Learning in a dynamic Information Management world

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Abstract – **Increasingly modern organizations are confronted by changes. Often these changes can be best characterized as crises. Information is the key resource with which organizations can get a better grip on these changes. Yet, information is also rapidly changing. Information management has to be prepared to deal with issues arising around these changes. This article will show that learning and adapting in such a dynamic context is far different from the more traditional focus on transferring knowledge from teacher to student. The theory of Systemic Constellations helps to better understand the dynamics of learning in the increasingly dynamic environments.**

Keywords—Information management, Systemic constellation, Learning, Organizational change

I. INTRODUCTION

The increasing dynamics in and around organizations require a higher level of flexibility. During the recent decades it has become clear that the proven ways of working no longer optimally facilitate the organization in a fast changing context. Subsequently there is a growing need for people who are able to work on renewal and innovation in a business context. The organization should pay permanent attention to learning so as to ensure that people are available who are ready and able to guide the organization towards innovation. This article will show that learning in a dynamic context is far different from the more traditional focus on transferring knowledge from teacher to student. In that respect the article will elaborate on the question as to whether the theory of systemic constellation can help the organization to perform better.

These societal developments provoke that organizations are increasingly confronted by crises. The general image of a crisis is that panic breaks out across the organization, with people having a tendency to return to proven ways of working, and being averse to anything new. This natural response is an obvious one, but is generally speaking the opposite of what we should do. This article is about the question of what organizations actually can do to be prepared for an uncertain future. A development model is used which is referred to as the *'adaptive cycle of resilience'* [1]. But to begin with, let us first take a look at the concept of crisis.

ORGANIZATIONAL CRISIS

Before you can decide the right response to an organizational crisis, it is important to determine what exactly constitutes a crisis. There are numerous definitions to choose from. In normal usage, it is often used to mean a 'time of intense difficulty or danger'[1], although we now lack a definition of what difficulty or danger means. An alternative definition is: 'a condition of instability or danger, as in social, economic, political, or international affairs, leading to a decisive change'[2].

This latter definition seems more relevant to the business environment. At its core, the current mode of functioning of a system is under threat and the proven (and often traditional) methods of dealing with it will no longer be suffice to solve the problems. Reverting to outmoded approaches - in line with this definition - is exactly what you should *not* do.

Based upon these insights, in this article we arrive at the following definition of an organizational crisis:

An *organizational crisis* is a situation in which an organization resides, where the traditional ways of problem solving are no longer applicable and the organization is aware of that fact.

In light of this there is a growing need for the improvement of the competencies of management. Our focus will be on the central role played by information management.

The structure of the paper is as follows: in paragraph 2 we will focus on an approach that we use to look at organizational changes. This approach is called The Adaptive Cycle of Resilience (ACoR). Paragraph 3 defines information management (IM) whilst in paragraph 4 the roles of an information manager are identified. Paragraph 5 briefly discusses the theory of systemic constellations and the way in which we use it within IM education (paragraph 6). Our preliminary practical experiences with this approach are described in paragraph 7 enabling us to draw some conclusions in the final paragraph (8).

II. THE 'ADAPTIVE CYCLE OF RESILIENCE'

In a changing context as described above, attempts are made to identify steps the organization might take. It is important to

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[1] SEE: HTTP://WWW.OXFORDDICTIONARIES.COM/DEFINITION/ENGLISH/CRISIS

[2] SEE: HTTP://DICTIONARY.REFERENCE.COM/BROWSE/CRISIS.

bear in mind that the organization came from a situation of stability. This situation can be described as a balance between what the business wants/needs and what it is capable of [2]. In a situation of stability, everyone knows how to respond to disruptions. The emergence of a crisis on account of a disruptive event confronts the organization with new challenges [3, 4]. The usual methods organizations deploy when in a situation of stability are too rigid during a crisis to facilitate an appropriate response to the developments. In a crisis situation of this ilk, an intensive search operation for new opportunities would have to be launched. Untrodden paths would have to be considered and explored. These search operations come in the form of pilots, scenario analyses, etc.

