

Evolvement of Action Value Accounting (AVA)

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ABSTRACT

The current double-entry accounting concept (CDAC) has been used for over 500 years. Apparently, the technology disruption, and business transformation have challenged its relevance and usefulness. There are certain limitations and flaws in CDAC that hinder the progress of dynamic business model development. With the upcoming emergence of artificial intelligence (AI) and machine learning, many of the current jobs may be replaced causing humans to find proper solution to balance both machines and human to stay together without high conflicts. The value of an action performed by humans can become more meaningful and eventually can be traded. The volatility and rapidly changing business environment have pointed to the need for new effective and meaningful performance measurement for better decision making and business forecast. This paper proposed a new concept of value creation through driving the selected actions as generated by a tool called “action grid”, and the action value accounting (AVA) as a supporting if not a replacement tool for the CDAC. There are still several existing limitations that require further empirical study, but it opens opportunity for future research.

Key word: modified PDCA, ControllerFOCUS, action grid, action value, action-value-accounting

■ Introduction

The pandemic of COVID-19 started in December 2019 had caused dramatic change in working environment especially by moving to work-from-home (WFH) format as a measure to prevent the infection. This has raised concern over efficiency and effectiveness of the WFH employees for long-term cost reduction (Shields & Young, 1992). Some companies in Thailand applied an application with camera to monitor the attendance of the employees working at home. Other companies used a more flexible method such as reporting the time attendance with supporting details, organizing regular meeting so that everyone can join virtually, and so on. The performance measurement during the pandemic time was challenging because employee's time attendance became irrelevant. Businesses needed to find a new way of team supervision and management including current accounting's relevance and internal control effectiveness (Barlev & Haddad, 2016; Carruthers & Espeland, 1991; Chiarini, 2012). The result-oriented approach has grown significantly until some companies made an announcement that they would allow their employees to work from home as needed. Another rising trend is the combination of working together with resting or so called "workcation." In this case employees or self-employed people can choose the place for working which allows them to enjoy the time as being in vacation period.

We can see that the result and action are closely related. At work, there are many actions involved in executing the plan and strategies so that a company can achieve its targets. For example, we can identify the major business cycles as revenue and expense cycles. The revenue cycle covers actions such as organizing marketing and promotion activities, explaining the products or services to customers, setting up sales prices, closing sales transactions, delivering products or services, and collecting the money. The expense cycle covers actions such as sourcing for vendor, negotiating on price and quality, issuing purchase orders to suppliers, receiving products or services ordered, recording the liability, and making payment to suppliers.

Unfortunately, today there is no in-depth study on human action value (Flamholtz, Bullen & Hua, 2002; Haynes, 2007). An action is highly associated with the achievement of a task. We can say that an action taken can create certain intrinsic value. Currently, we do not have a reliable tool for use in measuring the value of an action (Fernaeus, Tholander & Jonsson, 2008). We can only broadly compare based on personal judgement between two different actions and draw a conclusion that which one may provide higher value than the other. Therefore, once we can define the value of each action performed, it can be used for economic or management purposes. Moreover, if we would like to replace this concept with the current accounting method, the theory itself needs to be developed further so that a more systematic approach can be established (Thammatucharee, 2009, 2010 & 2021).

■ Action and Value

To determine the value for an action, we need to consider 3 main factors impacting the value amount (please see figure 1 – The 3 Elements of Action Value).

- 1) The nature of selected action – this refers to what kind of action will be selected to enhance the performance.
- 2) The degree of action taking – this means how much weight or effort will be put on the selected action so that it will be most powerful.
- 3) The timing of action taking – this represents the right time and speed of the particular action which can influence the value being generated.

The above 3 aspects should be considered when we consider taking an action because the accumulated value of that action can be different.

