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H. TANAKA

IMPACT OF THE NEW NORMALITY ON STRATEGIC MANAGEMENT AND PROJECT & PROGRAM MANAGEMENT

According to representative theories on strategy by Henry Mintzberg, Lawrence Freedman, et al. strategy is a general plan to achieve one or more long-term or overall goals under conditions of uncertainty; strategy involves setting goals and priorities, determining actions to achieve the goals, and mobilizing resources to execute the actions. Strategy can be classified into 1) planned strategy, e. g. strategy derived from a corporation's mission statement; 2) differentiation strategy to compete in the competitive marketplace; and 3) contingent strategy to empower a corporation to get adapted to ecosystem changes. Being a part of project management studies, this article focuses on type 3) strategy and analyzes how the strategic management in this category, usually conducted by using project, program and portfolio management (PPPM) as its vehicle of implementation, is being affected or will be affected by the new normality. The new normality includes factors such as the VUCA characters of the world; disruption in technology, economy and society; climate change; green economy; a chain of epidemics or pandemics; and digital transformation. These factors mandate agile perspectives, positioning and planning of contingent strategy and updated ways strategies are delivered by way of strategic management and PPPM along the Mintzberg theory. This paper, after examining the impact of the new normality factors on contingent strategy, proposes a conceptual framework of and concise discussions on agility elements of corporate enterprises under the new normality which are realized by applied project management, and the author's methodologies and learning attitude to cope with disruption. The agility elements are grouped into agility in mid-term corporate planning, corporate agility enablers, agile business development by projects, and project management adaptive to agility. In the conclusion, the author's outlook on project and project management models in the new normality is offered.

Ключові слова: new normality, agility of corporate enterprises, applied project management, methodologies to cope with disruption, emerging project & program management models.

Х. ТАНАКА

ВЛИЯНИЕ НОВОЙ НОРМАЛЬНОСТИ НА СТРАТЕГИЧЕСКОЕ УПРАВЛЕНИЕ И УПРАВЛЕНИЕ ПРОЕКТАМИ И ПРОГРАММАМИ

В соответствии с репрезентативными теориями стратегии Генри Минцберга, Лоуренса Фридмана и других, стратегия – это общий план достижения одной или нескольких долгосрочных или общих целей в условиях неопределенности; Стратегия предполагает установление целей и приоритетов, определение действий для достижения целей и мобилизацию ресурсов для выполнения действий. Стратегию можно классифицировать на 1) плановую стратегию, например стратегию, вытекающую из миссии корпорации; 2) стратегия дифференциации для конкуренции на конкурентном рынке; и 3) условная стратегия, чтобы предоставить корпорации возможность адаптироваться к изменениям экосистемы. Будучи частью исследований по управлению проектами, эта статья сосредотачивается на стратегии типа 3) и анализирует, как стратегическое управление в этой категории, которое обычно осуществляется с использованием управления проектами, программами и портфелями (PPPM) как средства реализации, испытывает влияние или будет испытывать влияние новой нормальности. Новая нормальность включает такие факторы как характеры мира VUCA; нарушение в технологиях, экономике и обществе; изменение климата; зеленая экономика; цепочка эпидемий или пандемий; и цифровая трансформация Эти факторы обуславливают гибкие перспективы, позиционирование и планирование условной стратегии и обновленные способы реализации стратегий с помощью стратегического управления и PPPM согласно теории Минцберга. В этой работе после изучения влияния факторов новой нормальности на условную стратегию предлагается концептуальная основа и краткие обсуждения гибких элементов корпоративных предприятий по новой нормальности, которые реализуются с помощью прикладного управления проектами, а также авторских методологий и отношения к обучению справиться с нарушением. Элементы гибкости объединены в гибкость в среднесрочном корпоративном планировании, средства корпоративной гибкости, гибкость развития бизнеса по проектам и адаптирующегося к гибкости управления проектами. В заключение предлагается взгляд автора на модели проектов и управление проектами в новой нормальности.

Ключевые слова: новая нормальность, маневренность корпоративных предприятий, прикладное управление проектами, методология преодоления срывов, новые модели управления проектами и программами.

Х. ТАНАКА

ВПЛИВ НОВОЇ НОРМАЛЬНОСТІ НА СТРАТЕГІЧНЕ УПРАВЛІННЯ ТА УПРАВЛІННЯ ПРОЄКТАМИ ТА ПРОГРАМАМИ

Відповідно до репрезентативних теорій стратегії Генрі Мінцберга, Лоуренса Фрідмана та інших, стратегія — це загальний план досягнення однієї або кількох довгострокових або загальних цілей в умовах невизначеності; стратегія передбачає встановлення цілей і пріоритетів, визначення дій для досягнення цілей і мобілізацію ресурсів для виконання дій. Стратегію можна класифікувати на 1) планову стратегію, наприклад, стратегія, що випливає з місії корпорації; 2) стратегія диференціації для конкуренції на конкурентному ринку; і 3) умовна стратегія, щоб надати корпорації можливість адаптуватися до змін екосистеми. Будучи частиною досліджень з управління проєктами, ця стаття зосереджується на стратегії типу 3) і аналізує, як стратегічне управління в цій категорії, яке зазвичай здійснюється з використанням управління проєктами, програмами та портфелями (PPPM) як засобу реалізації, зазнає впливу або буде зазнавати впливу нової нормальності. Нова нормальність включає такі фактори, як характери світу VUCA; порушення в технологіях, економіці та суспільстві; зміна клімату; зелена економіка; ланцюжок епідемій або пандемій; і цифрова трансформація. Ці фактори обумовлюють гнучкі перспективи, позиціонування та планування умовної стратегії та оновлені способи реалізації стратегій за допомогою стратегічного управління та PPPM відповідно до теорії Мінцберга. У цій роботі, після вивчення впливу факторів нової нормальності на умовну стратегію, пропонується концептуальна основа та стислі обговорення гнучких елементів корпоративних підприємств за новою нормальністю, які реалізуються за допомогою прикладного управління проєктами, а також авторських методологій та ставлення до навчання впоратися з порушенням. Елементи гнучкості об'єднані в гнучкість у середньостроковому корпоративному плануванні, засоби корпоративної гнучкості, гнучкість розвитку бізнесу за проєктами та управління проєктами, що адаптується до гнучкості. На завершення пропонується погляд автора на моделі

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проєктів та управління проєктами в новій нормальності.

Ключові слова: нова нормальність, маневреність корпоративних підприємств, прикладне управління проєктами, методології подолання зривів, нові моделі управління проєктами та програмами.

1. The New Normality and Its Impact on Strategic Management, and Project & Program Management

First, we will recapitulate what the new normality refers to and will build a path to find what impact the new normality exerts on strategic management and project & program management.

The term “new normal” or “new normality” in the political, economic and social contexts was first used by the Chinese President Xi Jinping [1]. In 2014, President Xi stated that China had entered the new normal state in its economy with the rapid high economic growth period of the Chinese economy lasting for the past two decades having shifted to moderate growth. Later, the term has begun used symbolically and in a broader context to refer to states that are not ‘as usual’ as in the past.

The new normality includes, for illustration, the VUCA characters of the world; disruption in technology, economy and society; climate change; green economy; a chain of pandemics; and digital transformation.

VUCA Characters of the World: VUCA is an acronym, drawing on the leadership theories of Warren Bennis and Burt Nanus [2] to describe or to reflect on the volatility, uncertainty, complexity and ambiguity of general conditions and situations. The U.S. Army War College [3] introduced the concept of VUCA to describe the more volatile, uncertain, complex and ambiguous multilateral world perceived as resulting from the end of the Cold War. The VUCA has been heavily utilized continuously to account for ever escalating complex situation of the world describable by this acronym.

A part of the current (as of 2022) European argument regards the VUCA acronym outdated as this reflects on the Cold War and instead started announcing BANI standing for brittle, anxious, non-linear and incomprehensible [4].

Disruption: Clayton Christensen [5] popularized the idea of disruptive technologies in The Innovator's Dilemma, published in 1997. Disruption occurs in the politico-social, economic and technological facets. A disruptive technology replaces existing technical products because it has attributes that are recognizably superior. Recent disruptive technology examples include e-commerce, online news sites, online conference systems, ride-sharing apps, and GPS systems. Disruption in economy models has been triggered by digital transformation, climate change responses, block chain, etc. According to Veikko Valila (2021) [6], former president and chair of International Project Management Association, and expert of risk management and climate change disruption, the technology adoption lifecycle is exponential, not linear. Whole business sectors may be disrupted as a result, in energy, transport, food and material. fig. 1 demonstrates how causal feedback loops drive disruption.

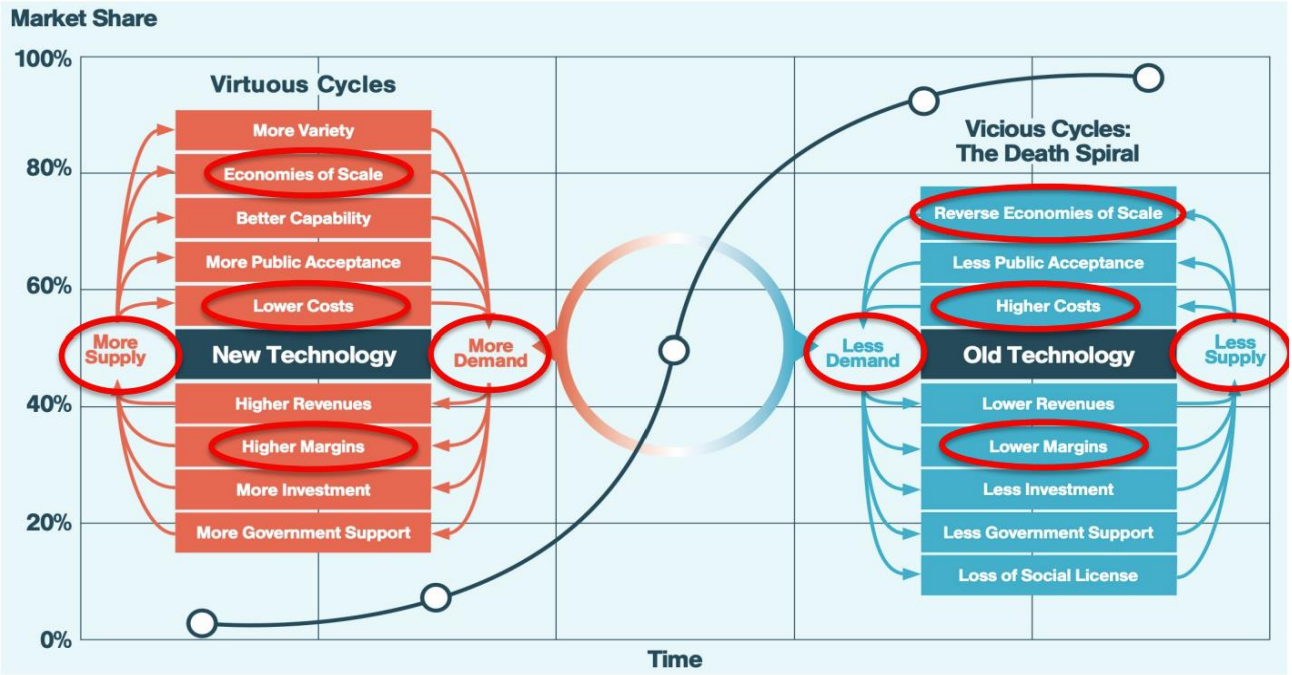

Fig. 1. Causal Feedback Loops Driving Disruption

Technology disruptions are driven by reinforcing causal feedback loops. These loops interact with and amplify one another, accelerating the adoption of innovative technology in a virtuous cycle while at the same time accelerating the abandonment of old technology in a vicious cycle; hence disruption proceeds in an S-curve pace. The net result of these systems dynamics is that disruption tends to unfold with surprising (source: RethinkX.com https://www.rethinkx.com/).

