Building Understanding of Organizational Change

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Abstract: *This article presents some insights from ongoing implementation of BP's Operating Management System (OMS) in Alaska. BP aspires to improve the way it operates and become a sector leader in personal safety, process safety, environmental management and operations excellence. In this paper, the OMS implementation is examined as a process of organizational change. One of the early stages of that process is to build understanding of the organizational change among those responsible for implementation. For that purpose a System Dynamics model and model based simulator were used. The article presents an overview of the model, which is based on established theories of transformation. Some simulation scenarios were examined to illustrate the results of various policies, and to test ideas thought to increase the probability of sustainable change. Implications for organizational learning are discussed.*

Key words: organizational change, dynamic model, simulator

1. Introduction

Change has become a fact of life for most of organizations today. Defined by Porter market forces, i.e. threat of substitute products, threat of the entry of new competitors, intensity of competitive rivalry, bargaining power of customers and bargaining power of suppliers (1979), become truer today than ever. Furthermore, the sustainable development issues, i.e. looking for a balance between today growth and tomorrows development, create the new challenges for organizations (Bielak et al. 2007; Mendonca and Oppenheim 2007; Bonini et al. 2008). Organizations that are willing to continue their existence and operations in the new market situation are forced to undertake the effort of change.

Unfortunately, despite the fact that the idea of change is so common and popular nowadays, an enormous amount of companies that tried to change failed or their transformation was not sustained over time. Even among organizations that tried to use various techniques designed to help in the process of transformation (e.g. reengineering) most have not gained a significant results (Hammer and Champy 1993). Those examples show that the good intentions are not enough.

On the other hand we know examples of 'widely successfully initiatives'– change initiatives that had seemed to be virtually impossible but that produced breathtaking results (Linder 2008). Only to mention Lima Refinery, Ohio, that in 1996 was first to be sold and later shut down, effective in August 1998. The effort of all employees and their involvement in proactive maintenance improvement program resulted in such significant results that in June 1998 Clark Oil bought the refinery for $215 million (Kuenzli et al. 1998; Linder 2008). The proactive maintenance program within the refinery did not stop at that time. It became a habit of every employee, the new way of operations. That change was sustained. The employees continue to eliminate defects, which leads to further improvements (Ledet et al. 2005). In 2007 the Husky Energy acquired Lima refinery from Valero for $1.9 billion. As Wall Street Journal pointed out the price of the Husky deal was 51% higher than other deal completed that year in the US (Heinsohn 2007). Some of the Lima Refinery results are presented in Figure 1.

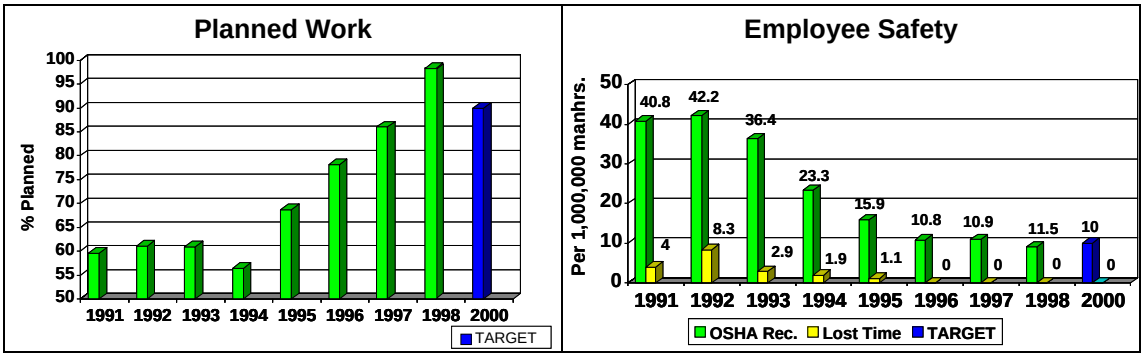

Figure 1. Lima refinery Planned Work and Employee Safety (Kuenzli et al. 1998)

One may ask what does it take to achieve such breathtaking results? Nowadays, BP is struggling with such question. Concerned with its operations and especially such events as March 2005 explosion and fire at the Texas City refinery, problems with operational integrity of pipelines in Alaska as well as 'Thunder Horse' oil rig in Gulf of Mexico, BP committed to establish and implement OMS – Operating Management System – a set of standards and guidelines defining the way BP is to operate. Following Anthony Hayward, Chief Executive of oil and energy company BP Group: '*OMS will be applied everywhere around the world, prioritized on the basis of risk. In time, it is intended to make BP a sector leader in personal safety, process safety, environmental management and operations excellence.*' (OMS 2007)

OMS will be the 'BP way' to realize future vision as the energy company operating on the global market. It takes 'only' to transform the whole company and implement OMS. BP leaders and champions of change are well aware that the whole process of transformation will not happen over night (a wish a lot of managers in various companies around the world have, while undertaking a change process). It will require everyone's involvement into certain processes and actions. This article presents one of the first actions undertaken for the purpose of OMS implementation, namely building understanding of organizational change. For that purpose a System Dynamics model is used together with based on it simulator.

The article is organised as follows. In the next section an overview of the System Dynamics model of transformation is presented. Section 3 discusses the dynamics of the model. The final section makes some closing remarks.

2. Model of Transformation

The System Dynamics model of organizational transformation is build based on two concepts of change. The first concept was developed by Kurt Lewin (1947), the psychologist who studied group dynamics and organizational development. He considers change as a three-stage process, namely 'unfreezing' (overcoming resistance to change), 'change' (the change occurs), 'freezing' (establishing organization on the new level).

Another concept of change was developed by John Kotter (1996; 2007). Based on research of more than 100 various companies he identifies eight phases that allowed organizations successfully complete the change journey. One must be aware that mistakes in any of the phases can jeopardize the effort of change. The particular transformation steps encompass:

1. **Establishing a Sense of Urgency**
2. **Forming a Powerful Guiding Coalition**
3. **Creating a Vision**
4. **Communicating the Vision**
5. **Empowering Others to Act on the Vision**
6. **Planning for and Creating Short-Term Wins**
7. **Consolidating Improvements and Producing Still More Change**
8. **Institutionalizing New Approaches**

Using the ideas from both concepts of change, an overview of the OMS implementation journey, BP is facing nowadays, can be illustrated as in Figure 2. This figure can be perceived as a high level overview of the System Dynamics model. During the process of change the employees 'flow' along four stages (being aware of urgency, understanding vision, being empowered and being engaged) to finally become OMS Fully Engaged Employees. The flow of employees is catalysed by certain actions and activities described in details in the following part of this.

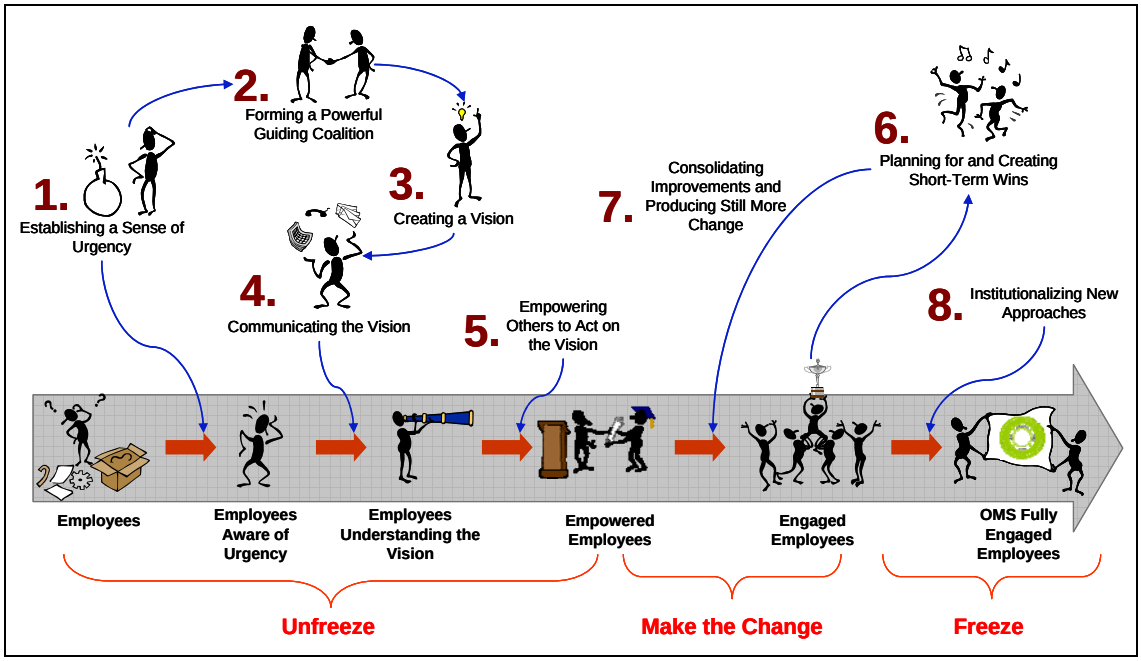

Figure 2. Illustration of the transformation process to implement OMS

Step 1 – Establishing a Sense of Urgency

Sense of urgency – be it decline in performance results, new market opportunities or crisis – was a reason for most of the change efforts in various organizations. In our model we considered crisis as a driver to establish a sense of urgency (Figure 3). Crisis can be developed (Welch and Welch 2005) or realized by managers. Realizing and admitting of the crisis may take a significant amount of time. Only when the crisis reaches certain level it is communicated among the employees, making them flow to the first stage of being aware of urgency (see Figure 2). However, if the developed/realized crisis is not significant enough or if managers fail to communicate it among the employees, the whole process of change, yet in its early stage, might be jeopardised.

