Investigation on Dynamics of Structure Change in Organizations:The Cultural Aspect

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Abstract— **Implementing a successful change in organizations usually needs critical considerations.Numerous changes in organizations did not triggered or did not stabilized as managers did not consider different aspects and dynamic effects in the change process. In this paper a change in the hierarchy of a specific company is investigated. This change leads to setting new routines and rules, therefor some of the employee's norms and habits should be altered. Thus , cultural aspects of this change are studied. A dynamic model is built and some insights are concluded from the model to implement a more effective change.**

Keywords. Organizational Culture,Learning, Resistance to change.

I. Introduction

Institutionalizing a suitable norm in an organization is a useful way to make it more effective. This is because effective norms and rules align employee's behavior with organization's goal. Some organizations succeed in institutionalizing norms, and this success is their competency (as an example Mitsubishi employees ask themselves five time about the reason when they want to do a job). However, for the most of organizations (Iran's organizations in our attention) the process of change in procedures and norms fails to complete or even cannot set off. The goal of this paper is at first to analyze the process of institutionalizing new procedures and new norms in a company and then finding the policies and characteristics that lead the organization into a successful change. The case study: In order to be more specific about Iranian organizations we worked on a case study in "X " Co. (one of Iran's leading engineering, procurement and construction companies). The company has been working for thirty years with project-based structure. In this structure PMs (Project Managers) had full control of the project and all of the project parts (including QA, Design, etc.) were their responsibility. Also they had direct contact with the CEO of the company when they faced a problem. As company grew up and number of projects which the company got annually increased, top managers sensed the necessity of change in their structure. They had two reasons for this change: First, the CEO didn't have enough time anymore to solve all PMs' problems. Second, as in this structure PMs were responsible for all of the projects parts the knowledge of the organization was limited to PMs' tacit knowledge. As a conclusion, company managers decided to add a department named "Engineering Department". First, PMs should refer to this department when facing problems during the projects (this rule relinquishes CEO's time). Second, Engineering Department gets some project parts that were in PMs' control before (Design, Quality Analyses and some other parts that control the quality of outputs of the projects). The latter leads to more knowledge elicitation and more knowledge externalization therefore company's more absorptive capacity (Nonaka,1996). Managers first declared the changes in structure and declared new rules, but there were few PMs who execute the project tasks with new processes. Afterwards, top managers set some policies to trigger the change (momentum policies):

- To change the Engineering dep. Chairman
- To declare new rules more in details and make them more accurate
- To penalize PMs who don't cooperate with Engineering dep. (Reducing their income and giving less projects to them)

However, after a year nothing changed and most of PMs stuck to previous ways. We, as a consulting group investigated the causes of this change defeat. We first studied change and culture literature, then interviewed with the company managers. Afterward we built a model with system dynamics approach and got some insights from the model. Finally we suggested some policies to the company to implement a successful change process. In this paper, we summarize the literature related to this problem, conceptualize our model and then analyze the behaviors which we understood from the model. Structure change and Organization culture: You may ask now how changing and institutionalizing a norm is related to reforming companies chart? So you might know that working with same rules and collaborating with each other in same context for a long time will put employees in a stable phase with related assumptions, values and ideas, therefore changing a chart in such cases are not simply rearranging employees in a different way. The complexity of this change will be even more if such modification is against cultural context. For instance in Iran, most managers use direct management as their method of administration therefore project managers in these Iranian organizations are somehow companies honchos, so any revision in structure which jeopardize their role will be highly confronted. As a result these challenges for modification of a company chart necessitate careful and accurate steps regarding Organizational Culture.