Climate Change: One of the causes which accelerate disruption is global climate change issue. After the Paris Climate Summit in December 2015, global consensus on response to climate change, or more broadly sustainability of all sorts, has become solid. The Paris Agreement is a legally binding international treaty on climate change. 196 Parties at COP 21 in Paris adopted it, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century [7]. The relevant global waves include, for instance, the United Nations' Sustainable Development Goals adopted in its General Assembly in September 2015 which offer sizable business opportunities to enterprises, meanwhile constraint enterprises in procuring financing where enterprises are not willing to honor SDGs, as well as accelerate building equitable society and infrastructure throughout the world; and emerging national policies for green growth in Europe --- the most comprehensive one is France's "Energy Transition for Green Growth Act 2016" [8] thereby committing the French Government to green growth as basis of national economic and societal growth. Energy transition is an irreversible grand policy forming a predominant pillar of climate change response in a global scale; EU, U.S.A. and Japan declared in 2020 (press releases) that the countries shall attain carbon neutrality by 2050, China by 2060, and India by 2070.

Green Economy: Green economy is an economy model which pursues a pattern of development that promotes growth through the creation of new environment friendly products, industries, and business models that also improve people's quality of life. OECD (2022) [9] states that green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. Green growth is not a replacement for sustainable development. Rather, it provides a practical and flexible approach for achieving concrete, measurable progress across its economic and environmental pillars, while taking full account of the social consequences of greening the growth dynamic of economies. The focus of green growth strategies is ensuring that natural assets can deliver their full economic potential on a sustainable basis. That potential includes the provision of critical life support services – clean air and water, and the resilient biodiversity needed to support food production and human health. Natural assets are not infinitely substitutable and green growth policies take account of that.

A Chain of Epidemics: In recent years, outbreaks of infectious diseases, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), bring severe negative shock to the world economy. And the cross-border trade and travel have facilitated the international spread of the pathogens according to Xiang, L. et al., 2021[10]. Hence, an emerging crisis for the global society is the alleged arrival of a chain of epidemics, or pandemics, made strikingly evident by COVID-19 which first outbroke in late 2019. The impacts of COVID-19 to date have been significant on health, the economy and society. COVID-19, meanwhile, has forced reframing of life models of people and generated new business on health protection, new models of living, virtual economy models, health-conscious transport, food catering, culture and comfort.

Digital Transformation: We are increasingly availing ourselves of the potential of digital transformation in economy, society and public services. Digital transformation enhances planning ability based on vast accumulated data and artificial intelligence, great connectivity for business platform capabilities, time and labor saving in business execution and affordable well-being of the society. We should, however, recognize that any purposeful digital transformation vehicles require considerable investment and digitalization literacy, hence there exist digital divides on a country-to-country level, industry-to-industry level and individual level.

OECD operates an OECD wide "Going Digital" project by OECD, 2020 [11] with an aim to bring about stronger and more inclusive growth from the digital revolution. Its 2019 Digital Measurement Roadmap sets out four overarching actions: 1) make the digital transformation visible in economic statistics, 2) understand the economic impacts of digital transformation, 3) measure well-being in the digital age, and 4) design new approaches to data collection.

Against the background of the new normality discussed so far, we shall estimate how these new normality factors impact direction of strategic management and project and program management. Here, the author's assumption is that project and program management is a subset of strategic management charged with planning and implementing strategic changes for organizations and/or society.

Henley Mintzberg [12] proposed five Ps for strategy formulation: Plan – Ploy – Pattern – Position - Perspective. This theory can guide thoughts seeking impacts of the new normality on strategic management.

I argue that major impacts consist of the following contexts:

1) The new normality changes perspective of strategy, hence models of project & programs.

2) The new normality changes positioning of strategy and projects & programs to better position the project in question in a new normality.

3) The new normality changes mode of planning of projects as the perspective has changed and opportunity of new, often disruptive, technology has arrived.

4) The new normality changes a pattern(s) of strategy delivery or the delivery of a project or a program.

Table 1 explains this analysis more in concrete terms.

Table 1 – New Normality Factors and Their Impact on Strategic Management

New Normality Factors	Impact on Strategic Management and Project & Program Management
VUCA characters of the world	Assumptions in strategy from past success stories not necessarily valid any longer Innovation culture and mindset to be given highest priority Agility in corporate enterprises is lifeline
Disruption	Strategy informed of opportunity and nature of disruptive technology required Paradigm shift of business models and social models
Climate change	Vast opportunities for climate change response programs and projects Multi-objective, multi-criteria project development essential
Green economy	Paradigm shift of economy models mandated Viability of green economy models for a nation to be testable
A chain of epidemics, pandemics	Quests for nations' robust public health protection systems proceed May change life models of people Health-conscious business models will persist in the market
Digital transformation (DX)	Capture of higher efficiency in planning (time not as a distance but a space) essential Enabling a digital twin of built environment projects Drastic improvement of project execution productivity leading to high profitability Optimum lifecycle asset utilization realized Social transformation (SX) empowered by DX

In summary, the traditional set of company competitive edges of quality, price, technological leadership are required to be recast to a degree required in the respective market, or more broadly ecosystem, concerned. Edges such as green innovation [13], green products and services, people and society centric development focusing on value in use by Kosaka (2012) [14], value co-creation by Vargo & Lusch (2004) [15], and agility should be added. In the following sections, we will review agility of corporate enterprises realized by applied project management and methodologies and learning attitude to cope with disruption.

2. Research Objectives and Methodology

This article is based on a qualitative and exploratory research in search of impacts on strategic management of the new normality. The objective of the research is, first, to construct elements of agility in corporate enterprises under the new normality which are realized by using primarily project management in applied context, referred to as applied project management, and second, to propose typical methodologies and learning attitude to cope with disruption.

The qualitative analysis has used literature review; revisit to the author's articles on innovation project and program management published in Europe in 2000's to 2021; the author's periodical case monitoring of business innovations via industrial media; and feedbacks from the author's series of workshops and/or dialogues with business professionals who attended a series of plural-day Japanese Government funded ODA (official development aid) training programs on creative project design and management, conducted on the platform of The Association for Overseas Technical Cooperation and Sustainable Partnerships (AOTS) https://www.aots.jp/en/, in 2019 to 2022 for 60 delegates from 18 developing countries.

3. Applied Project Management

There has been no academic or rigid definition of applied project management; the term more softly refers to either an application of project management knowledge or a domain expansion of project management.

Lindbergh (2010) defines applied project management capability as the capability based on project management principles, which transforms the abstract concept of organizational project management into an employee-level measure that is easier for leaders and managers to understand and use to focus their performance improvement programs by considering the overall organizational context in which project management is performed [16]. This author reiterates the importance of transforming abstract project management concept into robust application in organizational context for organizational performance improvement programs.

The Master of Applied Project Management degree offered by University of West London (2021) [17] expects students to master examining the role of applied project management in specific sectors and discover how to plan, control, monitor and deliver successful projects by gaining the generic skills and understanding that they need to fulfill their organizational needs. This MSc program refers to applied practice of project management knowledge to user's own organizational needs.

Australian Institute of Management's applied project management course [18] suits students where students are already involved in workplace projects or students have experience in managing projects and are looking to transition to a project manager role, hence the term applied project management is used to mean value added application of learned project management knowledge for user's career enhancement.

Ajam [19] stresses the expansion of application areas of project management, and states that project management is not a domain only applicable to construction, engineering, or technology projects, but over

the last two or three decades, project management skills have been recognized as essential skills in all domains, and positions. Here, the author emphasizes the expansion of application areas of project management.

IDEO U [20], a corporate university arm of IDEO, reputed start-up accelerator, has launched an adaptable approach to deliver stronger outcomes in changing conditions via leading complex projects. IDEO U articulates that when it comes to complex projects, unexpected challenges and changing timelines are typical, and great project leaders embrace this complexity; accordingly learn how to guide others through the inevitable ruggedness of complex projects by balancing logic and intuition, establishing a shared point of view to gain alignment.

In summary, three authors, or institutes, relate applied project management to the skill of applying abstract project management knowledge to specific context, typically users' own organizations. Ajam targets expansion of application areas of project management from traditional hard areas to softer areas, and IDEOU proposes adaptable approach to complex projects.

The author's use of the term "applied project management" is close to Ajam and IDEOU and is classified as follows:

- Program management for enterprise innovation which is applied to a corporate management level for corporate strategy delivery or entrepreneurial transformation [21] [22].
- Business ecosystem building which uses stakeholder engaging process of project management and accelerates constructing a business alliance for shared innovation and competitiveness through combined strength [23] [24].
- Upfront conceptualization and economic evaluation of a project which is not oversaw by global project management standards [25].
- Design thinking by IDEO, 2021 [26] of which efficiency could be enhanced if project mindset is incorporated

These applied project management elements underpin the agility elements of corporate enterprises being discussed in this article.

