Module 1: Analysis Department

Unit 1: Implementation of the analysis department

What is the current reality?

In most clubs, we do not find an analysis department per se, but these functions are usually assumed by the members of the coaching staff.

Clubs usually have:

1. One person or more, as part of the coaching staff, whose role is to "track" and monitor the market for future player hires (scout).
2. Someone who assists the coaching staff with recording, video editing, writing reports on rivals, etc.

Justification of the implementation of the analysis department

Due to the current structure of many clubs, changing the coaching staff implies a huge waste of time and information in terms of the analysis process. This is the case because these functions, as we said before, are largely assumed by the coaching staff.

With regards to this matter, clubs have two options:

1. Assume the loss of information when the technical staff changes.
2. Create a separate department or group of analysts to help and collaborate with the coaching staff.

The second option offers greater benefits since, in the medium and long term, there will be organized and continuous work over time, in addition to people who are specialized and have experience in the field.

Problems and characteristics of the analysis department

We should not overlook the fact that the coexistence of these departments with the coaching staff can generate some type of friction at first, which is why it is essential for the analysis department (analysts) to have and demonstrate a great capacity to adapt to the existing coaching staff at all times.

The Trainer-Analyst and the Analysis Department

> These departments could be defined as technical units formed by a multidisciplinary team of professionals: coaches, computer and audiovisual technicians, mathematicians, statisticians...whose main responsibility is to generate qualified information, based on the editing of technical reports, that supports and positively influences the coach's technical decision-making (Vales Vázquez. 2012. p. 169).

When developing an analysis department within a professional soccer club, we must consider the profile of the people involved.
There are determining elements that must always be met by those who participate in the responsibilities of the department, but among the defining facets of that profile, they must meet two essential requirements:

- Know about soccer
- Know about soccer players

An analyst has to be a coach that is trained in soccer, with important knowledge and experience in team training and game analysis, able to understand the complexity of the sport, identifies the different emerging properties that develop in each particular game and knows how to transfer these situations linked to third party decision making, so that they are carried out in the best possible conditions.

"The figure of the trainer-analyst could be defined as a person specialized in soccer, without fear of the knowledge and use of certain technological resources" (Vales Vázquez. 2012. p. 169).

An analyst has to know the people who play, their particularities in relation to the context in which they play, and the nuances derived from the very practice of the game of soccer.

In this way, an analyst is able to make assessments about the game and/or the people who play it, personalize specific aspects and avoid complex aspects directly or indirectly linked to soccer as a competitive sport.

By considering these two fundamental aspects, an analyst is able to assess the game as a whole and dissect it within patterns established beforehand by the club itself, the coaching staff or the specific coach for whom they are working. But, in addition, he/she will be able to directly assess the usage value of a soccer player within the contexts of his/her function, either on the team, or on the opponent's team or in the

evaluation environment if it's someone to be potentially hired or promoted.

> The trainer-analyst must show, above all, a strong ability to observe the game and extract information from it with criteria, rigor and sense of relevance, since all that information will be used by technicians and players to make important decisions aimed at optimizing competitive performance in all its aspects (Vales Vázquez, 2012. p. 169).

Considering these aspects, when establishing the definition of an analysis department in a professional club, we must define the starting point. That is to say, who it reports to, its direct responsibilities, and what we want it for.

An analysis department in a professional club must be an entity that reports to **sports management** or is the direct responsibility of the professional technical staff.

Among the main responsibilities that an analysis department has, we establish three as priority:

- **Attracting talent.** In direct contact with the entity's technical department. Identification of potential soccer players for the future.
- **Identification of specific recurrences of the game.** Linked to the club's coaching staff. Soccer analysis itself, both from the team, group and individual perspective.
- **Study of the evolution of training.** Linked to the soccer academy structure, to **soccer training**, as a complementary tool for evaluating and monitoring the training process and its curricular load in the different age groups into which it is subdivided (Couto Lago, 2018).

An analysis department is a global quality control tool that provides information that is directly linked to the name of a professional soccer team, i.e. playing soccer in the strictest sense, and decisive information about those responsible for carrying that name (the players), both their own and others, as well as those who could potentially be hired in the more or less immediate future. An analysis department is an increasingly interactive matrix within the structural organization of a professional club, as it provides levels of information that can be used by other departments interrelated with those responsible for the specific soccer area, such as the medical, regenerative and prevention department, the conditioning and physical preparation department or the psychology department applied to soccer, among others.

The volume and quality of information that is generated and needed in soccer is increasingly a differential factor, a competitive advantage that allows the club to make decisions with more certainty and eliminate **uncertainty**, the main element of disorder in a complex system that is open and dynamic, such as a soccer club.

