Modelling agile enterprise structures from a Management cybernetic perspective

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In the following chapters we describe how nowadays organizations can live up to the various challenges of their businesses based on a management cybernetic approach. In an attempt to successfully deal with the market turmoil they are facing many of these organizations try to furnish themselves with agile behavior and agile reactions. Our investigation demonstrates how this can be done best based on the following chapter structure:

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   1.1 Roots and history
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2. Matching neuro-logical layers with management-cybernetic functions

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1. Background of management-cybernetics

1.1 Roots and history

The short but fast-paced history of cybernetics started out in the 1940s mainly with the mathematician Norbert Wiener, the neurophysiologist Warren McCulloch, and Jay Forrester, an early computer engineer. Along with the neurophysiologist Arturo Rosenblueth and the young Stafford Beer a lot of effort was put into the undertaking to explore the conditions of self-regulating systems in a completely interdisciplinary, holistic way. It was within this framework that Wiener defined cybernetics in 1948 as “the scientific study of control and communication in the animal and the machine”.

This ambitious scientific movement was complemented by the founder of general systems theory, Karl Ludwig von Bertalanffy, and by W. Ross Ashby who was primarily concerned with the question how systems deal with internal and external variety (“Law of requisite variety”). [10, 11]

Building up on these fundamental works and endowed with his own background in operations research, Stafford Beer applied cybernetic theories to managerial questions in organizations and is therefore said to be the founder of management cybernetics. Beer eventually developed a comprehensive meta-model – the Viable System Model (VSM, 1959) – that defines the structural conditions and managerial functions that need to be fulfilled in order to deal with the overwhelming amount of variety inside and outside of an organization while still keeping the entire system “under control”. The main characteristics of the VSM will be illustrated in the following chapter.

1.2 Basics of the viable system model
The provenance and details of Stafford Beer's viable system model (VSM) have been described extensively in various publications [Beer 1984; …; Espejo 1989]. Therefore we can limit ourselves to introducing the main facets of the model that are necessary for understanding the analysis executed in chapter 3.

The basic cybernetic model consists of any operation – the primary activities – that makes up for the purpose of an organization (further down referred to as System 1) in a given environment. In order to provide guidance to the operations, a management function is needed. Due to Ashby’s law of requisite variety, complexity needs to be attenuated from left to right and amplified from right to left (cf. figure 1).

Elaborating on this, Beer came up with the first principle of organization: “Managerial, operational and environmental varieties, diffusing through an institutional system, tend to equate; they should be designed to do so with minimal damage to people and to cost.” [Beer 1985, p. 30]

![Figure 1: Balancing variety](image)

As long as this plays out and the operations meet the needs of the particular environment on the one hand side and follow the instructions of management on the other hand side, the system in focus is able to maintain a separate existence as recognizable entity. This is what Beer calls “viability”.

In an attempt to further refine the management function, the VSM then comes up with five invariant control systems that are highly specific in what they do. Figure 2 gives an overview of the interaction of these five systems with an arbitrary amount of three embedded operational elements. Each System 1 contributes its specific share to the entire value chain and acts within its own environment.

The wiggly lines between the circles stand for any kind of relationship between the operations. In a project environment System 1 could be – at the lowest level – an individual project team member working diligently on his or her project task and, in doing so, is interacting with several peers.

System 2 then coordinates the primary units’ activities solely by mutual adjustment. Designed properly, this management function is a very powerful variety damper as it doesn’t require ongoing centralized, hierarchical intervention. System 3 is the so-called control or command function. It is concerned with reaching the highest possible level of efficiency while orchestrating the activities of the operation elements (i.e. System 1A thru 1C). In the narrower sense, System 3 uses the allocation of tasks and resources as well as target agreements and formal reporting in order to fulfill its task.

In the broader sense System 2 contributes to the cybernetic function of System 3, which is to maintain internal stability of the primary units in focus. Another auxiliary function of System 3 is the so-called auditing channel 3*.