II. Literature review

Having a retrospect on the literature of culture and changing culture, introduced some crucial variables and concepts that

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have a powerful impact in creating as well as changing the culture. Starting from the most important concepts we can name ”Motivation to change” which is highly related to ”Satisfaction” with past conditions comparing to the new condition. It shows how content the employees are about the norm. for example in coercive policies, when there is no reward and managers only use their power to implement the norm, one probable scenario will be a transient increase in norm adapters and a collapse afterwards. The employees are not pleased with current norm and after a while they will not accept it anymore. On the other hand we have the concept ”Sabotaging the norm adaptation” by disobedience and confrontation new conditions. Some individuals may see the new norm against their benefits. As an instance, some groups have some abnormal salaries, and after setting a rational method for evaluating the salary, their should decrease. So they'll try to resist against new policy. (Senge,1999) Another principal concept is ”Number of employees who accept the norm”, number of staffs in organization that obey new rules and its correspondent conditions are as crucial as ”how much of new rules employees comply with” therefore if we want to combine this two concepts from literature to a key variable we shall state ”Percentage of executing second processes”, average of the amount of compliance through employees.

As cultural changes are associated with employees mental model, their perception about new situation, their values and assumptions about norms, their perception about their own benefits and condition will all form their willingness to accept the change or not. We have some other variables such as ”Individual benefits in doing the norm” which can be divided in two main categories: firstly Financial and secondly Psychological; in Financial part: Managers make some rules for paying for performance or there exist innate financial benefits in the norm (Belfield and Marsden,2003)(Erikssona and Villeval,2008)(beer and cannon,2004). And in Psychological part: If the norm is compatible with set of values of individuals, so there is a psychological benefit and staff will eagerly accept the norm(Schein,1984).this key variable will be elaborated in benefit and employees' mental model sector completely.

Another concept in the literature was ”Anxiety Avoidance” which is described by Schein; Schein (Org. culture, 1984) explains two learning procedure leading to culture elements. According to Schein's definition culture is a set of solutions to the environmental problems. Here is one of them: As employees face a problem, they may find a way for bypassing it. For example when they face a rough supervisor who is employed for technical helping, they prefer not to interact with him. As they are more satisfied when they don't interact with him, the way of bypassing the supervisor becomes one norm of their culture even when it has changed! We have the variable ”Availability”. Alternative for current norm is available if employees ”(a) are aware of alternatives and (b) have developed, or could quickly develop the organizational routines to support the alternative frame.” (Wilkins,1988) This kind of availability is mental. The other kind is physical which means employees ”have developed enough skill as a group to implement an alternative frame” (Wilkins,1988) Also we have the concept ”Risk Avoidance” similar to ”anxiety avoidance” but in case of fear to do something new and challenging. Finally we have some other related concepts such as ”Networking in organization”, ”Org. communication with environment”, ”Groups interrelations” which all were ignored in our model. Because there were only 9 PM s involved in the change process the effects of the aforesaid factors were negligible in result in our case study. Consequently we couldn't use them directly in model.

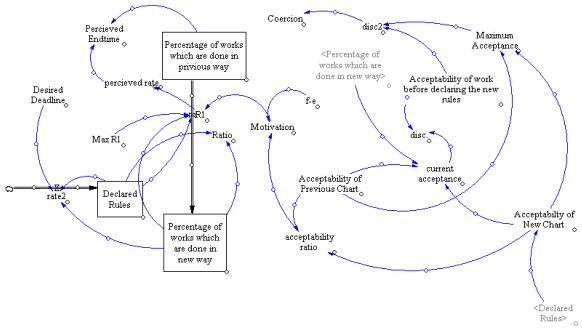

Fig. 1: Executation Sector

III. Conceptualiztion

There are 4 different interrelated sectors in the model: Execution sector, Quality of new rules sector (or Result sector), Project Managers' individual benefit sector and Project Manager's Motivation sector. In ”Model Sector” section, each sector of the model is explained respectively, and then the interrelations between sectors are conceptualized by explaining the important dynamics of the model.

A. Execution sector

When the company asks for a change in the way tasks are done, some of the employees will conform to new rules and some who don't accept new rules and stick to previous norms and procedures. This sector (Fig 1) consists of the ”percentage of works which are done in new ways”, ”percentage of works which are done in previous ways” and the ”flow between them”. Obviously, a successful change can be measured by the ”percentage of doing works through new rules”. When it goes up in a reasonable time and stabilizes, a successful change has occurred.

