

Football Behaviour Management

SYLLABUS

VU Amsterdam Summer School

July - August 2024



Any general questions for the Summer School support team? Contact amsterdamsummerschool@vu.nl.

Football Behavior Management: How Conditioning Can Improve Conduct Within The Sport

Introduction

How does one become a scout? Or a technical director of a football club? There really isn't a course you can take for that. That is what we want to change with our Football Behavior Management (FBM) course.

The main idea is to combine relevant scientific theory with practical know-how of professionals working as a scout, technical director or player agent. To make sure that the course is both relevant and fun to attend, we organize the course in such a way that it is as if you are part of a virtual club and already working as a scout for that virtual club. During the course you go and find new talent, apply the relevant scientific theories to your findings and present the talent you find to the decision makers of the virtual club.

The scientific part of the course will consist of:

1. Organizational Behavior Management (OBM). OBM is the most scientific way to bring the best out of people. OBM is targeted at work within organizations. So OBM is the best tool to optimize the workings of a club. Yet, the same principles that brings the best out of employees of the club, also brings the best out of players and the technical staff.
2. Cybernetic Big Five Theory (CB5T). CB5T is the most scientific way of looking at personality. Again, CB5T is a great tool to make sure you deeply understand the people you work with. Yet, it is also a great tool to understand the personalities of the players of the club. CB5T enables you to check whether a potential player fits within the team. And CB5T helps understand and optimize the relationships between the players and the technical staff.
3. Triangulation. The Triangulation model of communication explains why you always need three points to understand anything. In terms of football: the player, the manager and the game itself. Triangulation also explains why there are two modes of communication: (a) to clarify and (b) to influence. To work as a scout or a technical director you need both to be able to clarify why a potential player is the right choice and be able to influence the decision makers to make the right decision.
4. Viable System Model (VSM). VSM is a cybernetic approach to organizations. As we are already using cybernetics with CB5T it is only natural to also include VSM. VSM is the most scientific way to model an organization and hence also a football club. The VSM model of the club allows you to diagnose the club for known weaknesses and revitalize the club by optimizing its structure.
5. Subjective Bayesian statistics. A lot of decisions that you need to take as a scout or technical director are clouded in uncertainty. Bayesian statistics is the most scientific way of dealing with uncertainty. For that reason during the course, you learn how to

create your own Bayesian models and network to support your decision making as a scout or technical director.

We ourselves use these five scientific theories for finding the best players for clubs. Take for instance the case of Adrian Dalmau. We found Adrian Dalmau while he was still an unknown striker playing in Spain. On our advice Heracles hired Adrian Dalmau whose contract had ended so no transfer fee was paid. Using our Bayesian model we predicted that Adrian Dalmau would be worth 1.75 million euro to Heracles one year later. Adrian Dalmau became the #3 top scorer of the Eredivisie that year and indeed he was transferred to FC Utrecht for the amount of 700.000 euro and the transfer of Cyriel Dessers from FC Utrecht to Heracles. Cyriel Dessers was valued at that time for 1 million euro. Cyriel Dessers in turn was transferred to KRC Genk for a transfer fee of 4 million euro.

Sources

We hope all participants will read the main sources. Additional sources are optional.

Organizational Behavior Management (OBM)

Main source:

- Daniels, Aubrey C. *Bringing out the Best in People: How to Apply the Astonishing Power of Positive Reinforcement*. McGraw-Hill, 2016.

Additional sources:

- Daniels, A. *Performance Management: Changing Behavior that Drives Organizational Effectiveness* (2004)
- Brethower, D.M. *Behavioral Analysis in Business and Industry: A Total Performance System*. Behaviordelia 1972

Cybernetic Big Five Theory

Main source:

DeYoung, C. G., & Weisberg, Y. J. (2019). Cybernetic approaches to personality and social behavior. In M. Snyder & K. Deaux (Eds). *Oxford Handbook of Personality and Social Psychology*, Second Edition (pp. 387–414). New York: Oxford University Press. [[PDF](#)]

Additional sources:

DeYoung, C. G. (2015). Cybernetic Big Five Theory. *Journal of Research in Personality*, 56, 33–58. [[PDF](#)]

DeYoung, C. G., & Krueger, R. F. (2018). A cybernetic theory of psychopathology. *Psychological Inquiry*, 29, 117–138. [[PDF](#)]

