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The paradox of organizational learning: lesson learned between constructivism and model simulation

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Abstract. Knowing Organization model ensures organizations can perform better in any environment. This thesis is explored further using ethnomethodology to search the characteristics of organizational learning, and using the thesis of two generic structures of system dynamics to find where organizational learning paradox is. Then, through a computer simulation model the paradox impact is simulated. These two methods inspire each other in exploration of the factors affecting organizational learning and their embedded paradox due to the coexistence of reinforcing and balancing causality loop.

Keywords. Organizational learning

Knowing organization

In the midst of environmental changes characterized by volatility, uncertainty, complexity, and ambiguity (VUCA; Bennet & Lemoine, 2014), companies are required to be able to read the dynamics of change, be knowledgeable, and make decisions accurately. These organizational capabilities are an interesting latest study in creating company competitiveness (Flyverbom & Garsten, 2021). Choo (1998, 2016) conceptualized this organizational capability by knowing the organization. Its conception is composed of the interrelationships of sensemaking, knowledge creating, and decision making. Through sensemaking, environmental changes that are full of ambiguity are interpreted in a coherent way by company members. Furthermore, through knowledge creation, meaningful information is converted into knowledge to develop solutions; and through decision making, solutions are selected as the basis for strategic actions to co-opt volatile, uncertain, and complex environments (Furness and Choo, 2021).

The knowing organization concept helps in understanding how companies like DDI (Daya Dimensi Indonesia) managed to get through the global economic crisis in the 2000s and 20 years later when the Covid-19 pandemic hit till now, 2022. The DDI case is interesting to study, because it has gone through two disruptive waves but still able to grow. The achievements of DDI, as a Human Resources consulting company, are significant, where its business units continue to grow, 19 of the 20 largest BUMN (State Owned Enterprises) in Indonesia have become loyal clients, and acquired exponentially more than 1,000 new clients in just 10 years has been running since its establishment in 1998 (Globe Asia, Aug. 2008). In

addition, if the performance aspect of knowing organization is measured, DDI gets a score of 4.5 or above the average of 4.2 in the research sample of Hansen's dissertation (2004).

Massive regional financial crisis of Southeast Asia in 1997 and America in 2008 have a significant impact for businesses everywhere, including in Indonesia. DDI Indonesia (Development Dimensions International) drew attention to be studied, because from 1997 to 2008 DDI can continue growing significantly throughout economic crisis in Indonesia. DDI's achievement as a human resources consulting firm is becoming the consultant for 19 of the biggest 20 Indonesian SOEs (State Owned Enterprises), and has more than 1,000 clients in ten years running since its founding in 1998 (Globe Asia, Aug. 2008). Other achievements, DDI scored 4.5 – above on average 4.2 pollen sample with scale 1-6 when referring to Hansen's research (2004) for the performance of the knowing organization.

One model of the dynamic organizational learning that can be used to understand the phenomenon of DDI is the knowing organization model (Choo, 1998). Knowing organization is an organization that is able to integrate elements of sensemaking, knowledge creating, and decision making effectively. In sensemaking, information about organization's environment is interpreted. Members of organization choose what information is significant to note through the process of negotiation of meaning. In creating knowledge, significant information is converted into knowledge through a process of dialogue. In decision making, information is processed and analyzed to be presented as a viable for the best decision.

The waves of repeated crises have strengthened VUCA's disruption, leaving the question of how a company can survive and grow. DDI, as a case in point (Eisenhardt, 1989), is an interesting answer to this question. This paper presents new knowledge within the framework of the knowing organization conception with the aim of exploring the systemic processes of sensemaking, knowledge creating, and decision making, and examines the paradoxical loopholes for the implications of systemic knowing organization work.

Mixed Model Research

This research theme used system dynamics and naturalism which case orientation. In this study, the epistemology assumption of system dynamics is constructivist-ekspresivist (Brandom, 1994 in Vázquez and Liz, 2005). In connection with the theme of the naturalist, the method used is ethnomethodology. Ethnomethodology is a method that focuses on the meaning and how the meaning communicated intersubjectively (Garfinkel, 1967). Paradigms underlying this research is pragmatism with mixed models research (Tashakkori and Teddlie, 1998, 2003).