In these types of analysis the nature of the change or disturbance has to be taken into consideration. The important issue in this respect is not change itself. Everything is changing, by growing, by getting older, by every evolutionary development you can think of... Questions such as to what extent these changes are predictable, and if and when they are, do we know what kind of interventions we propose to deal with these developments, are all equally relevant. Searching for new solutions is mainly focusing on finding these interventions / new opportunities for new business. In many cases developments are fully predictable, in other cases the organization can be totally surprised, or even paralyzed, by the nature and impact of the actual change. Better understanding of the actual situation may lead to a better understanding of 'good' and 'bad' interventions and opportunities but generally in a situation of a crisis it isn't possible to predict. The Cynefin model as developed by Snowden et.al [5] is an example of a model which aids in getting a better insight into this aspect of change. Snowden states that organizations are often facing a disordered situation where a state of agreement within the management does not yet exist with reference to the situation the organization is facing at that moment and as to how the organization should intervene in this specific context. The Cynefin framework helps management to better understand the context and nature of the situation which they are facing. It makes a difference between *ordered* contexts where an analysis can gain a good insight into the problem at stake. In this respect he uses the terms ***simple,*** when an organization is facing a simple disturbance – mainly the causes and effects are known, and ***complicated,*** in which the cause and effect relations are unknown but can become known. A thorough analysis of the actual situation will be enough to determine what interventions are possible. It is also possible to forecast the effects of the intervention. In both circumstances an intervention leads to a solution that can help the organization to overcome the problem.

Contra to that Snowden identifies the *unordered* state. The terms he uses here are ***complex*** where complexity theory [6] plays a central role. This theory studies how patterns will emerge through the interaction of many agents. The unpredictable characteristics of the participating agents make it impossible to categorize or analyze the outcome of the intervention. The other term Snowden uses is ***chaos.*** In the chaos setting

even probing the outcome of an identified intervention is not possible. The effect of the intervention is changing every time the intervention is applied. Because it is impossible to predict the outcome, in any shape or form, the only option is to act one intervention and see what happens. In both circumstances, complex and chaos, a thorough analysis is helpful but not sufficient to deal with the problems the organization is facing. And for as far as a suggestion for an intervention may be brought up, the effects of that intervention are unpredictable and in each and every actuality are different. The nature and impact of dynamic change in the unordered case is not known and **will only be predictable afterwards**[3]. It is this situation that makes it so difficult to think anew or act anew. The tradi-
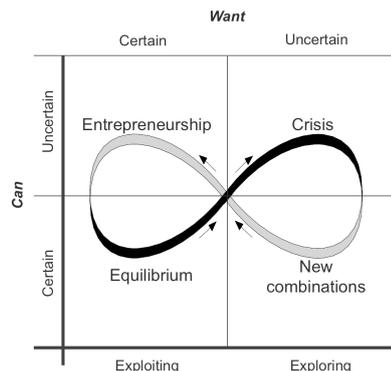

Figure 1 The adaptive cycle of resilience

tional ways of developing solutions does no longer work. In our view new ways of searching for new interventions and opportunities can be supported by using an on systemic constellation based search method. We will discuss this later in this article. First we need to close the adaptive cycle by looking at the phases necessary to implement a solution / intervention / opportunity.

If any form of search for new interventions/opportunities shall result in a variety of alternatives to act, one or more of these alternatives must be selected for implementation. This is the most crucial stage in the ACoR development model, as those who were involved in the organizational search for new opportunities will have to challenge their own alternatives. Naturally they will be convinced that their solution is the best. However, many of the options will not be able to reach the implementation stage due to lack of support within the organization, a.o. for financial and operational reasons. And investing in/backing too many horses reduces the benefit of one of them proving successful. The process of choosing will in many cases become a political and power based 'fight'.

The implementation of the newly selected options requires the rationalization of processes and the establishment of control and governance structures. Rationalization and upscaling are the actions that will need to be carried out. A consequence of the rationalization is that the organization, in a certain sense, will increasingly seek rigidity to enable upscaling along with effective and efficient working. However, one negative side effect of this is that fixed structures are implemented that

hamper the appropriate responses to any subsequent crisis. The process to escape the crisis is a cyclical process that leads to limitations on the response to the next crisis. It becomes clear from the cyclical conduct in the *adaptive cycle* described above that an organization's search for new opportunities will be an ongoing one. Innovation is therefore essential for 'life'. Information plays a vital role in that respect. The alignment of business and IT is crucial.

BUSINESS IT ALIGNMENT

In a longitudinal study started by Luftman in the nineties of the last century and continued by a.o. Kappelman [7] it is shown that in the list of top-management concerns for IS/IT the BITA issue has been in the top 3 since 1994. In figure 2 the most recent overview of these top management concerns is shown.

