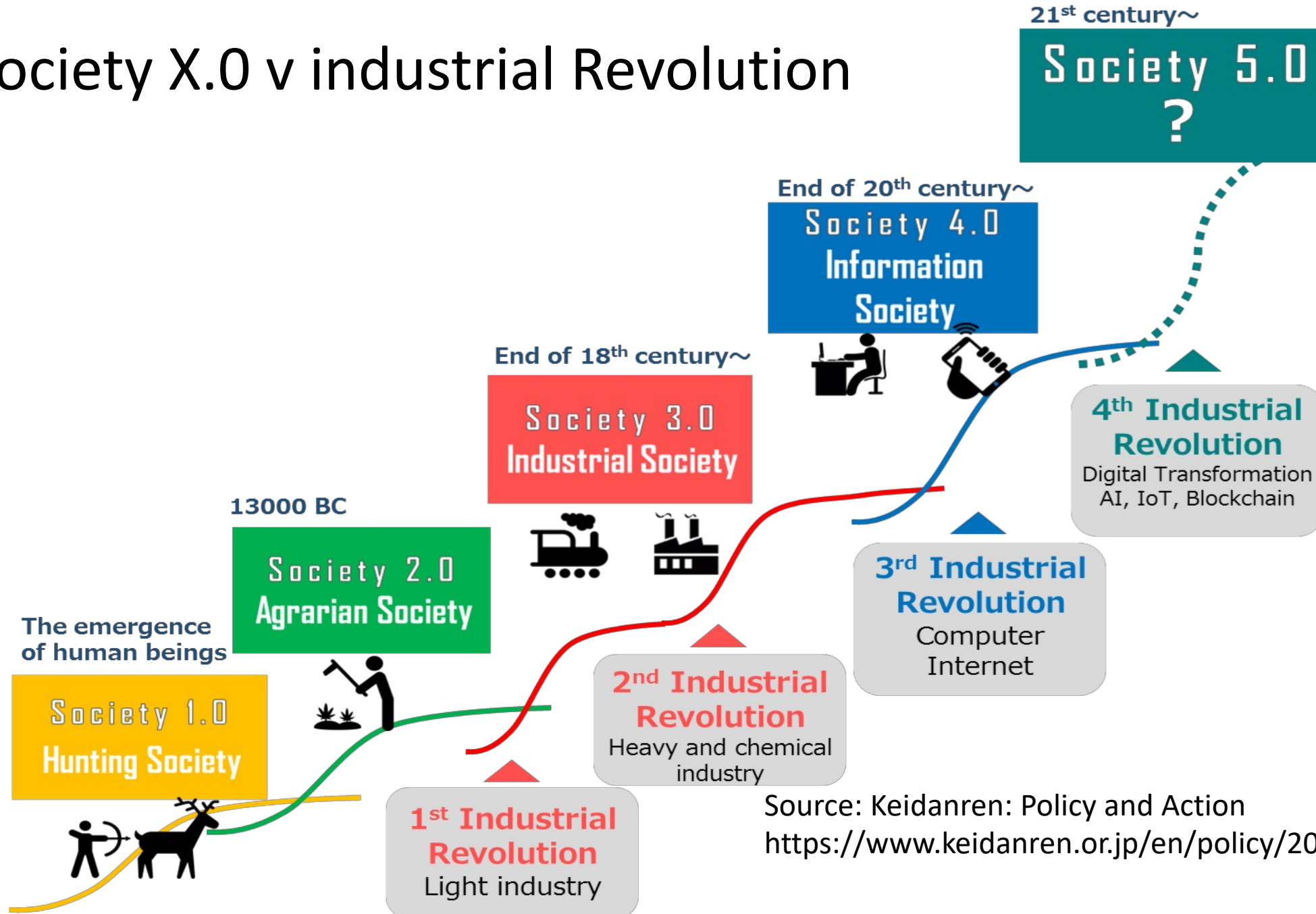
Applying CMM to a Smart City as another way to think about one.