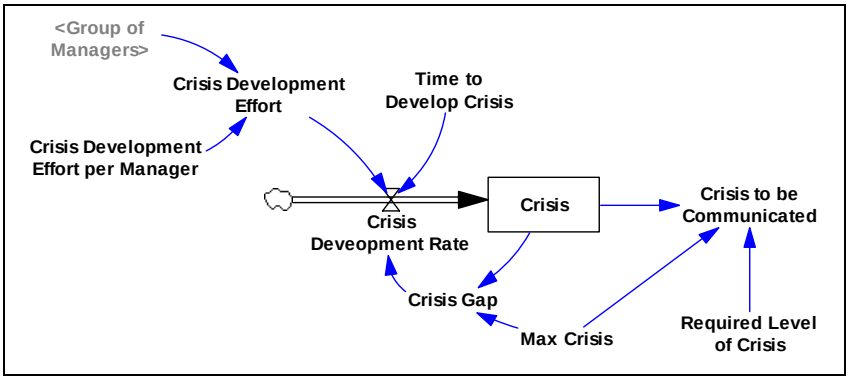

Figure 3. Crisis development

Step 2 – Forming a Powerful Guiding Coalition

Following Kotter one of the obstacles during the second stage of the journey can be a situation when a company has too many managers and not enough leaders. In any organization managers and leaders has distinctive responsibilities. Managers cope with complexity through planning and budgeting, organizing and staffing, and controlling and problem solving whereas leaders cope with change by setting a direction, aligning people, and monitoring and inspiring (Kotter 1990). Kotter argues that '*Change, by definition, requires creating a new system, which in turn always demands leadership*' (Kotter 2007). For that reason a pre-requirement of change is to have enough leaders. In the System Dynamics model there are considered three ways of becoming a leader (Figure 4):

- Hiring – leaders are employed from outside of the company,
- Promotion – employees are promoted to the rank of leaders with assigned authority and accountability,
- Transformation - some managers within organization can transform and become leaders.

In our model the '*Group of Leaders*' is considered a Guiding Coalition. How powerful it is, depends on the number of its members compared to the number of managers.

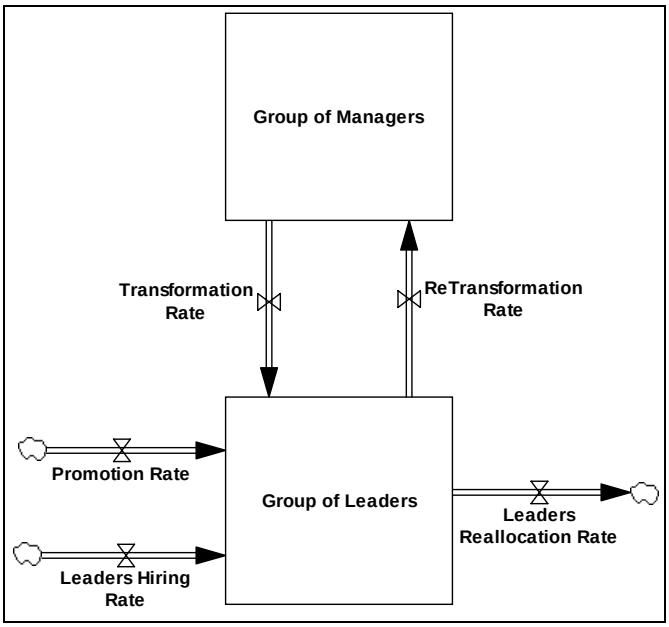

Figure 4. Managers and leaders

After successful organizational change, while the organization is 'freezing', there is not so much need for leaders, however. Some of them might become managers to cope with the complexity of the new system, and others are to be re-allocated or leave. Still, one has to remember that both managers and leaders are necessary in any organization, even after the change process is completed. As Kotter argues '*the real challenge is to combine strong leadership and strong management and use each to balance the other*' (Kotter 1990).

Step 3 – Creating and communicating a Vision

The leaders constituting the guiding coalition are required to gather, analyse information and through a process of strategic thinking develop a sensible vision of the future for the organization (Figure 5). It is required that they are willing to take the risk of acting upon the vision (sometimes referred as 'walking the talk') simultaneously inviting other employees to join them in this effort. For that reason the developed vision shall be easy to communicate. Kotter suggests using every possible channel to share the vision with others. In that process employees, who were aware of urgency, are becoming employees understanding the vision (see Figure 2).

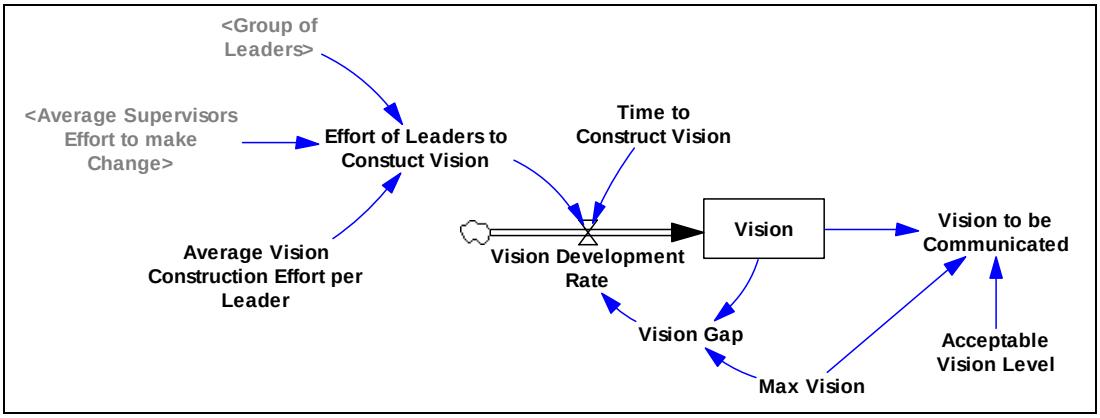

Figure 5. Development of the vision for future

Step 4 – Empowering Others to Act on the Vision

The vision itself and its communication is not enough, however. The guiding coalition is supposed to empower employees allowing them to develop new ideas and try new approaches that will bring the results that fit well with the new vision. The role of leaders it to remove obstacles, which might block the change related actions. The process of empowerment conducted by leaders makes '*Employees Understanding the Vision*' become '*Empowered Employees*' (see Figure 2).

Step 5 – Planning for and Creating Short-Term Wins

As indicated in the introduction, the reason for OMS implementation is to make BP a sector leader in personal safety, process safety, environmental management and operations excellence. For the purpose of the modelling we refer to all these four priorities as to 'performance' (Figure 6). Implementation of OMS aims to close the gap between the current situation, i.e. '*Actual Performance*' and '*Desired Performance*' – the future conditions determined by OMS standards. From that perspective 'short-term wins' are quick improvement actions that can be realized to close part of the '*Performance Gap*'.

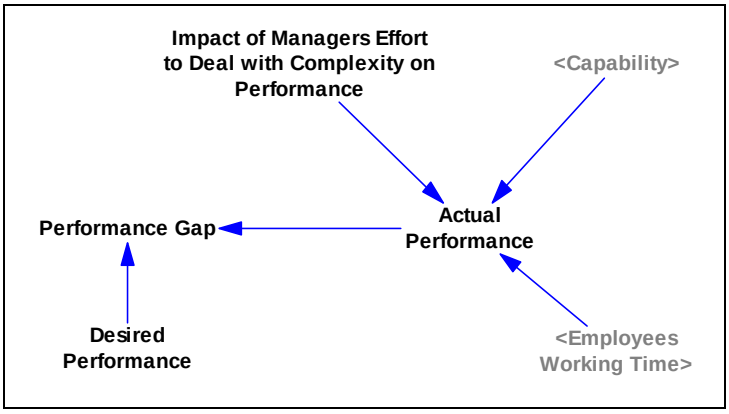

Figure 6. Actual versus desired performance

Actual Performance is determined by:

- '*Employees Working Time*' – how much time employees spent working and delivering results (apart from 'normal work' employees might maintain capability or work on improvements).
- '*Capability*' – understood here as ability to perform work. It includes capability derived from production infrastructure but also human capital, i.e. productive skills and technical knowledge.
- '*Impact of Managers Effort to Deal with Complexity on Performance*' – referring to managers' ability to deal with current production system complexity.

The introduction of leaders at the beginning of the process of change and establishment of the guiding coalition upset the balance between leaders and managers, leading to some chaos in the area of dealing with complexity and also erosion of performance. However, that chaos being a part of 'unfreezing' stage is justified and in the course of the change process shall become an order. Due to that, the only two places to influence '*Actual Performance*' are via '*Employees Working Time*' or '*Capability*'.