Since Henderson & Venkatraman [8] called for a focus on business IT alignment, several hundred journal articles have been published. An overview of BITA literature was published by Chan et al. [9]. According to them business IT-alignment leads to a more focused and strategic use of IT which in turn leads to increased performance, see also [10].

too early to sing the De Profundis for the concept of strategic alignment. On the contrary, our post mortem reflection on the managerial research programme on alignment has pointed out several new tracks."

Our research aligns with the view of scholars who argue that the literature fails to capture important phenomena around dynamics, and that alignment as a final state in different phases of a change process is not always desirable. In this article we state that the fact that BITA is in the top 3 of management concerns is not only logical but a necessity. Information plays a different role in each phase of the change process. Logical consequence of this view on reality is that management should continuously work on their abilities to deal with the different roles of IT in organizations.

Information management in that respect is vital and the development aspect focusing on improving the abilities and competencies of IM is crucial. In the next paragraph we will discuss the approach to information management that we use, the Amsterdam Information Management Model (AIM).

IT Management Concerns/Issues	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003
Alignment of IT with the Business	1	1	2	1	3	2	1	2	1	1	1	1
Security/Privacy (b)	2	7	9	8	9	9	8	6	3	2	3	3
Business Agility/Flexibility (c) (d)	3	2	3	2	2	3	13	17	7		5	7
Business Productivity	4	3	1	4	1	1	7	4				
IT Time-to-Market/Speed of IT Delivery	5	(d) New; was with "Velocity" in 2013, and "Agility" through 2012.										
IT Value Proposition in the Business	6	New										
Velocity of Change in the Business	7	(d) New; was with "Time to Market" in 2013, and "Agility" through 2012.										
Innovation	8	New										
Business Cost Reduction/Controls	9	4	Combined with "Business Productivity" through 2012.									
Revenue Generating IT Projects	10	10	4	9	6	8	17					

(a) Blank cells, unless otherwise noted, indicate that the issue was not asked in that year of the Study.
(b) "Security" and "Privacy" were recombined this year. Separated in 2013, "Privacy" was not selected by any respondent.
(c) "Flexibility" was added this year.
(d) In 2013, "Business Agility and Speed to Market" became "Time to Market/Velocity of Change" and "Business Agility." This year, "Time-to-Market/Velocity of Change" was separated and became three selections: "Velocity of Change in the Business," "Velocity of Change in IT," and "IT Time-to-Market/IT Speed of Delivery."

Figure 2 IT management concerns during the years. See Kappelman [7]

Over time, the proposed solutions for solving the alignment issue were questioned by a growing number of scholars. They wondered why after more than twenty years of scientific attention to BITA, the issue had still not been resolved [9, 11-15]. As reasons they mention that (1) alignment in many cases is too mechanistic, (2) it is difficult when the business strategy is not known and (3) it leads to a situation where IT doesn't challenge the organization. Ciborra [16] adds the suggestion that alignment too often uses a static approach. In its current state of constant change reality can't be grasped in models. Ciborra also suggested the following: "Our questioning, deconstruction and investigation have shown that possibly it is

III.   WHAT IS INFORMATION MANAGEMENT

The fact that Modern IT has a major influence on organizations was recognized at an early stage. Leavitt and Whisler for example, observed as early as 1958 that information technology would soon spread [17]. As one of the main causes for this they stated: "One important reason for expecting fast changes in current practices is that information technology will make centralization much easier" (p. 43). In their view, modern information technology encroaches on one of the dilemmas that