Pragmatism presents a middle ground that is a transactional theory of knowing, which attacks the notion of dualism between knowing, on the one hand, and reality on the other. This middle ground can be the basis for research in selecting and using different methods, mixing the extent method if necessary, and seeking to apply the findings in a reality that is at once plural and unknown.

Mixed model research design is mixing in many stages of the research questions, research methods, data collection, analysis, and inference processes. The research could have a mixed model of multiple research questions that each rooted in different paradigms (Tashakkori and Teddlie, 2003: 11).

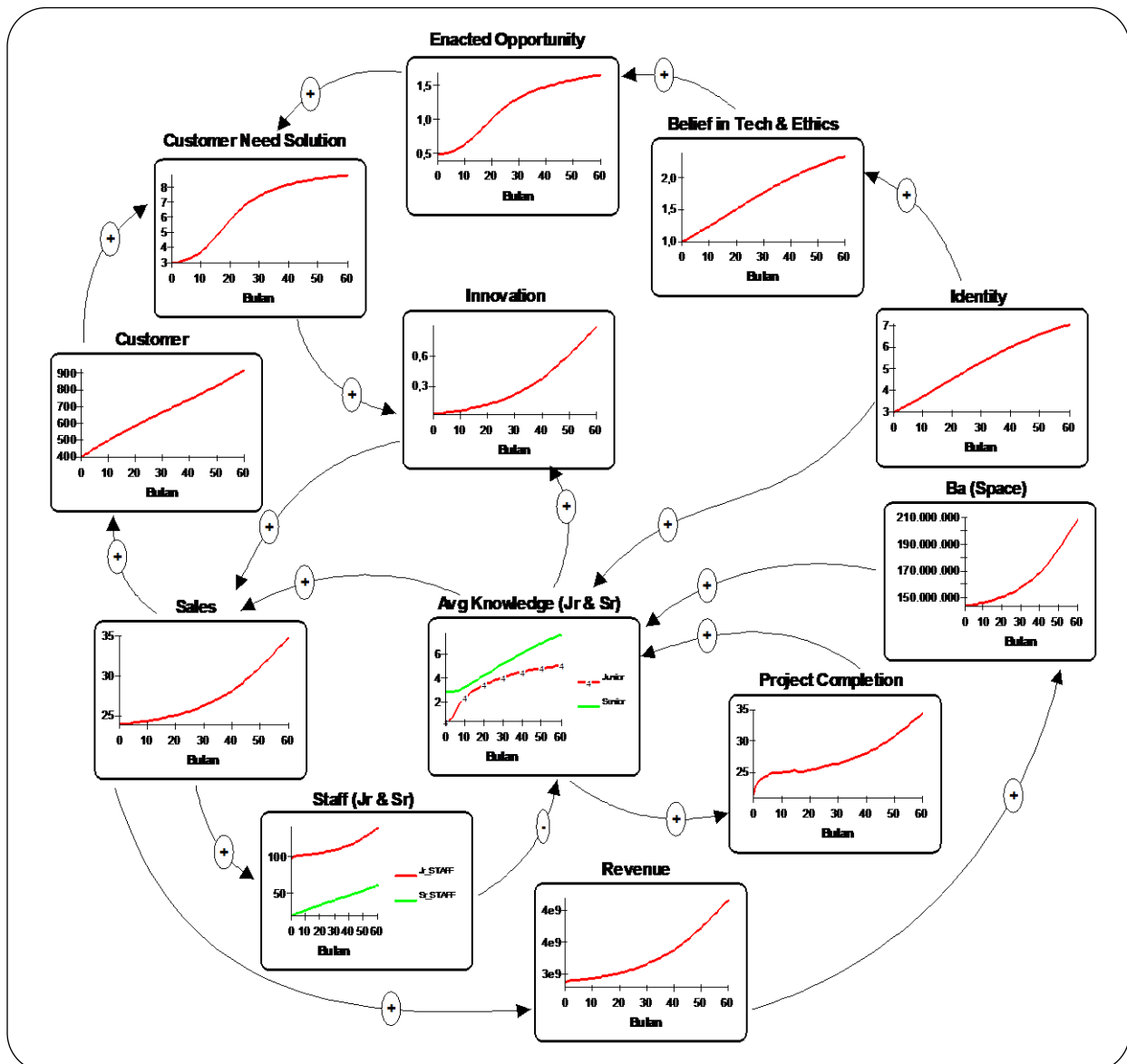
In the early stages of the research process, ethnomethodology explore organizational learning characteristics. This collected information is a part of building a dynamic model of organizational learning which knowing organization model as a framework for thought. Furthermore, analysis of the structural dynamics of the knowing organization used to understand the nature of self-fulfilling prophecy in organizational learning, the growth of

