

An Introduction to “Purpose Engineering”: An Essay on “Practical Wisdom” and Innovation

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Abstract

“Purpose” has not been considered as “critically important” as a technical term in managerial theories as it is rather a subjective factor; however, it is now seen in a new light. There is a growing trend to discuss various aspects of purpose, as well as a reflection among academia and consultants about the excesses of market fundamentalism, which is “profit over purpose.” We are also witnessing a radical shift in management thinking: from analytical to creative, from financial output to social impact. Design thinking is just an example. Furthermore, through the so-called “lost two decades” of Japan (note: long economic stagnation since the 1990s), Japanese firms have tended to be less conscious of their purpose and inclined toward means or short-term objectives. Purpose is now starting to be recognized as a critical factor in management. However, two questions will emerge: first, how do we embed (good) purpose into managerial practice? second, how could we coordinate or orchestrate such diverse beliefs and knowledge of employers and stakeholders within organizations or society? The first question requires philosophical investigation, namely by Aristotle and others. In answer to the second question, in this short essay, the author names these methodological problems as “Purpose Engineering” and tries to discuss both management on purpose (MOP) and management of purposes (MOPs).

We first explore emerging trends in “purpose” and its place in modern organizations, which leads to the concept of “purpose engineering”. Here we discuss the engineering of purpose and its Aristotelian philosophical aspect. In the next section, we clarify the difference between purpose and objective and discuss the three different levels of purposes: “infra”, “pivotal” and “meta”. Purpose engineering is coupled with “design thinking” in the third section. The human-centered factors of design thinking and prototyping (trial and error) prove to be practical for discovering the “means” for the purpose: the integration of intuition and instincts, very subjective human characteristics, into purposes is explained as “abductive reasoning”. The final section argues how management can adopt a societal perspective, which ultimately underpins purpose engineering and hence social innovation. The common good, which subsumes individuals and organizations, requires virtuous cooperation. Past national and current social innovation projects are offered as examples and illustrations supporting the principles presented in this essay.

Keywords: *Purpose, Innovation, Knowledge creation, Design thinking, Phronesis*

INTRODUCTION

In the knowledge society, ideas and knowledge should be treated as subjective beliefs involving humane living capacity and the nexus of socio-cultural relationships, and NOT as a materialistic substance. Therefore, in a case of a new business project, we have to share our purpose for our goodness. Otherwise we cannot fully utilize our capacity. In this short article, the author presents the concept of “Purpose Engineering” for management and innovation. We are experiencing a historical turning point. The Lehman Shock was one such trigger. Corporate leaders and business scholars began to examine the excesses of market fundamentalism and suddenly realized the importance of “purpose”. However, it is not confined to that sort of awareness. For example, management based on purpose is inevitable for social innovation, which is one of the important concepts for global economic growth. We have to know how to create a better purpose and orchestrate purposes (hence “engineer”) for the wellbeing of society as well as organizations.

1. THE ERA OF PURPOSE

What is “purpose”?

*The Economist*¹⁾, noted “From profit to purpose” as one of the top ten global trends. Organizations along with customers and stakeholders are assuming new roles in tackling social and economic challenges. All players are concerned about the impact and motivations of each member on profit, prosperity, sustainability and ecology. In other words, the purpose of business is to realize mutual benefits with society. It is related to CSR (corporate social responsibility) and then to concepts such as CSV (creating shared value), which has been already treated as one of the basis of corporate strategies: to “focus the work of management on a higher purpose”²⁾. These emerging trends will impact the foundation of a firm’s activities, and result in innovative business models.

Professor Clayton Christensen of the Harvard Business School, who proposed the concept of “disruptive innovation”, claims that organizations simply targeting high profitability usually do not succeed³⁾. He illustrates how a company like Dell

Computer Company loses brand value as it pursues profitability. If outsourcing and efficiency are the only focus of an organization they will simply be branded as “cheap”. But in this world, “the bottom line of business is not profits but rather “customer delight”, based on continuous innovation. However, purpose and means could easily be reversed and “money beats strategy”.

Through this decade management philosophy and strategy have changed radically; from competition to innovation led by customer values. “Purpose” is becoming the primary core value of organizations and management.

Japanese firms, appear to have reached the limit of the traditional manufacturing business model. Improved efficiencies in high quality manufacturing and export sales to richer countries have sustained Japan Inc. for many decades. But for this reason, Japan has been caught in the so-called Japan’s “lost two (or three) decades” or in a paradox: superiority in manufacturing technology chains them to supply-side logic. For survival Japanese organizations need to reorient themselves to “demand-side logic”.

The last decade has shown that the added value or “premium strategy” provided by suppliers is not really effective. Customers want simple and robust solutions and ideas that connect with their individual lives and values (see Fig1). Community, society and environment inform customer decisions about meaningful solutions and ideas offered by organizations. It can be argued that Japanese firms have tended to be less conscious about or even forget their purpose and are inclined toward means or objectives.

Therefore, the concept of “From Profit to Purpose” has a disruptive impact. The product and the technique are valuable, however, the value of the idea or concept, or even “aesthetics of life” has much greater social value. Inserting the product into a well-designed purpose is indispensable.

Purpose Engineering

The author is now developing a management methodology suited to “the era of purpose”, namely “Purpose Engineering” (Konno 2013). This term “engineering” is rooted in the definition of the word (originated from Latin “ingenium” or genius, then