It's Top managers' duty to decide the level of change in rules and norms that they want to ask from employees in each Period. They may want to set the final goals from the beginning or set milestones and want incremental change. ”Declared rules” represents this level of change that the company managers want from employees in each interval of time. This variable is one of the decision variables of the model which we will analyze later in the policy section.

B. ”Quality of new rules” sector

This sector (Fig 2) indicates quality of the works which are done through new rules and procedures. The most important variable named ”result” demonstrates the output quality of

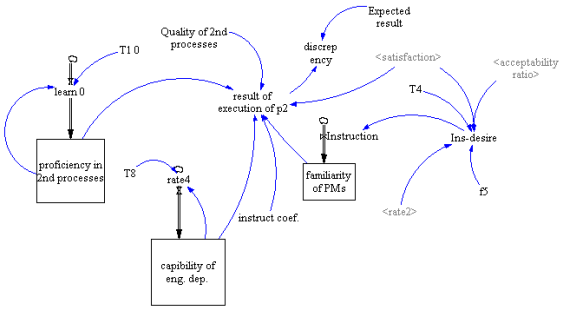

Fig. 2: ”Quality of new rules” sector

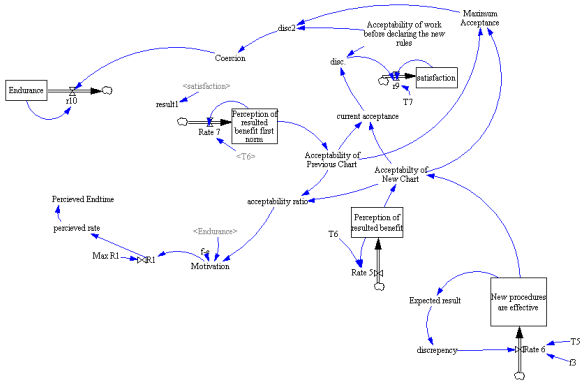

Fig. 3: ”Project Manager’s motivation” sector

the works done in new ways. As interaction between engineering department and project managers (in new rules) makes the output, the result depends on both sides. Thus, the result is function of several other variables: ”Capability of engineering department” in doing the assigned jobs, ”Proficiency (of project managers) in executing in new procedures” and ”Familiarity of project managers” with new procedures. These two concepts (”Capability of engineering department” and ”Proficiency (of project managers) in executing in new procedures”) are the interpretations of the literature variable ”physical availability” (Wilkins 1988) and the concept of familiarity is the interpretation of ”mental availability” (Wilkins 1988). Two rational simplifying assumptions in this case are:

- In our case study PMs were totally adept and experienced enough to complete the project. Thus, Capability of PMs in this case doesn’t matter and it is fixed at a constant great number. In contrary Capability of Eng. Department plays a great role, since they are starting to experience something new.
- PMs are the core of change process, means that they are proficient in doing 1st processes and have worked in old standards (directive management). Thus their proficiency in standards matters. Unlike PMs, Eng. Department employees should not change their method of working. So their proficiency is not an important variable.

Also level of employee’s ”satisfaction” affects the results by changing Project manager’s efforts for learning which will be discussed later.

C. ”Project Managers benefits” sector

There are several merits that each project manager has while working in the company. Here are three important ones that are elicited by interviews with the company managers. First, the ”Income”, Second their ”Credit” in the company (which means to what extent company relies on each of them and gives vital projects to them), and third the ”Authority” that they have in making decision about different project parts. These are the parts of the model which can be regulated by the company managers by setting awards and credit bonuses for the ones who completely the new rules.