Reinforcing structure, and its leverage. The results of a structural analysis becomes the reference for exploring, especially, the Balancing structure in organizational learning using etnomethodology. It is because that the paradoxical nature embedded between the structure of Reinforcing and Balancing in a dynamic system. Finally, results of the exploration is modeled in computer simulations to see the effects of Balancing.

Self-fulfilling Organisational Learning

Figure 1 below is the result of system dynamics simulation model of organizational learning. The pattern of performance variables in the trace period of 60 months starting in 2003 showed exponential patterns especially the level Innovation, Sales, Revenue, and Staff. These patterns reinforce the interpretation that the organizational learning demonstrates self-fulfilling prophecy (Merton, 1957).

Figure 1: Patterns of Organizational Learning Performance



Self-fulfilling prophecy is an image of positive feedback, reinforcing (Stacey, 2003: 87), which has the character of the 'engine of corporate growth' (Sterman (2000: 349-306). If a mutually reinforcing relationship continues to yield performance is growing, so it is not surprising that organizational learning in knowing organization model has the ability to adapt to environmental changes (Hansen, 2004).

Leverage of the systems is obtained through a series of tests of sensitivity to knowing the dynamics model of organization, the results as summarized in Table 1 below. The variables found to be most sensitive, of 32 variables tested sensitivity, ie with regard belief as a form of adaptation to organizational identity (adjust_time_belief_in). The results of the intervention compared to the base run value or base value of the model after being deemed invalid. Run a comparable base value is an index of the control variables that include: Customer, Identity, Avg Knwldg (Average Knowledge), Revenue and Sales.

Table 1: Ranking and Comparison of Variable Sensitivity

Base Run	<i>Customer</i>	<i>Identity</i>	<i>Avg Knwldg</i>	<i>Revenue</i>	<i>Sales</i>
	945,1	6,483	11,802	4.209.821.324	35,082
Parameters which is intervened	(See difference of the values between row above and the row below)*				
adjust_time_belief_in (3.1 months)	920,8 (-2,6%)	6,279 (-3,3%)	11,662 (-1,2%)	4.048.739.328 (-4,0%)	33,739 (-4,0%)
avg_sales (79.18 projects)	1.021,1 (7,4%)	6,488 (0,1%)	12,071 (2,2%)	4.628.891.618 (9,1%)	38,574 (9,1%)
adjustment_time_ID (6.42 months)	935,0 (-1,1%)	6,279 (-3,3%)	11,701 (-0,9%)	4.147.836.498 (-1,5)	34,565 (-1,5%)
knwlg_selling_norm <i>Span of Control</i> Junior: Senior in <i>Selling</i> (Jr 5.4 : Sr 2.1)	929,7 (-1,7%)	6,483 (0,0%)	11,761 (-0,4%)	4.109.310.945 (-2,4%)	34,244 (-2,4%)

*) Difference = (Intervention Result Value – Base Run Value) /Base Run Value.

***) Formula weightings for each variable intervention = ARRAYSUM ([Customer, Identity, Avg Knwldg, Revenue, Sales]/5)).

If the value of the simulation results is minus (lower value than the pre-intervention), so it is multiplied by 2, and if the result plus (higher value than pre-intervention), so it is multiplied by 1. Assumptions: minus value is multiplied by 2 (higher), because it produces a BOT (Behavior Over Time) in opposite pattern value.