Employed every now and then and in an unpredictable (!) manner, it provides unbiased first-hand information about the various aspects of the operations.

System 4, the strategic management function (also called the intelligence function), looks above and beyond the daily concerns of the lower systems. Therefore it has a specific and vivid interest in the overall external environment and its future development. From left to right, information on changes on the marketplace, technological advancements and so on are communicated into the organization.

From right to left, the organization’s identity, its products and service capabilities are advertised to the relevant recipients. In order to fulfill its cybernetic function, System 4 disposes of highly evolved models of the internal and external environment alike.

Up until now we lack an ultimate mission and policy of the organization. Giving closure to the systems as a whole, this void is filled by System 5, the ultimate holder of the identity. One of the main tasks of System 5 is to conciliate the views of System 3 (efficiency and stability) and 4 (effectiveness and change) with respect to the organization’s direction.
So far, the description of the VSM made implicitly use of another key concept: recursiveness. Upon closer inspection, figure 2 already shows two levels of recursion with each System 1 containing all managerial functions and elements mentioned above. Like with the infamous Russian dolls this of course goes as well in the other direction, building up larger and even larger organizational entities.

As our main objective is to research and assess agile methodologies and frameworks from a cybernetic point of view the introduction carried out above shall be sufficient for the upcoming chapters. As said earlier, for delving deeper into the fundamentals and applications of the VSM, please refer to the literature.

2. Matching neuro-logical layers with management-cybernetic functions

The present enterprises are nowadays to a great extent pushed from the permanent demand of change and adaption. Their main requirement consists therefore in their ability to react accurately and adaptive on the dynamical and fast changing processes on the markets. This venture is hampered by the vast variety of products and competitors in the markets so that even smaller innovations and market advantages in more and more abbreviated life cycles must realize a required profitability. In the end the actual market environment can be characterized as a challenging combination of dynamics and complexity – in today words described as dynaxity [Rieckmann, 1992].

One of the main topics of organizational structuring is it to develop a secured and guarded environment in which people are capable to master complex situations and the steady changing complexity coming from outside.

In the actual environment of enterprises - which even today are normally organized in a very hierarchically and centralized manner - these structures prove themselves as too inaccurate and too weak to absorb successfully and marketable the required complexity of the organizational challenges. Thus the principal defect of centralized organizational structures is their tendency to reduce managerial expertise on the shoulder of a small and uplifted group of people. Therefore these organizations have a lack of collective empowerment and mindsetting which enables these organizations to adjust quick on market changes and to guarantee the surviving of the whole enterprise.

Exactly this issue is the starting point of the management-cybernetic approach. It's spanning an organizational framework to derive the required organizational managerial functions that enable a long-term successful entrepreneurship even though the mindsets of the individuals are not aligned at the first glance.

Based on the assumption that with Dilts’ concept of neuro-logical layers exists a theoretical framework which is applicable to analyze both persons and organizations as entities that are influenced by their layer structure (in the chapter of A. Oswald this assumption will be derived!) we undertake the effort to relate the neuro-logical layers of Robert Dilts to their equivalent organizational layer structure in the
management functions according the framework of the management cybernetic model. The subsequent figure shows the relationship between the neuro-logical layers of Dilts and the management-functions of the cybernetic model (VSM).

Figure 3: Relation of Dilts' neuro-logical levels to cybernetic management functions

Figure 3 indicates that the strategic management function (abbreviated S4) detects the environmental parameter changes and transfers their revelation – as this is necessary – to the normative management function (abbreviated S5) and provoke in the best case on that level a shift of the actual mission and vision of the organizations main issues. In the sense of the neuro-logical levels of Dilts’ framework the layers of “values and beliefs” as well as the “identity” layer are going to be re-evaluated by the top management.