DeYoung, C. G. (2017). A cybernetic perspective on integrating personality structure, personality process, and personality development. *European Journal of Personality*, 31, 538–539. [\[PDF\]](#)

DeYoung, C. G. (2017). In defense of (some) trait theories: Commentary on Hogan and Foster (2016). *International Journal of Personality Psychology*, 3, 13–16. [\[full text\]](#)

Triangulation

Main source:

Donald Davidson - Three Varieties of Knowledge in Subjective, Intersubjective, Objective: Philosophical Essays Volume 3 2001

Viable System Model

Main source:

Hoverstadt, Patrick. *The Fractal Organization: Creating Sustainable Organizations with the Viable System Model*. John Wiley & Sons, 2008.

Additional sources:

Beer, Stafford. *Brain of the Firm: a Development in Management Cybernetics*. Herder and Herder, 1972.

Subjective Bayesian Statistics

Main source:

De Finetti, Bruno. "Probabilism: A Critical Essay on the Theory of Probability and on the Value of Science," (translation of 1931 article) in *Erkenntnis*, volume 31, issue 2-3, September 1989, pp. 169–223.

Additional sources:

De Finetti, Bruno. *Theory of Probability*, (translation by A Machi and AFM Smith of 1970 book) 2 volumes, New York: Wiley, 1974-5.

Goals

Upon completion of this course you should be able to:

- Demonstrate an understanding of the importance of organisational behaviour to achieve excellent results within a professional football organisation.
- Explain how OBM and ABA can help change organisational behaviour
- Show familiarity with the ABC model and ABC analysis.
- Discuss the main concepts in OBM/ABA and how they can help improve performance.
- Apply the OBM protocol to real-life behaviour.
- Model a professional football organisation with VSM.

- Use VSM to diagnose and optimise a professional football organisation.
- Use CB5T to understand people's needs, desires and goals.
- Understand how people's needs, desires and goals can help an organisation achieve its goals.

Teaching Staff

Dr. Marius Rietdijk

Associate Professor Marius Rietdijk is the coördinator of the FBM course. His field is OBM. He teaches OBM at the VU-university and he is the scientific director of the Aubrey Daniels Research Institute for Behavior Analysis (ADRIBA) of the VU-university. Marius Rietdijk is making sure that everything that is taught in the FBM course is scientifically grounded.

Joost van der Leij

Joost van der Leij is a VU-university certified OBM trainer/coach. Joost van der Leij has also developed the Bayesian models for data scouting that we use to find the right players. His predictive Bayesian player model has predicted on September 1st 2019 the results of the Eredivisie on January 1st 2020 with an 81% correlation, establishing a very strong relationship between the FBM stats of individual players and the results of the team they play for. Together with Patrick Busby he has written a book on football statistics (the Dutch title is "Voetbalstatistiek"). Besides the book on football statistics he has written over twenty other books among them a book on Cybernetic Big Five Theory, Triangulation and Bayesian statistics. Joost will deliver most of the scientific topics and data scouting.

Patrick Busby

Patrick Busby is the head of scouting for PRIME Sportsbusiness. Patrick Busby has over 25 years of experience as a scout. Patrick Busby is known for having made possible the transfer of Rafael van der Vaart to Real Madrid. Patrick Busby has worked for FC Groningen, Ajax, HSV and Brighton. Patrick will deliver the classes on how to become a scout.

Vincent van Raam

Vincent van Raam is a videoscout. Vincent will deliver a class on video scouting.

Wessel Weezenberg

Wessel Weezenberg is a KNVB certified player agent. Wessel Weezenberg is the player agent for players such as Perr Schuurs (Ajax) and Jordy Clasie (AZ). Wessel Weezenberg will deliver a class on what player recruitment looks like from the perspective of the player agent.

Besides these people, we are also looking to get a technical director of a club to come and deliver a class on the work of a technical director at a club. As the summer school is right in

the middle of the transfer window, most recruiters are hard at work. So we have to be flexible to make time during the course to fit the calendar of these professionals.

Learning Tools

Every day is split into two parts:

1. The morning programme which will be a workshop where we will go through the science we use and practice how we can apply our scientific knowledge to the real world of player recruitment.
2. The afternoon programme in which we will hear from a football professional working in player recruitment how things work in clubs. As we might not have a football professional coming in every day, if not we spend the afternoon scouting for players through video and data.