Adaptation of the organization members towards organization's belief achieves 15.1% in total changes for 120 months in 2003-2013. Interesting to observe, the changes have opposite pattern from the interventions. Its performance is declining, while the ascending intervention. This information means that the longer the members of the organization to adapt to the belief in the technology (consulting methods used DDI) and business ethics will be the worse performance. Average time adaptation of the organization members is 3.1 months or increases 7%. Adjustment time to belief will result in reduced performance of the index Sales by 4.0%, for example, will lose revenue amounting to Rp 161,081,996. Another example, if the average

sales (avg_sales) is increased by 7% or 79.18 project, the revenue increased by Rp 419,070,294, - or 9.1% difference from the value in the absence of intervention.

The high sensitivity of the adaptation can be understood if it refers to knowing organization framework. We know that organizational belief sourced from organizational identity. The identity of the organization is important thing in organizational learning. This study adds the finding from system dynamics sensitivity test that organizational learning is driven by leverage called identity. The identity of the organization is the engine of corporate growth.

Organisational Learning Paradox

Self-fulfilling prophecy of organizational learning relatively stable yields superior performance. This phenomenon meets the law of knowledge networking, namely increasing returns and not diminishing returns for each asset knowledge (Tapscott, et al., 2000: 5-7). However, is the law fit for all, applied without asking for any conditions? We can not have stability without resistance, both are two sides of the same coin (O.Connor and McDermott, 1997: 18). It is postulated that the existence of the system dynamics Reinforcing and Balancing system inherent in changing times, differing only in its dominant.

Let's talk about the paradox. The paradox is different with the notion of contradictions. Paradox has a meaning that is a condition where the two power/idea present diametrically opposed ideas simultaneously (synchronously), can not be one of them completed or omitted (O.Connor and McDermott, 1997: 18). The paradox occurs as part of the dynamics complexity.

Lewis (2000: 761-765) explains that paradox comes down from three sources, namely: tension, reinforcing cycle, and management. These sources establish three types of paradox, namely: 1) the paradoxes of learning, 2) the paradoxes of organizing, and 3) paradoxes of belonging. Briefly explained that each type of paradox is caused by a particular principal source. The principal source are: 1) the paradoxes of learning comes in the frame of reference tension between the old and new; 2) paradoxes of organizing sourced in tension between the control and flexibility, and 3) paradoxes of belonging sourced in source of identity, between self and other. The scenario used in this study refers to the idea of the paradoxes of belonging.

The background paradoxes of belonging are from sensemaking activities, which the identity is built in organization image as a partner solution. Identity as partner solution socially rooted in sense of professionalism of consulting practices, selling practices, and product developing practices. So, partner solution identity is basically a process of continuous negotiation of the three groups or communities of practice (CoP) that exist within the company DDI, namely Consulting Division, Sales Division, and Product Development Division.