D. ”Project Manager’s motivation” sector

This sector’s output is Project manager’s motivation (See Fig 3). The motivation affects the flow between percentage of work in old and new ways. If Project managers are encouraged enough they will conform to the change that means they will do their tasks more through second processes. Four different variables create project managers’ motivation. Three with respect to expectancy theory as a rational perspective; Project managers’ ”perception of individual benefit” in new conditions (as a value of the outcome or Valance), their ”proficiency” and their ”perception about how effective the new rules are” (as a relation between the effort and the performance or Expectancy) compared to those of old rules will create first part of motivation. It means that if project managers see their benefit in complying with the change and if they think that their efforts will result in favorable performance that creates those benefits they have enough motivation to put effort in using new procedures. In other words they should see themselves capable of working with new processes and new processes should be effective enough that they think they can be successful if they work with new procedures. (Vroom, 1964). The last variable due to Senge conceptualizations is the ”endurance” to conform to change. Although employees think of change as an unconstructive action, which means if you force employees to do something in a long period without persuading them that such activity is necessary or good for the company they may conform for a short time but after a while they will gradually begin to disobey and the change will fail. (Senge, Peter,1999)

IV. Model Dynamics

The First loop (Fig 4) is the one which relates execution sector with quality of new rules and Project Managers motivation sector. By accepting and working with second processes experience and proficiency of both Project Managers and engineering department will improve. We will see better quality and result (our assumption is that second processes are effective if Employees know how to use it and if they have enough motivation), thus project managers will gain more credit and their income will also increase. Therefore they will see their benefit in doing their works through second processes and their

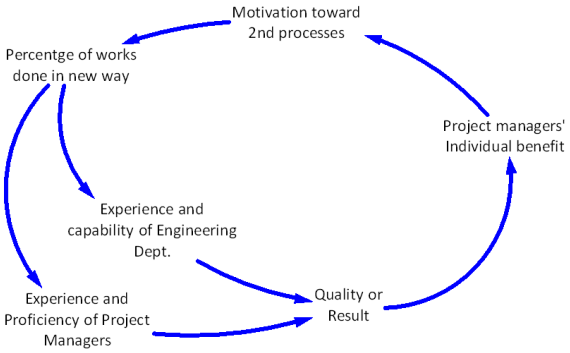

Fig. 4: Model Dynamic

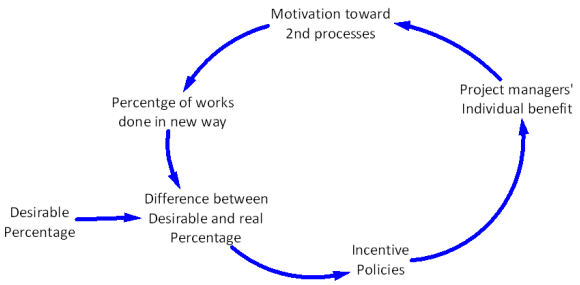

Fig. 5: Model Dynamic

motive for accepting second processes will increase compared to old ones. They will cooperate more and more with the change that means the Percentage of works done in new way increases.

The Second loop (Fig 5) is very similar to the first one; it is relating those sectors named above, but instead of increasing benefits through better quality and result, their income and credit will increase as a result of company's policy to encourage project managers to conform to the change. As you can see this positive loop is intensifying favourable consequences of the first one. Although you may think this is a policy loop but we explained it here because in our case they were already using this mechanism.

As we described earlier in Sector part, project managers' positive perception about how their effort can result in favourable