On the last day, in the afternoon, you will present a player you have scouted to a virtual club. In your presentation we expect to see that you took on board what you learned during the course. We would like to see data on your scouted player, but also a report on what makes this player valuable to the virtual club. You can scout players before the start of the summer school and then apply what you learned during the summer school to the players you have scouted. Or scout the players during the course in the evening. We have a strong preference for scouting unknown players, the less known and more exotic the competition they play in the better. For video scouting you can for instance search Youtube for full matches and find some very interesting matches to watch and find good players. During the summer school you get access to the online Football Behavior Management team analysis tool so you can analyze whole teams.

General Information

Facilities, coffee & tea

Schedule:

Start-end: Morning 10 - 13, room TBA

Opening times VU evenings -11pm, Saturdays 8am-6pm, Sundays 10am-6pm

Coffee breaks - flexible

Lunch time: 13.00 - 14.00 pm

Afternoon: 14 - 16 pm

Interesting Sites

Organizational Behavior Management (OBM)

- www.aubreydaniels.com – the leading OBM Consultants
- www.aubreydaniels.com/pmezine - many practical applications of OBM
- www.obmnetwork.com – look at the bigger OBM picture
- www.behavior.org – cambridge center for behavioral studies

Cybernetic Big Five Theory

- <http://deyoung.psych.umn.edu/> - DeYoung Personality Laboratory

Viable System Model

- <http://www.scio.org.uk/> - Building Viable Organizations

Full matches

- <https://www.youtube.com/>

Football sites

- <https://www.transfermarkt.co.uk/> - The most used site to check player details like minutes played, estimated value and contract date.
- <https://ifbi.brussels/> - Postgraduate course for people who want to work in the business side of football rather than in player recruitment.
- <http://footballphilosophy.org/> - A site where Joost van der Leij discusses many of the topics of this summer school.
- <http://footballbehaviormanagement.com/> - Examples of scouting reports can be found here.

Agenda

Day	Morning programme	Afternoon programme
Monday	OBM Basics	The player agent
Tuesday	CB5T Test	Video / Data scouting
Wednesday	VSM Basics	Free
Thursday	CB5T Basics	Live scouting
Friday	CB5T for football clubs	Free
Monday	OBM Protocol	The technical director
Tuesday	Bayesian Modeling Basics	Mental coaching
Wednesday	Bayesian Modeling for football players	Excursion if possible / free

Thursday	Triangulation & tacting	Presentations of scouted players
Friday	Triangulation & manding	Free

Appendix I

Optimizing recruiting in football clubs

Joost van der Leij - joost@footballbehaviormanagement.com

Introduction

According to Aubrey Daniels feedback is the breakfast of champions. (Daniels 2016)
 Football clubs love champions and they use a lot of feedback to bring the best out of their players. Yet, when it comes to their performance as a professional football organization not all clubs do as well as desired. If we look at Dutch clubs then about half of them are in such a financial condition that they have very little financial resilience and run an acute risk of being unable to continue to operate. (NBA 2019) 28% of the clubs in the Eredivisie and 69% of the clubs in the Eerste Divisie have a negative equity. 28% of both groups of clubs made a loss in the 17/18 season. Clubs defend their policy to point to the value of the players they are developing and to future profits from transfers. Developing players can't be counted as equity at all though and future profits from transfer can only be counted as equity if clubs are able to demonstrate structural profits from transfers in the past.

How would one go about demonstrating that these profits are structural. If we look at profits and losses from transfers in the last five seasons and require a minimum of one million euro profit, only two clubs (AZ and Heracles) have made at least one million profit from transfers every single season for the last five years. See the table in appendix I for all transfer profits and losses for the clubs in the Eredivisie for the last five seasons. (TransferMarkt.de 2019) If you look at the total profit or loss over these five seasons, all clubs have made a profit. Yet, at the same time the differences are huge. Ajax has made more than 200 million euro profit, while RKC only 50 thousand. Ajax has made twice as much profit than PSV. And only AZ is able to come close to PSV. The gap between clubs that make a lot of profit on transfers and clubs that make little profit on transfer, is bound to grow as it is easier for rich clubs to increase profits on transfer than it is for less rich clubs. If one club becomes too dominant this might even threaten the entertainment value of the competition.