The relationship between corporate management and applied project management can be explained by referring to the Ansoff Matrix [27] given in fig. 2.

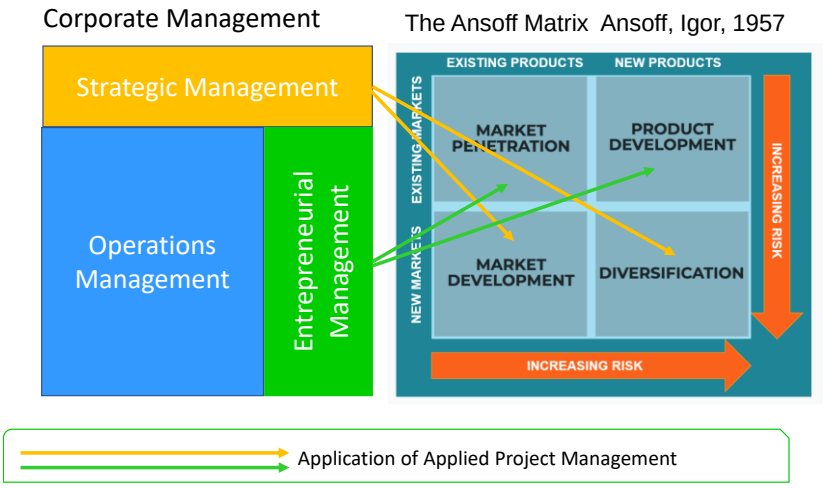

Fig. 2. Applied Project Management for Corporate Management on the Ansoff Matrix

Corporate management consists of operations management which oversees day-to-day operations of business units of a corporation; strategic management which empowers a corporation to get adjusted to the evolving market thereby ensuring continuing growth; and entrepreneurial management that cultivates new business off the beaten track of a corporation's business line. Ansoff's Matrix, a classical strategic management model, positions a corporation's market development and diversification efforts in a matrix format: market penetration for existing products, market development for existing products, new product development, and diversification, namely, a new product for a new market. All the four domains require applied project management as a vehicle of strategic management and entrepreneurial management and as a guiding framework of intended change, as orange and green arrow lines indicate, since a company is required to attain unique value in a timeline, respectively.

4. A Conceptual Framework of Agility Elements in Corporate Enterprises

Gangulay et al. (2009) [28] argues that being able to adapt successfully and efficiently to unexpected changes in the business environment or agile is key in gaining a competitive advantage in the global market. They list lean, flexible and agile factors in evaluating agility in corporate enterprises. The authors reviewed twelve research papers published by others between 1991 to 2005 and extracted key words that characterize the respective definitions of agility; the key words extracted are speed/time, responsiveness, flexibility, quality and customer needs.

Agile Business Consortium, an independent professional body dedicated to advancing business agility worldwide in accordance with a defined set of professional standards and a code of practice [29], defines

business agility as the ability of an organization to adapt quickly to market changes - internally and externally; respond rapidly and flexibly to customer demands; adapt and lead change in a productive and cost-effective way without compromising quality; and continuously be at a competitive advantage. Business agility is concerned with the adoption and evolution of values, behaviors and capabilities.

A McKinsey Report [30] articulates that agile organizations-of any size and across industries-have five key elements in common based on the field research by a group of over fifty global McKinsey chargehands bringing expertise from the digital, operations, marketing, and organization disciplines. They name the five key elements of organizational agility practices as "trademarks" and include 1) North Star embodied across the organization as strategy, 2) network of empowered teams as structure, 3) rapid decision and learning cycles as process, 4) dynamic people model that ignites passion as people, and 5) next generation enabling technology as technology.

Against these concepts as a backbone, and founded on both, a collection of innovation or agility elements which I have published in project management journal articles, and feedbacks from the workshops of my global training on creative project design and management mentioned in Section 2 of this paper, I am proposing the following framework, Table 2, of components of agility in corporate enterprises realizable by applied project management.

The listed agility elements are grouped by purposes of agility into mid-term corporate planning, corporate agility enablers, business development by projects, and project management adaptive to agility.

Table 2 – Elements of Agility in Corporate Enterprises Realized by Applied Project Management

Agility in Mid-term Corporate Planning	Corporate Agility Enablers	Business Development by Projects	Project Management Adaptive to Agility
Corporate roadmapping	Digital transformation (DX)	Business ecosystem building	Agile project Management
Business continuity program	Backcasting of desired company state and program management for transformation	Project feasibility Study	
	Change management	Design thinking	

4.1 Technology Roadmapping

Where companies are established enterprises, five-year, or three-year lookahead corporate management plans are developed and published. This is not part of corporate agility discussions. In pursuit of agility of corporate enterprises, we should consider technology and corporate resources development roadmap, and corporate sustainability plans for business continuity.

High-technology oriented companies develop and update a long-range corporate technology roadmap. As of end of 2021, technology roadmapping is being challenged due to frequent arrival of disruptive technologies. Nevertheless, one of the core objectives of technology roadmapping is to gather intelligence of scientific development and shift behaviors of societies, hence a technology roadmap should incorporate emerging technology elements with probability of arrival forecasting. Corporate technology development planning and core technology selection are explained schematically by Kosaka's diagram [31] in fig. 3. It forecast technology, product technology, products and markets in the ranges of next, next generation and next-next generation as well as mid- and long-term corporate resources planning on investment strategy, capital facilities and human resources.

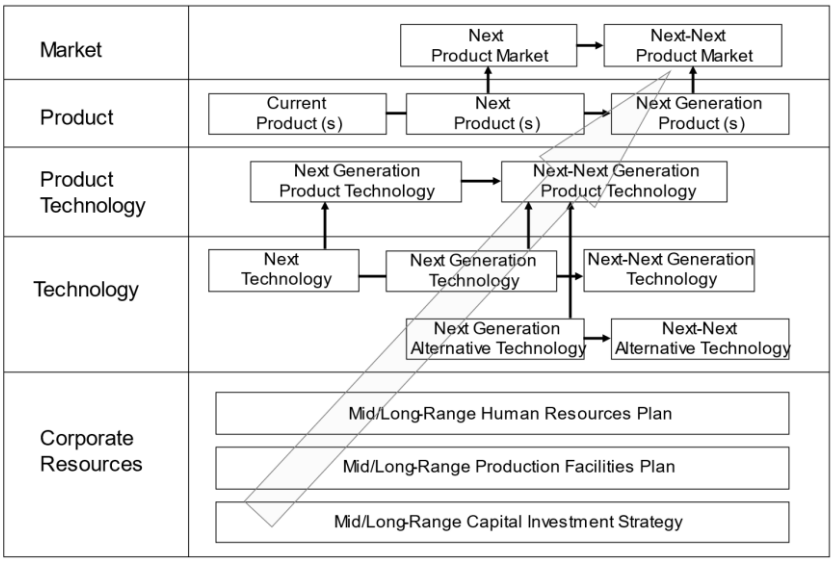

Fig. 3. Corporate Technology Roadmapping (after Kosaka)

4.2 Corporate Business Continuity Program

In the contemporary corporate world, a traditional belief that a corporation is a going concern, should no longer always be valid as we even see one-time blue-ribbon corporations being found under restructuring or bought out. Large-sized corporations in trouble might have made fatal failure in corporate decision-making; have planned to fail in the fast-changing market; have not spent capital investment to update production facilities; have not invested in R&D; have not invested in the development of employees compatible with the new normality market and society; or are not ready to respond to digitalization economy, ever-increasing carbon reduction guidelines or institutional incentives for producing eco products. Corporations may stubbornly believe that technologically excellent products sell in the market while market looks for 'value in use' of products and services [14]. Are corporations thoughtful of balancing its employees by age groups? Is innovation orientation part of the corporate culture? If we look at a small or medium enterprises (SMEs), a crucial question is whether the company's minimum business continuity plan is in place fit for the size, nature of business of the SME.

A well-balanced business continuity program is a key for the future of a company and a Strategy Breakdown Structure (SBS) for business continuity and sustainability, including that for small and medium-sized enterprises, is a framing tool.

Table 3 provides a typical SBS for business continuity.

Table 3 – Strategy Breakdown Structure for Corporate Sustainability (Generic)

SBS Code		SBS Description	Applied to SMEs?
1		Corporate Leadership Sustainability	Yes
	1.1	Nominating a shadow CEO/COO	
	1.2	Programmed training of corporate-designated candidates of COOs and other senior managers	
2		Work Force Age Balance and Organizational Learning	
	2.1	Continuous recruiting of new graduates with the view to developing workforce compatible to the corporation's growth strategy	
	2.2	Balancing employee age clusters	
	2.3	Introducing the systems of learning organization (e. g. after "The Fifth Discipline – The Art and Practice of Learning Organizations" by Perter Senge [32]	
3		Management Competency	Yes
	3.1	Structured training of managers on management theories, leadership, finance, and innovation theories and practices	
	3.2	Management tenure (based on performance)	
4		Production Continuity	
	4.1	Multiple production plants to distribute risks of product supply Stoppage	
	4.2	Supply chain-driven plant locations	
	4.3	Back-up utility supply facilities	Yes
5		Securing Innovation Competence	Yes
	5.1	R&D spending	
	5.2	Corporate innovation mindset	
	5.3	Preventing product obsolescence	
	5.4	Market-in policy	
	5.5	Concentration of corporate resources on focused areas of expertise	
6		Response to Emerging Economy Models	Yes, but focus on one or two models
	6.1	Response to digitalization economy	
	6.2	Response to green economy - carbon reduction	
	6.3	Response to green economy - water footprint	
	6.4	Response to green economy - low-energy built environment	
	6.5	Response to circular economy (closed supply chain, material recycling, waste to energy)	
7		Strengthening CSR	
	7.1	Corporate wide sense-making of social responsibility	
	7.2	Propelling diversity	
	7.3	Enhancing save-the-earth paradigm as part of CSR	
8		Forward Looking Corporate Communication	
	8.1	Having efficient corporate counsel	
	8.2	Corporate branding strategy	Yes
	8.3	Corporate communication – defensive and branding	Yes

4.3 Digital Transformation

Digital transformation (abbreviated as DX) technology is increasingly affordable to corporations. DX is utilized in the following aspects of business operations in the project context.

1) Digital twin

Digital twin is digitalized sharing between primary stakeholders such as the owner company of a project and its contractor, of live data of progressive technical configuration of physical assets or built environment being designed or constructed whereby allowing ready access to the status of the project by those who should know.