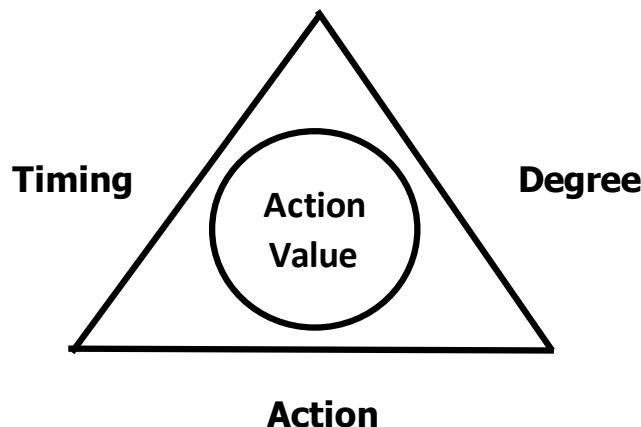


Figure 1 The 3 Elements of Action Value

Regarding the unit of measurement, the value of action can be defined in either financial or non-financial amount. The challenge will be the calculation method which will be designed considering consequential impacts of the 3 elements. Due to the estimated impact of future consequences, the value should be stated at present. This will require the discounting of future value as part of the formula. It is possible to consider technology such as blockchain and AI in developing the algorithm for action value determination. If the calculated action value term is used as “Avalrem”, the basic formula can be developed by the following equation (please see Figure 2 – Basic Formula of Action Value Calculation).

Basic “Action Value” Formula

- According to the above formula, the action value (avalrem) is derived from three variables:
 - the future value of consequences and the continued impacts generated by the action under consideration (c),
 - the discount rate in relation to the future consequences to be applied to convert the future consequence value to present value of the action (a), and
 - the impact rate of the future consequences (i).
- the action value is calculated by dividing (c) by the difference of the rates between the discount rate (a) and the growth rate (i).

$$\text{Avalrem} = \sum_{i=1}^n \Delta X_i$$

$$\text{Avalrem} = \frac{c}{(a - i)}$$



Figure 2 Basic Formula of Action Value Calculation

A simplified example of the formula application from figure 2 – Basic Formula of Action Value Calculation can be shown in figure-3 example of Avalrem formula application below:

There are 5 different actions to be considered based on the result of action value calculation whereas:

“c” represents the future value of a selected action. The higher of the value means the higher impacts and consequences to be derived.

“a” represents the time impact which can mean the speed, the amount of time consumption, or the specified time. It is measured in a percentage with the lower the better format.

“i” represents the degree of action to be taken. This can also mean the amount of effort put into each action. It is expressed in the percentage format with the higher the better result.

Assuming the selected 5 actions to be performed can give the result as shown in figure 3 below, the best action that results in highest action value is Action-3, and the lowest action value is Action-1. Therefore, Action-3 should be the one to be selected for execution.

Variable	Description	Number Range	Meaning	Action-1	Action-2	Action-3	Action-4	Action-5
C	Future Value of Action	1-89	Higher is better	50	65	70	75	80
a	Time Impact	23.6%-100.0%	Lower is better	70.0%	85.0%	40.0%	55.0%	30.0%
i	Degree of Action	0.7%-23.5%	Higher is Better	12.0%	19.0%	18.0%	9.0%	0.9%
Avalrem =	$\frac{C}{(a \cdot i)}$			86	98	318	163	275

Figure 3 Example of Avalrem Formula Application

■ Action-Driven Concept of Action Value Accounting (AVA)

In the developing process of action accounting, an action grid was established to form the core concept of action driven mechanism. This tool was originally designed from 2 key concepts which are the ControllerFOCUS (please see figure 4 -ControllerFOCUS Model) and modified PDCA. When these 2 concepts are put together, the action grid is created with the capability to help generate powerful action items for further implementation. The following is a brief explanation of the 2 concepts under the action grid.

1). ControllerFOCUS model – this concept is based on the perspective of a controller who focuses on strategically supporting the whole business operations and ultimately achieving the long-term targets. There are 5 areas of consideration consisting of:

- Future Focus: referring to the future aspects of business operation.
- Operation Focus: referring to the operational excellence of the business.
- Control Focus: referring to the control system efficiency and effectiveness of the business.
- Utilization Focus: referring to the utilization of corporate resources.
- System Focus: referring to system enhancement and development.