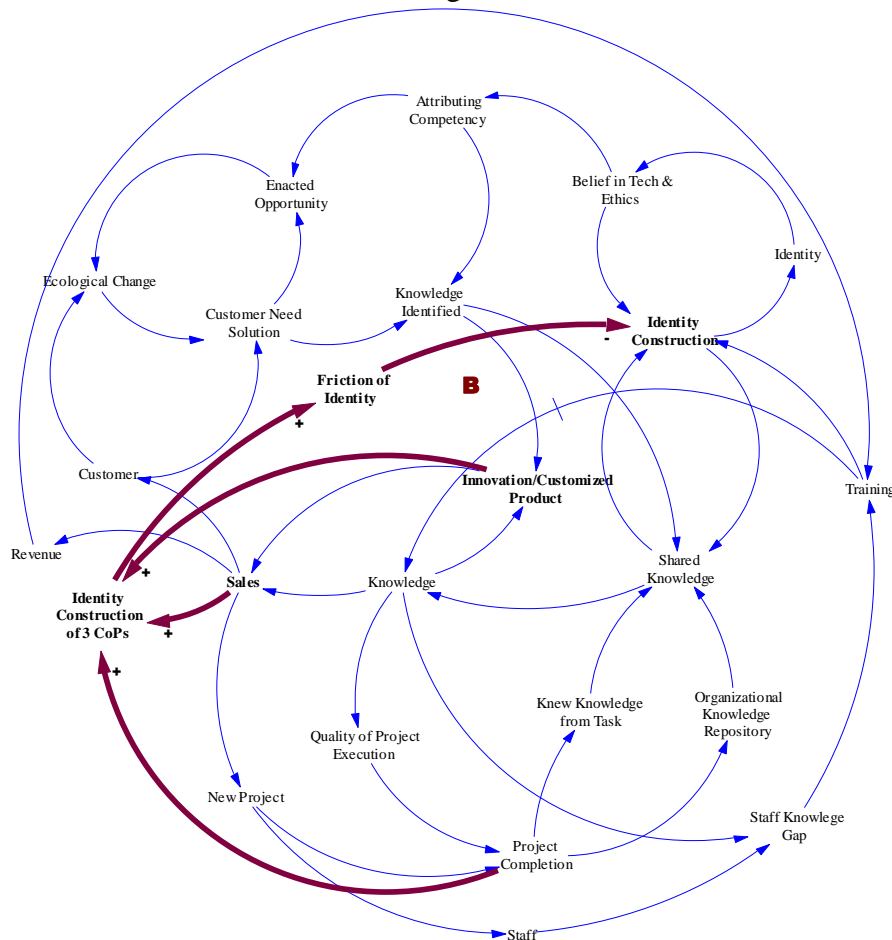
The paradox appears as a form of expression of the identity of each group in the organization. Martin (1992) refers to this expression as a consequence of the sub-culture within organization. The appearance of paradox begins when each group builds his boundary from others. Each group defines his membership by distinguishing one collectivity to another. Each group promotes exclusivity of his professionalism, namely values of sub groups within the organization. CoP of Consulting Division promotes identity of "quality delivery", CoP of Sales Division promotes identity of "palugada" (*apa lu mau gua ada*, anything you want we have), and CoP of Product Development Division promotes identity "customized but strict with copy right". In essence, each community building practice professionalism identity as a system autoopoiesis to build his own world as a manifestation of the existence of identity.

Figure 2 below shows the addition of two new variables (detail complexity), namely: the Identity Construction of three CoPs and Friction of Identity. The addition of these two

variables contains five new dynamic complexities, namely: 1) the relationship between Project Completion and Identity Construction of 3 CoPs, 2) the relationship between Sales and Identity Construction of three CoPs, 3) the relationship between Innovation/Customized Product and Identity Construction of 3 CoPs, 4) the relationship between the Identity Construction of three CoPs and Friction of Identity, and 5) the relationship between the Friction of Identity and Identity Construction.