organizations grapple with, namely the impact of technology on how organizations act. Therefore, it makes sense that alignment is a central issue for the management of organizations, as is also shown by the various studies that have been published over the years (see for this study amongst others [8] [18-20], [21], [22, 23], [24] or http:\\www.simnet.org). Furthermore, as we noted earlier, Luftman states that the issue has been in the top 10 important IT subjects for the management of organizations and has been in first or second place uninterruptedly ever since 1994. In this article we use the Amsterdam Information Management model to describe the basic concepts behind Information Management, the need for Business IT alignment as well as the need for further education in this field. This model is an extension of the Strategic Alignment Model of Henderson and Venkatraman [8]. In short the logic behind this model is described below.
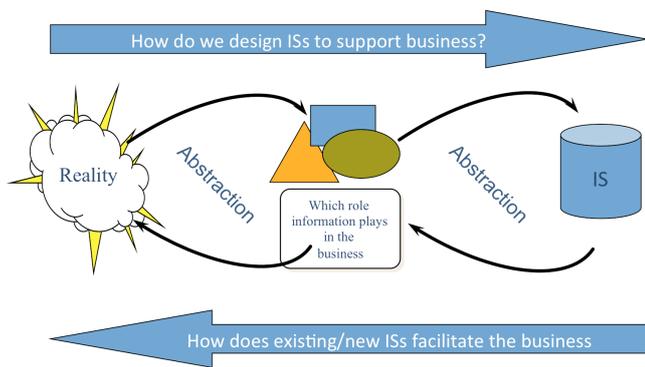
Figure 3: An organization seen from the perspective of information provision [25, 26]

The alignment between business and IT can be approached from two different directions. On the one hand, there is the necessity for paying attention to the organization's goals and performance related to the role that is to be played by information and communication, and how these things are realized in operational systems (see figure 3). On the other hand, there has to be attention to the relationship between the formulated goals and the structure in which one works on the realization of these goals. This relationship is shown in figure 4 [27]
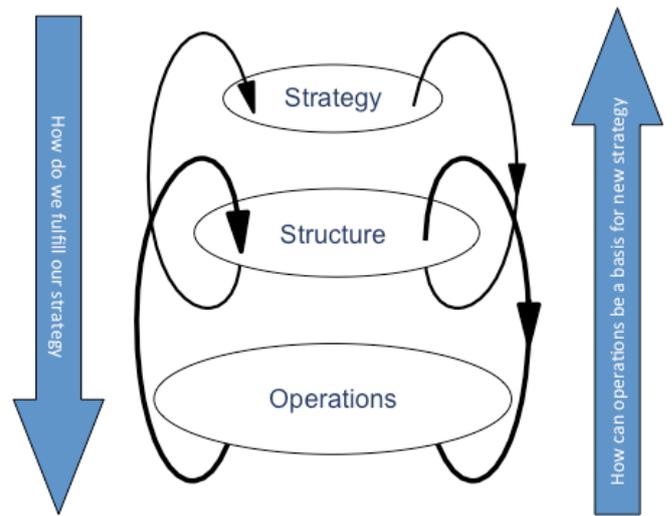

Figure 4: The organizational coherence between strategy and operations in the organization.

The AIM model is created by combining these two dimensions (see figure 5 [25, 26, 28, 29]). Within the model, two questions take centre stage:

1. A policy question, as to how the organization's goals are supported by making use of the possibilities as offered by IT (the center column) and
2. An architecture question, as to how the information provision should be set up for it to be able to optimally support the organization in the realization of its goals (the center row). In this, the alignment between the architecture of the information provision and the organization's structure takes centre stage.
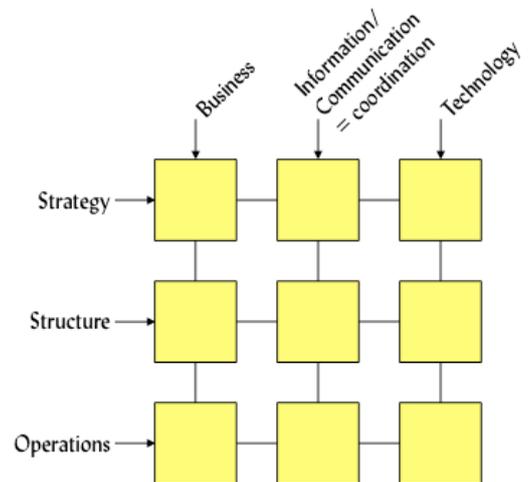

Figure 5: The Amsterdam Information Management model [26]

These two central questions can be positioned on the two central axes of the AIM model. This implies that the four corner

domains can be considered as the exogenous variables that delimit the IM playing field. For this demarcation, the attention needs to be focused on the strategic goals of the organizations (upper left), on the strategic opportunities as offered by modern IT (upper right), on the way in which the business professionals work on realization of the goals (bottom left) as well as on the system that they have at their disposal in this (bottom right).