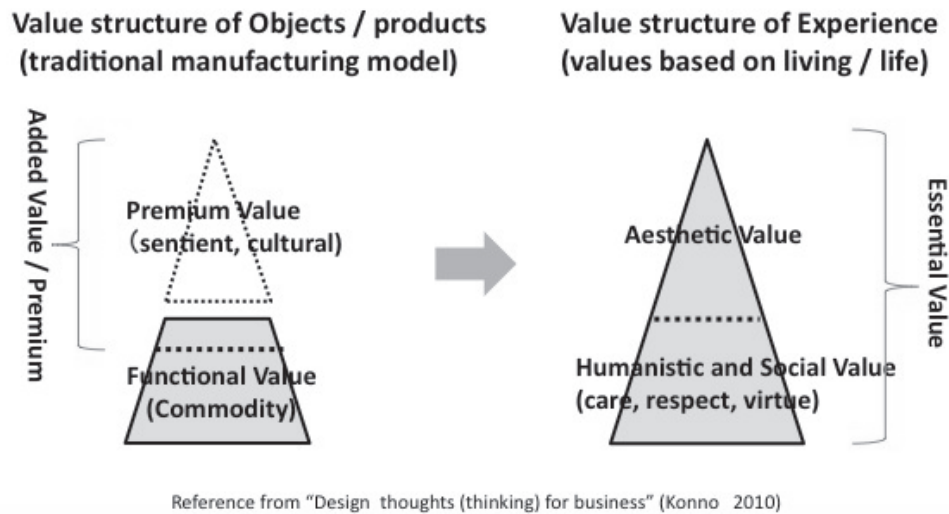


Figure 1: From the added value to the essential value

“civil engineering” by British), which implies the use and management of practical knowledge for the benefit of human beings and society. However, engineers and engineering usually serve or use technology for a set objective, goal, such as the solution to a problem, and do not discuss “purpose” itself as we are defining it. Purpose is treated as a “given” or background condition.

Two essential factors in purpose engineering are the what and the how. First, what is the “Management of Purpose”? It is thinking based on a common good (benefit for the society), NOT on short-term profits. It is driven by “practical reasoning” that consists of creation, judgment and assessment of the higher or grounded purpose, and the relationships between individual purposes and the means, such as technologies.

How do we manage the purposes? Organizations and their divisions, especially individuals, have various volitions/wills, thoughts, feelings, personal goals and reasons for participating. Managing based on these personal (and organizational) beliefs often causes chaos and confusion. The task of the manager is to “orchestrate” these individual purposes so that the higher and final purpose is achieved. This is what we call “Management of Purposes”.

“Purpose-driven Innovation” or innovation based on purpose is now critical. It is based on four parameters: (1) weighing purpose with common

good and ethics, (2) finding the relationships (judging) of purpose and means, (3) balancing the purposes of all the players, and furthermore, (4) applying a “design thinking” like process as the primary tool in achieving “purpose-driven innovation”. Based upon these fundamental principles it is necessary to conceive and construct the firm’s unique purpose engineering, which deals with practices involved with “purpose” and management.

“Purpose engineering” addresses questions of means and quality as well as impact on other (social) systems and participants. Purpose extends beyond quantitative objectives. We now better consider the subjective aspects of “what is the main purpose”. How do we balance the various purposes of the groups and individuals by applying knowledge for the benefit of human beings?

Aristotle’s thoughts on techné and purpose

Purpose engineering is based on a couple of “root metaphors” or analogies, and one of them is Aristotelian teleology, the belief or model of thinking that everything has a special purpose or goal. Aristotle asserted that many factors impact the progress to this ultimate goal and if it is a community, it seeks and acts toward happiness. This is a subjective worldview.

This philosophy has been supplanted by the modern scientific worldview based on objective causality first proposed by Descartes. However,

there is a strong human, subjective, component to the equations of life. This era requires a balance of objectivity with the emotional and ecological components of behavior and decisions. The recent interest in Justice, such as discussions by Harvard Professor Michael Sandel, reflects a “revival” of Aristotelian or neo-Aristotelian views on purpose⁴⁾.

The common criticism of teleology is that “common good” differs among communities and societies and that there exists no single definition of “happiness”. However, Aristotelian “practical syllogism” (reasoning to assess purpose and means) implies that the relationship between purpose and means is dynamic and contextual. It requires us to ask, “Is the purpose fundamentally right?” and “Is the timing right for the means?”. Ultimately, it requires good judgment based on the individual and unique context.

Aristotle posited three general categories important to the advancement of human knowledge: (1) Episteme (epistemology), or scientific knowledge, (2) Techné (technology), or application of knowledge, capacity of crafting and (3) Phronesis (prudence), or practical wisdom. Aristotle believed that these components to human knowledge should support the ultimate purpose of happiness.

Episteme is the discovery and understanding of the principles of knowledge, the human faculty of intelligence. Techné is knowledge for creation or production; we can build a structure after learning about Pi and a right angle. However, it is like a tool with no inherent or immanent purpose other than its function such as “a knife can cut” (cutting is not a purpose in this context, but function: think of any technology), and there is no “good or bad” technology. On the other hand, phronesis is the practical use of knowledge to our life. It is wisdom and therefore the most important since it underpins the goodness of society and community.

The kernel of our thought is that phronesis (practical wisdom) is the driver of science (episteme) and technology (techné), not the other way around. Purpose Engineering is our attempt to attain and exercise phronesis.

Phronesis is the key for solving the riddle of what to offer the customer. In many firms, though they have all the technological skills and resources

to “add values”, sales and profit are decreasing. They say they do not know what they should make, even though there are enormous hurdles, problems and issues currently facing the global society. This global community demand will decide which products; technologies and skills we need in order to solve these problems. It will be neither a decision made by technology itself nor the firms’ sales goals. That is why we need to clarify the higher purpose. Here, the process of managing purpose is the key. It should be based on practical reasoning.

Practical Reasoning or philosophy behind purpose engineering

Practical reasoning, also known as practical syllogism, is the traditional logic used to discover and balance the realistic measures (including technology) in pursuing the purpose. The well-known syllogism, the deductive syllogism, consisting of the major premise, minor premise and conclusion, is to prove propositions.