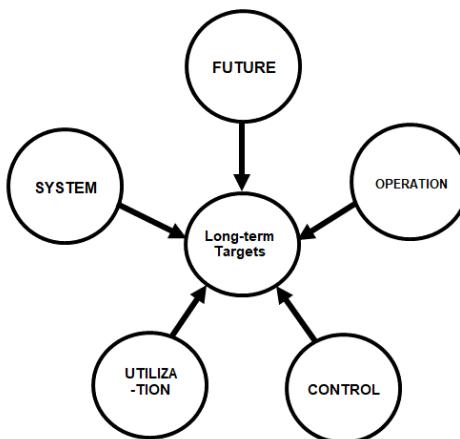


Figure 4 ControllerFOCUS Model

2). Modified PDCA – this refers to the modification of the basic concept of PDCA which stands for Plan-Do-Check-Action cycle. However, under the modified PDCA, the steps of work are modified into:

- Plan: refers to the planning process of the business or units of operations.
- Execution: refers to the capability and effectiveness in carrying out the planned actions.
- Analysis: refers to the process of understanding and explaining discrepancy and achievement.
- Communication: refers to the necessity of effective communication requiring knowledge and skills to achieve the targets.
- Exdysivity: refers to importance of natural change and transformation for the purpose of continued growth and sustainability.

The modified PDCA process can be completed by showing an improvement of an activity in the format of before-after-chart (please see figure 5 – before-after-chart). This is the presentation of the state before improvement or problem-solving actions. After the successful implementation, the result will be reported in the form of non-financial and financial benefits.

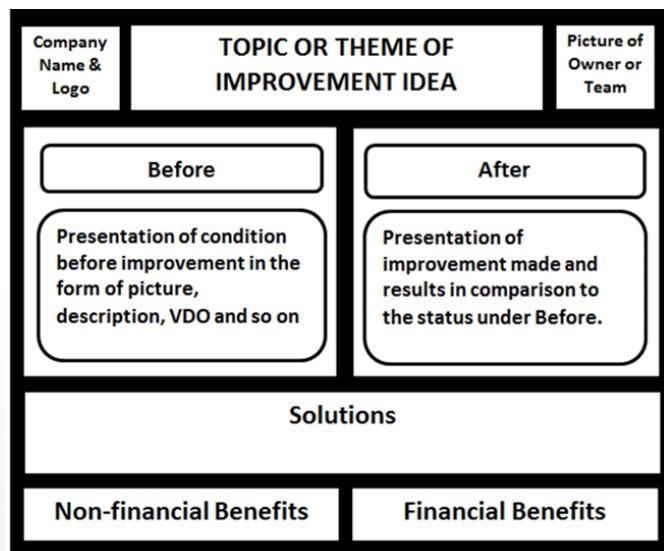


Figure 5 Before-after-chart

■ An Introduction to the Action Grid Mechanism

The action grid is a table which is formed by the combination of both ControllerFOCUS and modified PDCA concepts (please see figure 6 – Action Grid). As a result, the grid has the combination of each element from the 2 concepts leading to total 25 action items which are:

- 1) Future VS Plan
- 2) Future VS Execution
- 3) Future VS Analysis
- 4) Future VS Communication
- 5) Future VS Exdysivity
- 6) Operation VS Plan
- 7) Operation VS Execution
- 8) Operation VS Analysis
- 9) Operation VS Communication
- 10) Operation VS Exdysivity
- 11) Control VS Plan
- 12) Control VS Execution
- 13) Control VS Analysis
- 14) Control VS Communication
- 15) Control VS Exdysivity
- 16) Utilization VS Plan
- 17) Utilization VS Execution
- 18) Utilization VS Analysis
- 19) Utilization VS Communication
- 20) Utilization VS Exdysivity
- 21) System VS Plan
- 22) System VS Execution
- 23) System VS Analysis
- 24) System VS Communication
- 25) System VS Exdysivity

ACTION GRID	FUTURE	OPERATION	CONTROL	UTILIZATION	SYSTEM
PLAN					
EXECUTION					
ANALYSIS					
COMMUNICATION					
EXDYSIVITY					

Figure 6 Action Grid

The action can be triggered by the issue or challenge being faced. By asking an actionable question, we should investigate the suitable pair under the action grid. This would give the most relevant action item through the process of manual review, brainstorming, or AI. The key action word can be shown as an example in the table (please see figure 7 – Action Word Generation).

An action word is the driving force towards the action detailed description. The goal will be effective action taking and the accumulated value it can generate. From the primary action word, sub-action words may follow the detailed developing process. It should be noted that this process can be repeated and being in progress in parallel to other actions depending on the action plan that maximizes the highest accumulated action value.