Before considering two alternative approaches to influence *Actual Performance* it is worth to revise a few model assumptions. Similar to the real life conditions, the employees move along the stages of transformation with various paces. Those, who are

resistant to change, can remain at the start of the journey for a longer period of time. Others, more receptive, become aware of urgency faster, understand the vision and are willing to work on it. Furthermore, employees can refuse the change at each stage of the transformation (if they fail to accommodate urgency, do not understand or do not agree with the vision, or refuse to conduct improvement actions required to make the vision come true). All together there are seven stages the employees can be accommodated at a particular moment of time. It is assumed that at various stages of the transformation process employees have different characteristics. The focus of the System Dynamics model is on time the specific group of employees dedicates to normal work, capability maintenance and improvements. It is assumed that employees in the 'unfreeze' phase (i.e. '*Employees*', '*Employees Aware of Urgency*', '*Employees Understanding the Vision*' and '*Employees Refusing Change*') devote 60 percent of their time to 'normal work' and 40 percent to maintain capability. '*Empowered Employees*' are motivated to dedicate 10 percent of their time to work on improvement and 90 percent to do normal work. '*Empowered Employees*' and '*OMS Fully Engaged Employees*' work on improvements for 20 percent of their time and the rest of the time they dedicate for normal work.

The first of the two approaches to improve the '*Actual Performance*', namely the decision about extending the time employees devote to normal work, is perceived here as a focus on daily production rather than on transformation. The closure of performance gap is realized at the cost of capability maintenance time. Due to '*Focus on Daily Production*' the '*Time for Capability Maintenance*' declines over time, so that employees in the 'unfreeze' phase (i.e. '*Employees*', '*Employees Aware of Urgency*', '*Employees Understanding the Vision*' and '*Employees Refusing Change*') spend more time executing 'normal work'. As far as '*Empowered Employees*' are concerned, following the '*Focus on Daily Production*' policy, they become unmotivated faster and eventually refuse the call for change. The diagram illustrating the attempt to close the performance gap through focus on daily production is presented in Figure 7.

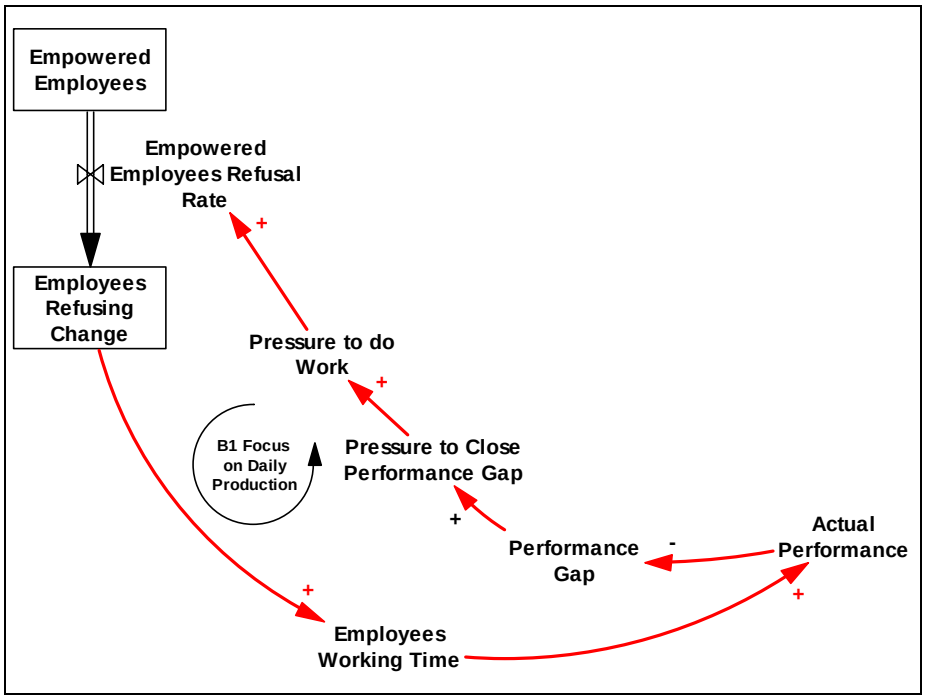

Figure 7. Balancing loop illustrating consequences of the focus on daily production

An alternative approach to close the '*Performance Gap*' focuses on 'unblocking' hidden capabilities existing in the organization. The idea behind '*Blocked Capability*' is that the current system structure (meaning hierarchy, operational procedures, relations between employees or employees' perception) makes it impossible to operate at maximum efficiency. As Schaffer (1990) argues this hidden capabilities become well visible in a time of crisis, when an effort is required to deal with severe events or misfortunes. Please note, that this is not about 'building' new capability, which very often creates illusory feeling that the performance is addressed but in fact postpones the moment of the real improvement actions. In the process of change the mental model, saying that in order to accomplish the transformation additional resources or capabilities are required, has to be challenged (Figure 8).

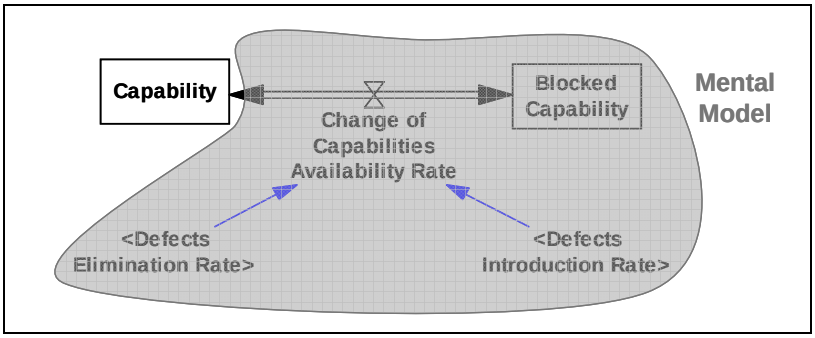

Figure 8. Idea of the Blocked Capability

As mentioned earlier operations at the maximum efficiency are not possible because the system of the organization is not perfect. It is rich in imperfections and defects. Every day new defects are introduced to the organization through normal operations (Figure 9) making even more '*Capability*' blocked (Figure 8). In order to make the '*Capability*' become unblocked en effort of defects elimination is required.

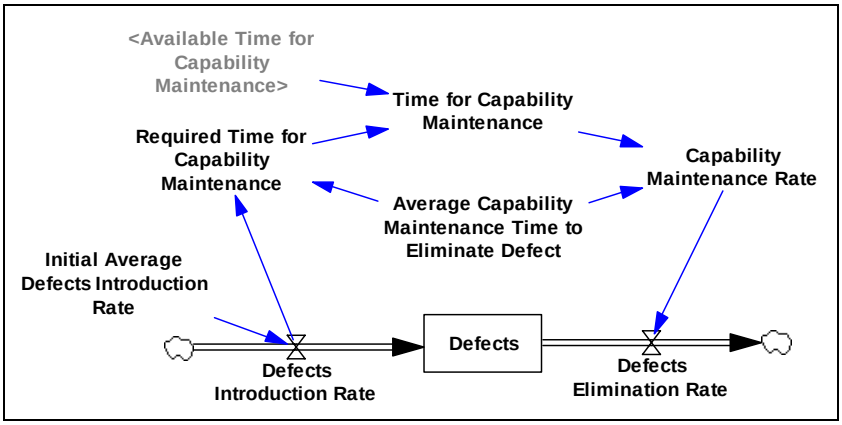

Figure 9. Defects elimination via capability maintenance effort

Employees in the 'unfreeze' phase of transformation dedicate a percent of their time to maintain available capability, i.e. eliminate defects. If the time they dedicate each week for this task ('*Available Time for Planned and Reactive Actions*') is equal or exceeds the '*Required Time for Planned and Reactive Actions*' the new defects introduced to the system every week are removed, keeping the '*Defects*' on a constant level (Figure 9). However, if the time they spend on capability maintenance decreases and becomes

smaller than required (e.g. due to increased focus on daily production and erosion of capability maintenance time in favour of 'normal work' time) the '*Defects*' will accumulate in the organization blocking further '*Capability*' and leading to unsatisfactory performance.

In the course of the change process the number of '*Empowered Employees*' increases and more *Action Teams* are initiated. The successful improvement initiatives undertaken by *Action Teams* result in *Defects Elimination* (i.e. removing defects from the '*Defect*' stock) but also in *Defects Source Elimination* (i.e. reducing '*Defects Introduction Rate*') – the idea presented in Figure 10. It is crucial that *Action Teams* in the improvement effort first focus on defects that can quickly bring the value to the organization. A great improvement delivered in short time (up to 90 days) constitute a 'short-term wins' so necessary for leaders to persuade other employees to take actions and managers about rightness and value of the change process. Over time the pace of the improvement process slows down as the defects and their sources, relatively ease to remove, are eliminated and *Actions Teams* have to address more complex problems.