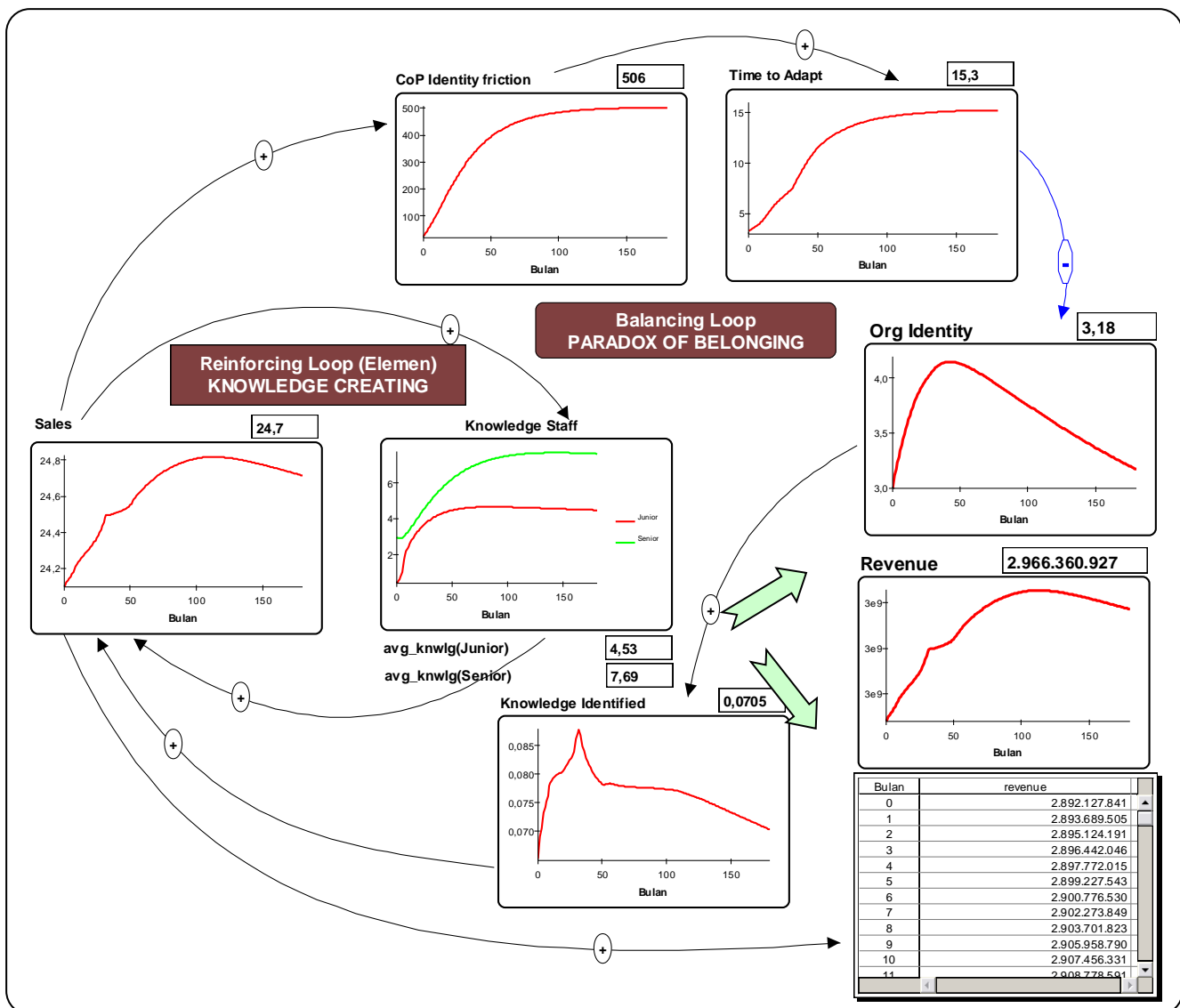
The scenario illustrates the paradox occurs as an unintended consequence that stems from knowledge-creating activities. The higher the level of knowledge of each CoP will affect community identity constructs. Two of these variables (knowledge and identity) tied reinforcing relationship. It means the more and more involvement of member organizations of each completed project (sales, consultation, and product development), then the identity of professionalism also increased along with the growing competence. Unintended consequence that arises when the greater professionalism of the identity of each CoP continues to expand and leads the clash of values between the three sub-culture. Friction between these values ultimately has an impact on organizational identity construction activity, which is characterized by the length of time required for adaptation to a single value that belongs to organization. Causal structures of the paradox ultimately shape the Balancing loop.

Figure 2: Scenario Planning: Impact 'Paradoxes of Belonging' in Organizational Learning



To perform a simulation, there are two forms of intervention, namely functional and structural. Functional intervention is to intervene in the value of the variable. The intervening variable is "Time to Adapt to Organizational Beliefs" (adjust_time_belief_in), a variable that has the highest leverage. Structural intervention is the intervention of the system through changing relationships either by addition or subtraction of a causal relationship within the organizational learning model. Assumptions underlying structural interventions is that the complexity of dynamic changes may occur in time as a system which created itself, autopoiesis (Maturana and Varela, 1987). Autopoiesis system organizationally closed, but that does not mean isolation. This means that organizational systems, or identity, is not determined by anything from the outside, but is determined from its own operations (Stacey, 2003: 173). Each system autopoiesis to build his own world, a world that is built as constructivist perspective view.