ACTION GRID	FUTURE	OPERATION	CONTROL	UTILIZATION	SYSTEM
PLAN	brainstorm	schedule	participate	allocate	design
EXECUTION	implement	produce	check	manage	develop
ANALYSIS	study	research	investigate	prioritize	test
COMMUNICATION	announce	report	explain	testimonise	demonstrate
EXDYSIVITY	dream	transform	establish	create	revamp

Figure 7 Action Word Generation

For example, if the combination of Future VS Plan is indicated, the action word can be brainstormed. The action word will be further developed into the action sentence as demonstrated in the following figures.

■ Action Value Accounting Cycle

Regarding the benefits of action accounting, the process is designed for future action-centric environments. It can facilitate the new way of working which put action result as the key for business achievement. The action accounting system (please see figure 8 – Overview Action Value Accounting Cycle) consists of 6 modules which are:

- 1). Action Performed – This represents the taking of selected action after decision making and action value assessment.
- 2). Self-Declaration – This represents the informing of the action completeness through a designed platform or mechanism.
- 3). Action Value Determination – This represents the reliable system that is responsible for action value determination.
- 4). Action Result Reporting – This represents the process of reporting the action value generated by an individual for analysis step.
- 5). Analysis – This step aims to analyze the actual action value generated against the agreed criteria or conditions between concerned parties.
- 6). Compensation – This represents the compensation system to provide varied forms of compensation to the action owner after completion of the action.

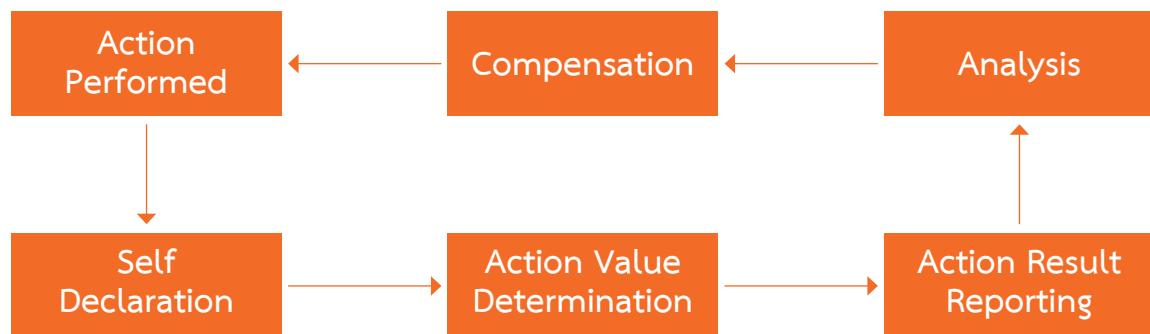


Figure 8 Overview Action Value Accounting Cycle

This cycle can be run in multi-operational units which requires the technology that supports the high volume of data and capability to confirm all actions involved in the assignments.

■ Unleashing the Power of Action Grid

The action grid has been developed to serve as a tool that can optimize the actions performed from all aspects of an assignment to be achieved. By exploiting advanced technology such as AI, blockchain, big data analytics, and quantum computing, the reliability of action grid application as a tool for performance assurance can be possible soon (Liucheng, 2019; Luo, Meng & Cai, 2018; Surana & Bhanawat, 2020). The following are examples of action grid power in generating suggested actions for action value optimization.

ACTION GRID	FUTURE	OPERATION	CONTROL	UTILIZATION	SYSTEM
PLAN	FP	OP	CP	UP	SP
EXECUTION	FE	OE	CE	UE	SE
ANALYSIS	FA	OA	CA	UA	SA
COMMUNICATION	FC	OC	CC	UC	SC
EXDYSIVITY	FX	OX	CX	UX	SX

Figure 9 The 25 Combinations of Action Grid

The action grid forms the basic combination of management and development with a total of 25 combinations as shown in figure 9 – the 25 combinations of action grid above. For example, the code ‘CA’ represents the action driven by the combination of ‘control’ aspect and ‘analysis’ aspect, which will lead to unlimited actions to be generated out of the designed process and system. Under each grid, an action is developed from ControllerFOCUS aspect and Modified PDCA aspect. The ControllerFOCUS provides objective of an action viewpoint whereas the modified PDCA provides effective management process.