As a core conclusion of that relationship we can say that every transformation on the operative executional level (S1) or even on the management functions (S2, S3 and S3*) implies the preceding of a normative, cultural shift. The objective of such a normative cultural transformation must be the evocation of a collective mindset that permits the management to address the following main topics of a collective successful collaboration:

- the values and beliefs of the acting persons
- their perceived identity during their collaboration
- their knowledge on the accuracy of the membership between the actors and
- the determining driver of successful collaboration: the deeper sense, the superior mission and therefore the source and the inner value of work which will match the ethical fundament of work and profession. [Patzelt, 2010]

On that basis changing the normative setting in an organization is crucial for the organizational ability to initiate a process where the complete aggregate is more than the sum of their parts. This requires definitely the coordination of the individuals in an organization with the help of a collective mindsetting.

The driver to an collective interconnection between people is the development of an collective vision or a corporate goal (“big picture!”) on the one hand as well as on the other hand a corporate culture that is based on confidence and mindful appraisal between the management functions and the operational units. Hence it is possible “to reach with ordinary people unordinary results!” (in modification of the quote from Andrew Carnegie which cite [DeMarco/Lister 1999, p. 199] in their book “Peopleware” indirectly and serves as a book title for a number of management literature since 2000, for example Quinn 2000 or Reck 2001).

The vision of an collective mindsetting and a comprehensive agile corporate culture is a central framework for us to link up the individual layers (Dilts’ neuro-logical layers and mindsets) with the cybernetic management functions. It serves as a collective global model to handle complexity in a long lasting value generating way. These agile capabilities and behaviors of an organization are in that case not more pure reactions.
on market developments from outside of the organization but they can be regarded as proactive actions and measures in the sense of Dilt's layer values and beliefs as well as on the identity layer.

From that point of view it is pretty obvious that the empowerment of organizations via an agile transformation of their operational units S1 should not only trigger measures of reconfiguration but imply all aspects of organizational adjustments and changes.

That means that

1. not only a reassessment of the usefulness of the operational units must be taken into account but also the informal way of communication between S1, S2 and the management layers (S3, S4, S5) must be part of the corporate change;
2. not only the enlargement and enrichment of the mission of the operational units has to be a major goal but also the way these entities can interact between themselves so that they can address their market issues without greater frictions;
3. not only the segmenting or reshaping of specific operational structures has to be addressed in an processes for an agile transformation but also the basic principles of the corporate culture have to be reshaped. This includes such important issues as fault tolerance, non-hierarchical communication, appreciation and acceptance of diversity, a risk managing behavior than a risk avoiding attitude and many other possibilities to enhance the corporate culture.

At the end of the process of agile rearrangement it must contain as their deeper operational goal the enlargement of the scope of actions of the S1 system units (for example the project members).

It should force them to utilize the wide range of self-organizing possibilities and mechanisms. Even if this reordering transfers a portion of basic managerial power directly to the S1-units so that this change is followed by a move away from the cybernetical management functions S2, S3 and S5, these management functions have to be developed at the same moment further on to guarantee at least the required and necessary system cohesion.

As Dilt's neuro-logical layers of identity and spirit prove these layers are the structural glue that holds the organization together and guarantees the system cohesion to a vision and mission outlined by the S5 management function. Hence it relies above all on their leadership capacities to implement a vivid corporate culture which embraces changes as a steady companion of an agile living.

If this fundamental system cohesion is going to be destroyed, it is no longer possible on the basis of the cybernetic management model to maintain a long lasting, viable operational unit. The actual tendencies of disaggregation from big mother organizations and the managerial fashion to build up so called “fluid organizations” must be considered as a limiting case of a viable organizational unit.

The interruption of the connections within the management functions could cause to perish the whole entity. Taking this peril into account the more it is required to assure in the fluid organizational world, that the normative principles of the S5 management function and the knowledge of Dilt's' neuro-logical layer structure are going to be integrated in the actual management practice.