2) Digitalized lifecycle asset library at owner companies

A full-range digital asset library includes active project execution database, production asset operation database, asset maintenance database, as-built project record and lessons learned database. State-owed oil companies in the Middle East such as Saudi ARAMCO, in addition, maintains a database to capture daily fuel sales by product class which would help optimize refinery production patterns. A lifecycle asset library provides for data driven and accurate business planning with shorter planning time required.

Fig. 4 provides a typical image of digital twin and digitalized lifecycle asset library combined.

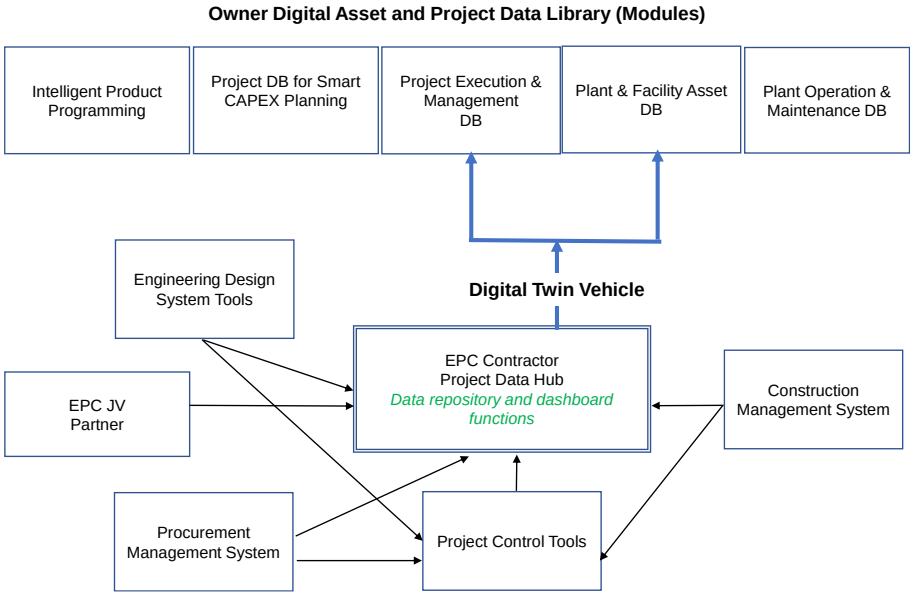

Fig. 4. A Typical Image of Digital Twin and Owner's Digital Assess and Project Data Library

3) DX based advanced project management tools

There are two aspects here. First, traditional project management tools such as planning software have incorporated AI based analytics to support users' analytical capabilities. Second, there have emerged new project planning and execution management methods such as the Advanced Work Packaging which has revolutionized EPC (engineering-procurement-construction) operation of heavy industrial plant projects for higher efficiency of site construction and prevention of extension of time as well as 3D+4D CAD based visualized project planning and progress monitoring system. Fig. 5 provides an image of construction work package including 3D display of work to be executed next.

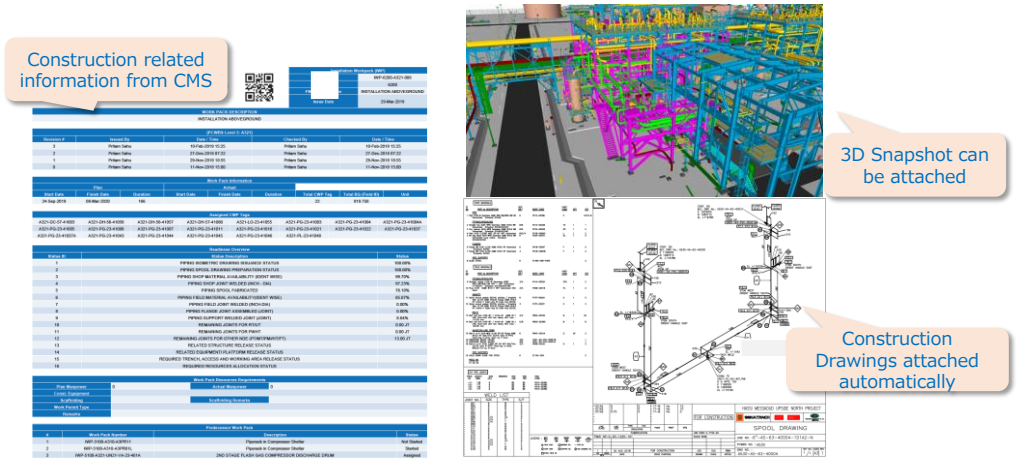

Fig. 5. An Image of Construction Work Package for a Refinery Construction Work

4) Social transformation (SX) applications

These applications include time-honored point-of-sale (POS) marketing data analysis systems thereby Japanese supermarkets and convenience stores make just-in time refill of products for higher sales. During the COVID-19 Pandemic crisis in 2020/2021, big data based public health protection systems utilized by China, Korea, Taiwan and Singapore have been developed against COVID-19 induced health crisis. GAFA (Google, Apple, Facebook, Amazon.com), Chinese and other Asian companies are developing new market creation routines, or new social infrastructure planning by using big customer data collected by each giant networking company.

Japanese small and medium sized companies (SMEs) are creating health related services based on public or industry consortium's big data.

As a big vision the Japanese Government is proposing Society 5.0 vision to develop DX-extended futuristic society (fig. 6).

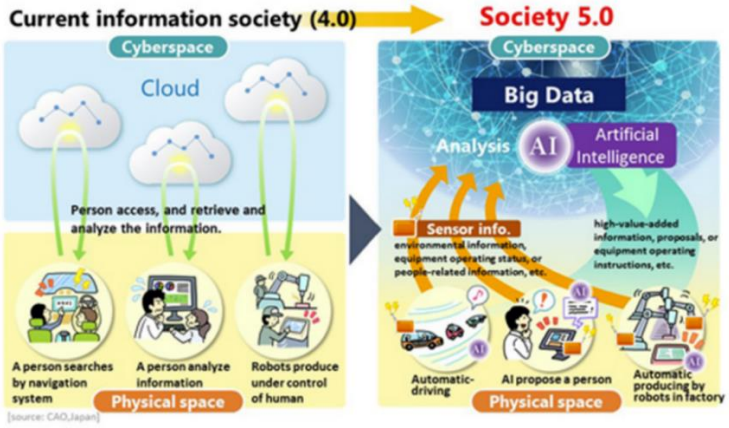

Fig. 6. Society 5.0 Vision by the Japanese Government

4.4 Corporate Transformation by Backcasting and Program Management

Corporate transformation, either triggered proactively to secure the future of a company, or upon crisis of company continuity [33], often uses backcasting strategy supported by innovation program management as an enabler [22]. The concept of backcasting for corporate transformation by using program management is depicted in fig.7.

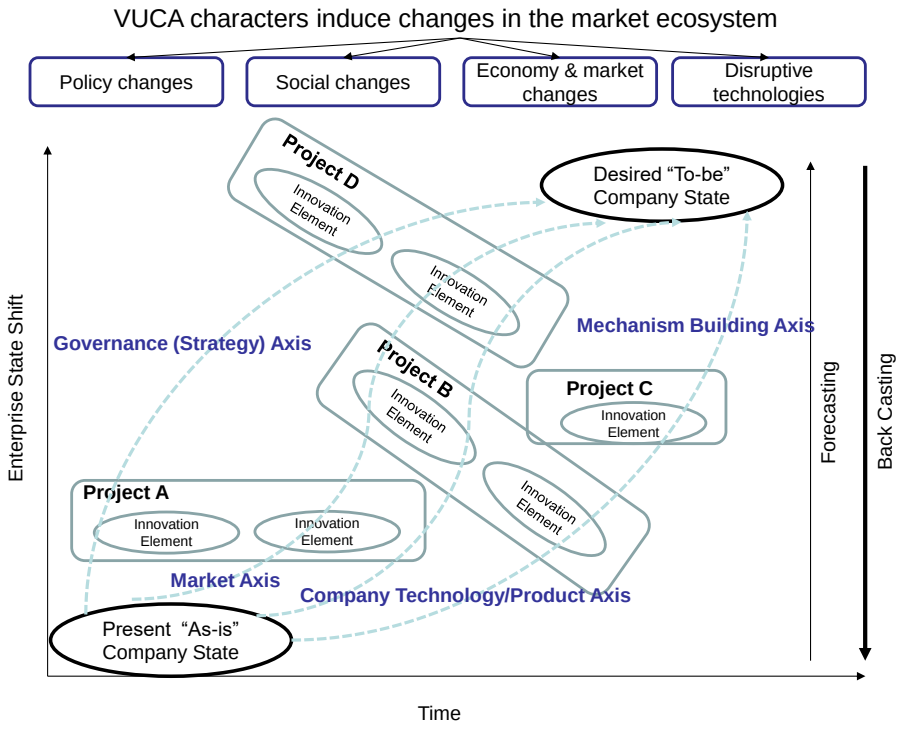

Fig. 7. Backcasting for Corporate Transformation with Program Management

"Live in the future, then build what's missing" is the famous words by Paul Graham, CEO of Y Combinatory in his "How to Get Start Up Ideas" November 2012 [34]. This is the first step of backcasting. In a most recent related article "Backcasting [Better] Futures" [35], the authors argue that we undeniably need radical

transformation of human practices to be more just, inclusive and sustainable and that backcasting originated in future studies, is integral to anticipation studies, and has been applied in sustainable development, and backcasting enables researchers and stakeholders to collectively consider common but complex issues and scale-shift. This scale-shifting takes the form of moving from concepts that are almost impossible to usefully grapple with, to practical steps that might be taken towards futures in which today's concerns have been dealt with.

In the author's model [22], I use innovation program management as an enabler of backcasting since in a complex situation, arrival at the desired-to-be company state involve multiple hurdles to overcome and solutions to the respective hurdles could be efficiently attained by grouping component projects comprising a program to attain the envisioned future state, e. g. company state in five to ten years. A CEO or its top strategy aide of a business company diagnoses a desirable state for the company in the future, stated as a company ten-year (or five-year) vision by considering informedly forecast PESTLE (political, economic, social, technological, legal and environmental) factor shift in the target period of corporate transformation as well as the company's technology roadmapping, then they analyze the company's current state with problems such as governance issues, market misalignment, loosing competitiveness, lack of innovation, laggard response to green economy and low employee morale side by side with strength potential. As a result, a desire-to-be state statement, namely, a vision in ten (or five) years is formulated.