■ Objectives under ControllerFOCUS

Areas behind the ControllerFOCUS covers the following subjects that can be used as a guideline in developing the highest impact value of an action. For example:

- FUTURE – This represents vision, innovation, research & development, design, forecast, and feasibility study.
- OPERATION – This represents strategy, operational performance, effectiveness, productivity, profitability, and training.
- CONTROL – This represents internal control, risk management, fairness, transparency, governance, and ethics.
- UTILIZATION – This represents efficiency, budgeting, balance sheet, human resource, information, knowledge, environment, and society.
- SYSTEM – functional system, ERP system, procedure, policy, regulation, culture, value, leadership, and an individual.

The above subjects are used as a basis to match with relevant modified PDCA aspects of Plan, Execution, Analysis, Communication, and Exdysivity (which represents a change and transformation process in a natural way).

ACTION GRID	FUTURE	OPERATION	CONTROL	UTILIZATION	SYSTEM
PLAN	Q	W	E	R	T
EXECUTION	A	S	D	F	G
ANALYSIS	C	X	V	B	N
COMMUNICATION	Y	U	I	O	P
EXDYSIVITY	H	J	K	L	M

Figure 10 The abbreviation of 25 codes of action combination

By simplifying the total 25 action codes, we can develop a set of actions represented by a letter for convenience in system design and development (please see figure 10 – the abbreviation of 25 codes of action combination). By prioritizing the actions, the letters can create a more efficient communication method under the selected software and suitable channels.

To ascertain that a project, an assignment, or a task is executed at the highest performance, the action value optimization is suggested. It is important that the action grid tool as shown in the figure above has been applied to identify that all action combinations have been properly explored with prioritization consideration.

For example, in case the first series of actions are identified under the acronym of “SAM.” The action grid identifies the generating of necessary actions from the following perspectives:

- S - This represents actions based on operation execution views. It can involve the necessary actions to ensure the operation will be executed with high quality.
- A - This involves actions relating to future execution concern. It can be planning or risk management types of actions.
- M - This refers to the process of system change or transformation. It is the total revamp or re-engineering actions to be determined.

Once the standard form of action set is established, we may apply this concept to explore and ensure the holistic management performance has been considered for highest value achievement.

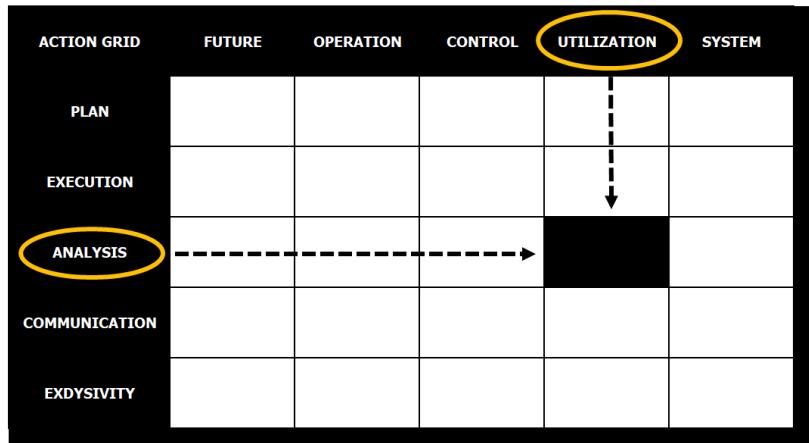


Figure 11 The visualization of selected action code

The selected action code can be demonstrated in the form of visualized format (please see figure 11 – the visualization of selected action code) which helps ensure the effective communication to the concerned actors for the action code.

ACTION GRID	FUTURE	OPERATION	CONTROL	UTILIZATION	SYSTEM
PLAN	Appoint a consulting firm to assist on the integration process.				Select the software as a new ERP system.
EXECUTION				Reduce aging inventory through warehouse sale.	Design and mapping the process under the new system.
ANALYSIS	Sell out losing business in shoe and sportwear.	Report on sales and profit result by brand.		Interview and list out employees to be terminated.	Review and customize the system during implementation.
COMMUNICATION	Perform a townhall meeting with key management.	Visit company's branches and sales channels.		Communicate with employees on early retirement plan.	Provide training and testing of the system before going live.
EXDYSIVITY				Move to new office with cheaper costs.	