Smart Cities—Characteristics

- The development of a Smart city is based on 6 main pillars, which constitute the very principles of sustainable urban development.
 - Smart governance. ...
 - Smart economy. ...
 - Smart environment. ...
 - Smart people. ...
 - Smart living. ...
 - Smart mobility.

Seems we are missing:
. Smart technologies

Society X.0 v industrial Revolution



Source: Keidanren: Policy and Action
https://www.keidanren.or.jp/en/policy/2018/095_outline.pdf

Smart City QoL (SCQoL Model)

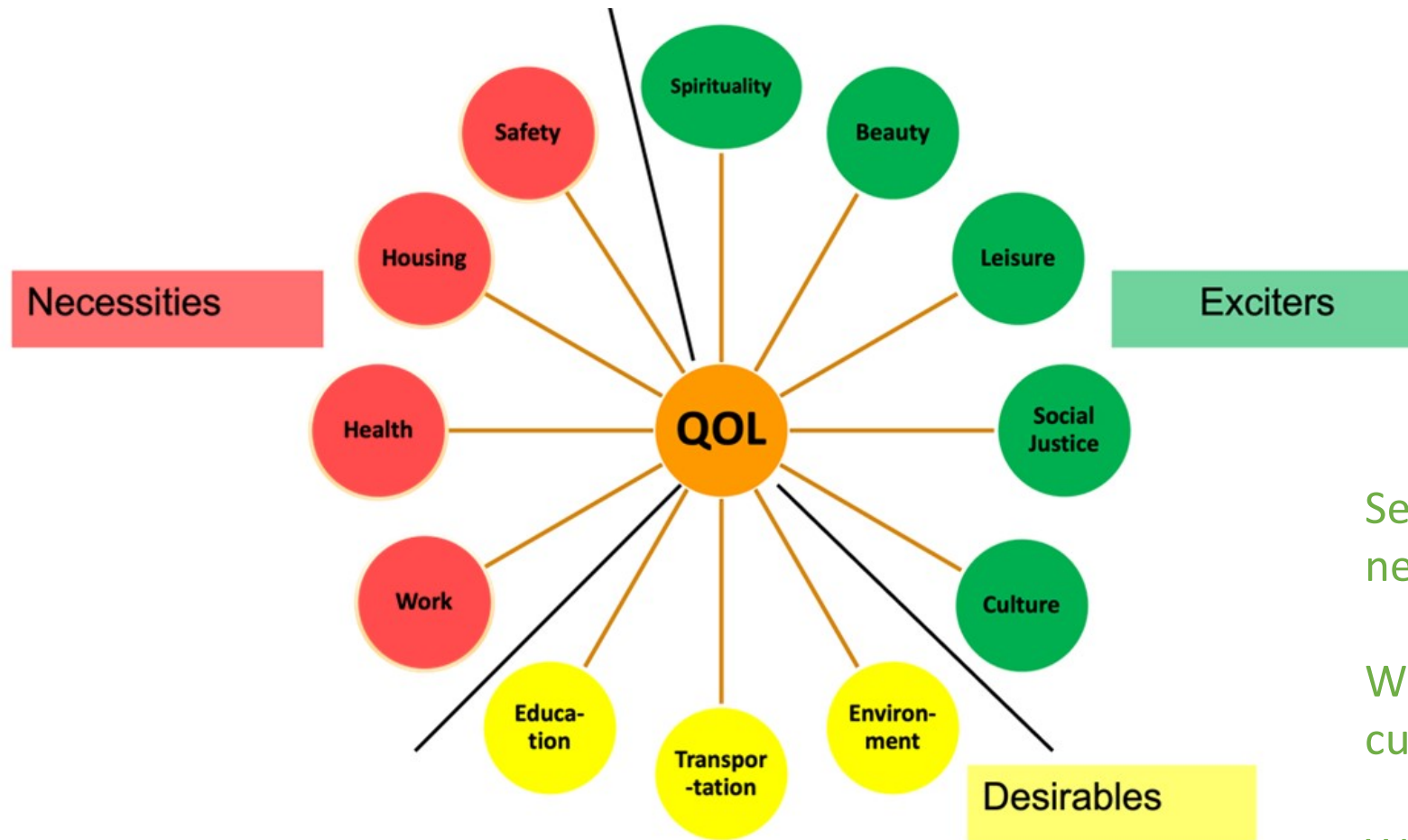


Fig. 2. Aaron Shenhar's QoL model (Presented on IEEE E-TEMS 2022)

Seems that education should be a necessity for any civilization.

What is any civilization without culture?

What is QoL without a clean and stable environment, sufficient food and water?

Quality of Life (QoL)

- “individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”
 - Source: World Health Organization (WHO)

Circular Economy



DQs / Challenge Questions

DQs or Challenge Questions

- Environment
 - Can we achieve a Society 5.0 without addressing climate change?
- Society
 - Can we achieve S5.0 without smart citizens?
 - Can we achieve S5.0 without Social justice?
 - Can we achieve S5.0 in a multicultural society?
 - Can we meet the Sustainable Development Goals?
 - What do we do about the homeless?
- Political / Military / Legal
 - Can we achieve a S5.0 without smart political governance?
 - Can we achieve a S5.0 in times of war and/or domestic conflict?
- Economy
 - What will it cost to achieve S5.0?
 - Can we afford S5.0?
- Technology
 - What technologies are needed to create S5.0?
 - Do we have these technologies?
 - When might these technologies become available?

DQs or Challenge Questions

- DQ: How does S5.0 help move society toward one or more of the SDGs?