A soccer club needs to evolve over time and one of the main facets is to know how to handle the information that allows it to adapt to the complex environments in which it must participate. Reducing uncertainty and widening the possibilities of response in order to make appropriate decisions is the final objective of the entire interdepartmental network.

That is why choosing the right people and organizing them to optimize their resources is crucial to being operational, efficient and effective in the exercise of information processing and its subsequent use.

The first task to be carried out by the analysis departments is, through thorough research and filtering of the information, to provide the trainer with a reasonable volume of data that meets the quality and specificity criteria desired by the trainer. Having a lot of information does not necessarily mean being well informed. Analysts and technicians, as bearers of relevant information, must previously set and agree on the type of data to be collected and recorded (Vales Vázquez, 2012).

> The analysis departments also seek to positively influence the trainer's decision making in a two-way direction:
>
> 1. From the information derived from the analysis of the competitive behavior and performance demonstrated by rival teams and by their own (collective and individual improvement) in the last games played, the objective is to influence aspects related to the short-term and day-to-day training, such as the definition and the adjustment of the team's game and training models.
> 2. In the more medium-term, there is a continuous monitoring of a more or less extensive roster of players, and the goal is to influence the definition of a strategic plan aimed at anticipating the details for the renewal of the players for the next season. (Vales Vazquez, 2012. p. 171)
>
> It is important to emphasize that the set of information generated and transmitted to the coaching staff by the game analysis departments, in addition to being relevant and specific, must include concrete recommendations to

solve the problems detected in the different levels of analysis developed.

This evaluative, informative and prescriptive effort associated with the game analysis departments is carried out at three specific moments, each with different purposes and aspects:

1. Before games, the work developed by the game analysis department is mainly focused on the description of the main characteristics of playing style that the next opponent will present. The aim of this type of analysis is to try to anticipate or predict, through the preparation of technical reports from the last games played by the next opponent.
2. Taking advantage of the privileged situation occupied by the trainer-analyst to watch the game, the main tasks at hand consist in contributing real-time information (images and audio feedback) to the coaching staff located on the bench about the development of the game, with a special emphasis on tactical-strategic aspects and their relationship to the established game plan. The objective is to provide the coach with objective and updated information so that, if he/she considers it appropriate, he/she can make certain adjustments to the game model that could potentially improve the team's performance both in collective and individual terms.
3. At the end of the game, the analysis departments generate a significant volume of work that thoroughly assess (qualitatively and quantitatively) the team's performance during the last game. The objective is to identify, in the shortest possible time, areas of individual and collective performance that could be improved through the implementation of new specific training plans or certain variations in the team's game plan for the next game. (Vales Vázquez, 2012. p. 171-172).

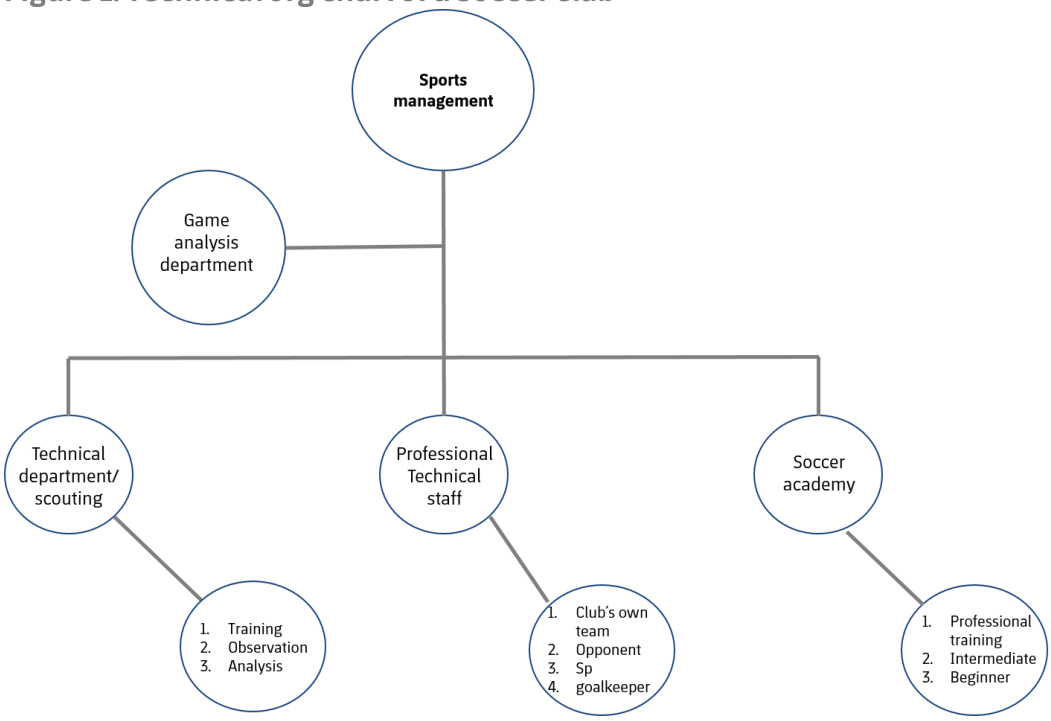
Unit 2: Areas

1. Organization. Distribution of responsibilities.

In recent years, a new technical structure called the Performance Analysis Department has been integrated into the organizational structure of professional soccer clubs. This department is in charge of generating a series of technical reports for the coach and the rest of the departments that make up the club's technical org chart (Vales Vázquez, 2012).