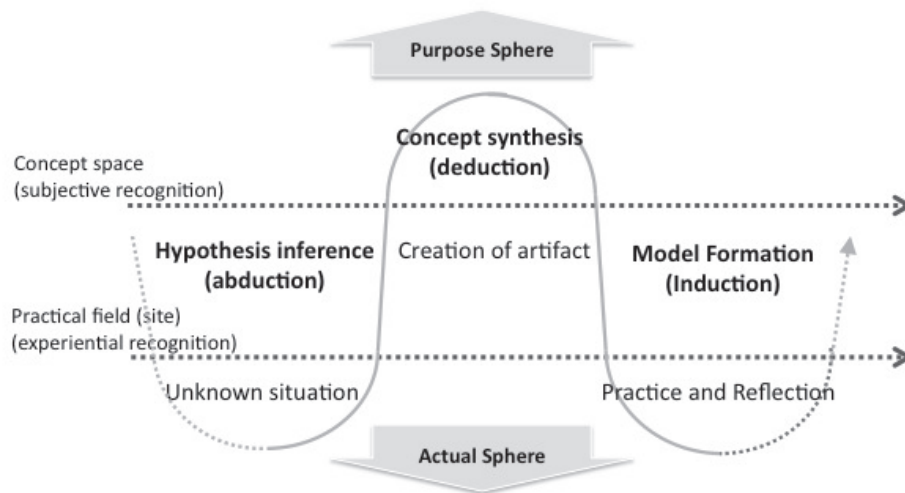
All men are mortal	major premise (law)
Socrates is a man	particular instance
Therefore Socrates is mortal	validation, or conclusion

On the other hand, a practical syllogism judges and balances purpose and means and motivates action. It might take the form as the following:

Dried food is good for healthy diet	major premise (value)
Here is a dried fruit	particular means
I will eat	action, exercise of means

Even if the purpose is “good”, it does not guarantee your success. It is important that the purpose and means are matched just right in the context. Also in the process, one needs to see how it works over time. It has to have a “pragmatic” side and is not always a logical process.

Design thinking, which will be explained more in the section 3, can be understood as a variation of practical reasoning, and is used for the realization



Reference from "Design thoughts (thinking) for business" (Konno 2010)

Figure 2: Concept diagram of Design Thinking

of purpose engineering with steps of thinking to fill the gap between purpose and reality. Essentially, it offers a prototype, and we can see how it fits into the universal and individual extremes, the ideal versus the real world. We then modify our model and check again. We continue to modify and check until we are very close to our purpose. That is a dialectical process (see Fig 2, Konno 2008).

Albert Einstein commenting on his era said, "A perfection of means, and confusion of aims, seems to be our main problem." This quotation appears in a Patagonia Inc.'s old catalog, obviously selected by its founder Yvon Chouinard⁵⁾. It is clear that seriously seeking the subjective purpose, not quantitative numbers, is the key to surviving the current confusion, by judging technology for the purpose of society, or "engineering" purposes.

2. PURPOSE ENGINEERING AS PRACTICAL WISDOM

How purpose and objective are different

The mantra of today's modern organizations is innovation, an elusive term that many firms are still groping to understand. A slogan like "let's innovate" by top management seldom motivates employees of organizations. "For what purpose?" must be made clear. If immediate profit is stated as the "purpose"

it will fail to motivate employees, customers and partners (especially younger generations).

From a purpose engineering standing point, we begin discussion about innovation with the distinction between purpose and objective. The terms are often used interchangeably, yet they are fundamentally different (see Fig3, Konno 2013).

Purpose is subjective and embraces meaning and the search for significance and ideas. The search process, its evolution and development add depth to the purpose. On the other hand, the objective is by definition, object oriented and in most cases is quantifiable and beyond personal whim. Purpose naturally manifests results and effects that impact society because it is fundamentally personal, emotional and subjective. Objective is simply a rigid,

Figure 3: Difference of Purpose and Objective

Purpose	Objective/Goals
Based on "subjective factors" such as reasons and values	Based on "objective factors" such as numbers and targets
Flexible, qualitative	Static/fixed, quantitative
Effectiveness, impacts/ influences and outcome are important	Efficiency, achievement and output are important
Trial and failure is acceptable, even welcome	Non-achievement has no value, even minus

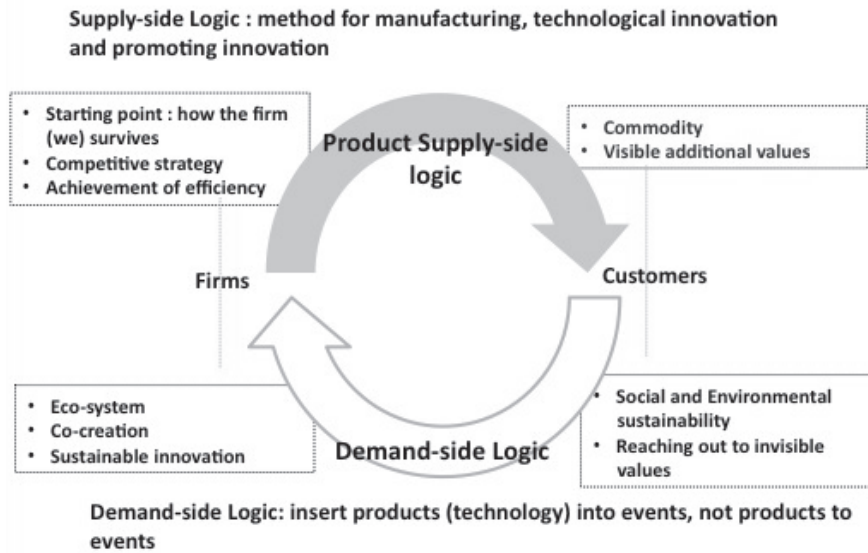


Figure 4: Innovation based on Demand-side logic will be crucial

rational and efficient achievement of a goal.

We should note that purpose is dynamic and subsumes the very human, psychological concept of motivation. This is not only acceptable but a crucial component of innovation. Trial and error (early and cheap failure) is an essential part of learning by doing. It is an essential part of knowledge creation that drives innovation. Failure, on the other hand, to achieve the goal is not valued from the objective point of view.

Purpose and objective are equally important. However, Japanese firms have often defocused their purpose and are trusting too greatly the objective, efficiency, short-term value or cost. Without purpose, innovation will not occur.

The era of demand side innovation

The author offered the Trinitron color TV developed by SONY as one of the ideal examples illustrating the difference between purpose and objectives (Konno 2013). The 1960's were the golden era of black-and-white TV and the world standard of color TV seemed to be the triple-gun “shadow mask” format color picture tube. The colored screen was very attractive, but it was too dark and tended to have color drift (registration error). Therefore, the consumers often turned the lights off while watching TV in their living rooms.