Next, the CEO announces the future vision, demonstrates its commitment to the vision, and enforces its realization to board members, managers and employees as the top-down directive.

Traditionally corporations have conducted transformation by a forecasting approach wherein corporate transition is attained by gradual filling the gaps as in continuous improvement or Kaizen, however this forecasting encounters quite often resistance from board members, managers and employees. The backcasting approach precludes an escape route for both, the CEO, and managers and employees.

In the figure, a program of transformation consists of four component projects each representing innovation elements required along four axes: governance axis, market axis, company's technology or product platform axis and mechanism building axis. Being component projects of a program, all the projects are organically connected with each other to attain the program mission of corporate transformation.

4.5 Change Management

There are literatures on change management where change management means corporate transformation management. According to Wikipedia retrieved in 2021, studies on change management dates to 1962 with Diffusion of Innovations (1st ed.) by Rogers [36]. Early change management concept focused on individual changes, and a change management model for organizations was pioneered by Julien Phillips of McKinsey & Company who authored a journal article titled "Enhancing the effectiveness of organizational change management" [37]. Yet, organizational change management models until the 2010's are based on psychology, management science or engineering.

Then, Project Management Institute (PMI) published "Managing change in organizations: A Practice Guide" in 2013 [38] as the first book addressing organizational change management from the perspective of the project management discipline, which has made one of the one hundred best seller books in the management domain. This guide states that organizational change projects are the fourth most common type of project undertaken, but only 20 percent of organizations adopt a formal organizational change management practice. Studies show that organizations achieve higher success rates by using standardized portfolio, program and project management techniques in concert with rigorous change management approaches. The guide helps to identify and account for change elements within a project or program plan, via project and program managers, create clear and powerful strategies to guide organizational development, and execute those strategies reliably and effectively.

4.6 Business Ecosystem Building

Corporations nowadays often find it difficult to grow on their own in the era of complexity and disruption and opt for using sorts of strategic corporate alliance. Building a business ecosystem is one of prevalent strategic corporate alliance formats. Business ecosystem building concerns how to create corporate collaboration which would create new corporate value competitiveness with one company being the core.

The business ecosystem theory by Moore [23] posits that a business ecosystem is an economic community supported by interacting organizations; the company holding a leadership role is valued by the community because it enables members to move toward shared visions to align their investments - this refers to the platform services theory [24] by Iansiti & Levien, and to find mutually supportive roles. This theory very well explains the business domain of such companies in which in addition to the relationship with customers, there are multi actor interactions for value co-creation founded on strategic trust - leverage theory (idem), - and dominant chains of eco system actors are tightly structured and connected so that substandard performance of one actor in the ecosystem can constitute a bottleneck in successful conduct of innovative business - bottleneck theory (idem), eventual target of an ecosystem success and well-functioning or overall health (idem) of the alliance. The business ecosystem theory pursues mutually beneficial interaction for value co-creation of participating companies; in the meanwhile, the theory of open innovation by Chesbrough [39], is originally oriented toward more to innovative new product development by resorting to other company's technology under loyalty or cross-licensing. Fig. 8 depicts a typical business ecosystem schematic.

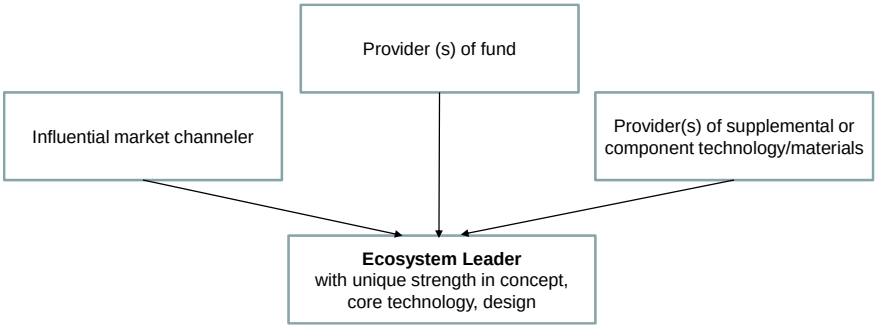

Fig. 8. A typical model of business ecosystem

4.7 Feasibility Study for a Project as a New Business Realization Vehicle

New business is incubated and developed as a project. As such we should comprehensively analyze a new business as a project in terms of technical viability as a commercial technology, marketability, profitability, social desirability, and overall economic evaluation of a candidate project.

Obviously, feasibility studies are the most important activities in project development. As shown in fig. 9, feasibility studies are optimization exercises in investment planning for determining the technical and economic feasibility of a planned project within a variety of constraints imposed.

Feasibility studies cover the owner's business strategy and objectives, market research (current and outlook), raw materials availability, targeted product slate (product mix) and product specifications, supporting infrastructure, plant location alternatives and their conditions, preferred project execution mode, including contracting, the budget and other owner resources constraints, and product destination (domestic market or export), and should culminate in optimum plant size and configuration; realistic budget; viable financing scheme; profitable product plans; and opportunity for optimum project execution strategy.

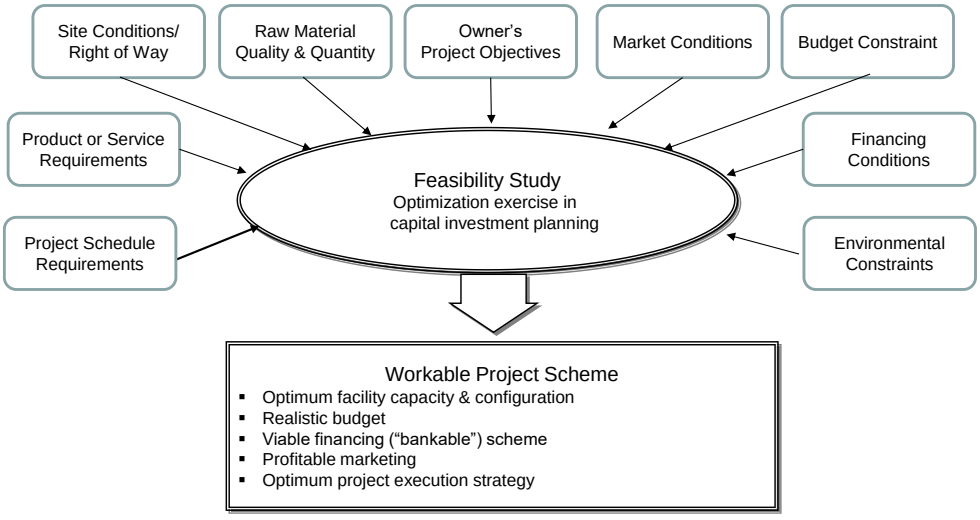

Fig. 9. Feasibility Study Elements

Economic evaluation, the bottom-line assessment of a proposed project is conducted by using a project viability index such as the following. This model applies to a commercial project seeking an economic viability as a primary object of project initiation.

$$\text{Project Viability Index} = (S \cdot P \cdot t \cdot p)/C$$

Where:

S – Projected total sales amount

P – Net revenue (cash-flow) per year = benefit/year

t – Technological viability (equals 1.0 when using a proven technology in a proven condition, or is penalized if technology is still evolving, or operating condition is significantly different from proven conditions, e. g. 85% perfection, then x 0.85, or 0.9 for a different operating condition

p – Expected operating years to generate revenue

C – Development costs (initial investment costs)

Whether an index is acceptable or not, depends on a company's hurdle index. An index usually should be greater than 1.25, which means discounted total in-cashflow is 1.25 times larger than an initial investment amount.

There are three more measures to evaluate profitability of a proposed project: Pay-out analysis to seek years to recover the initial investment costs; Return on Investment (%) to seek total net project present value (NPV) revenue after discounting by an adopted annual discounted rate, used as a compounded rate, and comparing the total NPV with the initial investment rate;

and Internal Rate of Return (IRR) whether the IRR calculated from NPV of an initial investment rate and annual net in-cashflow (Excel function formula =IRR(the first year amount of initial investment cost : last year of net in-cashflow after discounting) exceed the corporate stipulated IRR.

4.8 Design Thinking

Rooted in a US start-up acceleration company in the 1990s [26] as a concept promotor which was influenced by design thinking in architecture, the design thinking is now being used by Western and Japanese companies and the Japanese and other governments. Design thinking stresses listening to mass customers and the community for their 'wants' through direct dialogues as basis of conceptualizing a new product, customer service or community service. Subsequently, a variety of brainstorming and prototyping methods are used to gradually construe what is really needed by the segmented markets. IDEO portrays design thinking as a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.

Mahmoud-Jouini, S. B. et al. [40] argue that *researchers have long recognized that standard approaches to project management are ill-suited to address changes in the environment or business needs, particularly in innovative contexts characterized by uncertainty and complexity ------ Three imperatives for project management arise as a result: managing the explorative phase, managing the involvement of stakeholders in the project, and managing the project in relation to the strategizing process of the firm. We propose that design thinking, a recent evolution in the field of design, can make important contributions to these imperatives.*

Design is the process by which we devise courses of action aimed at changing existing situations into preferred ones through the creation of artifacts—objects created by humans through creative reasoning. Simon states that design is concerned with innovation: it is different from other cognitive approaches such as decision making because it requires us to define the options among which the choice and the optimization is realized [41].

Design thinking shift product or customer service creators' paradigm from testing hypothesis to multi-value, creative ideation in the era of the acronym VUCA or BANI, or from framework-based logical and analytical thinking to creative and rich thinking in business development team's total approach.

The process of design thinking slightly differs from one model to another but a typical one is depicted in fig. 10.

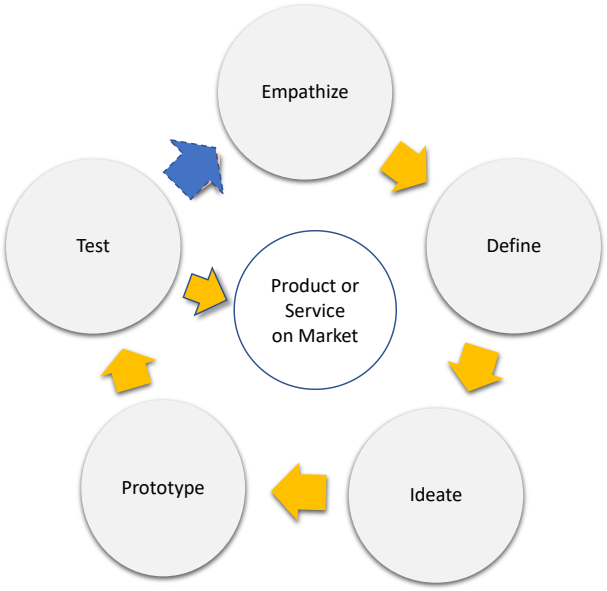

Fig. 10. Processes of Design Thinking

Empathize: Deep understanding of potential customers' wants by observing and interacting with them in their native habitat by way of ethnography, qualitative research methods, participant observation, interviewing, journey mapping, and so forth.