Consequently that implies also a move towards the management functions S4 and S5. These functions experience an upgrading because the sensibility of these management functions to a steadily changing environment must be increased tremendously. As Igor Ansoff stated already in 1975 that the top-management has to be alerted on "weak signals" so that the update of the normative values in the management processes can be transferred seamlessly to the operational units [Ansoff, 1975].

The subsequent chapters break down the above outlined findings and proves them against the different methods and frameworks that have experienced a huge relevance in the context of the agile management practice and in the agile communities.

The methods and frameworks we are investigating under the perspective of cybernetic management will be the following main management methods which are actually widely used in the market and are attributed as agile methodologies:

1. The main subject of investigation is the method SCRUM because it is the primary starting point for an agile transformation
2. The other method that is very important for successful project management is the theory of constraint (TOC) and the critical chain method (CCPM) in project management and
3. the last useful agile technique we evaluate will be KANBAN as a successful agile management method for agile teams and the operative management.

At the end of our investigation we draw our conclusions about the possibilities of agile organizational transformations to assess their probability of success under the main topics of the cybernetic management theory which are:

- viability of organizations
- flexibility and agility of the entire entities and
- their capability to reduce complex situations.

3. Evaluating agile methods and techniques from a management-cybernetic perspective
3.1 Organizations’ drift toward agile practices

The comparison of agile practices with cybernetic management functions and their way of interacting adds a new facet to understanding agile management. As far as we can see, the literature treats on the one hand the comparison of traditional project management with agile techniques [e.g. Schaden 2015] and on the other hand the mapping between traditional project management and the control functions of the VSM [Britton/Parker 1993; Saynisch 2003; Saynisch 2010; Morales-Arroyo et al. 2012; Murad/Cavana 2012] (cf. figure 5).

Although agile techniques and methods can be regarded as a subset of traditional project management practices, a detailed examination with regard to their cybernetic value hasn’t been carried out yet. Therefore, it seems justified and necessary to look deeper into that relationship in the sections to follow.

Figure 5: Methodological approach

3.2 Cybernetic value of selected agile practices

The first agile practice we are going to evaluate is the Scrum because this methodological framework is currently widely applied. In order to understand this practice according the cybernetic management model, we have to look at first at the role concepts that are introduced as integral part of this method.

1. Scrum roles

At the heart of the Scrum role concept we find a multidisciplinary team that builds up the required basis of the operative units. Schwaber and Sutherland [Scrum Guide 2013] recommend a team size from 3 to 9 members. Larger projects should be organized recursively by a bulk of different autonomous teams (“Scrum of Scrums”), thus exploiting the complexity absorbing effect of various operative units each dealing with their own environment in a highly specialized way.

In order to act in the most efficient manner, the cybernetic management model requires these teams (the System 1 units) – respectively the individual team members one recursion level lower – to be managed and structured accordingly through the coordination function System 2, the command function System 3, and the audit channel System 3*. The Scrum Master supports these control functions methodologically but is by no means allowed to assume the role of a leader. His cybernetic value is regarded therefore as an enabler function across the board – from supporting the daily or weekly meeting routine of Scrum team members to promoting the agile values that the normative management has defined beforehand (cf. figure 6). Through dealing with external impediments – stumbling stones and roadblocks which are out of the sphere of influence of the team – the Scrum Master even fulfills a System 4 function to a certain extend.

Even though we have to take the high degree of autonomy of the team on the operational level into consideration, the leading role in Scrum lies in the hand of the Product Owner (PO). His or her task is the careful investigation of all customer requests. The PO has then to turn these requests into so-called user stories, each stamped with a priority reflecting their importance for the customer. In Scrum direct intervention in the team’s autonomy is strictly forbidden. Task progress and resource consumption are at best delivered to satisfy the need for information of externals. For all these reasons, the primary cybernetic value of a PO boils primarily down to the strategic and normative function in conjunction with a weak control task (cf. figure 6).
2. Scrum process model

Based on the investigation of the role models it becomes obvious that some very important cybernetic control functions were not discussed sufficiently. Therefore, we have to have a closer look at what the role model holders are actually doing throughout the course of a project as prescribed by the Scrum process model (cf. figure 7).