SONY founder Masaru Ibuka saw the situation and thought “We need to make TVs (*mono*” or things, hardware) that the family can enjoy watching while eating their meals in a normally lit room (*koto*” or events, experiences).” That was the germ of the Trinitron tube system. The *mono*, thing or product is embedded into the *koto*, the idea (things-*mono* follows event-*koto*).

It can be argued that Japanese manufacturing is losing its strength at least partly because businesses focus is often on making products (*mono*). An event (*koto*) is an occasion connecting human activities and a product. The innovative perspective of “adopting products (*mono*) or skills after creating events (*koto*)” *should* be reconsidered beyond nearsighted objectives. It is admittedly a challenging task.

The Trinitron system, which combined transistors and Chromatron (color TV cathode ray tube design invented by Nobel prize-winner E. Lawrence) technology, ushered in a new era of color television. Initially, many believed this was a bold and imprudent technological effort. Mr. Ibuka recalled, “At first I decided on the purpose; a clear picture that I wanted to make the Trinitron. I then wondered about the required technology. Technological development and research grow only by the necessity to bridge a technological gap. That is my way of

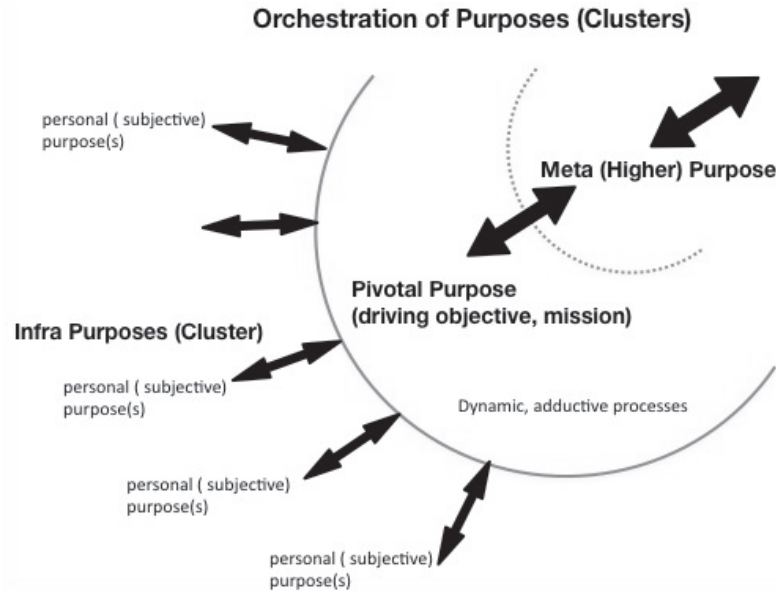


Figure 5: Meta purpose, pivotal purpose and infra purposes

doing things, my basic way of living.” (6) This is the description of a philosophy and a methodology. This perspective of purpose engineering seems to be essential now. It is not nostalgia but rediscovering the virtue of innovation.

In Japan, the word innovation had meant technological innovation or revolution through decades. The Japanese possess important and high levels of technology, yet focusing too much on technology tends to add functions and capabilities that cloud the original vision and value. Then the technological development often proceeds without purpose. Clayton Christensen’s *The Innovator’s Dilemma* (1997) explains the paradoxical theory of disruptive innovation. It explains how disruption occurs when technology firms develop products with added values that are far beyond the customers’ requirements and needs. Avoiding such disruptive innovation and the consequence, a collapse of one’s business model, businesses should look at customers’ actual and real scenes and design how technology (*mono*) fits into it (*koto*).

Current concepts and discussions regarding innovation are based on demand-side, not supply-side. Examples include social innovation, reverse innovation and grass-roots innovation (in emerging markets) open innovation (knowledge exchange from outside-in). They all stem from the customer/

societal side (see Fig.4).

Adapting purposes

The next question is how to deal with these purposes. The “purposes” of innovation exist at different levels or layers (see Fig.5).

The meta-purpose aims to satisfy various needs of society, community and individuals while achieving the overarching demands (purpose). And there is the infra-purpose, individual and organizational “small” purposes, that might contravene the higher or grand purpose. Between these two levels are the fulcrum, the pivotal-purpose; a driving objective and mission.

The grand, or meta-purpose orients the values of society and customers in the same direction: aiming for the common good over the long term. Individual engineers, as an example of the infra-purpose group, can fully utilize their skills and knowledge when personal/professional purposes are clearly delineated and understood. The middle purpose then functions as the theme driven impetus toward the goal within a specific time frame. It comprises a pivot for the model and maximizes the power, knowledge and talent of all the players. It is the compass for the whole system.

These purpose levels are apparent in the history of SONY’s Trinitron, Japan’s bullet train

(SHINKANSEN) and NASA’s Apollo project. There were two major co-existing purposes in the Apollo planning and development. The first was political, focusing on the “end of cold war” with Soviet Union. The second touched the core of human imagination: the inherent spirit of exploration, to go beyond the earth.

In its early days NASA was simply an agglomeration of specialists and research labs from all branches of the military, navy and air force, and no one believed that it could function as an integrated entity. However, President Kennedy clearly established the middle purpose (driving objective) stemming from the grand purpose, when he spoke these words: “We choose to go to the moon ... because that goal will serve to organize and measure the best of our energies and skills...”

“We will land a human being on the moon and safely return them within this decade.” The impact of this declaration of purpose compelled each of the military organizations to reorient their self-serving purposes to loftier aims and they started to adjust to each other. It became a wholehearted national project. The project organization was bold and included the audacious appointment of skillful managers possessing political power.

The Apollo project was not a one-time phenomenon. Today we see similar cases where various groups with different purposes work with each other like the Apollo story. In 2009 MIT celebrated the 40th anniversary of their Instrumentation Lab contributions to the Apollo landings⁷⁾. The emotion was not nostalgic but a realization and recognition that this kind of collaborative effort was necessary in order to tackle problems in this century, such as global environment or healthcare: innovations that require social cooperation and mobilization of human capacity toward common good.