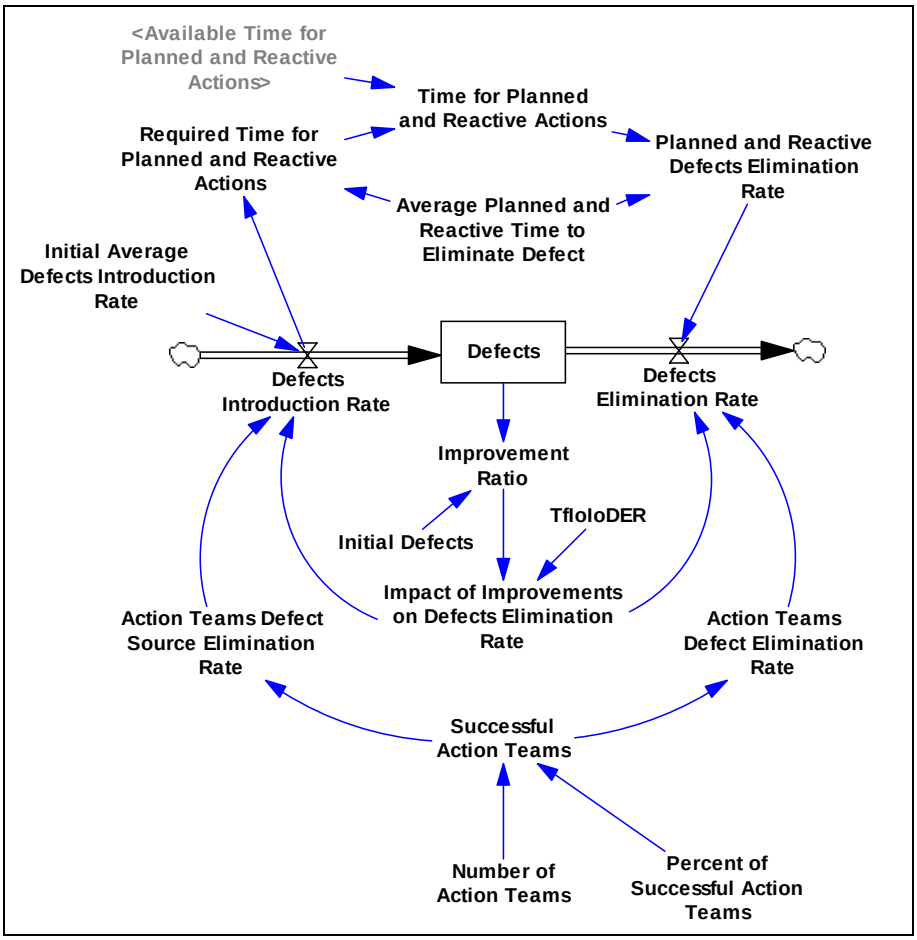

Figure 10. Defects and Defects' Source elimination

Empowerment of employees is the first step in the policy aiming at closing the '*Performance Gap*' through 'unblocking' capability existing in the organization. It is summarised in Figure 11. '*Empowered Employees*' spend a part of their time on *Defects* and *Defects' Source Elimination*. Over time, these improvements result in increased '*Capability*'. More available '*Capability*' leads to grater '*Actual Performance*'. It is

worth mentioning that even if '*Focus on Daily Production*' policy is in place, the partial closure of the '*Performance Gap*' from increased '*Capability*' slows down the erosion of motivation and change refusal rate among '*Empowered Employees*'.

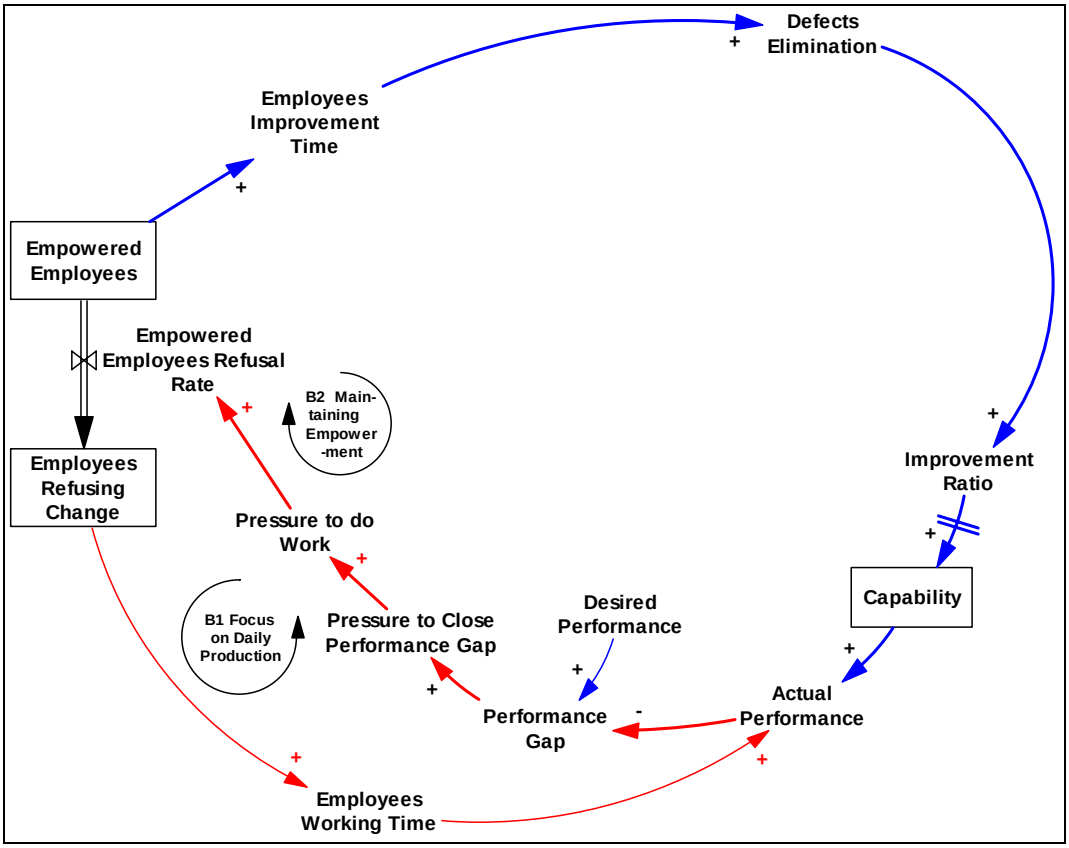

Figure 11. Improvement effort of the Empowered Employees

Step 6 and 7 – Consolidating Improvements and Producing Still More Change

The 'short-wins' are of great importance for the process of change. Leaders use them as examples of what difference can be made within the organization. By communicating the wins managers build a positive '*Experience*' about the change (Figure 12). Since '*Experience*' fades away overt time it has to be continuously renewed.

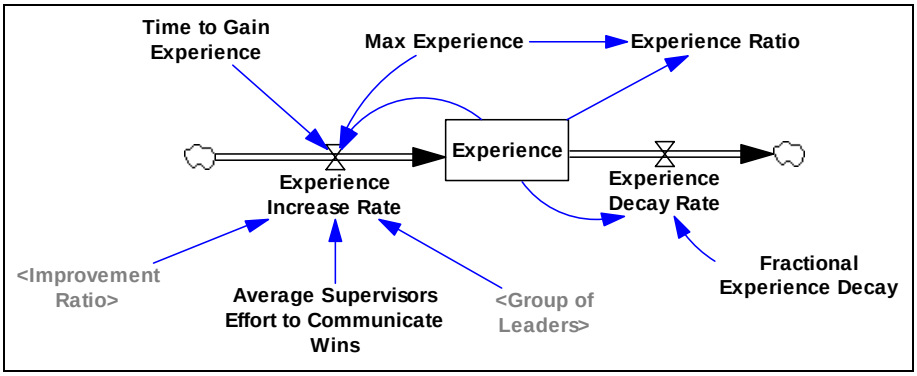

Figure 12. Building positive experience about the change

The positive experience has an impact on another important factor within the organization, which is '*Ownership*'. The '*Ownership*' is understood here as emotional

attachment of the employee to his/her work environment. The '*Ownership*' makes people care about a piece of equipment they operate, a process they supervise, and responsibilities they are accountable for. It is assumed that the '*Ownership*' builds every day through normal operations but not maintained goes away (Figure 13). Positive experience from improvements prevents decay of '*Ownership*' and leads to its accumulation. Increasing *'Ownership'* creates a willingness to undertake further improvements. The *'Ownership'* is measured on a 0-5 scale with a 0 meaning that most people will actively resist improvement efforts and a 5 meaning that most people will initiate improvements without management prompting – the scale adopted from another work in this area (Ledet 2007).