Figure 12 The progress of action accomplishment

By showing the brief action description, the team members can understand the rhythm of the progress being performed and in turn urging the next responsible actor to take required action under responsibility (please see figure 12 – the progress of action accomplishment).

Action Grid	Future	Operation	Control	Utilization	System
PLAN	Appoint a consulting firm to assist on the integration process.	Organize a workshop for new business planning.	Set up monthly performance review meeting.	Introduce plan for new product launching.	Select the software as a new ERP system.
EXECUTION	Approve the annual budget before the start of new fiscal year.	Generate concept and develop new product.	Generate report package for the management.	Reduce aging inventory through warehouse sale.	Design and mapping the process under the new system.
ANALYSIS	Sell out losing business in shoe and sportwear.	Report on sales and profit result by brand.	Perform physical inventory count on a regular basis.	Interview and list out employees to be terminated.	Review and customize the system during implementation.
COMMUNICATION	Perform a townhall meeting with key management.	Visit company's branches and sales channels.	Explain the audit plan from HQ.	Communicate with employees on early retirement plan.	Provide training and testing of the system before going live.
EXDYSIVITY	Restructure the organization to serve future growth plan.	Change the raw material sourcing process.	Change the product design process from HQ.	Move to new office with cheaper costs.	Launch a new performance indicator concept.

Figure 13 The fulfillment of action plan

After all actions have been completed, the whole action grid will display the status of completed and in-progress actions (please see figure 13 – the fulfillment of action plan). This completes the whole execution process as to be assured under action grid powerful management tool.

The performed action should be recorded in a reliable and systematic way according to the action value accounting system. To facilitate the process, a chart of action should be developed and used as a vehicle to store the action value for a successful action performed after the value determination therefrom. Please see figure 14 below for an example of the action chart development.

Chart of Action

Brainstorm	Action Code	Action Description
	1101	Call a meeting
	1102	Propose ideas
	1103	Questioning
	1104	Suggest a solution
	1105	Argue for better solution
	1106	Seek more alternatives
	1107	Gather data
	1108	Analyse the situation
	1109	Select the best choice
	1110	Report on the result

Figure 14 Action Chart Development

The action grid is based on 2 important management and performance improvement concepts i.e., ControllerFOCUS and MPDCA. Under the development of action value accounting system to serve the running of action grid mechanism, the action plan can be implemented in a more effective and efficient manner as shown in figure 15 – the flow of action grid mechanism above.

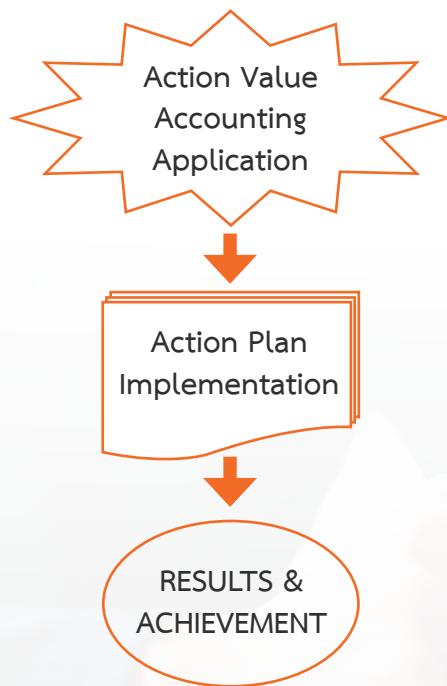
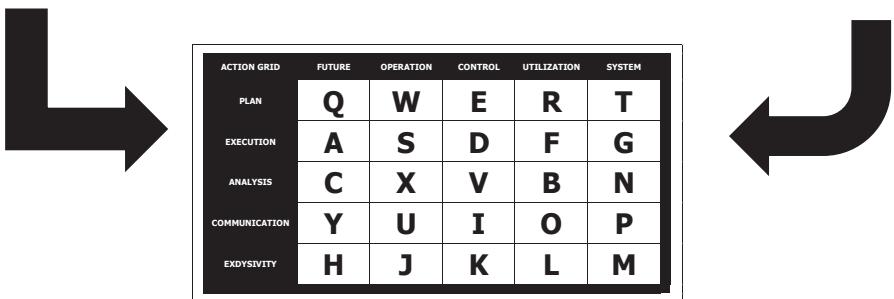
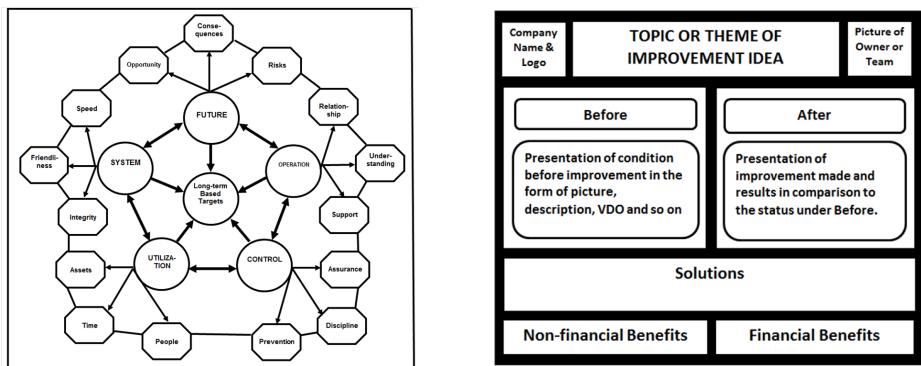