IV.   THE AIM MODEL AND 'ITS' MODEL MANAGER

The Amsterdam Information Management model displays the information management aspect from a business perspective. Each of the two dimensions of business and information bring with them sub-areas which will be the subject of management. The business axis in the enneahedron distinguishes between strategy, structure and operations and the management disciplines involved are therefore strategic management, structural management or organizational and automation management, along with operational management. In the information aspect domain, the axis in the 3*3 AIM model is divided into business management, information management and technology management [30]. The information management model is the basis for describing aspects of the work of information managers.
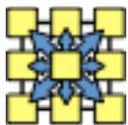
The 3*3 matrix model spanned by these two axes can now serve for the investigation of the fields of activity of a 'model manager' in more detail. We have postulated that the heart of the enneahedron represents the viewpoint of the information manager as it is the locus/focus of the functional IT support of the business, which is covered by the information architecture. Here the Information manager is playing a DIRECTOR'S ROLE. We have opted to typify the other fields of activity as roles and we give them characteristic names that could be used more or less as a sort of archetype.
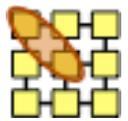
The IT PARTNER IN STRATEGY is a member of the management team with business responsibilities. Through his IT profession, he discovers strategic opportunities in his field of activity, investigates strategic observations as to their IT implications and assesses the opportunities and risks of large, long-term programs.
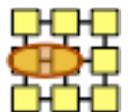
The ALIGNMENT MANAGER is responsible for ensuring that business activities run in accordance with the organization's structure. In tandem he is also co-responsible for this structure, certainly in the case of information-intensive organization's that simply cannot function without IT. After all, alignment (aligning business and information

facilities) does not call for a unilateral approach and this concerns not only information management's assignment but also the possibilities offered by the technical facilities and their 'tuning'. The alignment role of the information manager is probably the final justification of his position.
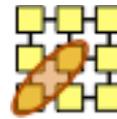
The BUSINESS PARTNER has an eye for the processes and process-management in the organization. He is an active participant who is actively involved in process design and supplies applications that improve processes and insight into this, which also further helps to implement non-primary activities more effectively.
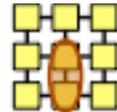
USER AMBASSADOR is certainly not an honorary position. He has to pay full attention to the actual use of the facilities for which he is responsible. What is the status of the actual use of business applications, of desktop facilities, of the intranet, or Internet at the workstation? What projects are in progress and what is the level of satisfaction regarding team-support software? Are the facilities for knowledge sharing functioning adequately and are they being used effectively or are there signs of 'lazy' use? Obvious support facilities such as helpdesks must work faultlessly and generate stimuli for improving the service but, also for less obvious issues such as the progress of outsourced services, SLA conformity must be continuously monitored. This ambassador has a great deal of responsibility.
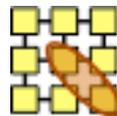
The APPLICATION MANAGER is not someone in grey overalls but a manager who administers tens, if not hundreds, of applications and is therefore responsible for the daily operation of all IT resources used within the organization and on which it depends. His main responsibility is to ensure that the executive organization has a secure safety net for everyday problems and is capable of performing its tasks.
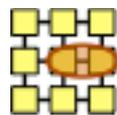
The IT FACILITIES MANAGER is an important man in an information-intensive organization! He is concerned with ensuring that the technical facilities constitute a reliable whole, that configurations and networks are structured in an orderly and adequate fashion, that the application/database structures are reliable and stable and that the relationships in the application portfolio are suitable and manageable. He must also ensure that the networking facilities, along with those for personal computer use, are supplied with the right technology and the right software

package, and that these facilities (can) work together with those of business software. In short, he is concerned with the structure and interpretation of the technical facilities, from the computer center to the workstation and from ERP to desktop facilities.
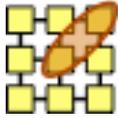
The IT TRENDWATCHER is the manager who keeps up to date with technical developments and new trends associated with these. He is concerned with new technology, new forms of technology deployment along with new methods of construction, and in addition with trends such as 'off-shoring'.
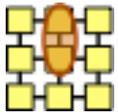
The INFORMATION POLICY MAKER is a heavyweight in information management who outlines and implements policy regarding the 'information household' (Gels, 1996). He is not just concerned with preferred technology or supplier policy or with the information component in the strategy but also with the place of information provision in the organization, supporting operational processes, the extent to which co-ordination problems are tackled and the way in which this takes place. He is also concerned with the basic principles of support for permanent and ad hoc joint ventures along with the degree of freedom in the personal use of IT resources and the way in which this is interpreted. Moreover, policy concerning 'sourcing' will comprise guidelines both with regard to personnel and more technical areas.