Any Scrum project clearly starts with a vision which gives ultimate meaning to the initiative. This being said, the vision has to be rated the most important System 5 element. Different to traditional projects Scrum requires each team member to be fully committed to this (product) vision. From a cybernetic standpoint these are ideal conditions.

The product backlog is a shared model of all participants of what needs to be accomplished in order to satisfy the customer. Thus, it is positioned in the heart of System 4, giving birth to a more refined sprint backlog as most important planning tool of System 3. Whereas in traditional project planning estimating resource and time requirements can easily turn into a centralized expert task, Scrum urges all team members to come up with a mutually agreed upon plan.

Each morning there is a Scrum meeting (usually called “daily”) during which the team members share information about their current work progress and coordinate the upcoming tasks visualized on the task board. This is probably the most powerful non-hierarchical System 2 mechanism of Scrum (which often lacks in traditionally operated project teams).

At the end of each sprint, a sprint review takes place. In the course of this, the project gets in touch with the customer and presents the sprint results in the form of “shippable product increments”. Here, we are again dealing with a System 4 function which might even change the direction of the projects next iteration. The second meeting at the end of each sprint is the retrospective. Its goal is to find out about improvements opportunities with respect to the team’s operating mode (focus on efficiency through cooperation). Although this is a highly institutionalized and predictable way of self-auditing the execution of the primary activities, it can still be interpreted as System 3* function. Results of the retrospective are written down in the impediment backlog and followed-up by the Scrum Master.

After all, the fact that there is a process model defining steady and repetitive time slots for the sequence of meetings is a huge contribution to the coordination function in itself. This statement, of course, is also true for any process model in traditional project management.

3. Kanban and CCPM
Kanban is not entirely different from Scrum but it is more specific and powerful in the way how tasks (“tickets”) are managed while omitting the organizational requirements of Scrum. It is also much more tolerant with regards to team members working in different places and coordinating their tasks by electronic means (“virtual Kanban board”).

The essential idea behind Kanban [cf. Anderson 2010] is the usage of tickets that are representing project tasks and that are forwarded on a table from the input queue on the left through a certain amount of process steps to the final output column on the very right. Each process column should be subdivided into an “in progress” step and a “done” step. Furthermore, it is recommended to add to the vertical column structure swim lanes representing service classes. The iron rule then is that a Kanban ticket is only allowed to move further downstream if there is room in the respective column and WIP limits are not violated. For more details, especially on how to work with WIP limits on the vertical and the horizontal plane, please refer to the respective chapter in the book on hand.

CCPM (critical chain project management) can be traced back to Eliyahu Goldratt’s theory of constrains (TOC) that was applied by him to project management [Goldratt 1997]. His major concern was the way how time buffers are created and employed, especially in conjunction with network planning. He also demonstrated that it doesn’t make sense to schedule too many tasks to be worked on at the same time, which eventually leads to all tasks being completed later as if being worked off strictly sequentially. In practice and whenever applied in a team environment CCPM looks a lot like Kanban. Even fundamental tracking and reporting techniques like the cumulative flow diagram (CFD) are the same. However, if applied to larger projects that are spread out over several departments or even companies, Goldratt’s approach of dealing with time buffers provides some additional insights for scheduling and project control.

This being said, we can look into the cybernetic value of the most important features of both Kanban and CCPM in figure 8. Obviously the major concern of both methods is the efficiency and stability of the operative elements, the project team members. Assigning tasks to individuals is done based on an agreed-upon and mostly even ritualized set of rules. System 2 functions are carried out mainly through the Kanban board and its compelling way of visualizing the entirety of all activities on hand as well as through meeting routines for filling the input queue, reporting the work progress and alike. All procedures dealing with project control in the technical sense – including metrics revolving around or derived from the CFD – have to be considered System 3 function.