Purpose engineering is the coordination of the core or hub persons (CEO, organizers, project managers, lead engineer) who are motivated to realize their purpose. It is the process of organized adjustment and accommodation among groups of purposes, relating to and influencing each other.

It should be stated that all the members should collaborate flexibly and create a sort of an internal “ecosystem” or “platform” in the organizations comprising of: (1) top management as owners to

pursue higher purpose, (2) managers who oversee and accelerate the projects, (3) project leaders who actually commit to the projects, and (4) assessors who evaluate the purpose-means relationships and resource-cost utilization.

Among others, middle managers in the organization, or project managers are important to lead the “middle-up-and-down” processes. Innovation of any project requires managers who possess high-level skills of orchestration above and beyond their analytical and planning abilities. A manager should have diverse viewpoints and a “designing” mind capable of thinking in at least the three levels of purposes. It is sometimes political. In NASA’s case, it was Mr. James B. Webb, the second administrator, who “gripped NASA and the nation during the days that followed”⁸⁾. NASA acknowledges that he was the key component of the success of Apollo beyond the technology⁹⁾.

3. DESIGN THINKING AND PURPOSE ENGINEERING: VALUES BASED ON HUMANS (KOTO) NOT THINGS (MONO)

Values based on human-centered perspectives

“Design Thinking”, a term we frequently see these days, is fundamental to purpose engineering. “Purpose” is sometimes very abstract (such as “common good” or happiness), but at the same time, it should be good for humans. This is design’s nature.

Design thinking is an intuitive methodology rooted in the process of conception (knowledge creation) and planning adopted by designers and architects for designing cities, structures and products. Because the core values of business have evolved from that of technology and things (*mono*) to that of events (*koto*), design thinking is increasingly applied to the area of innovating social systems, consumer experiences and business models.

Customer value is essentially provided through events and not through the product. Medicines (chemicals) are not just products; they represent the means (and knowledge, wisdom) to a healthy life for the individual. The smart phone is a thing (hardware), yet the true value of the graphic interface is recognized when it is used often without thinking to support the users’ communication with

their social network, etc. The value does not reside in the device but in its integration with the event or experience. If the user does not find or “feel” any value for the experiences, they begin to complain, as they “know” it sometimes in a very tacit manner.

Any businesses are based upon the value they can propose to their customers. No value can be realized without customer interaction. Products and services, both for consumers and for businesses, could be designed from this perspective. The event or experience is considered or designed first and then technology and products will follow.

As IDEO, the Palo Alto-based design innovation firm, explains, innovations are “grounded in business viability and market desirability (human)” and feasibility (technology)¹⁰.

The essential factors of design thinking

First, look for the most important solution available to the user from realistic possibilities or scenarios. Solutions should not hinge upon abstract theories or prior frameworks (or dogma, bias, or “grand theory”). Secondly, solutions may not be offered in a straightforward manner. View problems from very different perspectives and create new ideas and concepts. Usually, when we are given problems we try to solve them, but it is also necessary to stop and question why these problems occur at all. This is especially true when problems are tough and complex. Sometimes you actually “destroy” or erase these problems themselves instead of “solving” them. Thirdly, use trial and error (prototyping) to develop and create products, services and businesses. Finally, start from a human perspective. Design thinking comprises a theory of techniques embodying innovation: new combinations based on divergent viewpoints.

The aim of design thinking is to create an event, connecting human activities with a product. Color and shape of the product are not the goals. The discovery process may be called “*koto* creation” or experience design. Design thinking differs from logical and analytical thinking in that our physical, social and emotional capacity plays an important part. It is highly subjective and empathetic to how people influence each other.

Design thinking and qualitative thinking have

borrowed methods from qualitative research methodologies such as ethnography and other fields including grounded theory approach (GTA), narrative medicine, etc. These disciplines apply methods that utilize participatory observation of the customers’ habits, actions and find insight for latent needs for solving problems (Konno 2010).

Purpose equals the discovery of means: trial and error

Imagine we have a technology and are asked how to use it. Purpose engineering studies the relationship and the dynamics between the purpose and its application. We mentioned earlier Aristotle’s assertion that technology “itself does not own the purpose”. The question ‘what for?’ directs everything. “For what purpose do we develop this technology?” “Which kind of value will the customer gain through this technology?” Therefore, the question, “Why aren’t we, Japanese firms who are good at technology, profiting from this technology?” is not just right as it is technology oriented.

Aristotle’s practical syllogism made the point clear that “purpose” is the foundation and the beginning point of all. Fig. 6 explains how we choose and execute based on pursuit of purpose. The purpose itself “evolves” or is dynamic. It is a relentless process of pursuing purpose and finding just right means. Modern technology is sometimes sophisticated and dangerously attractive as the end point. Einstein warned that we tend to forget the original purpose and are distracted by the means. The perspective of purpose engineering is, therefore, critically essential.

Design thinking, is also the process of creating new models, systems and styles. Trial and error makes the current situation new, it innovates our “life world” by doing. A random walk on the path of trial and error, is the fundamental of cognitive and creative thinking among architects and designers (see Fig.7). It is a never-ending dynamic iteration process between the “purpose field” (idealistic situation or state) and the “real field” (situation or actuality of problems), discovering the new relationship between idea and reality (see also Fig.2). Therefore, purpose engineering can utilize design thinking as they are both suited to practical or