Yet, even small clubs can be successful as the following anecdote demonstrates. In the season 18/19 Heracles hired an unknown Spanish striker named Dalmau. He was available on a free transfer from Villarreal. Heracles managed to arrange a deal and Dalmau ended up becoming the 3rd best goalscorer in the 2018/19 Eredivisie season. His performances earned Heracles a fee of 700.000 Euros from FC Utrecht and a free striker in return with Dessers, who is valued at one million euros. This is in striking contrast to the well known

failed transfer of Sulejmani who came to Ajax for about 16 million euros. Sulejmani left Ajax after serving his five year contract while playing very little. So Ajax did not get any transfer fee after Sulejmani left the club.

This example is especially striking because in the same season that Sulejmani came to Ajax, Ajax had turned down another player that could have played in the same position called Di Maria. (Van der Leij 2019) Di Maria could play at Ajax for a six million transfer fee, but the decision makers of Ajax did not know him and did not take action to get to know him despite the very positive information about Di Maria from Ajax' own scouts. Di Maria went on to play for Benfica for eight million and after three years Di Maria was transferred to Real Madrid for 33 million euro and a 20% resale fee in case Real Madrid would transfer Di Maria to a third club. After another four years Real Madrid transferred Di Maria to Manchester United for a 75 million fee. So in short not hiring Di Maria cost Ajax 50 million euro (25 million profit on the transfer, 15 million resale fee and 10 million less spent on a player).

Of course these anecdotes prove less than the financial situation. Nevertheless, Heracles is also one of the clubs that has a healthy finance. The lesson from the anecdotes is a different one though. Heracles found Dalmay by having the decision makers actually listen to their scouting team and acting on that information by flying out to Spain to see the player live and quickly make a deal. Whereas in the case of Ajax the decision makers did not listen to their scouts and listened to the trainer/coach instead. Often when a club is performing badly in the league, public opinion blame the scouts of the club. But more often than not, it is unknown whether the scouts did not find the right players. Another reason the club is doing badly is that the decision makers at the club did not appreciate the information of their scouts fully or failed to act in time, or both.

What this means is that there is a clear business case within football clubs to promote desired behavior for their decision makers and at the same time decrease undesired behavior. Now is this always the case in any organization. But within a club the desired behavior, acting on validated information from the scouts, is crucial for creating a viable organization that is able to continue to perform at the current level or even increases performance over time. So the business case in clubs for the decision makers to act in the right way is huge as for about half of the Dutch clubs it is a matter of life and death. Yet, at the same time the current financial situation in these clubs suggest that the decision makers more often than not, act in an undesired way.

Organizational Behavior Management (OBM) is the most scientific method of bringing about behavioral changes within an organization. (Daniels 2004) OBM revolves around feedback, so introducing OBM within a club helps the club to not only create champions on the pitch, but also create champions within the organization itself. Feedback as used by OBM derives from cybernetics. (Brethower 1975) Cybernetics is the science of control and communication within man and machine. (Wiener 2019) Cybernetics applies to systems and one is free to define anything as a system. If you look at an organization as a cybernetic system then the Viable System Model (VSM) helps you diagnose and optimize an organization by looking and improving feedback loops within the organization. (Beer 1972, Hoverstadt 2008) This article proposes a protocol based for clubs based on OBM and VSM that decreases the risk of hiring the wrong player while at the same time increases the opportunity of more structural profits from transfers.

Organizational Behavior Management for clubs

OBM has not been specifically developed for football clubs. Yet, OBM works in any sort of organization as OBM uses associative and instrumental learning, two general principles of how the brain learns. (Gottfried 2011) OBM is a form of Applied Behavior Analysis (ABA) specialized to use ABA within organizations. ABA is also used in sports training programs. Yet, as ABA is better known in the US than elsewhere, ABA is mainly used for other sports than football. There are a few studies that show how effective ABA is in football. (Luyben 1980, Brobst 2002, Quintero 2018) In a metastudy this led to the conclusion: “ As for intervention, positive reinforcement, goal setting, modeling, and graphic feedback have been effective with athletes of all ages, at different skill levels, and in many sports.” (Luiselli 2011) Although this paper proposes to use OBM to optimize behavior within the football organization itself, given that the same principles also work to optimize performance on the pitch probably helps introducing OBM within the club.