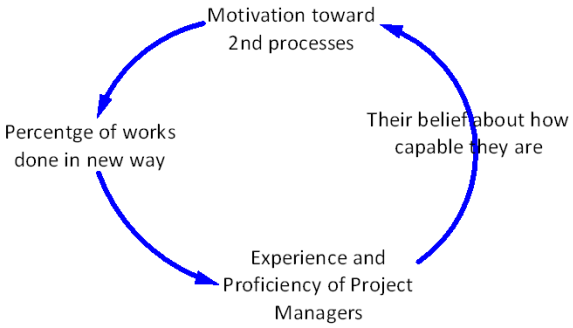

Fig. 6: Model Dynamic

Fig. 7: Model Dynamic

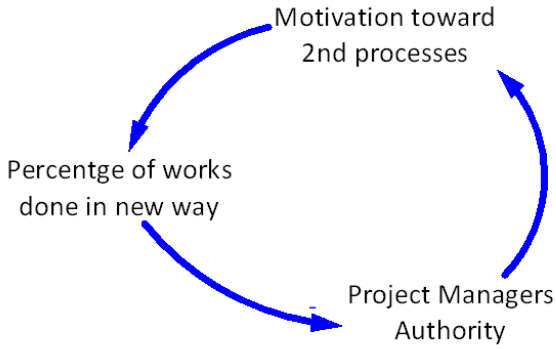

Fig. 8: Model Dynamic

outcome will enhance their motivation; The third loop (Fig 6) is that if they work more with second processes and gain proficiency in working with them, they will see themselves more capable of being successful with new procedures thus they will be more encouraged to Conform the change and do their tasks through new processes.

The fourth loop (Fig 7) is also related to their expectancy of how their efforts will result in successful performance; if they work more through second processes both Engineering department and project managers gain more experience , the quality and results of project parts improves, their perception about how effective second processes are, also improves. As a result their motivation for obeying second rules and processes increases. The "percentage of works done in new ways" increases, again they achieve more experience and so forth. It's important now to mention that another way to increase project managers applied knowledge about second processes and as a result quality of projects is training sessions.

There are two more loops, both negative loops that create resistance to change. The fifth loop (Fig 8) is that as Project managers work more in new procedures their authority decreases and they lose their motivation compared to old situation. Therefore their compliance to change will decrease.

The Final loop (Fig 9) is that if Top managers force project managers to obey new rules their endurance to tolerate this condition diminishes gradually and in long term their motivation decrease substantially. They won't work through new processes after, if they continue to work for the company.

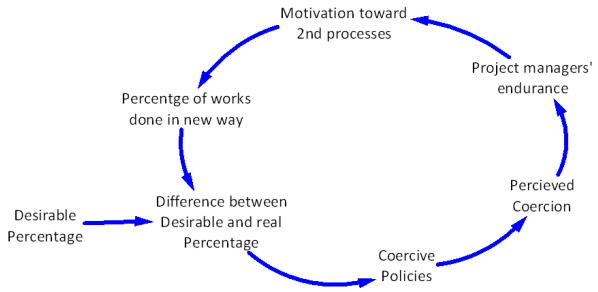

Fig. 9: Model Dynamic

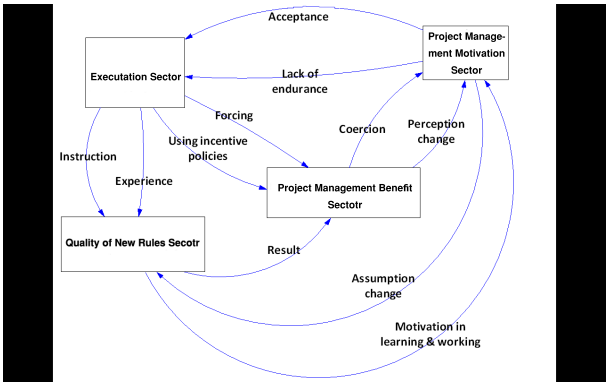

Fig. 10: Sector map and causal loops

However as you may see later this doesn't mean that little force is unconstructive because if by working through new rules Quality of projects improves, their perception about new procedures may change. They may gain more credit and income and as a result they won't perceive coercion any longer. If everything goes well they won't lose their endurance. (Senge,1999) also the total sector map which contain explained sectors and their relations is available in Fig 10.

V. Behavior Analysis

There are three decision points in the model which can be regulated by company managers:

- "Goal setting": Managers can decide whether to ask for a radical change in the procedures or follow a time table to declare the milestones of the change. They can choose whether to declare and formalize new rules abruptly or with moderate pacing.
- "Penalizing policy": Managers can make part of PMs' income and credit dependant to their level of cooperation with the engineering department. As a result of this policy, the income and credit of ones who disobey new procedures reduces. This is a coercive policy for implementing the change.
- "Incentive policy": Instead of penalizing, managers can set bonuses and extras in income and credit to PMs who cooperate with the Engineering department.