Also, similar to Scrum it is highly recommended in Kanban to continuously identify improvement opportunities regarding (a) the way how a team employs the ground rules of the method and (b) the way of working together. As in a lot of cases the theory of constraints approach goes hand in hand with “lean thinking”, no serious CCPM practitioner would exclude the search for improvements and the elimination of “waste” from his own way of working.

Apparently, when assessing the cybernetic value of Kanban and CCPM (cf. figure 8), there is a total lack of higher system functions beyond system 3 – especially when compared to Scrum. This shouldn’t come as a big surprise as we could demonstrate that Scrum includes a much higher degree of very concrete organizational concepts and role models. On the one hand, it is this absence of role models and organizational requirements that make Kanban and CCPM so flexible. On the other hand, there is a certain risk that these flow-focused methods are reduced to their technical aspects disregarding the need to ingrain their – admittedly sometimes counter intuitive – core values in the corporate culture (see above: “doing agile vs. being agile”).

<table>
<thead>
<tr>
<th>Essential properties and artefacts of Kanban and CCPM</th>
<th>Operative Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visualize workflow → Kanban board, Pull</td>
<td>S1</td>
</tr>
<tr>
<td>Limit work-in-progress (WIP), assign service classes</td>
<td>S2</td>
</tr>
<tr>
<td>Conscious insertion of buffers</td>
<td>S3*</td>
</tr>
<tr>
<td>Measure and manage flow → CFD, buffer control, metrics</td>
<td>S5</td>
</tr>
<tr>
<td>Establish rhythms (for filling of input queue, delivery, …)</td>
<td>S4</td>
</tr>
<tr>
<td>Identify waste and practice CIP</td>
<td></td>
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</tbody>
</table>

Figure 8: Cybernetic value of Scrum rules (to be revisited)

3.3 First insights from the examination

The examination of Scrum, Kanban and CCPM in the previous chapter shows that all cybernetic management functions are covered in one way or another. Not all agile practices, however, are fully capable of filling out the strategic and the normative function. If we link up this insight with the need for a collective mindset when dealing with agile structures, it becomes apparent that techniques alone do not sufficiently serve our overall purpose.

The way how Scrum resolves this issue is through the introduction of some highly specific role models like Product Owner (PO) and Scrum Master, the call for a vison, the team concept, and the
repeated establishment of team commitment. Especially when it comes to serving the customer in a fast changing environment – undisputedly one of the most valuable features of an agile organization – the PO fulfills a crucial task that otherwise would be left unattended (or at least left to the more or less skillful implementation of customer management in an organization).

In an attempt to break down and counterbalance the environment’s variety the VSM works with management functions and structural solutions. Structural refers to the way of breaking down a huge overall task into manageable chunks that can be taken over by individual team members – respectively teams – on the same hierarchical level. In turn, those entities have to be coordinated and aligned which falls under the jurisdiction of System 2 and 3. Scrum is familiar with this necessity not only on the “ground floor” but also one hierarchical level higher: it is called “Scrum of Scrums”. As far as we know, Kanban and CCPM don’t claim any expertise in this matter.

A striking similarity of all aforementioned concepts is the strong emphasis on participative planning and control. In practice this requires a high level of transparency within a team and high communication skills of like-minded individuals. The same is true for the constant and integral striving for process improvement. For that reason, it seems justified to remain skeptical if every associate of an organization will always feel comfortable with these working conditions.

4. From doing Agile to being Agile – example of an agile transformation

The following example illustrates the management cybernetic requirements for an agile transformation outlined in the previous chapters. It serves us to demonstrate the suitability and practicability of the theoretically derived conclusions against a real organizational change venture.