Figure 3: Simulation Result: Scenario of ‘Paradoxes of Belonging’



As shown in Figure 3, there are two new variables that appear. Two variables represent causal relations in organizational learning as a characteristic of paradox. Two variables are friction identity CoP (CoP Identity Friction) and time of adaptation to organizational identity (Time to adapt).

The greater the reinforcement cycle knowledge creating, the greater the sales. Learning by doing obtained from each practice (selling, consulting and product developing practice), in turn, affect the identity of the sub-cultures. Each identity has continued to strengthen, because the intensity of the practice itself pushed to commit identity constructs professionalism. Leonard-Barton (1992: 17) confirms closeness of the relationship between work values; "Two subdimensions of values are especially critical: the degree to which project members are empowered and the status assigned various disciplines on the project team." Finally, we get the identity every community of practice, and it becomes a trigger for the growing friction that relatively contradictory, namely: quality delivery, 'palugada', and customized but strict with copy right.

Lewis (2000: 769) revealed that: "The paradoxes of belonging often raise actors' defenses, intensifying conflict, polarization, and tribalism." Conflict is possible because every actor looking for a way to express the values of its membership (Smith and Berg, 1987). Moreno ensure the expressive tendencies and the effects of unintended consequence of his research. Moreno (2001: 260-2) explains that the professional self-identity is reinforcing, and when the reinforcing really works then the mechanism of threat and survival among identities becomes going up.

If the friction among identities becomes greater, so this result increase the time to adapt to a single organization identity (as Partner Solution). The longer the period for adaptation, then the decay of the organization identity comes, which naturally simultaneously eroded by time. The declining organization identity will influence the organization capability to handle customer problem. As a result, sales will decline more and more. Leonard-Barton (1992) refers to this phenomena as core rigidity.

Table 2: Comparison of Simulation Results Non Scenarios and Scenario Paradox

Variable	Summary of Simulation Scenarios & Scenarios Paradox Non Throughout 10 Years Ahead by Year 2008 (Average in Months)					
	<i>Identity</i>	<i>Sales</i>	<i>Avg Knwlg Jr Staff</i>	<i>Avg Knwlg Sr Staff</i>	<i>Knwlg Identified</i>	<i>Revenue</i>
Average of The Scenario of Paradox	4	25	4	7	0	2.974.685.433
Average of The Non Paradox	7	40	5	9	1	4.822.900.377
Toal difference	-608	-2.772	-149	-350	-143	-332.678.689.917
Difference in average	-3	-15	-1	-2	-1	-1.848.214.944

The variables having the pattern of overshoot and collapse are Revenue and Identity. Simulation results show that both variables increased rapidly from the beginning of time until it reaches its highest point at around t 45 to t 120. On the next phase, the identity level decreased continuously until the lowest point of 3.2 (compared with pre value scenario 8.2.) Similar to the behavior patterns of identity, Revenue continues to decline as well to a low of Rp 2,966,360,927 (compared to pre-scenario in which the value of income to 180 to Rp 6,048,623,355).

The simulation results of the learning paradox explained that organizational learning storing elements of decay in itself. It visually can be seen in Figure 3, and the figure can be seen in detail in Table 2 above.

Conclusion

Broadly speaking, the findings of this study draw conclusions that organizational learning using knowing organization framework keeps a paradox, namely 'paradoxes of belonging'. The impact of this paradox produces a pattern of behavior that the system overshoot and collapse.

The lesson learned between constructivism and simulation models is that they can inspire each other in investigations. Ethnometodology provides what information to be modeled. System dynamics gives inspiration on what might appear in paradoxical structure within the construction of reality among organization's members when processing organizational learning.