There is also a condition point in the model, that is: "whether new rules and procedures are effective or not". This can affect the result of execution through new procedures therefore it can affect the change success. Now the model runs with different

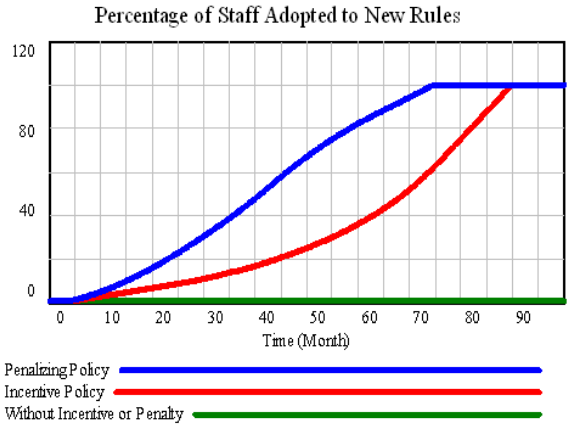

Fig. 11: Percentage of Staff Adopted to New Rules

policies in decision points and difference in condition point are demonstrated:

A. Implementing "Incentive policy", "Penalizing policy", or none of them: (new procedures and processes are effective.)

As you can see in the Fig 11, without penalizing or incentive policy, the change didn't triggered. Since at the beginning of the change process PMs don't see anything interesting in 2nd processes there is no motivation to change. (Even their authority is in danger when executing new procedures and they don't have proficiency in executing through new rules). This mode shows that without an initial exogenous policy to motivate PMs change will not be triggered. By implementing one of the penalizing or incentive policies, PMs have some motive to change. Comparison between behaviors of PMs in these two policies shows that PMs adopted to new rules faster when coercive (penalizing) polices was implemented. This shows that incentive policies are less effective than coercive ones. The Prospect theory confirms this result. This theory models the way people choose between alternatives. The part of the theory that relates to this subject is "There is a bigger impact of losses than of gains (loss aversion)". In this case, PMs are more sensitive to penalizing and losing part of their income and credit than to gaining some extra income or credit. Thus, coercive policies are more effective. Obviously, when both of incentive and coercive policies are implemented, the change is faster.(See Fig 12)
However, there seems to be a contradiction. As we saw in the model dynamics, when coercion is used and people do what they don't want coercively, their endurance decreases and may lead to lack of motivation to change. But we saw that coercive policy (in this case penalizing) works! The answer is in the next part of behavior analyses.

B. When Forced learning is effective?

Coercive policy works if new procedures are really effective and executing them improves results. As the figure 13 shows, when there are ineffective rules and processes, coercive policies don't succeed and people turn into their previous norms