Figure 15 The flow of action grid mechanism

The action grid mechanism is considered an action generator tool which is used to support the execution of a task or project. It should be running until the target is achieved. After the completion process, the action accounting application as discussed in figure 8 – Overview Action Value Accounting Cycle will serve as a tool to ensure that the action plan has been implemented properly before reporting the result for the top management or action owners as a final step. This also leads to the holistic action value accounting concept as shown in figure 16 – The Holistic Action Value Accounting Concept.

The holistic Action Value Accounting concept starts from 7 key components as follows:

- 1) The Holistic Action Value – This provides the overview picture of factors involved in the action value process which includes action grid, the target of action under SNIPE concept, and the dynamic road towards the action value generation. Moreover, supporting systems consist of action accounting system, AI generated action codes, dynamic monitoring system, and blockchain digital system.
- 2) This part shows the development of action grid from the concept of controller FOCUS and its application in real life. It represents the forward-looking in operation that focuses on efficiency and effectiveness.
- 3) The modified PDCA is a crucial part that forms the action grid together with control FOCUS concept. These 2 parts join as a powerful mechanism in action driving efforts towards the target achievement.
- 4) This part shows how action grid can be generated continuously covering the 25 components which are based on combination of different aspects of modified PDCA and controller FOCUS.
- 5) This part demonstrates the importance of an action which needs to go through a systematic calculation considering both quantitative and qualitative factors together with reliable system to be established over time.
- 6) This represents the action accounting cycle which links to the application of technology to help support the tracking, calculation, analysis, compensation, and reporting, which is the crucial part of the whole system.
- 7) Finally, it is expected that the highest accumulation of action value can become a new wealth indicator of an individual, an organization, a society or even a national level. It needs to be formed based on the Kirdomic principle that helps change and develop a highly effective people and system eventually.