So we have distinguished nine information management roles and have described the activities involved with the aspects identified in the Amsterdam Information Management Model. Be mindful however that there is a difference between roles - as described here - as an abstract set of tasks that have to be performed and functions which are assigned to people. A function can consist of different roles!

To optimally employ this approach to information management for real in practice we must to pay attention to the way in which people (students or practitioners) learn and operationalize the concepts in their day-to-day practice. In the next paragraph we will elaborate on this learning demand.

V.   THE THEORY OF SYSTEMIC CONSTELLATIONS

The Systemic Constellation process is a trans-generational, phenomenological, therapeutic intervention with roots in family systems therapy. See for an introduction to this theory a.o. [31]. The Systemic Constellation process is being integrated by thousands of licensed practitioners worldwide. This way of working is becoming increasingly known in the United States. A Constellation can serve as an illuminating adjunct process within a conventional course of psychotherapy. While it is rooted in the psychotherapeutic tradition, the method is distinguished from conventional Psychotherapy in that its primary aim is to identify and release deep patterns embedded within the system, not to explore or process narrative, cognitive or emotional content. The original theory in its current form was developed by the German-born Bert Hellinger. His first book, published in English, is Love's Hidden Symmetry [32]

In practice systemic constellations sessions bring together people to place them in a specific role within the context of the case. From that role they have to follow their feelings and share their thoughts on the topic. Originally the problem owner should select attendants for each role, after which the problem owner will no longer participate in the process.

In our management game we predetermined the roles, based on the AIM roles model. In the next paragraph we will elaborate on as to how we implemented elements of the systemic constellations approach in our management game.

VI.   A PRACTICAL APPLICATION IN IM EDUCATION

Looking at a change project on information management in an organization, it is of vital importance to receive input from all of the different roles. The use of roles is merely meant to aid in looking from different thinking perspectives. In this way it is possible to get a more complete picture of the situation.
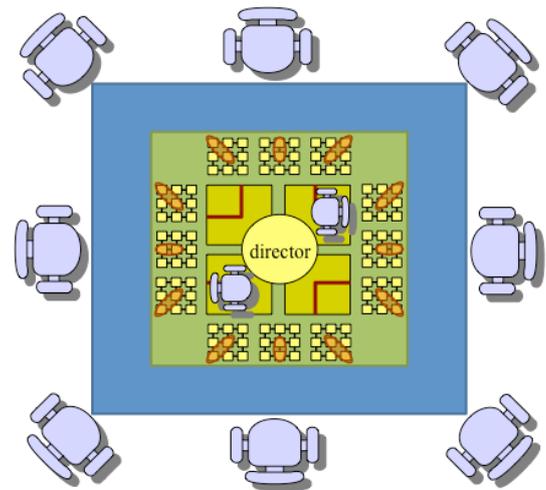

Figure 6: the IM role management game

Eight of the ten participants in the discussion are asked to sit at the outside of an open square table where their position reflects the role they have to play in the discussion. In the middle of the table the remaining two people are asked to play the Directors role. It is their task to lead the discussion, whilst they also have to audibly discuss to whom they will address the next question. Getting insight into the train of thought of the two directors is a learning objective and makes it possible for the other participants to mirror their thoughts to the one of the IM directors. The discussion that will take place in this

setting reflects the insights of the different roles, and forms an important input of the analysis.

This analysis of the needed change can be carried out much more efficiently and effectively by placing everybody in a role, and letting them participate in a broad discussion of the topic, whilst asking the participants to keep responding only from the perspective of their assigned role. After the first round of discussion a broader picture of the actual issues can be drawn, and used to work out a concrete plan.

This approach has been tried and tested in both an educational context as well as in a number of real-life situations, and appears to be successful.

The approach uses elements of the systemic constellation theory. According to the systemic constellation theory a different person should play an identified role. This aspect is explicitly part of the approach. Enforcing people to look at the problem from a different (not their own) perspective helps to get a fresh and inspirational view of the reality.

In the systemic constellation theory placing the participants in a physical location by the problem owner is part of the process. In our approach, if there is a problem owner participating, we ask him/her to choose who has to play which role. Due to the link with the AIM model the places of the roles are fixed to stimulate discussion and communication between closely related roles.