What we propose is for this department to manage the different areas of knowledge of the club, directly related to performance analysis and under the direct supervision of the sports management of the club.

Figure 1: Technical org chart of a soccer club



Source: Own elaboration.

2. Technical department/scouting. Attracting talent

A club's technical department is a multidisciplinary group of people coordinated to attract talent in different geographical areas, both from a face-to-face and non-face-to-face perspective.

The fundamental objective is to:

- Identify talent
- Analyze the soccer player individually
- Analyze a player within the collective context
- Generate a global report of a player (Couto Lago, 2018)

In order to identify talent, it is necessary to define the different areas of observation that can be accessed. Subsequently, the type of observation that will be made and, finally, the type of study that will be developed on the player likely to be observed. In this sense, it is necessary to consider the structures of the soccer player that is to be observed (technical and tactical structure, conditional structure, emotional-volitional structure, psychological structure, cognitive structure, etc.).

The analysis within a technical department consists of studying potentially interesting people to be recruited in the club's immediate future, both for the professional team and for the club's soccer academy.

To attract talent, it must first be found, then it must be observed, and finally it must be analyzed within a specific context, which will lead the player to the club. Each of these protocols must be properly dimensioned.

- **Define the geographical area to be searched**
    - Local
    - Regional
    - National
    - International

Establish networks and talent identification protocols involves organizing the people who will participate in the search for potential future players.
An obvious option is to sign with external agencies, but having your own department makes it possible to allocate human and material resources to consolidate this purpose, know the functional idiosyncrasy of the club and the context.

At the **local** level, collaboration agreements with sports entities are a traditional route. Alongside these agreements is the use of nearby human resources capable of covering the defined geographical area, the development of direct observation and the periodic delivery of written, audio or graphic reports, which allow a continuous monitoring of interested players.

At the **regional** level, the process is similar. The direct observation of potential players is the traditional approach, developed by a network of scouts coordinated by a specific delegate. This delegate, through the preparation of periodic reports and the use of software that allows

image management, coordinates the results with the corresponding department of the club, in this case, the analysis department linked to the technical department.

At the **national** level, the process is more complicated. Geographical distribution involves designating smaller areas to perform a detailed study of the clubs and institutions that can offer player profiles that are interesting to the entity. The observation process may be direct and indirect.

The **direct process** follows a similar approach to the regional level, with reports and images coordinated by a delegate who then coordinates with an area delegate and develops direct links with the analysis department related to the technical department.

The **indirect process** consists of distributing a group of analysts, in defined geographical areas, according to the capabilities of the club. Equipped with observation equipment established beforehand, through the use of tools and software platforms, the relevant players are observed. With this, they are able to prepare written, audio and graphic reports that are coordinated directly with the analysis department linked to the technical secretariat on a regular basis.

At the **international** level, the process is more selective and specific. After identifying the areas of interest for prospecting and talent identification, the established geographical areas, leagues and corresponding competitions are distributed among the different available analysts. They make an indirect observation through the use of software-platforms and specific resources and from there, they elaborate corresponding written, audio and graphic reports.
Once they have identified the players they are interested in, a direct observer can be sent to corroborate in person what was seen in the indirect reports, to get to know their natural environment first hand, the context in which they develop and, with time, the personal particularities surrounding the soccer player in question, dealing with information of a more personal nature, which can be useful for later decision making.