- SDG 1: No Poverty
- SDG 2: Zero Hunger
- SDG 3: Good Health and Well-being
- SDG 4: Quality Education
- SDG 5: Gender Equality
- SDG 6: Clean Water and Sanitation
- SDG 7: Affordable and Clean Energy
- SDG 8: Decent Work and Economic Growth
- SDG 9: Industry, Innovation, and Infrastructure
- SDG 10: Reduced Inequalities
- SDG 11: Sustainable Cities and Communities
- SDG 12: Responsible Consumption and Production
- SDG 13: Climate Action
- SDG 14: Life Below Water
- SDG 15: Life on Land
- SDG 16: Peace, Justice, and Strong Institutions

Seems Shenhar's
QoL model could be
replaced by the SDGs

DQs or Challenge Questions

- DQ: How does S5.0 improve QoL?
- DQ: How does S5.0 help move us toward the United Nations Universal Declaration of Human Rights?
- DQ: How does S5.0 help to reduce the risks identified in the WEF Global Risks Report?
- DQ: Does S5.0 move society toward a circular and sustainable economy? Why or why not?
- DQ: What are the drivers for S5.0?
- DQ: What are the barriers to S5.0?

DQs or Challenge Questions

- How do projects contribute to Quality of Life along these 10 themes?
 - Housing
 - Work (firms)
 - Transportation
 - Health
 - Education
 - Safety
 - Environment
 - Culture
 - Social Justice
 - Citizen Engagement

Additional Thoughts

Thoughts, Questions,

- How is it that environment is not a necessity in SCQoL?
- I have not found any additional information on SCQoL. Do you have any?
- As an evolutionary biologist once noted, “I don’t believe in sustainability; I believe in evolution.” This concept applies to non-biological agents evolving as well.
- How might we achieve focus on the panel DQ? Just accept the 10 themes? If so, ok, and will focus my attention on them.
- Anything else I should know before we get together early next year?