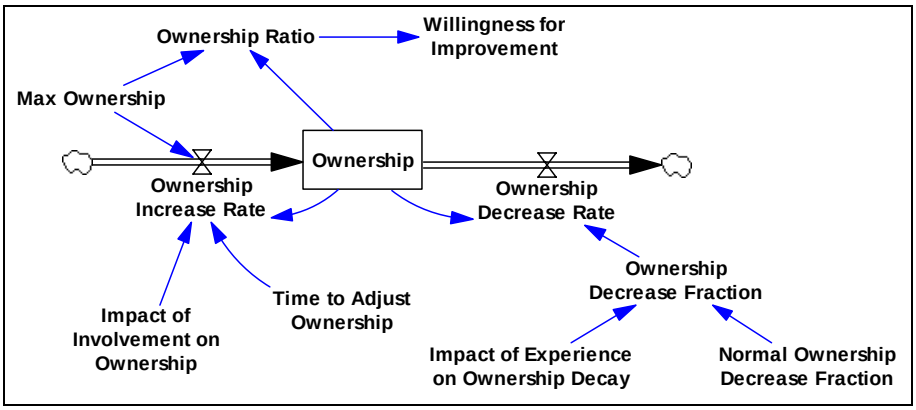

Figure 13. Development of Ownership in the organization

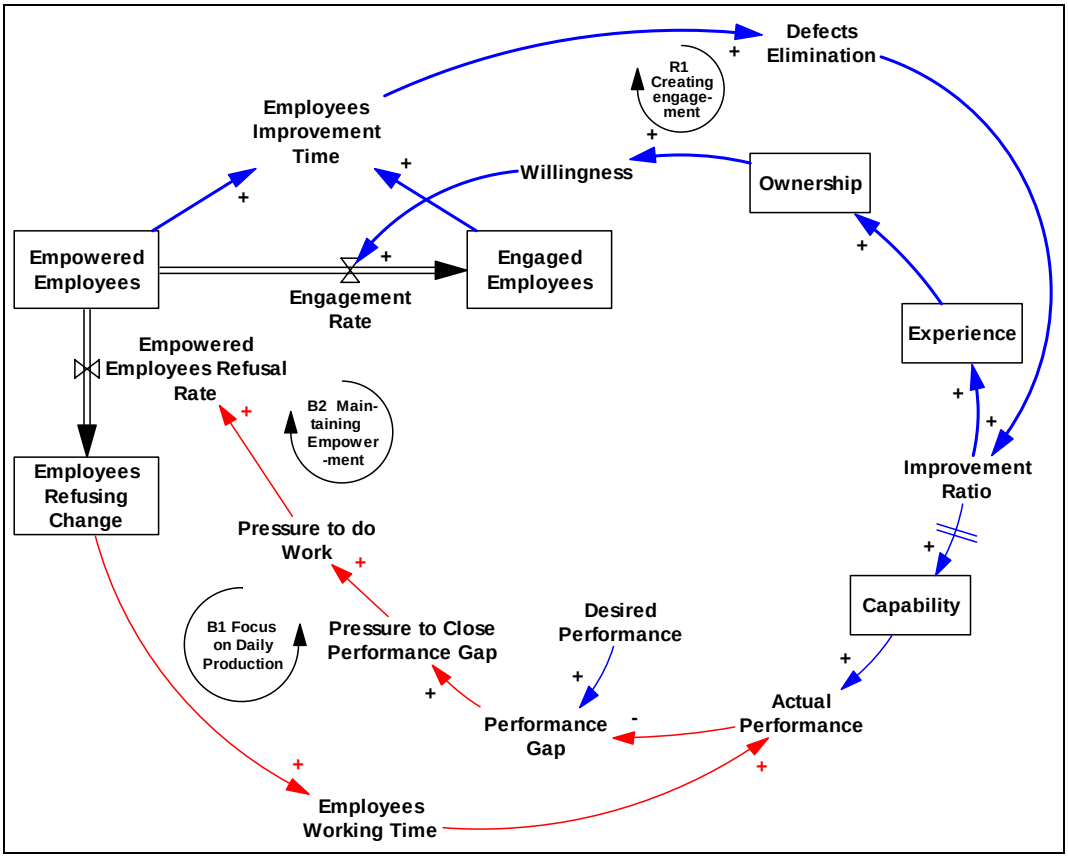

Figure 14. Process of creating engagement

The willingness to participate in improvements makes *'Empowered Employees'* become *'Engaged Employees'*, who spend even more time on improvements (20 percent). Improvements lead to more defects elimination. If the improvement success news stories are communicated the positive *'Experience'* and later *'Ownership'* are built, which makes even more people join the improvement effort. This process is illustrated by reinforcing loop – *'R1 Creating Engagement'* in Figure 14. This development of engagement also results in more unblocked *'Capability'* leading to closure of the *'Performance Gap'*.

The process of creating engagement and the performance improvement can be fostered if managers decide to focus their effort on transformation, leading to improved performance in longer-term, rather than concentrating on creating value by increased focus on daily operations. In that case, as shown in Figure 15, the pressure arising from the '*Performance Gap*' is directed into the effort of making more '*Empowered Employees*' become '*Engaged Employees*'.

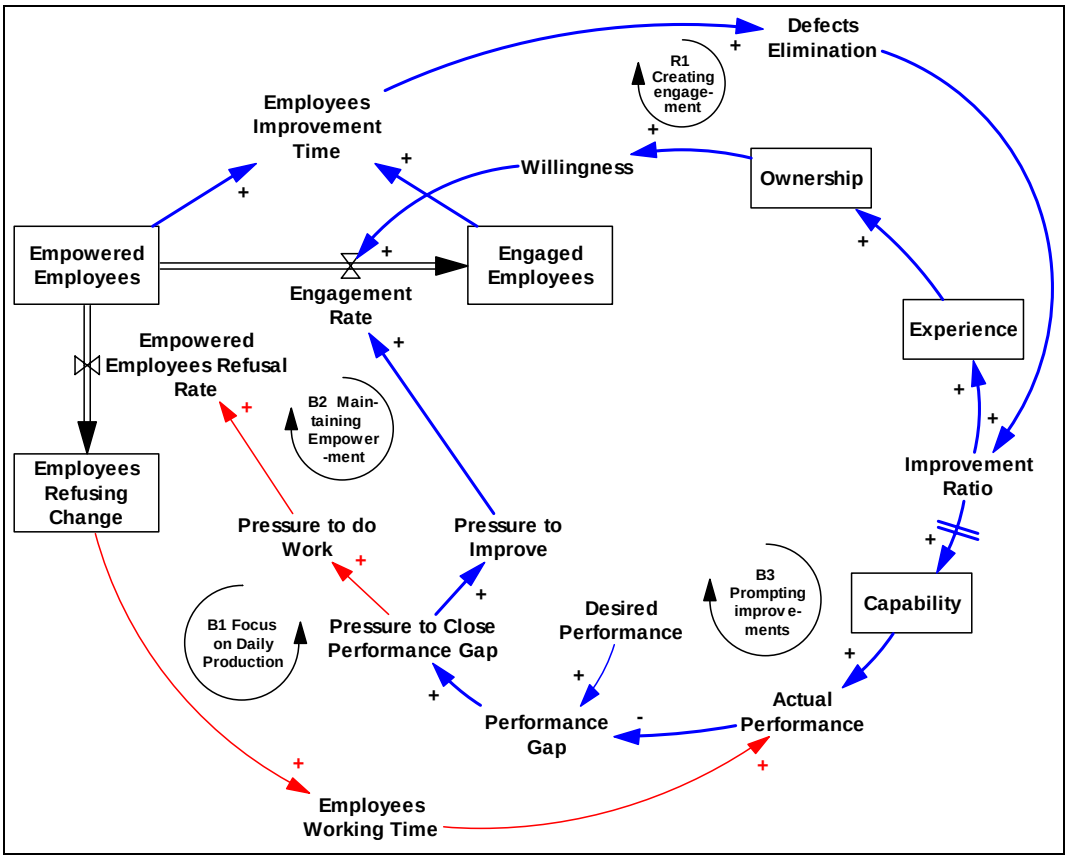

Figure 15. Focus on Transformation

Over time, when the '*Actual Performance*' in improved through defects elimination and capability unblocking, the pressure to close performance gap is relaxed. However, the high level of '*Ownership'* still makes employees become engaged and lock them in that state, meaning that they continue improvement actions rather than refuse the change process (Figure 16).