Define: Define target users, user needs, market conditions now and in the future to ascertain the attractiveness of a new idea.

Ideate: Structured collaborative ideation to arrive at defensible concept(s) via brainstorming using charts and graphs, storytelling, metaphor and analogies, mind-mapping to facilitate drawing insights from ethnographic data, and to create a "common mind" across development team members.

Prototype: Prototyping techniques facilitate making abstract ideas tangible (storyboarding, user scenarios, metaphor, experience journeys, business concept illustrations, concept video).

Test: Experiments in actual markets evaluate the key underlying and value-generating assumptions of a hypothesis in the field with stakeholders.

4.9 Agile Project Management

The original form of agile development method was

born in the Japanese manufacturing companies in the late 1980's and 1990's as in new car development by Japanese car builders and Japanese aircraft companies' contribution to Boeing's new aircraft development; the term "Scrum", one of the core method of agile development methods is mentioned as Japanese manufacturing companies' practice by Nonaka and Takeuchi [42], and was remodeled in USA in early 2000's with Manifesto of Agile Software Development [43] as the spring board, as a flexible IT system development method, amid repeated failures in the use of the traditional, water-fall development method which utilizes a path of concept - basic design - production design (program production) - implementation as reported in Standish Group's chaos report [44]. It has become established as a flexible, iterative project execution method, and today it is applied not only to the IT system development industry but also to new product development projects in the electronics and other high-tech manufacturing industry. Without defining the details of the customer requirements of the project from the beginning, the customer and the project team, either the customer's internal or a vendor team, work together (to form a "Scrum") for a series of work cycles, for instance one week or two weeks (called "Sprint"), while confirming whether the goals agreed one week ago, have been attained or not. Hence, the customer and the project team gradually define a new product (fig. 11).

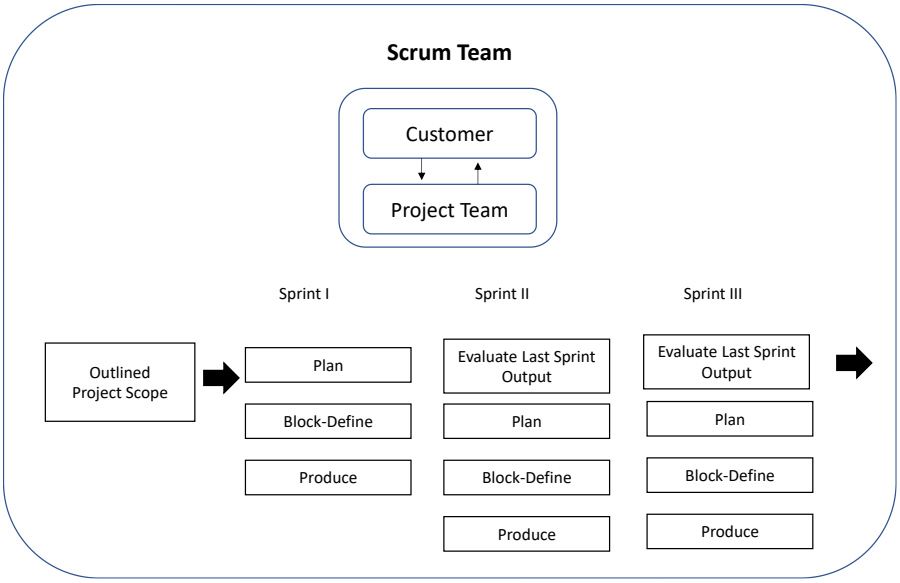

Fig. 11. Schematic of Agile Project Development

The common attributes of agile development approaches include:

- Customer focus by an amalgamated development team formed jointly by the customer and the development project team (either internal team or vendor team)
- Transparency of development process and development status
- Adaptability to changing market needs and/or development strategy
- "Scrum," "Sprint" and "Kaizen (continuous improvement) as agile development techniques

5. Methodologies and Learning Attitude to Cope with Disruption in Project Planning

In this section, I wish to share my concept on methodologies and learning attitude to cope with disruptions in broader terms. All these topics underpin the agility elements discussed in Section 4 as foundation thoughts.

A brief discussion of disruption is given in Section 1 of this paper. Limiting the discussion of disruption to the project planning, I offer the following five methodologies and attitude. The key thoughts in this presentation are the use of fundamental logic of systems approach (and not processes) in project management; convergence of pieces of knowledge for innovation conceptualization and delivery, including cross-fertilization of project management with other disciplines; convergence of cognitive ability with social and emotional skills for social progress; and thought behavioral shift to accommodate unlearning and re-learning.

a) Systems approaches, both hard and soft

This helps overcome disruption of project planning with a versatile, systemic model of a project for conversion, for new value.

b) Advanced program management

This helps overcome disruption of complex project approaches with an "OS + applications" approach.

c) Design thinking

Design thinking facilitates paradigm shift from cognitive approach(es) to rich, creative thinking for new development.

d) Classification of carbon reduction and sustainability targets and actions by thirteen "Rs"

This simple approach dispels the concern over disruption on climate change responses with easy keywords of action expressed by verbs starting with "re."

e) Though behavioral shift to accommodate unlearning and relearning

This emerging concept alerts one to recognize the importance of unlearning on environment dependent knowledge and challenge for re-learning.

5.1 Project as a System of Conversion for Innovation, Value Addition and Sustainability

The author's systemic model of a project is such that positions a project as a system of conversion for innovation, new added value and/or sustainability [25]. The model is shown in fig.12.

As a conversion system, a project must intake input resources from the environment ecosystem characterized by PESTLE (political, economic, social, technological, legal and ecological) factors and produces output resources realizing certain outcome given by the mission of a project shown at the top. The project realizes this conversion by means of enabling means such as technology, finance and project management processes equipped in the project.

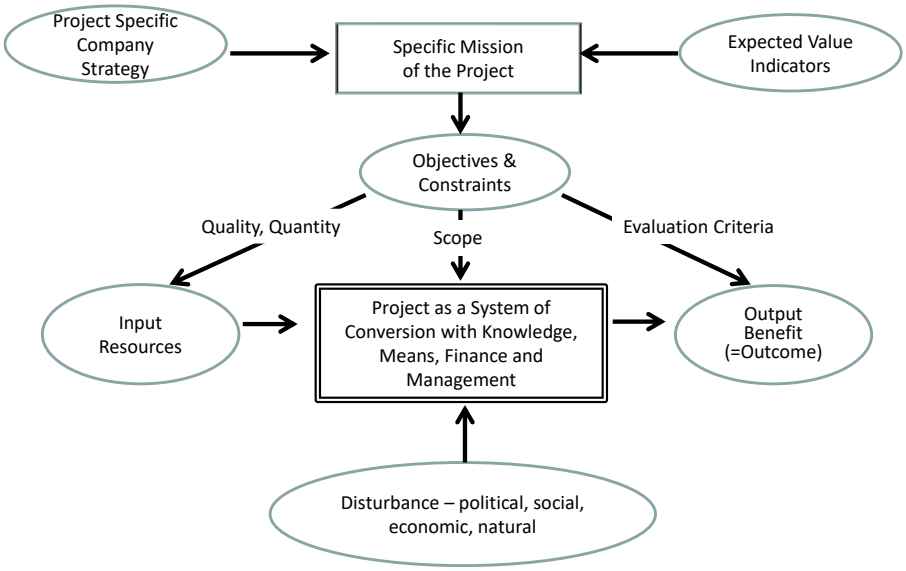

Fig. 12. A Project as a System of Conversion for Innovation, New Added Value and Sustainability

The mission of a project, incorporating a set of company's specific strategy toward the planned project and expected value indicators for that project, is interpreted into project objectives supported by key performance indicators (KPIs) and, concurrently, frames constraints which include required quality and quantities on input resources, scope of the project on the project system itself, and criteria for acceptance of output resources with outcome. As a project is an open system, it is interconnected with and dependent on the environment, hence, is often interfered by a political, social, economic and natural disturbance(s), which might gravely impact the project.

Project modeling of this systemic project model is conducted following the flow laid out in fig. 13.

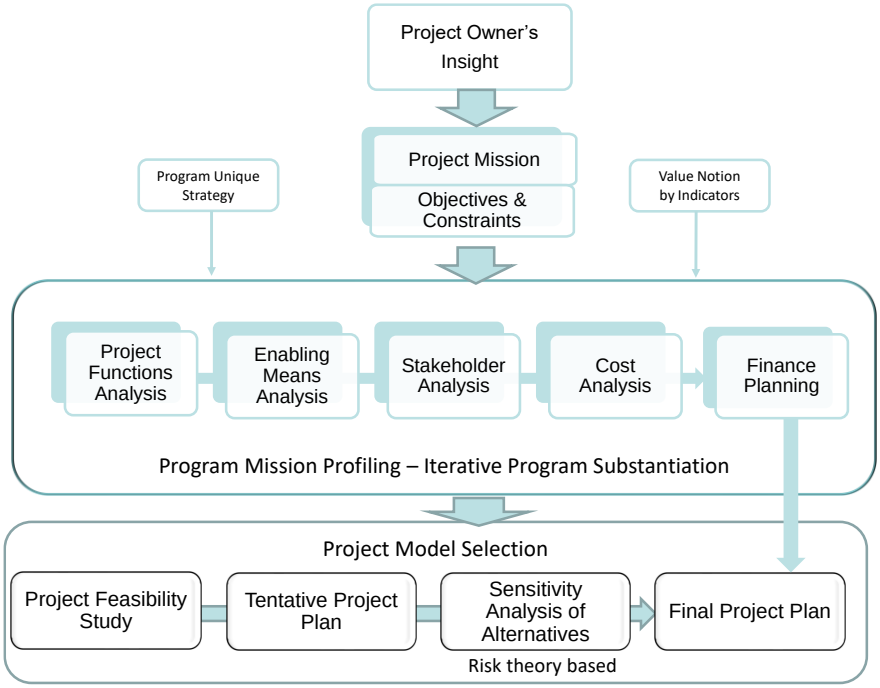

Fig. 13. Project Modelling in the Systemic Project Model

This slide shows the mechanism of project modeling contained in the project system box in Fig.12. In the upper box, against a project mission and its translated main objectives and constraints, project definition and substantiation proceed from project basic function analysis, through enabler means analysis and stakeholder analysis back-to-back, and cost analysis, to finance planning until arriving at a tentative project plan formed after a feasibility study, in the lower box, which, then, undergoes through sensitivity analysis of alternatives and a final project plan is selected.