Futurecit.org Feedback

- I like the concept—global concerns and participation.
- Good starting question—how can we make the world a better place?
- I like the question as it is not specific to technology or a smart city. Eric Beinhocker noted and described two broad types of technologies, which I think make a lot of sense. One is physical technology and the other is social technology.
- Physical Technologies or PTs are methods and designs for transforming matter, energy, and information from one state to another
 - Examples: blueprints, diagrams, models, ...
- Social Technologies or STs are methods and designs for organizing people
 - Examples: rule of law, job descriptions, cultural norms.

Futurecity.org Feedback (cont)

- Policies are a good example of a social technology and its importance. As we talked, our condo has cameras and a monitoring service and we can call the police when a break-in is attempted or occurs. But, without a government or social policy in place that is actually actionable, all we have is a game of catch and release. Clearly jail or prison works sometimes, but is not always the best or a low-cost answer. SDG 1 Poverty is a contributing factor and we need better social policies to help solve it. We will have a better world / society if we can make forward progress on the SDGs and the answer is not always better technology or more advanced technology. Sometimes better policy decisions, better or more efficient processes, lead to better outcomes and a better world.
 - See: Beinhocker, E. D. (2010). Evolution as computation: Implications for economic theory and ontology. Retrieved from <http://www.santafe.edu>
- I see some emphasis on math and while I like quantitative analysis, sometimes qualitative analysis or computer simulation are better choices.

Futurecity.org Feedback (cont)

- Some Products that work with Apple Homekit
 1. Smart Wall Socket
 2. Smart Garage Door Opener
 3. Smart TVs
 4. Smart Speakers
 5. Smart Shades
 6. Smart Doorlocks
 7. Smart Lighting (Strips, bulbs, ...)
 8. Smart Cameras
 9. Smart Light Switches
 10. Smart Power Strip
 11. Smart Fans
 12. Smart Shower Water Heater
 13. Smart Thermostat
 14. Smart Doorbell
 15. Smart Security Devices

Futurecity.org Feedback (cont)

- And I'm sure more to come such as a Smart interface to a washer / dryer, refrigerator, dish washer, ...
- CarPlay is not connected to Apple Homekit, but is connected to an iPhone.
- Then there are various services accessible via an iPhone, MacBook, or in some cases, Homekit, such as Apple Music, Apple Fitness, Apple News, Apple Maps, Photos, Games, Podcasts, Wikipedia, Apple Health, Google, Microsoft Office,
- Then of course, services such as banking, health management, fitness, books, magazines, newspapers, libraries, movies, collaboration software such as Zoom, Teams,
- The good news is that other vendors such as Amazon and Google can play as well as minor players with a specific product. In the case of the list of products above, most are manufactured by third party companies.
- Conference Rooms
 - One thing I forgot to mention is the Smart Conference Room. With a large screen TV and Internet access in a smart conference room, photos and slides etc can be displayed on the TV. These technologies can be used in meetings to display the agenda, notes, action items, discussion items, etc on the TV such that attendees can see them from anywhere in the conference room or anywhere using technologies such as Zoom.

Futurecity.org Feedback (cont)

- Slow in coming, but it occurred to me that I communicate with my pharmacy via an app for refills etc and I receive a Text Message when they are ready to pick up. Saves wasteful driving or walking!

Then we have shopping and delivery services such as Amazon. Order online and pickup on your porch!

Contactless payments is another good example. Saves time and effort to make purchases, is safe and secure, a receipt is automatically generated and stored on my iPhone, no need to go to a bank or ATM for cash... I couldn't find anyone to take cash in Australia or NZ, and difficult in Burien.

chatGPT Q & A

(an AI software program)

- Q: How does education contribute to quality of life?

A: (from chatGPT) Education contributes to the quality of life by providing individuals with the knowledge, skills, and abilities necessary to lead successful and fulfilling lives. Education can improve access to better employment opportunities, higher earning potential, and increased economic stability. Additionally, education can provide individuals with the critical thinking skills necessary to make informed decisions and participate in civic life, as well as improve overall health and well-being. Education can also promote social mobility and reduce poverty, helping to create a more equal and just society.