Bibliography

- [1] Bennett, N., and G.J. Lemoine (2014). What a Difference a Word Makes: Understanding Threats to Performance in a VUCA World. *Business Horizons*, Vol. 57, 311-317.
- [2] Brandom, R. (1994). *Making it Explicit: Reasoning, Representing, and Discursive Commitment*. Cambridge: Harvard University Press, 1994.
- [3] Choo, Chun Wei (1998). *The Knowing Organization: How Organizations Use Information to Construct Meaning, Create Knowledge, and Make Decision*. New York: Oxford University Press.
- [4] Choo, Chun Wei (2016). *The Inquiring Organization: How Organizations Acquire Knowledge and Seek Information*. New York: Oxford University Press.
- [5] Flyverbom, Mikkel and Christina Garsten (2021). Anticipation and Organization: Seeing, knowing and governing futures. *Organization Theory*. Vol. 2, 1-25.
- [6] Eisenhardt, Kathleen M. (1989). "Building Theories From Case Study Research." *The Academy of Management Review* 14, 4.
- [7] Furness, Colin & C.W. Choo (2021). Information Culture and Effective Use of Information Tools at Work: Conceptualization and Measurement of Group Adoption. In D. Tessier (Ed.), *Handbook of Research on Organizational Culture Strategies for Effective Knowledge Management and Performance*, (Chapter 15, p.283-305) Hershey, PA: IGI Global.
- [8] Garfinkel, Harold (1967). *Studies in Ethnometodology*. Englewood Cliffs. New Jersey: Prentice Hall.
- [9] Hansen, Janet Holmes (2004). "Learning, Sensemaking, Action, and Performance: An Empirical Test of Choo's Theory of the Knowing Organization". Ph.D. Dissertation, University of Nebraska.
- [9] "Indonesian's 20 Largest Companies" (2008). *Globe Asia*. Vol. 2, August.

- [10] Leonard-Barton, Dorothy (1992). "Core capabilities and Core Rigidities: A Paradox in Managing New Product Development." *Strategic Management Journal* (1986-1998) Summer, 13.
- [11] Lewis, W. Marianne (2000). "Exploring Paradox: Toward a More Comprehensive Guide." *The Academy of Management Review* 25, 4.
- [12] Martin, J. (1992). *Cultures in Organizations: Three Perspectives*. New York: Oxford University Press.
- [13] Maxcy, Spencer J. (2003). "Pragmatic Threads in Mixed Methods Research in Social Sciences: The Search for Multiple Modes of Inquiry and the End of the Philosophy of Formalism." In Abbas Tashakkori and Charles Teddlie, (eds.), *Handbook of Mixed Methods in Social and Behavioral Research*. London: Sage Publications.
- [14] Merton, Robert K. (1957). "Bureaucratic Structure and Personality." *Social Theory and Social Structure*. New York: Free Press.
- [15] O'Connor, Joseph and Ian McDermott (1997). *The Art of Systems Thinking*. London: Thorsons.
- [16] Smith, K.K. and D.N. Berg (1987). *Paradoxes of Group Life*. San Francisco: Jossey-Bass.
- [17] Stacey, Ralph D., et al. (2003). *Strategic Management and Organizational Dynamics: The Challenge of Complexity*. England: Prentice Hall.
- [18] Sterman, John D. (2000). *Business Dynamics: System Thinking and Modeling for a Complex World*. Boston: Irwin McGraw-Hill.
- [19] Tapscott, Don (1996). *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*. New York, Mc-Graw Hill.
- [20] Tashakkori, Abbas and Charles Teddlie (1998). *Mixed Methodology: Combining Qualitative and Quantitative Approachs*. London: Sage Publications.
- [21] -----, eds. (2003). *Handbook of Mixed Methods*. Thousand Oaks: Sage Publications.
- [22] Moreno, Valter Jr. (2001). "The Rupture and Restructuring of Professional Self-Identity: A Phenomenological Study of BPR Experiences." Ph.D. Dissertation, The University of Michigan.
- [23] Vázquez, Margarita and Manuel Liz (2005). "System Dynamics and Philosophy: A Constructivist and Expressivist Approach." *International System Dynamics Conference*, Boston.