The principles of OBM become clear when you look at the protocol of OBM. OBM consists of seven steps:

1. Specify the current desired behavior, the current undesired behavior and the future desired behavior.
2. Measure these behaviors.
3. Explain the current levels of performance using an ABC-analysis.
4. Give feedback to the performers about their performance and how to improve it.
5. Set subgoals together with the performers to find a path towards a much better performance through challenging, yet achievable subgoals.
6. Find what works as a positive reinforcer for the performers and apply positive reinforcement on the desired behavior.
7. Evaluate and adapt.

These seven steps enshrine the seven principles of OBM:

1. Behavior
2. Measurement
3. ABC-analysis
4. Feedback
5. Goals
6. Reinforcers
7. Adaptation

Behavior

OBM explicitly focuses on behavior. To help understand what counts as behavior and what doesn't count as behavior, there is the MARCO acronym. MARCO stands for:

- Measurable. Behavior can be measured by others.
- Active. The performer has to actively do the behavior. If a corpse can do it, it ain't a behavior.

- Reliable. Behavior not only has to be measurable by others, but behavior also needs to be able to be measured reliably by others. What this means is that when different parties measure the same behavior, they end up with very similar results.
- Control. Behavior has to be under the control of the performer. If you order your recruiter to hire a player who will score ten times in the upcoming season that is impossible for him to do as hiring a player who will score ten times next season is out of his control. Hiring the best player based on all the information the club has, is under his control and thus that is an example of behavior.
- Observable. OBM deals with external behavior, i.e. behavior that can be observed by other people.

While MARCO defines what behavior is, at the same time it is important to avoid AVGS. AVGS stands for:

- Attitudes. If a recruiter likes a player, that is an attitude and not behavior.
- Values. If the club is a family that is a value. Nothing wrong with values, but with OBM we are interested in what the behaviors are that express that value. So greeting each other can be an example of a behavior that expresses our family values.
- Generalizations. Taking charge or doing something about it, is stated too general as the performer remains clueless about what he needs to actually do. If you can't visualize the performer doing it, it is a generalization.
- Status. Being our best scout is a status and not a behavior. Again, we would be interested in what concrete behaviors make him the best scout.

This way one can specify what the desired behavior is. In case of the decision makers at the club an example of desired behavior would be to act upon the information provided by the scouts to go and watch at least one live match of the best potential signing.

Measurements

Almost everything a football player does on the pitch is being measured. Yet, almost no behaviors of staff members in the club are measured. Although measuring what players do on the pitch, doesn't give you a measure of their performance (to measure their performance one has to judge how valuable the behaviors on the pitch have been), it is better to measure than not measure at all. (Van der Leij 2019) The same goes for staff members of the club.

OBM defines performance as the combination of behavior and results. Results are what stay at the club when everybody goes home. Behavior is what leaves the club when people go home. Measuring scouts is easy. Whenever a scout is reporting on a player, ask the scout to predict how the career of said player is most likely to continue. Scouts earn points when their prediction comes true. In the same way one can measure recruiters and decision makers. Have them predict what the probability is that a player is able to contribute to the team and then use scoring rules (for instance Brier's Rule) to keep track of how well they are doing. (De Finetti 1975)

ABC-analysis

The ABC-analysis forms the hearth of OBM and ABA. The ABC-analysis is also the most unknown part of OBM. It is what makes OBM work so well. The name is derived from the ABC-model. Any analysis using the ABC-model, is an ABC-analysis. The ABC acronym stands for:

- Antecedents. Antecedents are everything that is needed to make the behavior possible and everything that happens just before the behavior is performed. Without a ball, you can't play football. So a ball is an antecedent for playing football. In the same way is a budget for flying to see players to see live an antecedent for the decision maker to follow up on the information his scouts provide him.
- Behavior. After the antecedents comes the behavior as discussed above.
- Consequences. Consequences are everything that happens after the behavior has been performed.

As you can see the ABC-model is a model through time. First there are the antecedents, then the behavior followed by the consequences. The importance of this model lies in the fact that most people try to steer behavior by using antecedents, while research has shown that future behavior is much more strongly influenced by the consequences. (Skinner 1953) Training programs for football players take consequences much more into account than elsewhere in our society. Yet, not always in an optimal way. (Wawoe 2018) Nor is the same level of attention for the right consequences given to the behaviors of the scouts, recruiters and decision makers.