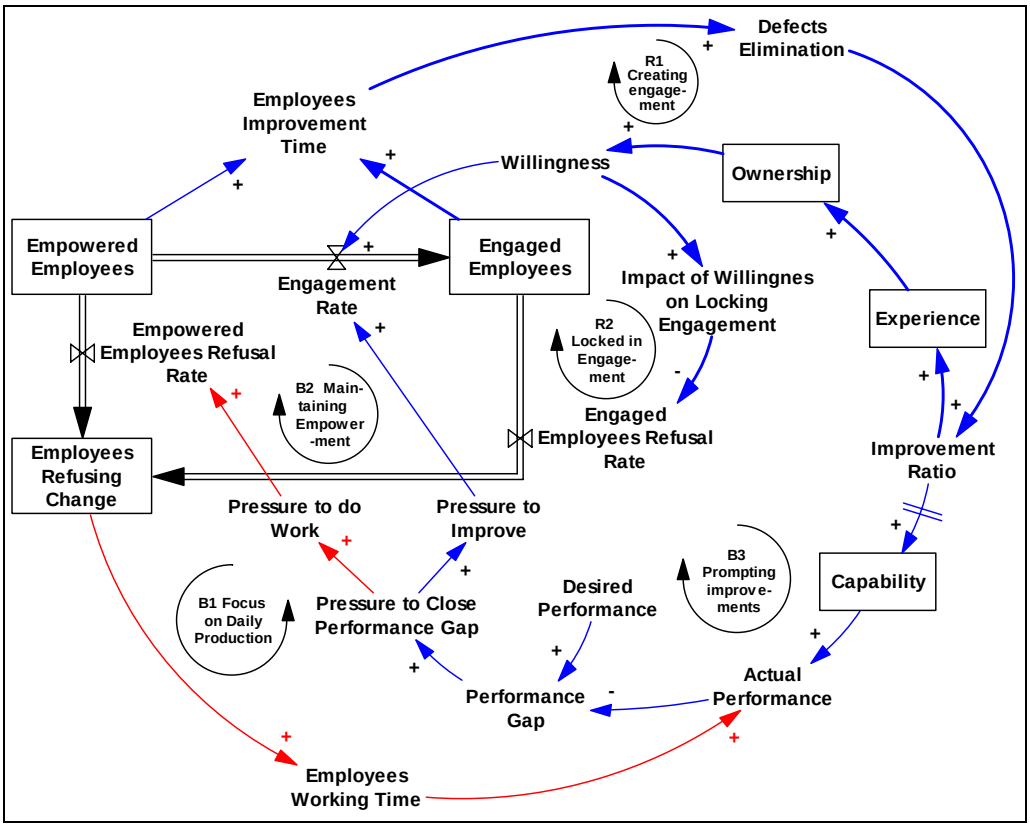

Figure 16. Locked in engagement

Step 8 – Institutionalizing New Approaches

The last phase of the process is 'freezing' the organization. However, it has to be made clear that 'freezing' has nothing to do with stopping the defects elimination or neglecting continuous improvement process cultivated in the organization. It is rather about 'anchoring new approaches into the company's culture' (Kotter 1996). It is about personal change of every employee and a new way they perform every day operations. Over time, while working within Action Teams on closing the performance gap, '*Engaged Employees*' become '*OMS Fully Engaged Employees*', whose key values are personal safety, process safety, environmental management and operations excellence.

3. Dynamics of Transformation

The System Dynamics model described in the previous chapter was calibrated according to the available information from the mentioned earlier Lima Refinery case. However, the high numerical accuracy is not claimed here. The aim of the model was to gain a deeper understanding of the transformation process, its dynamics as well as various mistakes that may occur along the BP journey of change. The model assumes 500 employees to undergo the process of change. The time scale considered in the simulation scenarios is 8 years. The performance in the System Dynamics model is measured in Barrels/Day (though one should remember that in the model the concept of performance relates to process and personal safety, environmental management and operations excellence). Initially the *Actual Performance* is equal to 800,000 Barrels/Day. The *Desired Performance* is constant and equal to 1.4 million Barrels/Day. The aim of running the following two simulation scenarios is to present the outcome of two approaches to close the '*Performance Gap*'. The first scenario will be called '*Focus*

on Daily Production' (Simulation 1) and will illustrate the consequences of the decision about extending the time employees devote to normal work. The second scenario – '*Focus on Transformation*' (Simulation 2) – will demonstrate the effort of 'unblocking' hidden capabilities and closing the '*Performance Gap*' via continuous improvement.
In case of both scenarios the transformation process begins in the same way i.e. following the crisis a sense of urgency is established, a guiding coalition is created, the vision is in place and communicated, and also employees start to be empowered to take the first improvement actions, which means acting on the new vision of the organization. The further process of transformation is dependent completely on two alternative policies.

Simulation 1

The dynamics of employees' movement between particular stages of transformation in case of Simulation 1 are presented in Figure 17. Only about one third of all employees finished the journey succeeding to become '*OMS Fully Engaged Employees*'. Most of employees refused the change.

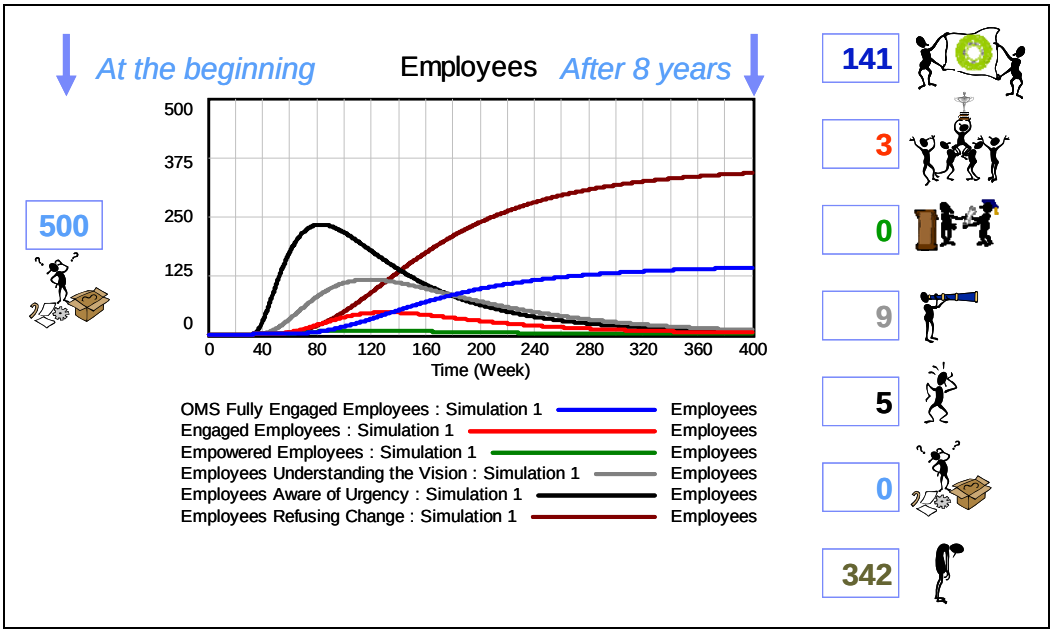

Figure 17. Simulation 1 – employees at particular stages of the process of change

Due to great focus on daily operations in the quest for better performance, time for capacity maintenance of employees being in 'unfreeze' phase of the change process was successively cut down increasing the time available for operations. This resulted in the initial '*Actual Performance*' increase (Figure 18, graph #1). Unfortunately, there were not enough improvements prompting. On the contrary, '*Engaged Employees*' due to focus on daily operations, instead of on the transformation, were easier becoming unmotivated. This also resulted in low level of ownership (Figure 18, graph #2). Not enough capacity maintenance and improvement actions caused greater accumulation of defects in the system (Figure 18, graph #3). This in turn made more capability blocked (Figure 18, graph #4) constraining the performance.
The outcome of the '*Focus on Daily Production*' policy can be characterised as a 'better before worse' performance. In the course of this policy the organization did not manage to accomplish the transformation and close the performance gap.

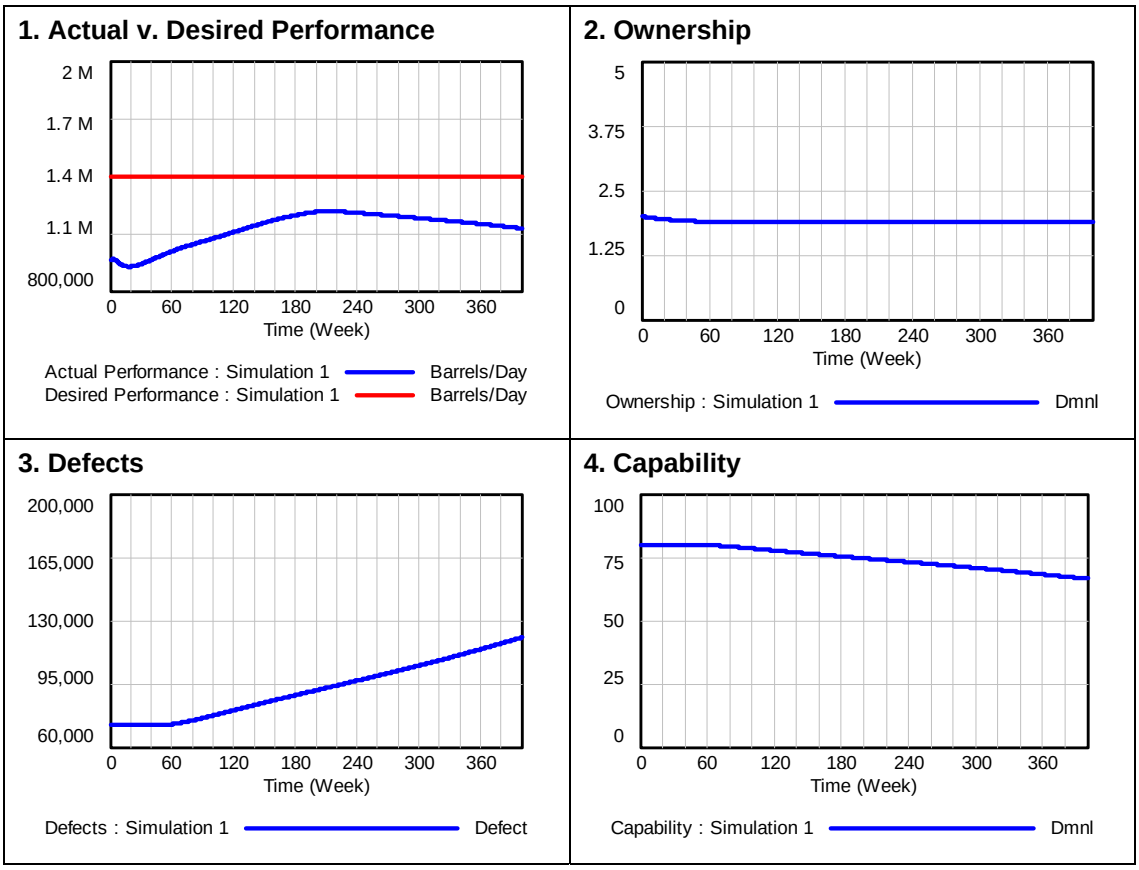

Figure 18. Simulation 1 – performance results

Simulation 2

In case of the Simulation 2 scenario most of the employees became '*OMS Fully Engaged Employees*' (Figure 19).