VII.   PRACTICAL EXPERIENCES

The suggested approach helps to better understand the complex relationship between IT and business. It also makes clear that it does make sense to look at reality from a broad perspective. The use of the roles model based upon the AIM-model appears to be of real significant help. We have used the suggested approach both in educational situations as well as in real life situations within organizations. The approach enables people to come together to discuss the case and exchange opinions based on the different roles in the model. This situation also leads to some potential problems:

- Bringing together people from different hierarchical levels may influence and inhibit the freedom of speech of lower-level employees
- In educational settings it is quite simple to get people together. In a business environment this may be a real problem. Particularly higher-level management may be at best reluctant, at worst unwilling, to devote part of their valuable time to playing a management game such as this.
- People who like the sound of their own voices may have more influence in the discussion.
- In practice we have faced problems such as these. Some of the aforementioned problems may be overcome by using modern IT. We are working on a e-learning environment to facilitate the process. For now the results of this system are not yet known, so they are out of the scope of this article and will be part of future research and publications.

- Even though, in its current form the results of the approach are so promising that it should be possible to further elaborate the management game. Further experiments and research remain necessary in this field.

VIII.   CONCLUSION

In this article we have described an approach to aid students and managers in learning and understanding the complexities of information management in a dynamic context. As described in this article we firmly believe that this approach aids in gaining a better insight, and have also found preliminary evidence to support this. This will be a topic for further research. The roles model significantly helps them in the better understanding of the real background of a problem under study. The fact that we enable, even stimulate, people to approach it from multiple different perspectives, helps them to overcome the 'tunnel vision' that may so easily occur when people only start reasoning from their own background.

A further advantage is that the roles model helps the organization to build bridges on information management issues between the different phases of the Adaptive Cycle model. It is this broader perspective that helps the organization to better overcome the organizational crisis. The Characteristic of the current crises organizations are facing is the complexity or even chaotic character of the change. This dictates that the traditional problem solving approaches are no longer valid. The proposed approach for management to analyze the actual context of the change, using elements of a systemic constellation approach, makes better use of the creative capabilities available within every organization. Based upon the first practical experiences it gives a good indication to further develop the described approach for learning.

The link to the Adaptive cycle of resilience, combined with the systemic constellations learning approach, offers a good opportunity to utilize this type of learning in a longitudinal way. This attention to learning as a continuous process helps an organization to deal with the dynamics they are facing.

Even though these advantages are promising, solving the identified potential problems requires still further research and experiments. As mentioned before, one of the most promising innovations is the use of 'computer supported cooperative work' approaches via an interactive website. Results of the development will be published at future conferences.

IX.   REFERENCES

[1]   A. W. Abcouwer and B. Parson, "Sustainable assertiveness - the adaptive cycle of resilience," U. o. Amsterdam, Ed., Working paper ed. Amsterdam, 2011, p. 33.

[2]   R. Sanchez and A. Heene, *The new strategic management : organization, competition and competence*. New York ; [London]: Wiley, 2004.

[3] N. N. Taleb, *The black swan : the impact of the highly improbable*, 2. ed. New York, NY: Random House Trade Paperbacks, 2010.

[4] C. M. Christensen, *The innovator's dilemma : when new technologies cause great firms to fail*. Boston, Massachusetts: Harvard Business Review Press, 2013.

[5] C. F. Kurtz and D. J. Snowden, "The new dynamics of strategy: Sense-making in a complex and complicated world," *IBM systems journal,* vol. 42, pp. 462-483, 2003.

[6] P. Anderson, "Complexity Theory and Organization Science," *Organization Science,* vol. 10, pp. 216-232, 1999.

[7] L. Kappelman, E. McLean, V. Johnson, and N. Gerhart, "The 2014 SIM IT Key Issues and Trends Study: Appendix," *MIS QUARTERLY EXECUTIVE,* vol. 13, 2014.

[8] J. C. Henderson and N. Venkatraman, "Strategic alignment: Leveraging information technology for transforming organizations," *IBM systems journal,* vol. 32, pp. 4-16, 1993.

[9] Y. E. Chan and B. H. Reich, "IT alignment: what have we learned?," *Journal of Information Technology,* vol. 22, p. 297, 2007.

[10] Y. Chan, R. Sabherwal, and J. Thatcher, "Antecedents and outcomes of strategic IS alignment: an empirical investigation," *IEEE Transactions on engineering management,* vol. 53, pp. 27-47, 2006.