This simple symbolic project model is versatile and can apply to whatever type of projects, either heavy industrial or soft agile, and allow for assorted project management approaches from system engineering based industrial projects to design thinking created new product development.

5.2 Advanced Program Management

The advanced program management presented here is based on the program management of the P2M Guidebook [20] and proposes an overarching mechanism of overcoming disruption of complex project approaches with an "an OS + applications" approach.

This program management model is useful for programs and projects in response to climate change as illustrated in fig.14.

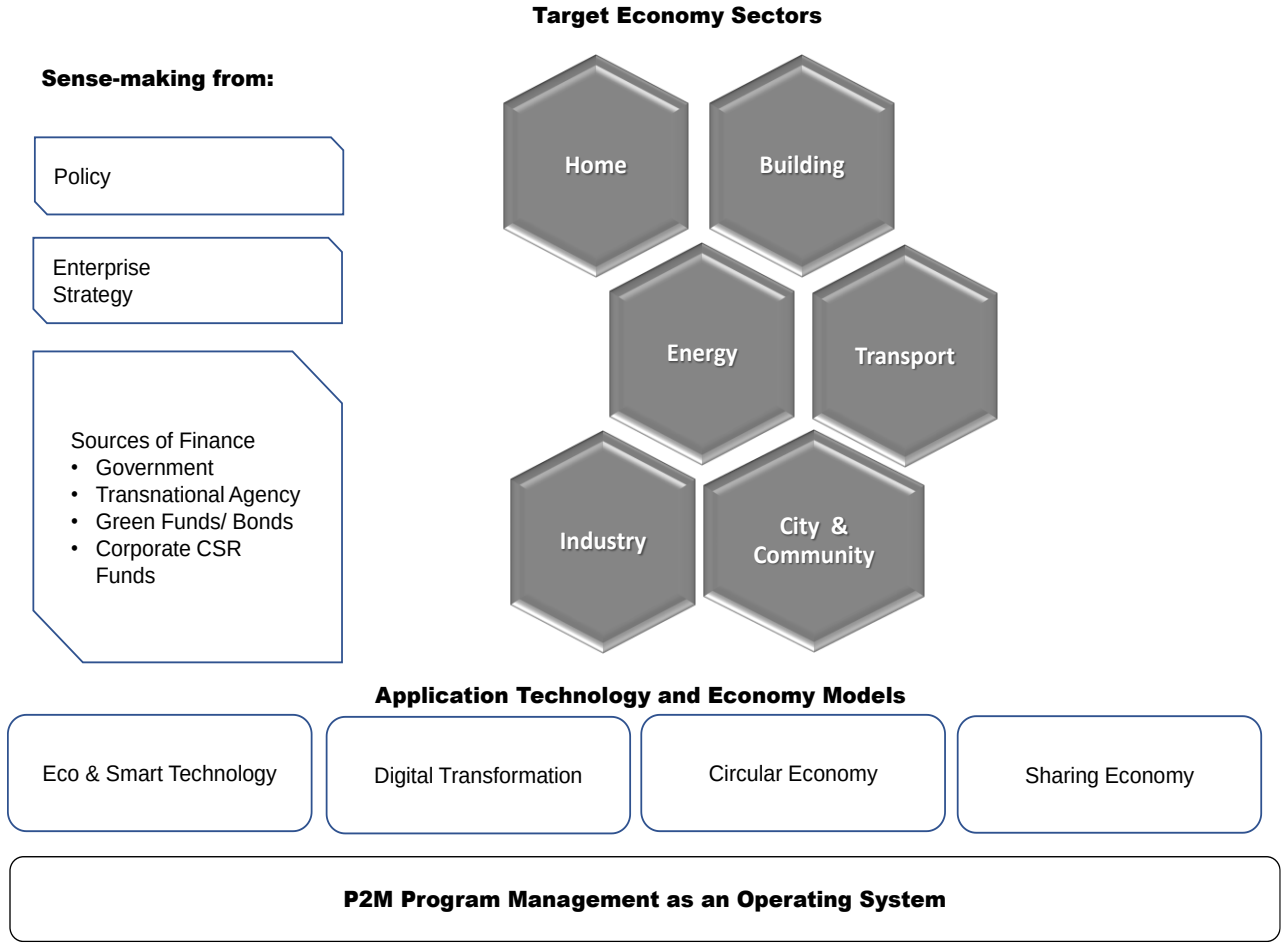

Fig. 14. Advanced Program Management Model for Climate Change Programs and Projects

Into 2020's, carbon reduction and global sustainability are irreversible policy in the world. There are vast opportunities for programs and projects providing response to climate change, or global warming; according to Veikko Valila, global climate crisis is a US$ multi-trillion business opportunity and is a driver for innovation [6] which expectation corresponds to all sorts of sustainability in society, industry and life.

Fig-14 shows the author's model of creating a climate change response program in terms of application areas --- economic sector ---, sense-making from public policy and enterprise strategy, and finance option (s) from a variety of sources. Program management serves as an overarching, Operating System type program management framework, and can accommodate, within the framework, alternatives of enabling means and practices as if they were application systems working on an OS.

As reviewed, both a systemic project model and advanced program management assumes that the potential of project planning and management is enhanced where the potential of project management discipline is cross-fertilized with other study disciplines. Fig.15 is the author's analysis of science disciplines that the project management disciplines can collaborate with for co-prospering.

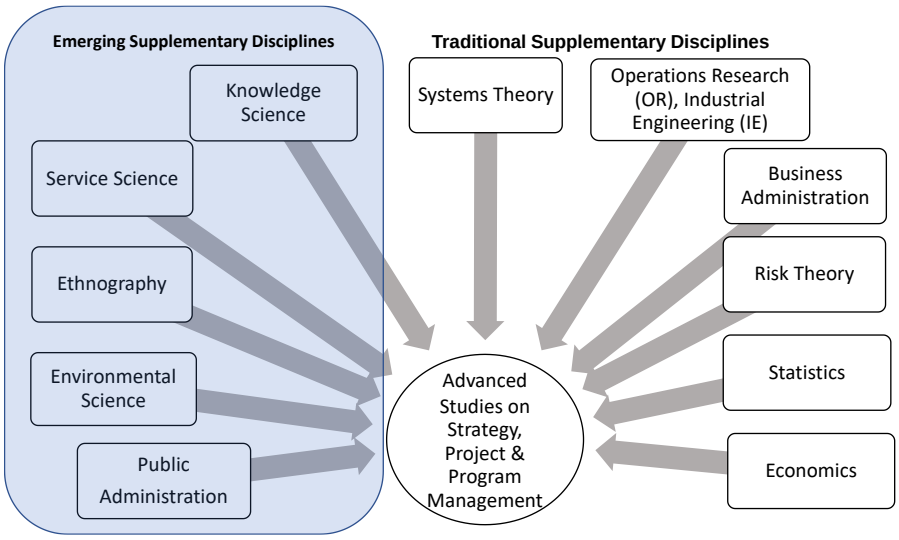

Fig. 15. Supplemental Disciplines to Project Management Studies

5.3 Design Thinking

As reviewed in Section 4, design thinking and other design approaches are useful for development of a new product, customer service or community service not from framework-based logical and analytical thinking but from rich thinking in development team's total. Design thinking approaches do not faithfully adhere to cognitive approach but also uses the power of social and emotional skill as defined by OECD (2015) [45] to capture evolving trends and needs of the society regarding which empirical data are limited. Design thinking is especially useful to resolve ill-defined or 'wicked' problems [46]; adopts purposeful strategies; uses abductive and productive reasoning [47]; and employs non-verbal, graphic/spatial modelling media, for example, sketching and prototyping [48]. Rather than accepting the problem as given, development teams explore the given problem and its context and may re-interpret or restructure the given problem to reach a particular framing of the problem that suggests a route to a solution. The creative mode of reasoning in design thinking is abductive reasoning, rather than the more familiar forms of inductive and deductive reasoning.

In the 2015 OECD Skills Studies Report "Skills for Social Progress: The Power of Social and Emotional Skills" [43] based on extensive research across OECD member countries, a balance of cognitive skills and social and emotional skills is given (fig. 16 below) to emphasize.

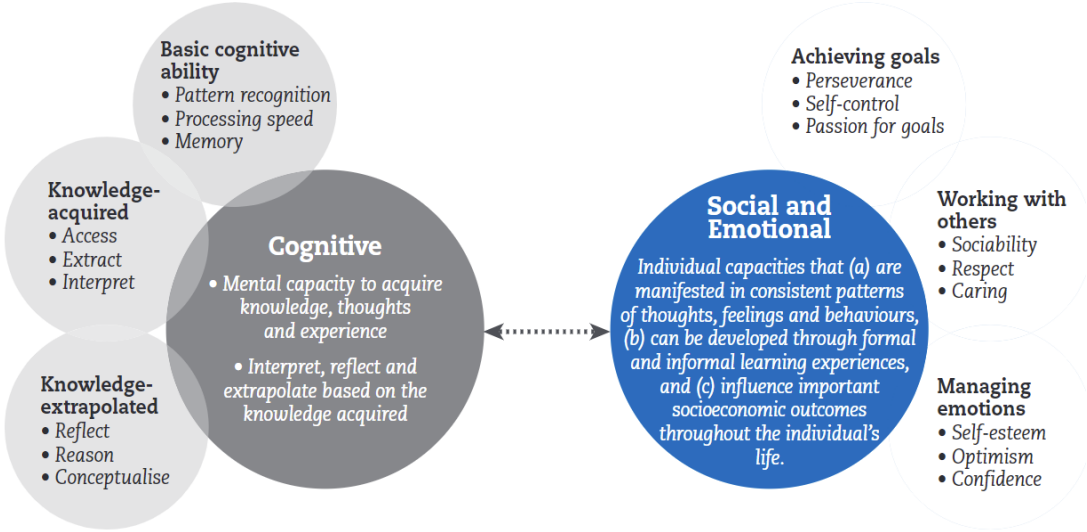

Fig. 16. A framework for cognitive, social and emotional skills (Source: OECD, 2015)

5.4 Classification of Carbon Reduction and Sustainability Targets and Actions

Carbon reduction is an irreversible policy objective in the world. EU, USA and Japan have committed to attaining carbon neutrality by 2050, China by 2060 and India by 2070 (press releases). In parallel, and more broadly, global sustainable development goals are endorsed by the United Nations' Sustainable Development Goals (SDGs) of which scheme is indicated in the following US SGDs statement (fig. 17).