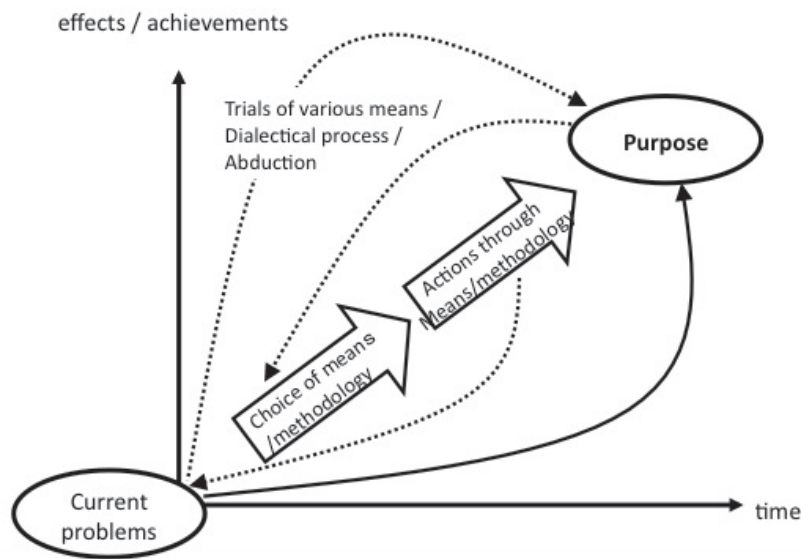
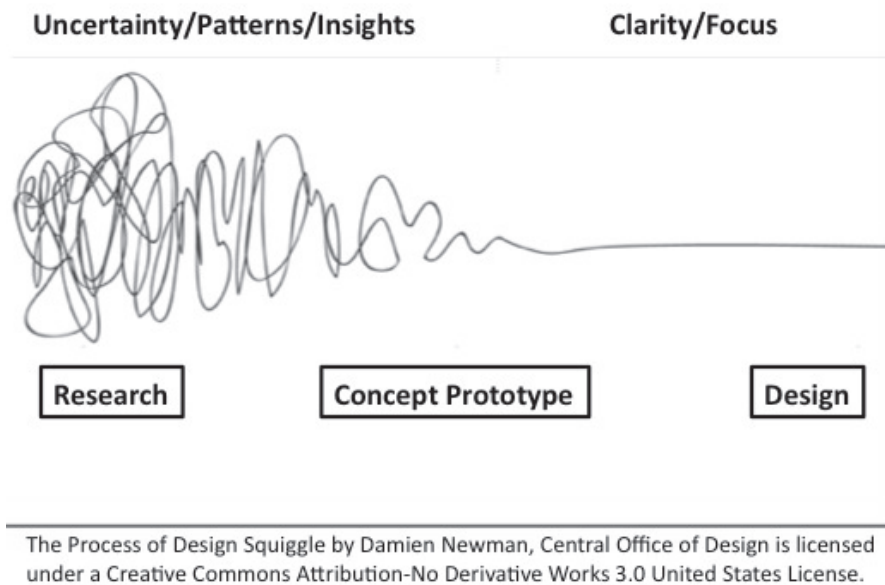


Figure 6: Dynamics of Practical Syllogism



The Process of Design Squiggle by Damien Newman, Central Office of Design is licensed under a Creative Commons Attribution-No Derivative Works 3.0 United States License.

Figure 7: Design thinking process

pragmatic knowledge, which adjusts the purpose, the means and the factors related to the objectives of all players.

On the other hand, design thinking by itself is not enough to tackle these issues for innovation. Critics warn that if design thinking is casually adopted as a shallow and trendy technique simply for developing new products it will then become a

hackneyed and a temporary movement. It is imperative that design thinking become a permanent precept for innovation based on human nature and with purpose.

Abductive reasoning: rationalizing intuition and instinct

Another important point about design thinking is

its intuitive and hypothetical essence: “abduction” (or probable syllogism). Most of us are familiar with the common logical systems of deduction (from the general theory to the specific) and induction (from the specific data to the general). Abduction on the other hand, is a more holistic way of thinking. A hypothesis is created from more intuitive and audacious premises and draws conclusions based upon probabilities. These premises stem from unique ideas, factors and events. This kind of inferential reasoning differs from those based solely on empirical data. It emanates from human intuition, the most essential component of reality.

Abduction may seem random and fuzzy, yet it turns out to be the more rational approach to circumstances that are uncertain and chaotic. In a perfect and constant world the inductive/deductive models of analyzing and forecasting data works greatly and allows us to manage a stable environment. However, in the complex environment such as today’s business world, being flexible, applying trial and error corrections, imagining small details and differences and using our instincts to guide our reasoning is actually the more rational way.

This is also pragmatic thinking¹¹⁾. Pragmatism is the practical philosophy believing that the function of thought is for prediction, action, and problem solving. It was likely nurtured by the American frontier spirit and is basically experimental. In addressing the issues of today’s unstable societies, the chances for securing the right answers through traditional analysis of past data are quite low. Especially for so-called Big Data, we need such experimental or hypothetical thinking.

Purpose engineering is the concept of creating and adjusting the purpose with the means. It comprises the necessary processes of experimentation and discovery for creating essential values and flexible attitudes. Purpose engineering is the idea that fits in the complicated and uncertain business environment of the 21st century.

4. PURPOSE ENGINEERING AND SOCIAL INNOVATION

A Societal perspective is essential to management

Purpose engineering is fundamentally proposed as

a systematic method or set of ideas that organizations can use to achieve large-scale value impact by allying and adjusting the individual or infra-purposes, to the meta-purpose. The basic assumption is that the purpose is dynamic and situational, and includes many variables and so on the pivotal purpose or the driving objective plays a critical role. The system of purposes functions as an ecosystem or place (“*ba*” in Japanese) where individuals share knowledge for “soft alliance” for new value creation.

Social/organizational attempts as teams or projects often fail because of dis-sharing of information among teams and the mismatch between purpose and means. Clarifying the purposes and the means can effectively reduce such problems. Previously, these matters were treated quite personally as “tacit knowledge” behind “formal” or explicit method of project management. The idea of purpose engineering addresses these issues systematically by focusing upon the reasons for our actions. Subjective factors are considered essential in projects and organizational management.

Purpose engineering is therefore a method for social innovation; the system starts from social problems and results in innovative solutions involving all elements of society. The effects of this process are magnified since they ultimately impact the common good of the society.

Institutions such as the World Bank claim that “social innovation” is important for sustainable economic growth, since it meaningfully impacts changes in the global economy¹²⁾. This implies a new economic paradigm for inclusive growth. GDP may no longer suffice as the standard for growth and prosperity in the 21st century. Social innovation is not anymore just to deal with social problems, but a new standard of innovation as a whole. We are surrounded by a myriad of complex problems, social, technological, economic, environmental and political, such as energy strategy, aging, etc.