There are four different consequences. There differences are defined between what people want and what people get. This gives the following matrix of consequences:

	What you want	What you don't want
What you get	When you get what you want, it is positive reinforcement. The behavior being positively reinforced is very likely to increase in the future. People feel happy when they are positively reinforced.	When you get what you don't want, you are punished. The behavior punished decreases, but is often replaced with the undesired behavior of discussing or fighting angrily.
What you don't get	When you don't get what you want, you are being penalized. The behavior penalized is likely to decrease in the future. People often feel sad when they are penalized. Yet, as most people like to get attention, taking away attention by ignoring people often works as a penalty, but	When you don't get what you don't want, it is called negative reinforcement. This is the case where a person is threatened to behave in a certain way. The behavior negatively reinforced is likely to increase in the future, but only to the level where people escape the threat. People first feel scared

	a penalty that does not promote alternative undesired behavior.	when threatened and relieved when they are able to cancel the threat.
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Most organizations use punishments, penalties and negative reinforcement to change people's behavior, whereas research once again has shown that positive reinforcement works much better (Daniels 2016) Often organizations think they use positive reinforcement because they pay their players and staff members salaries. Yet again, research has shown that rewards that are uncertain and further in the future have less influence than certain rewards in the here and now. (Daniels 1975) The payment of salaries have very little influence on the future behavior of people. (Wawoe 2018)

If future research demonstrates that our hunch that decision makers in clubs behave too many times in an undesired way, the ABC-model explains why they do so. Even though they act in a way that hurts the club, their behavior is positively reinforced. In order to change the behavior of decision makers in a club, one needs to (a) remove their personal rewards for undesired behavior and (b) introduce desired behavior that is not only positively reinforced, but also incompatible with the old undesired behavior.

Feedback

Feedback has two components. The first component of feedback is that feedback contains data that the performer can change his behavior in order to improve his performance. The second component of feedback is that actions are repeated (although often in a slightly changed manner) in order to achieve long term goals. This is the control component of feedback.

Decision makers have direct data on the performance of the team for every match round. With every match they see whether their team won or not. And the subsequent ranking in the league table. Yet, this data lacks information about how to change the behavior of the players in case the club is unhappy with their current ranking. Therefore it is not feedback. Besides given that luck plays quite a big role in football, the place in the league table might not reflect the true performance of the team. Other measures of team performance might be a better reflection for team performance as well as be true feedback in the sense that the team is able to use the data to change their behavior. (Van der Leij 2019) Decision makers need a feedback mechanism to know how to improve their decision making process.

Goals

Given that we can measure behavior, we can also set a target for that specific behavior. In most cases the gap between the current level of performance and the target level of performance is too wide to bridge in one step. For that reason challenging yet achievable subgoals are introduced to shape the behavior from the current level of performance to the target level of performance. Achieving subgoals gives an opportunity for celebration and rewarding achievement which works as positive reinforcers for the desired behavior. Finally, the target itself is also a reward. (DeYoung 2019)

Reinforcers

We have already seen what reinforcers are discussing the ABC-model. As we have seen, the brain learns through associative learning and instrumental learning. In the case of associative learning the brain creates a probabilistic relation between two sense impressions. On the pitch this is called game intelligence. With instrumental learning the brain creates a probabilistic relationship between our behavior and what our behavior gets us. We tend to do more of what gets us what we want and we tend to do less of what gets us what we don't want. On the pitch instrumental learning leads to technique.

Adaptation

Organizations are dynamically. Humans change through time. People can become saturated with specific rewards. If that happens, old reinforcers stop working. For that reason with OBM we keep on measuring and adapting whenever we see that performance is dropping or not achieving the target level we are looking for. For that reason Brethower combines OBM with cybernetics. (Brethower 1972) Cybernetics is the science of adaptive systems. (DeYoung 2019) When a system is able to (a) set goals, (b) gets feedback to check whether its goals are achieved and (c) is able to adapt if its actions do not lead to the achievement of its goals, it is a cybernetic system. Any organization implementing OBM is a cybernetic system, because with OBM we have our target level of behavior and subgoals, feedback and the ability to adapt if for one reason or another we are achieving our subgoals or reach our target. So a club implementing OBM is also a cybernetic system. For that reason we combine OBM with the Viable System Model (VSM) because that is the most scientific way of structuring an organization according to the principles of OBM and cybernetics. (Hoverstadt 2008)