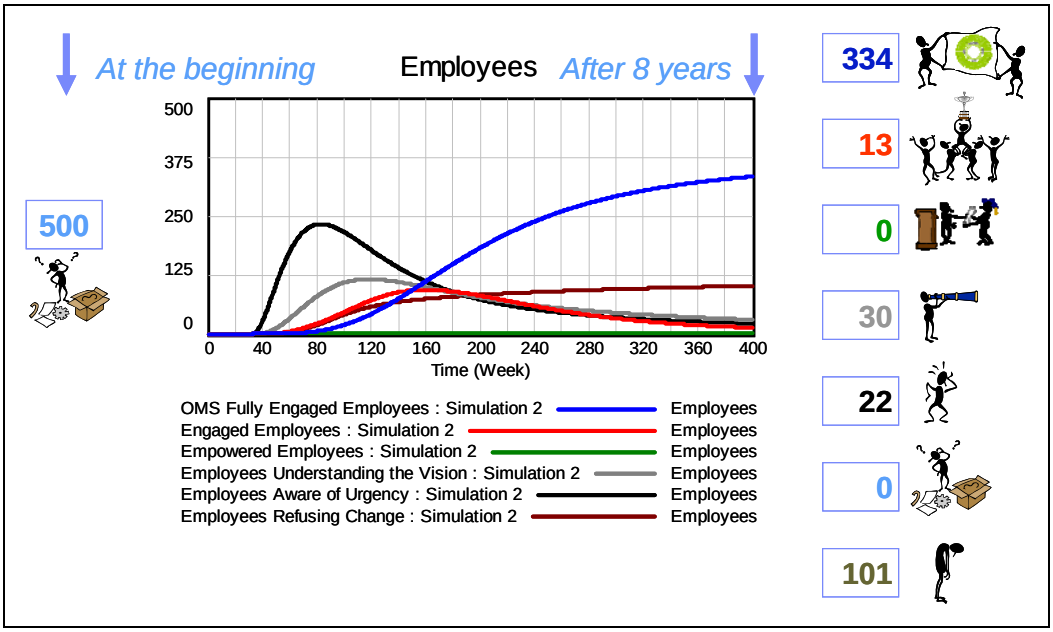

Figure 19. Simulation 2 – employees at particular stages of the process of change

The '*Focus on Transformation*' policy not only allows employees work on improvements but additionally foster employees engagement (see Figure 16). Initially the '*Actual Performance*' significantly decreases only to become better over time and almost reach the desired level (Figure 20, graph #1). The number of improvement actions becomes greater together with increase of the '*Ownership'* (Figure 20, graph #2). In the course of improvement actions the level of defects is significantly reduced (Figure 19, graph #3), which leads to more unblocked capability (Figure 20, graph #4).
The outcome of the '*Focus on Transformation*' policy can be characterised as 'worse before better' performance.

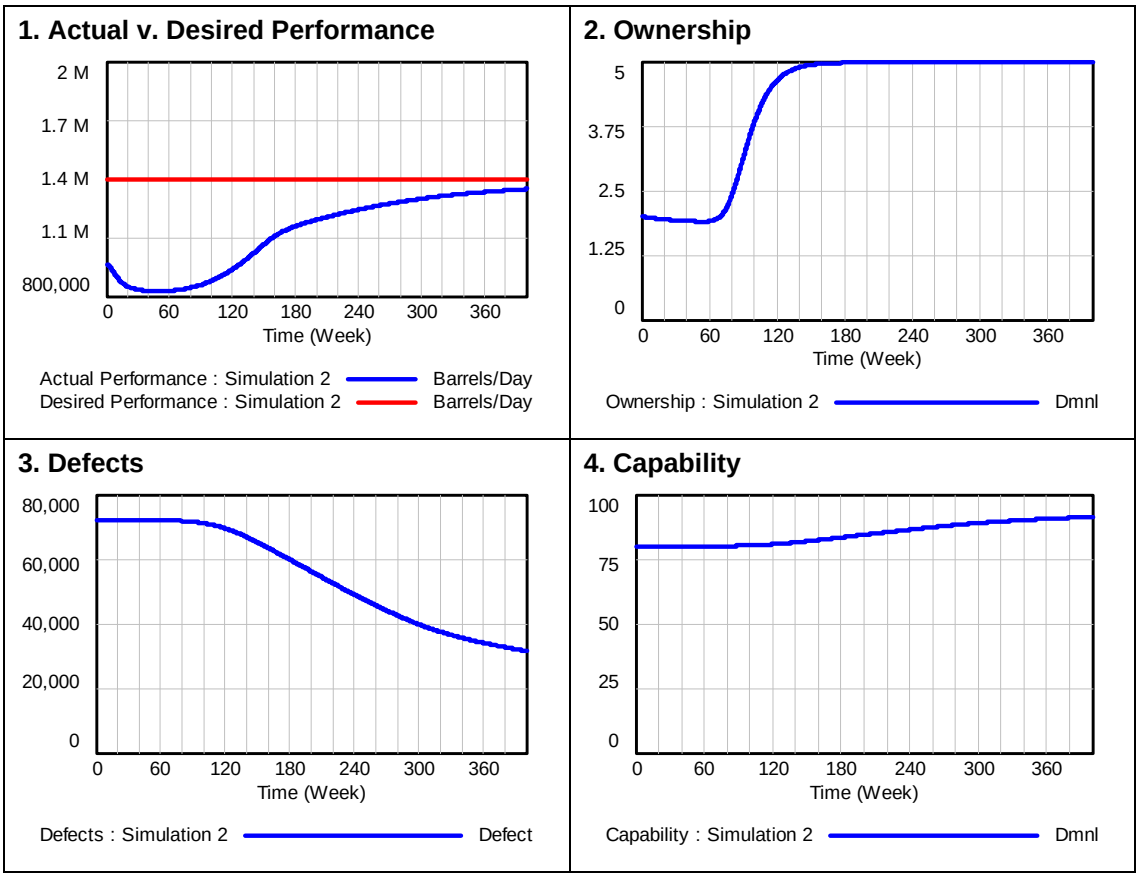

Figure 20. Simulation 2 – performance results

The '*Focus on Daily Production*' is not a successful policy in the sense of its sustainability. The alternative policy – '*Focus on Transformation*' – delivers much better results but the 'worse before better' situation is very severe, i.e. over two years the company is operating below its initial performance. The question arises what can be done to improve this results.
Looking at the Lima Refinery case, in order to produce the breathtaking results there was used the Manufacturing Game workshop (Sterman 2000; Linder 2008). The Manufacturing Game is a learning environment where players can practice teamwork and defects elimination. In order to check how the process of transformation would look like if a similar learning experience were offered for BP employees, the System Dynamics model was expanded. It is assumed that during the workshop a sense of urgency is established. Furthermore, employees are enabled to develop their own tactical vision and strategies of how to make the vision come true. Additionally during

each workshop new Action Teams are launched ready to go back to the real environment and work on improvements. In the System Dynamics model these assumptions were presented as a kind of 'shortcut'. Employees participating in the workshop become straight away '*Empowered Employees*'. It is assumed that every month 7 percent of the '*Employees'* participate in the workshop. The workshop can also be offered to employees who for various reasons refused the change. They also become '*Empowered Employees*'.

The results of the '*Focus on Transformation*' policy combined with the sophisticated learning experience – referred here as Simulation 3 – are presented in Figure 21. The dynamics is quite similar to Simulation 2 but there is not so severe 'worse before better' effect. The '*Actual Performance*' increases relatively quickly, eventually exceeding the '*Desired Performance*'. There is also visible a small decrease in '*Ownership'* – a result of decreasing number of leaders communicating wins (once the transformation process is in the 'freezing' phase leaders are leaving the organization in order to keep balance between leaders and managers).