4.1 Initial situation

The sales organization of a big system house in Germany consists of three different departments. The first department was responsible for the acquisition of new customers and for presales consulting. The second department was primarily in charge of the existing contracts as well as for the special services of the data centers and the software maintenance.

In the third and last department the knowledge of the contract processing and all the other sales cross functions were concentrated. Each of the established salesforce employees served a defined group of customer contact persons in the assigned customer segment.

The exchange of information through the isolated employees over their projects and tasks for their customers happened only casually and sporadically or if there was a concrete demand. And if so, it happens normally as a by-product of the manifold customer requirements.

Obviously due to these deficiencies in communication and poor structuring, it happened quite often that management got involved in day-to-day customer issues. Escalation became therefore the proven mean of the customers to influence the sales organization. This behavior eventually created formal as well as informal communication channels whose coordination within the sales organization became more and more complex and time-consuming. At the same time the customer observed a dissonant picture of the sales organization with various different information channels affecting the sales efforts in a very unsystematic manner.

4.2 Main issues in detail

Apart from the convoluted and many-voiced customer communication one of the most important issues of the existing sales organization was the extremely slow response time to customer requirements. As a consequence of this, the throughput time of an offering was very long, got very often criticized by the customer, and led to a constantly deteriorating value of customer satisfaction metrics.

From a management cybernetic point of view, the situation can be described as shown in figure 9, where the different customers are treated by the sales organization of the S4 management layer in an unsystematic way and each customer account unit was not treated appropriately. Once the contract is signed, the real added value work is carried out by the operational units which are governed
and ruled by the S3 management function. But the deficiencies of the operations in view of the customer are manifold and reach from a poor quality perception over a slow response time to an only reactive mode of collaboration with the customer.

The fact that under these conditions the customer complaints are frequently brought directly to the attention of the management of the sales organization led to a steady depreciation of the influence and prestige of the sales people in the eyes of their customer accounts. Even worse, this also confined their possibilities of increasing the sales volume.

![Figure 9: Deficiencies of the initial situation](image)

Dealing with that issue it was pretty clear that the customer account management has to be reshaped in order to act much faster and in a more targeted way on the customer requirements. The initial impulse for a change in this new direction came directly from the sales organization. During a two-day off-site workshop, the whole department including management created a new vision for their future organization and working structure. Based on this collectively created alignment of the sales organization’s future vision and mission it is strongly believed that the successful handling of the customers’ variety can take place and will lead to much better results in the near future.

4.3 Departure for a fundamental change

Facing the eroding value of customer satisfaction, management was forced to renew fundamentally the sales organization to incorporate a new way of customer centricity. In order to realize this vision, the management was convinced that it had to choose a new approach with which not only the management itself should be the driver of the reorganization but also the whole staff entity would have to support it. According to this conviction the change called for two directions of actions:

1. The role of management and its way of interact with the employees had to be rearranged dramatically. In the center of the future collaboration between management and staff shouldn’t exist anymore a hierarchical, power-driven relationship from the top to the bottom level. On the contrary, the hierarchical way of management will be abolished in favor of a cooperative and esteeming dialogue between professionals and experts in their domain.

2. Hand in hand with this new management approach the responsibilities and the schedule of workload in direction of the customer also has to be redirected towards the new founded customer center. Organizing and grouping all the work within a defined customer work group the starting point of a new way of customer care will be established. Instead of a specific assignment of customer requests
to a predefined staff employee there will be built up an interdisciplinary sales team that supports the customer over all aspects of his
demand and according his specific customer segment requirements.
These so called “customer centers” are becoming the determining medium of the customer interaction, whereas the whole workload has
to be managed by the team itself.