The Viable System Model

Cybernetics was developed during the Second World War to deal with the first information processing computers. (Wiener 1948) Yet, from day one humans were also considered to be an information processing system. (Ashby 1952) In 1960 a book was published called "Plans and the Structure of Behavior" which is the first cybernetic book to consider a human being as a cybernetic system. (Miller 1960) In this book Miller explained how people acted by combining the behaviorist learning theory that is used by OBM with cybernetics. Due to the fact that one create a new cybernetic system by coupling two other cybernetic systems, one is able to not only look at an individual, but also to partnerships, teams and whole organizations. (Ashby 1958) Stafford Beer was the first cybernetician to actually apply cybernetics to a whole organization when he developed VSM. (Beer 1972)

With VSM you consider the whole organization to be a cybernetic system. Any system that encapsulates the cybernetic cycle is a cybernetic system. (DeYoung 2015) The cybernetic cycle is as follows:

1. Activate a goal.
2. Select an action to achieve the activated goal.
3. Do the action.
4. Interpret the result of the action.

5. Compare this interpretation with the goal.
6. If the goal has achieved go back to step 1. If the goal has not been achieved and there is still time to keep the goal activated, go back to step 2. If the goal has not been achieved and there is no more time to keep the goal activated go back to step 1.

In terms of OBM the cybernetic cycle looks like this:

1. Set the target level of desired behavior (goal activation).
2. Do the intervention and reinforce positively (select and do action).
3. Measure the result (interpret the result).
4. Feedback as data that enables us to optimize our behavior (compare result with goal).
5. Adaptation and feedback as control feedback to repeat previous steps.

As you can see, a football club implements the cybernetic cycle. The club activates a goal, does actions to achieve that goal and if the goal is not achieved, adapts to increase the chances of achieving the goal after all. In fact, the club, just like human beings, has more than one goal. There are financial goals and technical goals. Some goals are short term, other goals are long term. There are subgoals that further the club's ultimate goals. Furthering some goals, at the same time sometimes hinders the achievement of other goals. If you would implement feedback mechanism as described above, with all the goals the organization tries to achieve, you run the risk of going back and forth without actually progressing towards your main goals.

Fortunately, implementing VSM makes sure that all feedback mechanisms work to advance the achievement of the goals of the organization. In fact, given that VSM is built around the concept of viability, if the organization exists for more than five years, as is the case with most football clubs, then all the subsystems and feedback mechanisms have to be taken care off in the club. Yet, if not deliberately designed they have grown organically within the organization and are highly likely to function suboptimally if they are not dysfunctioning. (Hoverstadt 2008) That is why VSM is used to diagnose and optimize the organization.

VSM consists of five systems:

1. System I is the viable part of the organization. Viable means that that part of the organization can function without the rest of the organization. In football clubs System I is almost always the first team. If the club is very popular then sometimes their U21 team is also a System I if it would be able to continue to play and attract fans and sponsoring as an independent club. This is a rare occasion, but one can imagine that for instance Ajax U21 could continue its existence independent of Ajax.
2. System II are all coördinating systems within the organization. In a club the most obvious example is the team that schedules matches and pitches. As you can't play two different matches on the same pitch at the same time, it is important that someone coordinates which team plays on which pitch. All systems that are not a System I nor part of the senior management, are System II. That means that most of the other teams in a club are actually supporting the first team, for instance, as everything the club does, is in support of System I.

3. System III is the senior management for the internal organization in the here and now. Often, this is the general manager or the finance director within the club. System III is running the club.
4. System IV is the senior management for the outside of the club, the environment, and the future. In a club this is the technical director, head of recruitment, head of scouting and head of youth development. System IV is developing the club.
5. System V is the boss of the organization. The boss sets the balance between System III and System IV. If everything is going well, then for all the decisions the senior management has to make, System III and System IV decide in harmony what the best decision is. System V can go to sleep if this is the case. But if there is a conflict between System III and System IV then System V gets to decide. In a club System V is either the owner or non-executive members of the board.

The identity of the club is set by the balance between System III and System IV. Most Dutch clubs that have financial problems have a disbalance between System III and System IV in the sense that they prioritize System III strongly over System IV. They spend most of their time and resources running the club (System III), rather than developing the club (System IV). In badly managed clubs, often System IV is weakened even further because the junior management (System I) is becoming so powerful and influential within the club that the trainer/coach of the first team is taking over System IV activities. The club recruits players that the junior management of System I wants, rather than players that System IV (the scouts) want to hire. The problem here is that the junior management of System I (the trainer/coach of the first team) has different goals than the club as a whole. System I in a football club gets a lot of autonomy. The training staff of the first team is often large and has a lot of power within the club. Yet, if that means that the junior management is making the important decisions the senior management really ought to take, then it is quite likely that the short term goals of System I prevail over the long term goals of the club as a whole. In those cases VSM predicts financial problems, but also stressed out employees.