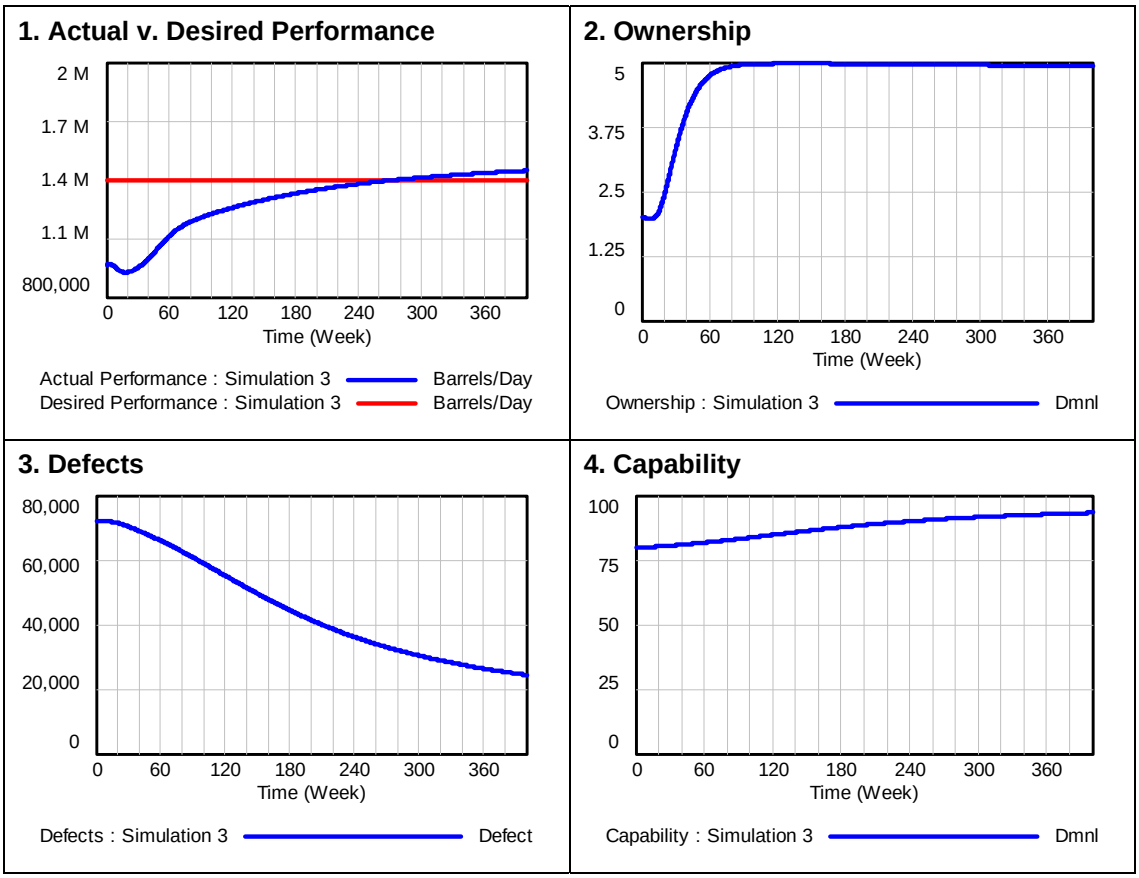

Figure 21. Simulation 3 – performance results

4. Conclusion

The described here System Dynamics model development took several repetitions, better to say 'learning cycles', during which the structure of the model was changed, some elements were removed and new elements were added. In the current form the model constitutes up-to-date collection of some knowledge of people who have participated in its development. That process is not finished yet. Each session with

people trying to make the change in organization brings new knowledge and experience that can improve the model. However, in that process the primary focus is given not to the model itself but to make BP managers better understand what it takes to successfully conduct the change. The challenge for the organization is to accomplish the transformation as quickly as possible bearing in mind that the change should be sustained over time. Of great importance is also the problem of capability trap and how to avoid 'worse before better' effect.

The System Dynamics model described here is rooted in Lima Refinery case and tries to generalize some findings from the 'widely successful initiative' that occurred there. But still, there are a lot of issues waiting to be addressed on the way to develop a recipe for successful and sustainable process of change. Despite these constrains, the modelling process, not only for modeller but also for people responsible for change in BP, has been a powerful means for building understanding about the process of change.

All described above and also other simulation scenarios can be run using the System Dynamics model based simulator prepared for the purpose of the BP Operating Management System implementation (Figure 22). It has already been used with managers in Alaska participating in so-called 'Wave 1' of the OMS implementation. The application of the simulator allows managers to check various scenarios and policies, which makes them more aware of certain stages of transformation. They also become aware that mistakes at any stage of the change process can result in problems, or even worse, failure.

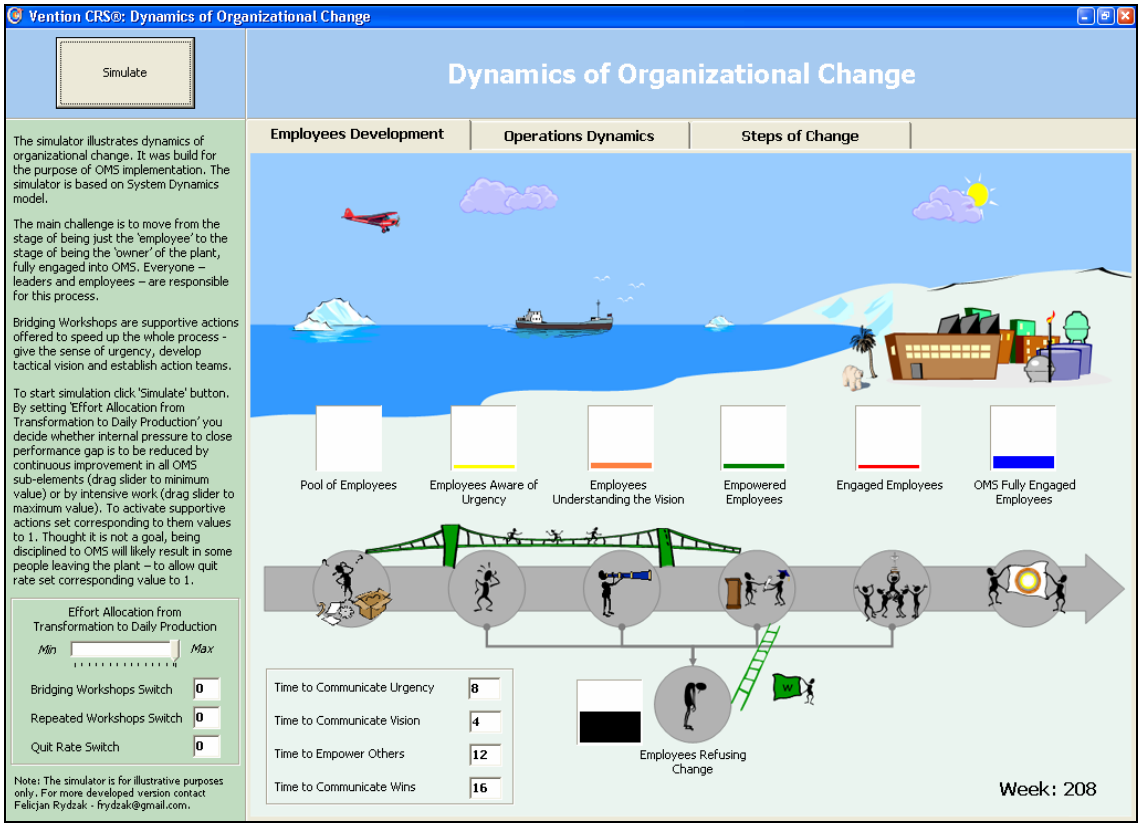

Figure 22. Window of the System Dynamics model based Simulator for OMS

We have found the development of the model to be useful in terms of challenging the management and leadership mental models about organizational change, also as a kind

of language for talking about these (in terms of stocks and flows), and in testing various scenarios. The model based simulator here is about how the organizational change unfolds, and what managers need to do to make a sustainable change.

In addition to this, for the purpose of the transformation an experiential learning simulator (similar to the one used in Lima Refinery) embedded into two days workshop, called Bridging Workshop, is used. The idea is to reach 10,000 people working for BP Alaska with the key messages and experiences needed to become something new, with the end goal of becoming rigorous to a new set of OMS standards as well as plants and equipment operations. By doing this at scale over an 18 month period with proper preparation and follow-up (via a learning forum to support the participants translating model / simulator insights into real life experience on real topics of interest to the business) provides a mass customization kind of process. Every week, groups of people show up to the Bridging Workshop, get engaged with the change, and work on a very specific piece of improvement within the larger scope. The Bridging Workshop in this sense provides 'organizational infrastructure' for catalyzing the change process. With the workshops used at this scale it appears from the described here mode model (Simulation 3 scenario presented in the previous chapter) that the typical 'worse before better' dynamic of moving out of a capability trap (see Reppening and Sterman 2001) can be lessened or maybe even avoided! We are in the process of testing this idea in real life. If true, it offers a totally new way of beating the improvement paradox.

The belief we have is that we can greatly improve our chance of sustainable change by first understanding the dynamics of organizational change (model and simulator described in this article), and then in catalyzing the change we have designed via the simulator used in the Bridging Workshop (based on another, not discussed here in depth, system dynamics model). There is evidence of lasting learning and proof of improved actions, from use of the experiental learning simulators, one of which is Lima Refinery (for the reference see Ledet et al. 2005). The improved performance metrics in the refinery have sustained since 1998 to now, after having moved from 4th quartile operating performance to top quartile performance, using Solomon Associates' benchmarking metrics for refineries.

The model and simulator discussed in this paper relate to better understanding the leadership and management challenges and actions, to guide a change like the one in Lima refinery, in new contexts that is in Alaska. The change framework is highly influenced by this model and Kotter's framework, and is in active use as the new Operating Management System is build as well as in the process of influencing 10,000 people. Only time will tell if this proves effective. The challenge in BP Alaska is much larger than the Lima Refinery story because of the numbers of people and the organizational context (business drivers and urgency). However, the values OMS is advocating – personal safety, process safety, environmental management and operations excellence – are too important, to allow for failure.

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