The 20th century model, growth by exploiting natural and human resources for the mass manufacture of products, is said to have its limits. Reorganizing industrial value chains and recycling systems and creating a more sustainable model is inevitable. It should, however, begin from the societal level, such as cities and communities.

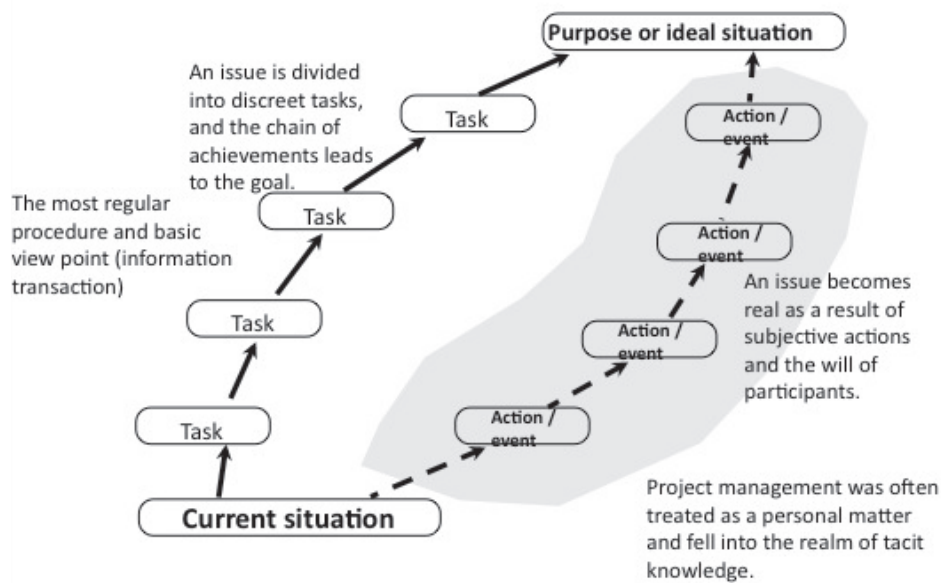


Figure 8: Two paths for achieving the purpose

Most organizations as well realize that innovation is the key to growth. However, employees and customers will not follow a CEO who focuses solely on profit. Empirical goals such as sales, cost cutting and technological development, though important, are short-range objectives. Without employees support and with traditional competitive analysis as the main driver, innovation will not now. Even Michael Porter, a guru of competitive strategy in the pursuit of profit, acknowledges the need for CSV (creating shared value) following the idea of companies such as Nestle, mentioning the purpose of the corporation must be redefined as CSV, not just profit¹³.

Still, it is apparent that many organizations are finding it difficult balancing the common good with individual goals. Based on the meta-purpose which is “good for the society”, the dynamic adjustment of purposes creates social value, reduces costs and promotes innovation.

The Common Good fosters cooperation

Recent economic studies prove that the abstract notion of “virtues” can lead to successful mega-purposes and social innovations. Modern economic theories assumed that people act in a (perfect) rational and efficient manner. However, it is now getting clear that common sense and morality

(Deontics, or logic of permission and obligation), though inefficient, can work¹⁴. Monetary profit and efficiency were considered as only two of the parameters motivating behavior. Additionally, many “anti-economic” factors like morality and ethics that were difficult to quantify influence economic fundamentals like prosperity and growth. However, now capitalism tends to be re-perceived as a holistic theory comprising orthodox economics and new human-social insights. The new assumption is that when we cooperate we prosper, not when “we compete”. The three-tiered purposes discussed earlier may be included in this new viewpoint, where socially innovative projects can be realistically achieved.

Traditionally there have been two paths to our actions. One is by causal chains of events or tasks, and the other by causal chains of our intentional deeds or efforts. The former is purpose-free and the latter, purposeful. The former stands on a top-down analysis of the rational tasks and stages and then assigns human resources to each part, such as the project management method PERT. Here, personal input and motivations are not treated as core as it is essentially anonymous and irrelevant with what they want to achieve personally. On the other hand, the latter thinks that the way to idealistic state is to be realized by the series of individual conscious

efforts: the purpose engineering approach (see Fig. 8).

The approach taps into the motivations of individuals and their desire to cooperate and achieve a grand purpose, a common good or higher purpose. It is conceptually different from the chains of anonymous tasks that resemble Henry Ford's assembly line, the division of labor model of a century ago. Purpose engineering stands on a new paradigm for implementing major changes in the relationship among individuals, organizations and society. Is it a dream-like idea?

Purpose Engineering projects: game changers

The X PRIZE Foundation (www.xprize.org/) is widely known for its unique approach for inspiring radical breakthroughs that have changed business models and even fostered new industries. The Ansari X PRIZE for private space flight is a prominent example of social innovation emanating from the private sector. In an interview, one of the directors of X PRIZE Foundation claimed that the success of the Apollo project was due to radical ideas from the younger generation.

He did not choose this forty-year-old example for sentimental reasons. Today's projects and challenges are more complex and require the cooperation of both government and private enterprises: they cannot be done alone. Environmental matters, for example, should be tackled from various perspectives including the deontic: moral and ethical. Already keen organizations started to learn much by studying large projects from the past and the importance of social cooperation.