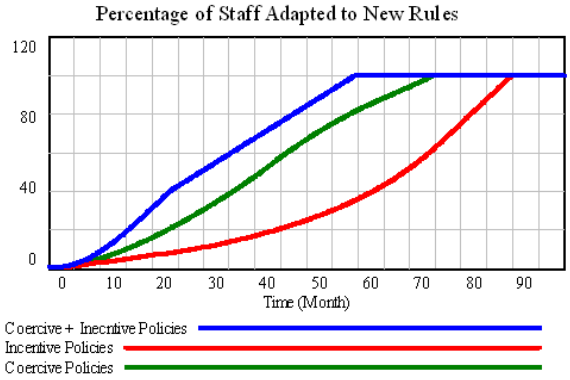

Fig. 12: Percentage of Staff Adopted to New Rules

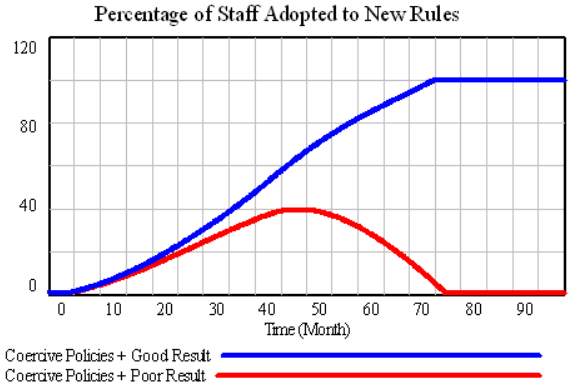

Fig. 13: Percentage of Staff Adopted to New Rules

and procedures. But when new procedures and rules are trusted and effective, Forced Learning occurs. It means that, although PMs don't agree with new processes at first, they are forced by company managers (by means of penalizing policies for example) to execute their tasks through new ways. Therefore they are unsatisfied. Then after seeing the results of working in new ways, their assumptions about ineffectiveness of new rules change, the change satisfy them and they will be supporters of the new procedures(See Fig 14). That is how Forced Learning works. In contrast, when there are bad results because of the new rules, they feel they are forced to do something ineffective. Thus their motivation for executing works with new rules decrease and after a while they will turn to previous procedures.

C. The way of goal setting

Two methods for declaring changes and asking for adoption to changes are presumed. First they can declare all the changes abruptly. This means that company managers want PMs to fully cooperate with engineering department from the moment that change is declared. Second, they can make a time table to change the structure and declare and set new rules with moderate pacing. In this strategy company managers want PMs to gradually adapt to new procedures, meaning that they should first cooperate with engineering department in a fraction of tasks in project and the Engineering department roles gradually

Fig. 14: Staff Satisfaction

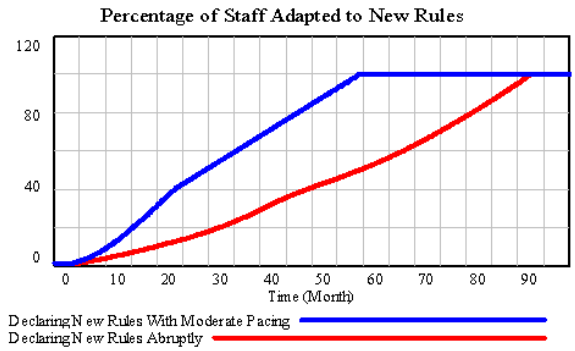

Fig. 15: Percentage of Staff Adopted to New Rules

increment. As you can see in the Fig 15,16 moderate pacing is way more effective.

In the case of Declaring abruptly, the percentage of executing second processes has reached to 100 percent after more than 90 month, however if the second processes haven't been introduced too quickly, the manager could reach 100 percent execution of second processes in less than 60 months. This implies that introducing numerous tasks in a short time interval causes employees to feel overwhelmed, thus reluctant to conform to new rules. Staff assumption didn't improve at the beginning. Staff satisfaction is noticeably low because of poor results as well as manager's coercive policy, imposing