THE HOLISTIC ACTION VALUE ACCOUNTING CONCEPT

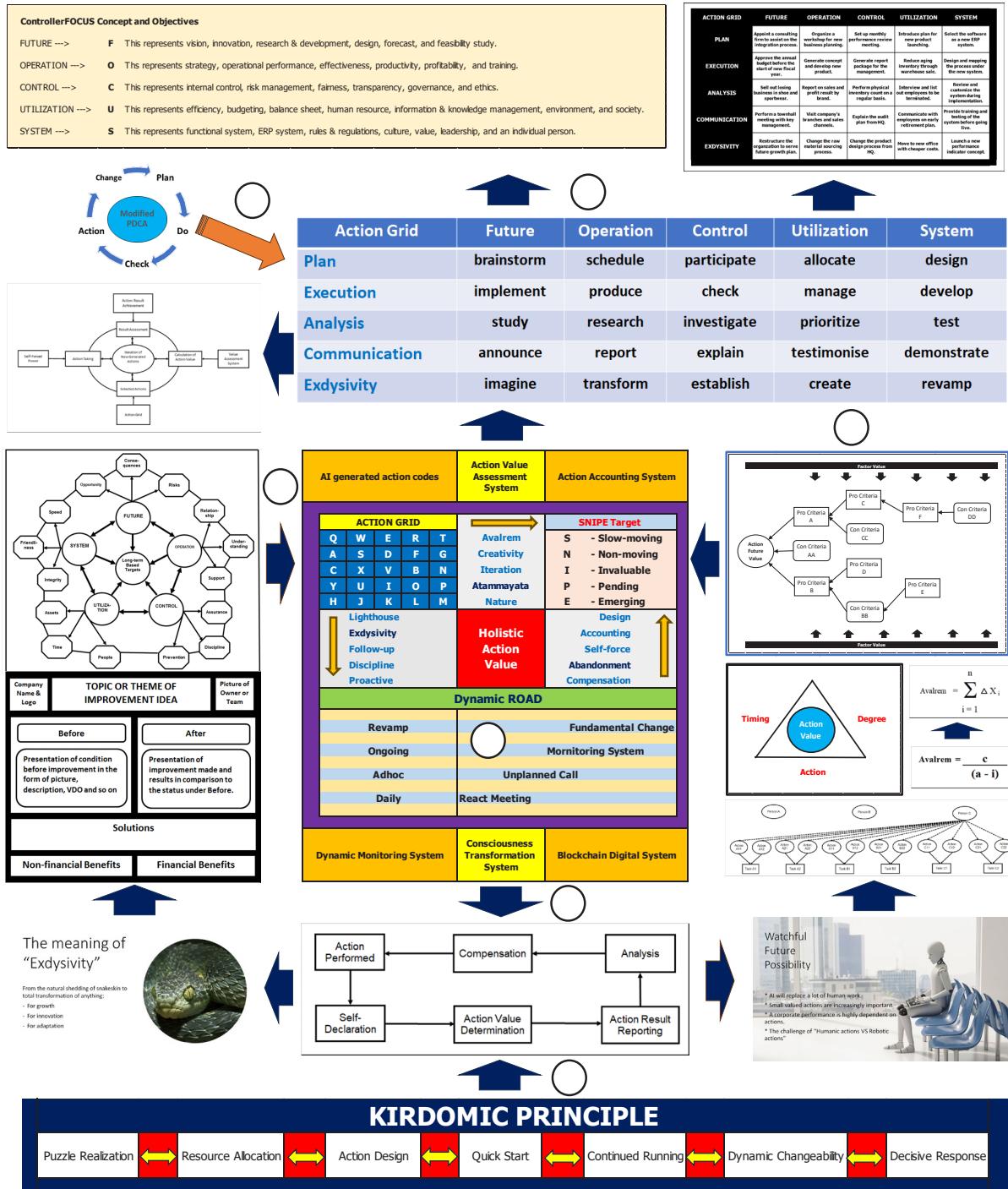


Figure 16 The Holistic Action Value Accounting Concept

Conclusions

This paper has proposed an alternative accounting system that focuses on the actions of people in an organization. Humans and robots can either work together or replace each other in the future. Humans' actions will increasingly be important with the value of an action assigned systematically. An inherent value of an action is to be determined based on the reliable tools and systems to be developed from an accepted formula either from objective or subjective approach. The implications of action value concept based on action grid development include potential changes to current management concepts and practices, especially from functional base to action base, increased efficient use of scarce resources, and enhanced recognition of human value as an important asset of an organization. If the action value accounting could be developed at the same time today's double-entry accounting system was introduced, it could probably be a competitive option for businesspeople to adopt that could lead our world to a dramatically different environment. As a result, the value of action can be a preferred choice than the value of money. Action value exchange and action value trade have the capacity to be a new economic paradigm shift. Action value accounting can lead to higher productivity, efficiency, and effectiveness and is more suitable with the current digital era where block-chain technology plays an important role in trust-based and non-intermediary economy. It could form the basis for development of the universal basic action value system which facilitates the need for new economic paradigm when AI plays highly challenging roles in the future.

This study, being of an exploratory and interpretive nature, raises a few opportunities for future research, both in terms of theory development and concept validation. The proposed new action value accounting system (please see figure 16 – the holistic action value accounting concept) may satisfy unrecognized needs today. Further research should be directed at refining the valuation of actions in both objective and subjective ways and further elaborate the novel findings.

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