Japan's bullet train project developed in the 1960's offers similar lessons. Now known as a symbol of Japanese high technology, it was strongly opposed by the Diet (Japanese Parliament) when first proposed. Politicians said, "It is time to move from trains and to expand highways, the era of motorization". Also, it was not technological innovation; instead it reconnected and restructured the existing technologies from the pre-war period. The two key success factors of accomplishment were: 1) the higher purpose; to support Japan's economic growth by connecting distant regions along Tokaido (the region along the Pacific coast of Honshu island), 2) the brilliant skills manifested in bringing

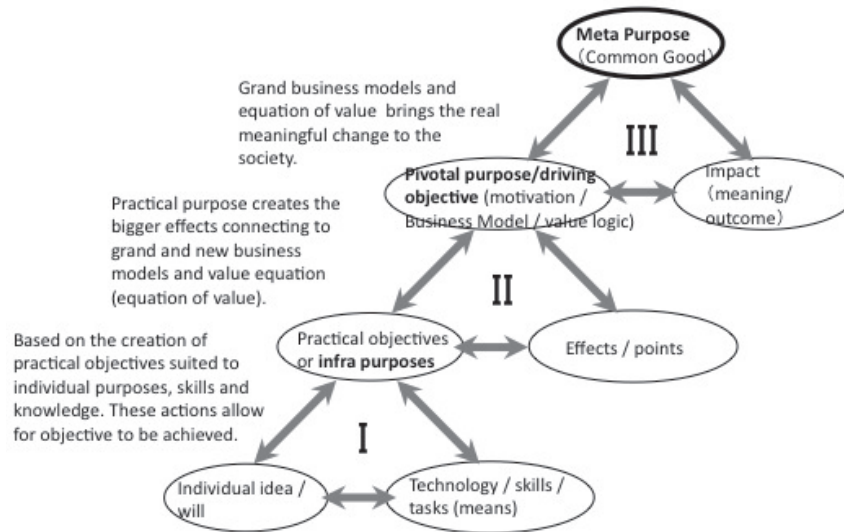
together the various organizations, their politics and different purposes, notably, then JNR (Japan National Railway) president Shinji Sogo and project manager, Hideo Shima.

The lesson from the Apollo project is that it was borne on the shoulders of a younger generation, average age of 27 years, and excluded veteran engineering experts as much as possible. The takeaway point is not their age, it is that they adopted free ideas and went beyond the existing organizational rules and restrictions, cleared the way to higher purpose.

President Kennedy's meta-purpose was to end the cold war. The pivotal purpose was clearly stated; a human being goes to the moon and safely comes back before the end of 1960's. Then the infra purposes; various goals in space technology of number of research institutions of the army, navy, and the air force were aligned organizationally, sometimes politically adjusted, including politicians. These purpose engineering efforts resulted in the successful Apollo Space project.

This kind of dynamic alliance or orchestration of purposes is also effective for our current and future social innovation projects. For example, imagine an NPO which starts a business to make homeless people sell free commercial magazines on the streets (with the advertising business model). At the street level, a homeless person who starts handing out free magazines can get a job (infra-level). However, this is not enough, because it alone will not decrease the huge number of homeless persons. However, when the NPO establishes the meta-purpose to "eliminate homelessness or create a no-homeless society", not just to decrease number of homeless persons, they are in essence creating the social framework that will connect the various purposes at the pivotal and infra (personal) levels. The pivotal purpose such as creating a certain number of job opportunities for homeless people will gain an appreciation of effort and remuneration. It creates motivation. The infra purpose results in all parties benefitting economically and achieving a common good. A homeless person on the street becomes a connecting point, a nexus, between them and society. It will impact society beyond the efforts of just one NPO.

Other NPOs and organizations wishing to make



**Figure 9: Thinking method of combined triangles, aiming for the meta-purpose
(Cycle of dynamic and dialectical way of thinking)**

real changes in society can adopt a similar meta-purpose. Scaling out the positive example above supports what specialists call the “Theory of Change”.

Innovation requires the dynamic alliance of the meta purpose in the pursuit of the common good, the pivotal purpose, which is easily understood and accepted by all players and the infra purpose, which addresses the thoughts and feelings of individuals and groups. It requires cooperation among firms and social organizations. From the perspective, purpose engineering functions as the compass navigating our course, it is also explained as a dialectical process of evolutions of purposes (see Fig.9).

CONCLUSION

Management guru Peter Drucker said, “The purpose of business is to create and keep a customer.” “Purpose” is the most basic of business ABCs. However, suddenly it is the newest mantra. The reason is because it’s the era of innovation. In order to sustain growth, we need continuous innovation through the creation of knowledge, not only for profit, but socially and creatively. We are now witnessing a radical change in management thinking: from analytical to creative. Methods like design thinking are thus emerging.

IDEO’s CEO, Tim Brown believes “ that organi-

zations whose sole purpose is to build shareholder value or maximize profits will not sustain innovation” He asks, “Are there examples of sustained innovation without purpose?”¹⁵⁾

We should inquire what is the source of motivation. Where does it come from? Why do we innovate? We do know that innovations are nurtured from (thrive in) diverse perspectives. Reality is complex and chaotic since people have different perspectives and volitions (wishes/desires). We need to work on the higher purpose, but never by dictatorship. So the real question is “How can we work together?” We address this question in “Purpose Engineering”.

“Purpose Engineering” consists of two major issues (1) Management of Purpose as a common good, and (2) Management of Purposes. Managing for a common purpose is a debate that has existed for millennia and we revisited Aristotle’s teleological worldview. The world is driven by purposes; the ultimate purpose of life is the pursuit of happiness. But we just do not follow him; rather, we apply his idea as a skeleton into our “soft alliance” or innovation. For the management of Purposes, we reviewed “Practical Wisdom” known as “Practical Syllogism”. This is a process of balancing or judging the right purpose with the means. Abduction used in design thinking is a similar reasoning process of finding

the right relationships among purposes and means.

Management of Purposes is crucial for any organization seeking innovation. It is about orchestrating the higher (meta) purpose, pivotal purpose (driving objective) and infra (cluster of small) purposes. Past projects such as Apollo and SONY's Trinitron taught us much about the dynamics involved. They are not nostalgia, but provide us with very useful wisdom for current and future social innovation.

Needless to say, further research will be necessary, especially on how organizations or society can improve their capability for alliance, beyond just "connecting". It was probably first discussed in the idea of "collective intelligence" by Dr. Douglas Engelbart (a father of the mouse and groupware who died this year) and his "ABC Model"¹⁶⁾ of organizational improvement.

Finally, new insights from studies of economics treating the role of morality in social cooperation should be an interesting topic. It examines the unintentional effects of "irrational" factors for "rational" economic outcomes. Ultimately we are obliged to study further the human aspect of business and innovation.

NOTES

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