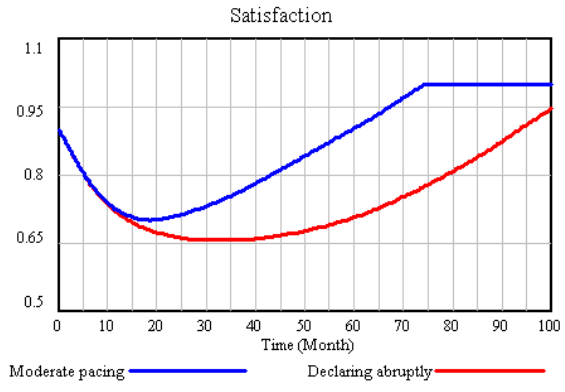

Fig. 16: Satisfaction

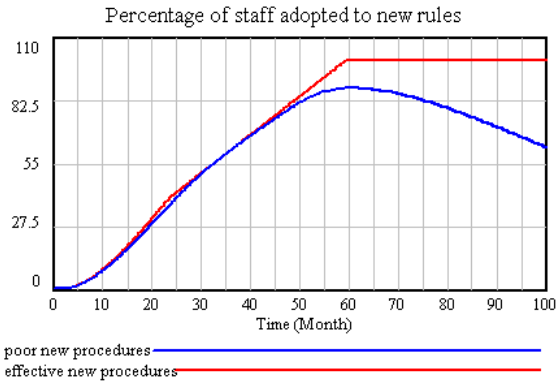

Fig. 17: Percentage of Staff Adopted to New Rules

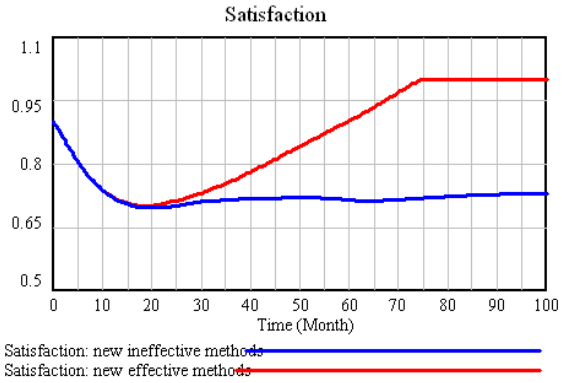

Fig. 18: Satisfaction

an unfair pressure on the employees. Employees' endurance has also fallen just like satisfaction, decreasing motivation leading to staff's unwillingness to get along with new rules and therefore reaching manager's goal with more delay.

D. Is a stable change possible without effective new procedures

The Figure 17 compares the mode with effective new procedures and the mode with all of possible positive strategies (penalizing and incentive policies and moderate goal setting) but ineffective new procedures.

Here, the staff have almost reached the manager's goal on time, about 90 percent of tasks are accomplished using new processes, nevertheless bad result gradually discourage employees continue with new methods.

As Figure 18 shows, satisfaction of doing the tasks in new ways will drastically fall in the beginning because of bad results and penalty policies and the employees will follow previous methods or other effective ones to circumvent new processes to reach good results again. Poor results accompanied by strict penalty policy will make the staff intolerant after a while leading to voluntary quit or sabotage. This supports the idea that the manager cannot force employees to do something leading to bad results forever.

VI. Acknowledgment

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VII. Conclusion

Running the model with different policies had some insights that are mentioned above. Here is the summary.

A. Necessity of some incentive or coercive policies

in the change process, when we expect employees to adopt themselves into some new standards, we should make the change attractive for them. At the beginning there is no motivation to change since they don't know new method benefits. So the only way for setting up the change is to declare some incentive and coercive policies.

B. Forced learning

using force (coercive policies) to make employees change their way of doing works has some side effects like making them intolerant and less satisfied. However, when new method is effective, coercive policies cause the employees start new method and after experiencing the method, they'll become familiar with it and their assumption about the method improves. After that they will be content with working in new standards. This is called forced learning and shows that coercive policies are not always unsuitable.

C. Incentive policies effect limitation: someone may suggest

"We can use incentive policies to make the change start so we don't have the coercion side effects." The answer is the part of prospect theory: There is a bigger impact of losses than of gains. People are more sensitive to losses, thus penalizing policies are more effective. Less important effect limit is the firm available capital to allocate it for rising money or implementing other incentives. Thus we should have coercion to accelerate the change process.

D. The way of declaring new standards (second procedures)

As the firm initiates new standards in a short time, the employees do not have enough time to become proficient enough in new processes. So the result of second processes will fall. Poor results will discourage employees to get along with new rules. Besides by rising second processes abruptly the ratio of "proficiency to second processes" collapses. This means staffs are overwhelmed with numerous new processes, so they prefer not to go on with the change process. So managers should declare the methods gradually. 5. High quality of second processes is inevitable: when the quality of new standards are low, after making employees executing second processes you should make them accept and remain in something ineffective with coercive and incentive policies. Even if you don't have monetary limitations, their

endurance decreases and they won't continue executing in low quality processes. If you only use incentive policy, it doesn't have enough effect to make them even try new processes. As a conclusion high quality of second processes is inevitable.

All in all, for reaching the goal of complete change, our recommendations are:

- Managers should first pay attention to the quality and effectiveness of new processes for a stable change.
- Managers should first use coercive and (if affordable) incentive policies to start the change. Then employees will learn about the effectiveness of new processes and managers may now discontinue the coercive and incentive policies. (Forced Learning)
- Managers should avoid initiating new standards in a short time.

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