In a viable organization System I gives feedback to System III and System III confers with System IV about the best way forward. Depending on the outcome System III then commands System I what to do. Beer explicitly states that this ought to be done through the same principles as enshrined in OBM. (Beer 1972) That means that rather than having System III micromanage System I (this is the case when in a club the technical director is directly interfering with the day to day business of the trainer/coach of the first team), System III steers System I by adding positive reinforcers to the desired behavior of System I and, if need be, applying punishment or penalties to the undesired behavior of System I. System III does not have to do anything else. With the right reinforcers and the correct feedback mechanisms System I adapts its behavior to suit the new opportunities and restraints in the environment. In short: by implementing OBM and VSM even a club in the direst of circumstances is able to be revitalized and become viable again.

Optimizing recruitment

We have seen how important transfer fees are to the viability of the organization. At the same time we have seen what threatens hiring the right players: (a) a disbalance between running the club (System III) and developing the club (System IV) and (b) the trainer/coach

of the first team becoming too powerful so that his influence on recruitment becomes too strong (the junior management of System I taking over the tasks of the senior management).

In order to overcome these issues the following protocol is the best way forward:

1. Model the club using VSM.
2. Diagnose the balance between System III and System IV and diagnose the balance between System I on the one hand and System III and System IV on the other hand.
3. Optimize the structure of the organization to restore a healthy balance between System III and System IV, and restore a healthy balance between System I on the one hand and System III and System IV on the other.
4. Specify the desired behavior of System IV, i.e. having the technical director act on information of the scouts.
5. Set subgoals and discover what works as positive reinforcers for the technical director.
6. Implement and adapt.

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Appendix I - Profit & Losses for clubs in the Eredivisie for the last five seasons

Source: <https://www.transfermarkt.de/>

Club	Seizoen	Winst/verlies	Total
ADO	19/20	1700	6793
	18/19	2300	
	17/18	43	
	16/17	750	
	15/16	2000	
Ajax	19/20	148050	209600
	18/19	-33100	
	17/18	54950	
	16/17	45000	

	15/16	-5300	
AZ	19/20	11800	79580
	18/19	23430	
	17/18	6300	
	16/17	22950	
	15/16	15100	
Emmen	19/20	1000	950
	18/19	-50	
	17/18	0	
	16/17	0	
	15/16	0	
Feyenoord	19/20	11100	31950
	18/19	6950	
	17/18	6500	
	16/17	-900	
	15/16	8300	
Fortuna	19/20	0	1760
	18/19	0	
	17/18	1760	
	16/17	0	
	15/16	0	
Groningen	19/20	14300	20300
	18/19	-700	
	17/18	3880	
	16/17	1080	
	15/16	1740	
Heerenveen	19/20	10950	30510
	18/19	8760	
	17/18	9550	
	16/17	250	
	15/16	1000	
Heracles	19/20	3750	19150
	18/19	2600	
	17/18	5400	
	16/17	4350	

	15/16	3050	
PEC Zwolle	19/20	4550	11880
	18/19	3080	
	17/18	0	
	16/17	-600	
	15/16	4850	
PSV	19/20	28100	88360
	18/19	-3700	
	17/18	15450	
	16/17	11300	
	15/16	37210	
RKC	19/20	0	50
	18/19	0	
	17/18	50	
	16/17	0	
	15/16	0	
Sparta	19/20	3000	8880
	18/19	2130	
	17/18	3750	
	16/17	0	
	15/16	0	
Twente	19/20	0	42700
	18/19	3000	
	17/18	3800	
	16/17	14150	
	15/16	21750	
Utrecht	19/20	2100	23630
	18/19	3850	
	17/18	9900	
	16/17	8730	
	15/16	-950	
Vitesse	19/20	6200	32660
	18/19	-1890	
	17/18	16650	
	16/17	5150	

	15/16	6550	
VVV	19/20	2000	2900
	18/19	1000	
	17/18	0	
	16/17	0	
	15/16	-100	
Willem II	19/20	530	3905
	18/19	3400	
	17/18	-75	
	16/17	-150	
	15/16	200	