4.4 Lessons learned

By starting an agile transformation with the creation of customer centers, the management as well as the whole staff are experiencing a
tremendous change of their
actual work. Now the management must abstain to a high degree from direct intervention. Their focus on work shifts primarily towards regulation
and cooperative care of their relevant customer center.
In the future, they must secure and guarantee a friction free functioning of these teams.
Their main management objective is therefore the empowerment of the employees and the consultancy of the customer centers.
For the management it implies a deep cultural change that results in a new perspective for the management values and beliefs. In the sense of
the explanations of the previous chapters
it will be perceived as a shift towards the S5 management function that is going to become reality and it confirms the assumed transformation
direction.

But also the work of the employee in self organized, self-responsible teams implies fundamental changes because now the customer interaction
and the subsequent tasks have to be regulated within the team.
Hence for the actual working procedures the following formerly evaluated methods and tools are now adapted to improve the collaboration in the
customer centers.

In figure 10 are listed the actual artefacts that are in use by the new organizational entities that help tremendously to cover the actual workload.

<table>
<thead>
<tr>
<th>Artefacts in use by the customer centers</th>
<th>Operative Elements</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>S1</td>
</tr>
<tr>
<td>Process Model</td>
<td>Vision – Sales strategy</td>
</tr>
<tr>
<td>Backlog of Customer requests</td>
<td></td>
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<tr>
<td>Daily and Weekly</td>
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<tr>
<td>Task Board in Jira</td>
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<tr>
<td>Impediment backlog with internal issues</td>
<td></td>
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<tr>
<td>Review via organizational trainer</td>
<td></td>
</tr>
<tr>
<td>Roles</td>
<td>Team Members in Customer Center</td>
</tr>
<tr>
<td></td>
<td>Management partner</td>
</tr>
</tbody>
</table>

Figure 10: Cybernetic value of implemented improvements

As far as the actual degree of maturity of the transforming process can be estimated at the moment it can be stated that the introduction of these
agile practices from Scrum, Kanban and CCPM are going to support the organizational transformation significantly.

5. Conclusion for successful agile
management

Summarizing the main issues of our explanations it can be concluded that from a cybernetic point of view an agile management transformation
implies a deeper change of the whole labor culture and labor organization in enterprises.
Hence successful “agilizations” of enterprises must investigate primarily in all management cybernetic functions and compose or adapt them in
new organizational arrangements. But over all a successful agile transformation can and should not exclude the top-management functions S3, S4 and S5 and in the scheme of Diet's pyramid the layer above the level identity and belief.

If this primary conclusion is not addressed by the initiatives of agile transformation in organizations, these efforts are running the risk to fail, so that the enthusiasm at the beginning will end up on the daily routines of the existing work procedures. Therefore, it becomes pretty crucial to be aware in transformation projects that above all the organizational measures depend on a moment of change in direction like it's shown in the next figure.

At that point it will be obvious whether the undertaking will be successful or has to fail. Success means then that the whole organizational structure is aligned according the new agile principles (i.e. the enterprise is agile!) but not only a few agile techniques and projects are implemented (i.e. the enterprise does agile!). Ken Schwaber described it in an interview in such a way that it is absolutely not sufficient to demand a new type of employee who on that basis could reach a „bottom-up-intelligence“ in an organization and to hope this could initiate a renunciation from the classical model of “command and control” [Schwaber 2012].

Figure 11: From agile Doing to agile Being

The ability to implement new and more democratic working models as a corporate issue and to undergo such a process together indicates then the pay off. It shows all participants that they wanted to implement the culture of agile working by establishing openness and creativity as well as the tolerance to handle with care the existence of failure and weakness. Like Mary Barra, CEO of GM, should have expressed it from a top-management perspective: "If there will be something that detains you to give our corporate your best then enter my office and turn all upside down" [Hornberg 2015].

6. References

Anderson 2010  D. J. Anderson: Kanban: Successful Evolutionary Change for Your Technology Business, Blue Hole Press, 2010


Schwaber 2012  Interview in Objekt-Spektrum Nr. 5/2012

Interesting WEB-Sites:

Stafford Beer: What is Cybernetics. https://www.youtube.com/watch?v=JJ6orMfmsg (Date)