[11] Y. E. Chan, "Why haven't we mastered alignment? The importance of the informal organization structure," *MIS Quarterly Executive,* vol. 1, pp. 97-112, 2002.

[12] J. M. Burn and C. Szeto, "A comparison of the views of business and IT management on success factors for strategic alignment," *Information & management,* vol. 37, pp. 197-216, 2000.

[13] P. Yetton, "False Prophecies, Successful Practice, and Future Directions in IT Management," in *Steps to the future: fresh thinking on the management of IT-based organizational transformation*, ed: Jossey-Bass Inc., Publishers, 1997, pp. 27-54.

[14] R. E. Maes, D. Rijsenbrij, O. Truijens, and H. Goedvolk, "Redefining business-IT alignment through a unified framework," Univesiteit van Amsterdam, Amsterdam 2000-19, 2000.

[15] L. D. Introna, "Strategy-as-identity: An Autopoietic Contribution to the IS/IT Strategy Debate," in *Information management: setting the scene*. vol. 1, A. Huizing and E. J. Vries de, Eds., ed Amsterdam: Elsevier, 2007, pp. 143-158.

[16] C. U. Ciborra, "De profundis? Deconstructing the concept of strategic alignment," *Scandinavian Journal of Information Systems,* vol. 9, pp. 67-82, 1997.

[17] H. J. Leavitt and T. L. Whisler, "MANAGEMENT in the 1980's," *Harvard Business Review,* vol. 36, pp. 41-48, 1958.

[18] J. Luftman and T. Ben-Zvi, "Key issues for IT executives 2011: Cautious optimism in Uncertain Economic Times," *MIS Quarterly Executive,* vol. 10, pp. 203-212, 2011.

[19] J. Luftman and R. Kempaiah, "Key Issues for IT Executives 2007," *MIS Quarterly Executive,* vol. 7, pp. 269-286, 2008.

[20] J. Luftman, R. Kempaiah, and E. Nash, "Key issues for IT executives 2005," *MIS Quarterly Executive,* vol. 5, pp. 81-99, 2006.

[21] M. Herbert and C. Hartog, "MIS rates the issues," *Datamation,* vol. 32, pp. 79-86, 1986.

[22] J. C. Brancheau, B. D. Janz, and J. C. Wetherbe, "Key Issues in Information Systems Management: 1994-95 SIM Delphi Results," *MIS Quarterly,* vol. 20, pp. 225-242, 1996.

[23] J. C. Brancheau and J. C. Wetherbe, "Key Issues in Information Systems Management," *MIS Quarterly,* vol. 11, pp. 23-45, 1987.

[24] R. Nath, "Aligning MIS with the business goals," *Information and Management,* vol. 16, pp. 71-79, 1989.

[25] A. W. Abcouwer, J. Truijens, and H. Gels, *Informatiemanagement en Informatiebeleid*. Den Haag: SDU, 2006.

[26] A. W. Abcouwer, R. Maes, and J. Truijens, "Contouren van een generiek model voor informatiemanagement," *Tijdschrift Management en Informatie,* vol. 5, pp. 92-102, 1997.

[27] A. W. Abcouwer, H. J. Gels, and J. Truijens, *Informatiemanagement en informatiebeleid*: Academic Service, 2006.

[28] R. Maes, "An Integrative Perspective on Information Management," in *Information Management: Setting the Scene*, A. Huizing and E. J. Vries de, Eds., ed Amsterdam: Elsevier Science, 2007, pp. 11-26.

[29] R. E. Maes, "IM in kaart gebracht, Primavera workingpaper series 2003-02," Universiteit van Amsterdam, Amsterdam 2003-02, 2003.

[30] D. Avison, J. Jones, P. Powell, and D. Wilson, "Using and validating the strategic alignment model," *Journal of Strategic Information Systems,* vol. 13, pp. 223-246, 2004.

[31] D. B. Cohen, "Begin with the work: Constellations in large group systems," *EJ Lynch & S. Tucker, Messengers of healing: The family constellations of Bert Hellinger through the eyes of a new generation of practitioners., Zeig, Tucker & Theisen,* 2005.

[32] B. Hellinger, *Love's hidden symmetry: what makes love work in relationships*: Zeig Tucker & Theisen Publishers, 1998.