Understanding a whole picture of carbon reduction and sustainability requires tremendous efforts as the respective solutions cannot be derived from single science and technology discipline or single management method.

However, in the hope that one can have a quick reference for generic mapping in this regard, I have developed a handy illustration to facilitate one to understand and combine knowledge needed for the realization of a variety of sustainability solutions. The overall approach is presented in fig. 18.

Fig. 17. United Nations Sustainable Development Goals (SDGS)

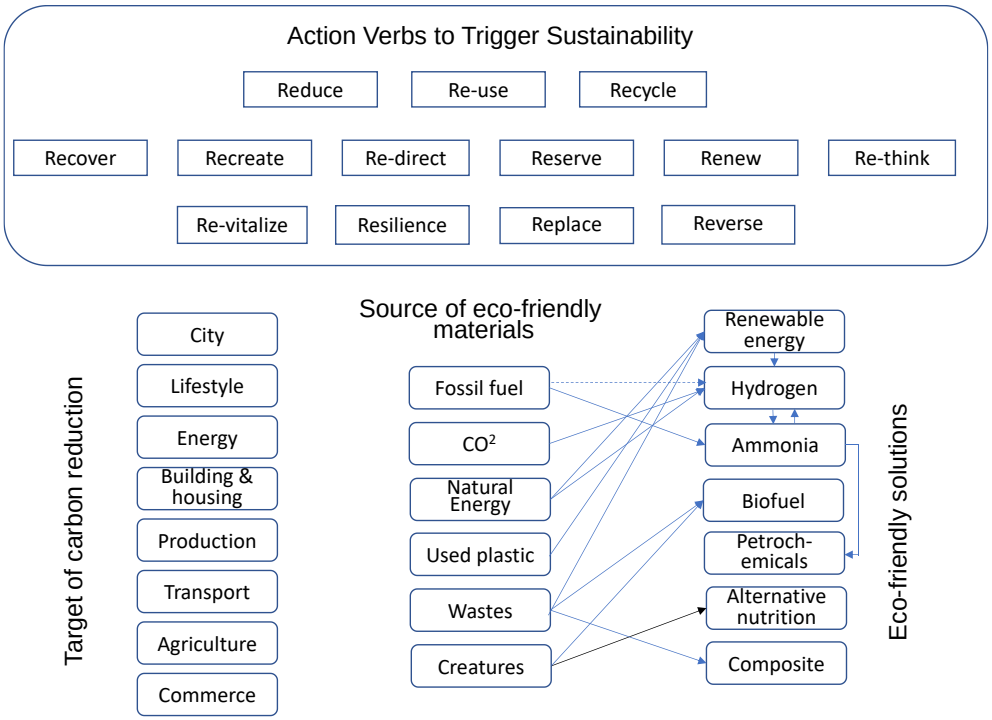

Fig. 18. Classification of Carbon Reduction and Sustainability Targets and Actions

This diagram lays out, in the lower part, target sectors of carbon reduction (left), sources of eco-friendly (center) solutions, and eco-friendly solutions (right), and interrelation between the choices, and in the upper part, twelve generic keywords on actions required to convert the listed sources to the listed solutions, using verves staring with "re." The first three key words "reduce, reuse and recycle," 3Rs are traditional Japanese philosophy on sustainability that Japan has practiced in the last 150 years ago and are still very typical keywords representing actions of carbon reduction and sustainability. The remaining key words have been derived from the actions being practiced or emerging in the field of carbon reduction and sustainability.

For instance, green hydrogen as a potentially eminent alternative energy "replacing" fossil fuel is produced ("re-created") by "renewable" power such as solar or wind power via an electrolysis ("reaction"), which, then, may be "re-combined" with nitrogen to produce ammonia suitable for transportation.

Table 4 explains concretely the implied concept of the respective action verbs, functional features of the concept and typical applications.

Table 4 – A quick reference of actions on climate change response and sustainability

Action Key Words	Concept	Functional Features	Typical Applications
Reduce, Recover	Reduce volume of carbon generation at source, recover CO2 from large producers	Direct carbon reduction, CO2 recovery from large producers	Smart reduction of utility consumption, CO2 recovery (CCS, CCSU), reduction of wastes
Reuse, Recycle	Enhance sustainability on vital human and economic needs	Life prolongation of man-made resources of all kinds	Reproduced/regenerated goods, composite materials, value added recycled (upcycled) goods
Recreate	Create substitutes by using existing creatures	Enhance food supply capacity while reducing CO2	Clean meat, bio meat and other substitute nutrition
Re-direct	Redirect the market(s), redirect business lines	Finding new value at different places	Time-lagged supply chain across geographical regions, develop eco markets for seniors
Reserve	Conserve natural resources, biodiversity	Climate change mitigation, life comfort via biotope	Reserving or restauration of forest, wetland, city greenery; also, a source of eco-tourism
Renew	Develop new energy sources or other resources that can be utilized without depletion	Expanding energy availability, reduce CO2	Renewable energy such as solar, wind, hydro, marine, geothermal, biomass
Re-think	Change paradigm, or create social value to contribute to carbon reduction	Thinking from scratch viable modes of life and business	Eco lifestyle, green trade, clean development mechanism (CDM), tele-medical care, tele-education
Re-vitalize, re-economy	Create new paradigm of economy and social services	Re-design economy and social structures with innovative technology, e. g. digital transformation (DX), AI, social transformation (SX)	Urban redevelopment with newly justified reason for revival, intelligent BPO (as in the Philippines), e-trade, e-Government
Resile	Build in design for incorporating intrinsic resilience in living community or human activities	Design for resilience rather than build measures ex post	Resilient community against natural disaster, self-sufficient energy supply in detached community or in a disaster shelter, business continuity plan (BCP), diversification of economy for all weathers
Replace	(Technological disruption) Replaces basic models of products	Functions, not features, of goods are changed; utilization mode changes	EVs, hydrogen as fuel, subscription of life goods instead of purchase
Reverse	Reverse innovation to smartly fit specific community's needs at highly affordable costs	Apply value engineering (function/costs) to create "just in need" products	Chotukool refrigerator in India, U-turn/I turn to liveable community from a big city enabled by online work tools

5.5 Thought Behavioral Shift to Accommodate Unlearning and Relearning

Disruptive technology is undoubtedly based on scientific knowledge while disruption in society and economy can result from citizens' adaptation to disruptive environmental changes. Regarding disruptive technology, the question is how to combine pieces of non-linearly emerging technology. Here, those who can make profitably use of disruptive technology should be adept in unlearning from the possessed knowledge and relearning how to profitably assembling knowledge pieces to purposeful design of new products and services in a unique environment. Tsang and Zehra [49] proposed organizational unlearning stating, *"organizational unlearning is widely considered an important condition for successful adaptation to environmental changes, promoting organizational learning and enhancing a firm's performance."* The Third World Project Management Forum in December 2001 adopted the subtitle of the congress as "Learn – Unlearn – Relearn".

6. Conclusion

This article has reviewed elements of the new environment which can impact the practice of strategic management and project & program management, then as recommendation to make these management adaptive to the new environment, proposed a conceptual framework of agility elements in corporate enterprises which are realized by applied project management as the result of the author's exploratory study as well as methodologies and leaning attitude to address disruption, the centerpiece of the new normality.

The agility elements have been grouped into four by nature of agility required for a corporate enterprise, as follows:

1) Agility in mid-term corporate planning
2) Corporate agility enablers
3) Business development by projects
4) Project management adaptive to agility

The methodologies and learning attitude to cope with disruption in project planning include:

a) Systems approaches, both hard and soft, which can serve as a versatile, systemic model of a project for conversion, for new value, innovation and sustainability

b) Advanced program management which could overcome disruption of complex project approaches with an "OS + applications" approach

c) Design thinking which facilitates paradigm shift from cognitive approach(es) to rich, creative thinking for new development

d) Classification of carbon reduction and sustainability targets and actions by thirteen "Rs" which help address climate change responses with easy keywords of action expressed by verbs starting with "re."

e) Though behavioral shift to accommodate unlearning and relearning to be steadily adapted to the environmental changes

Summarizing the discussions in this paper, I present my outlook on the emerging, symbolic project planning and management models in fig. 19.

I have classified projects into four models: complex industrial production and built infrastructure complex, social transformation, human and society centric development, and digital transformation, then, profile how the project development phase, front-end planning phase and project implementation and delivery phase of the respective project models differ with respect to standpoints of development, planning methods and differences in project delivery methods. Overall, the models suggest whether water-fall type project management fits or agile development approach is more suitable. My critical message is that the traditional "one fits all" project management approach as emphasized by project management standard does not make sense.

Project Phase / Project Type	Project Development Phase	Front-end Planning Phase	Project Implementation & Delivery Phase
Complex industrial production, built infrastructure	Social, economic and technological sense-making, risk assessment	Multi-value, multi-disciplinary program analysis	DX-supported management of distributed projects
Social transformation	Community participative sense-making	Soft systems approaches to transformation design	Lobbying, budgeting or funding, and enactment
Human and society - centric development	'Design thinking' and 'Agile development' combined, concurrent project identification, definition and delivery		
Digital transformation	High social and industrial value proposition to convert the primary, secondary and tertiary industry to "1.5th, 2.5th and 3.5th industry" where digital resources can be a co-primary player		

Fig. 19. Emerging Project Models

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Відомості про авторів / Сведения об авторах / About the Authors

Хіроші Танака (Хироши Танака, Hiroshi Tanaka) – Ph.D., Академічний радник Асоціації управління проєктами Японії, Токіо, Японія; e-mail: hirojpmf@gmail.com; ORCID: https://orcid.org/0000-0003-2631-721X