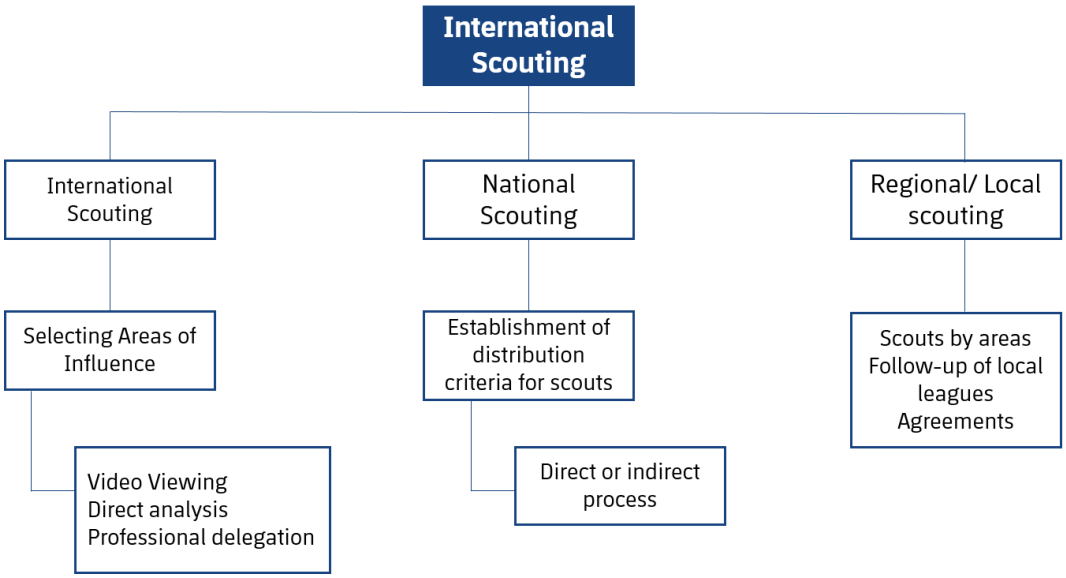
When setting up this particular area, which is part of the club's analysis department, a few things must be considered:

- Necessary and sufficient human resources to cover the different geographical areas contemplated in the recruitment processes and an efficient coordination.
- Necessary and sufficient human resources to organize the indirect analyses, distribution of workload and subsequent coordination.
- Necessary and sufficient economic resources to allow delegates and scouts to access the observation forums and carry out their role.

- Material resources for direct observation, both for written purposes and to capture suitable images.
- Material resources for indirect observation. Software platforms and suitable hardware to optimize the observation process and subsequent analysis.

Each specific *dossier* of information must be presented to club management. The chief trainer-analyst in charge will serve as liaison with sports management and the management area of the entity, providing documentation and a unified opinion through the information collected so that it can be used properly by the corresponding decision-making area.

Figure 2: Geographical area diagram for scouting



Source: Own elaboration

3. Analysis department linked to the professional technical staff

We use the title **performance analyst** for soccer professionals (qualified coaches) with knowledge to dissect playing styles in a contextualized manner based on an established plan, with the aim of providing information about the team itself, opponents or players in their individual performance, to face competition with greater guarantees of success.

Performance analysts understand the game and the players in their competitive functionality, and can clearly interpret intentions and certainties observed, identify strengths and weaknesses, define behavioral recurrences from the soccer perspective that will affect the game model itself or the performance of the adversary game model to fend off and counter real actions within the competitive process.

An analysis department is made up of professionals who work in the multidisciplinary field. Generally, we will highlight two aspects:

- Performance analysts themselves. Coaches, physical trainers and psychologists Analysts for each specific and generic area that makes up a technical staff in soccer.

- Audiovisual technicians. Image and sound professionals who manage the specific aspect of image processing. Computer technicians and other IT professionals that improve information management and processing.

At present, both aspects tend to coincide, resulting in experts on both sides of all areas.

Setting up an analysis department and its subsequent organization is as particular as each club, with its peculiarities and based on the people who make it up.

As a general guideline, we are going to design a model for a standardized analysis department, which includes all of its functionalities in the specific field of soccer, the game and all the areas that influence it in a direct and indirect way.

The analysis department forms part of the club's org chart and can be placed under the direction of **sports management** and integrated (or not) within the structure of the professional technical staff.

Within the analysis department we'll identify:

- **Chief trainer-analyst**. In charge of the department. The chief trainer-analyst serves as liaison between the department and the other areas of the club, sports management, technical department and technical staff.

  The chief trainer-analyst is also in charge of the interdepartmental relations within the team org chart, establishes the transfer of adequate information between the area dedicated to the recovery, prevention and care of soccer players, the behavioral area and the area responsible for physical preparation and strengthening of players and the team.

  The chief trainer-analyst coordinates the tasks of the performance analysts in the department and their direct interrelation with the audiovisual technicians. To this end, he/she establishes the action protocols he/she deems appropriate.

- **Performance Analysts**. Under the supervision of the chief analyst, we have the professionals in charge of planning, organizing, directing and monitoring the work of the

department. Specific tasks are distributed, focusing both on the team itself and the opponents.

Among the performance analysts, we have:

1. **Game analysts;**

- Analysts in charge of supervising and monitoring the team's own game
- Analysts in charge of supervising and controlling the opponents' game
- Set piece analysts
- Goalkeeper performance analysts
- Training process analysts

2. **Data analysts;**

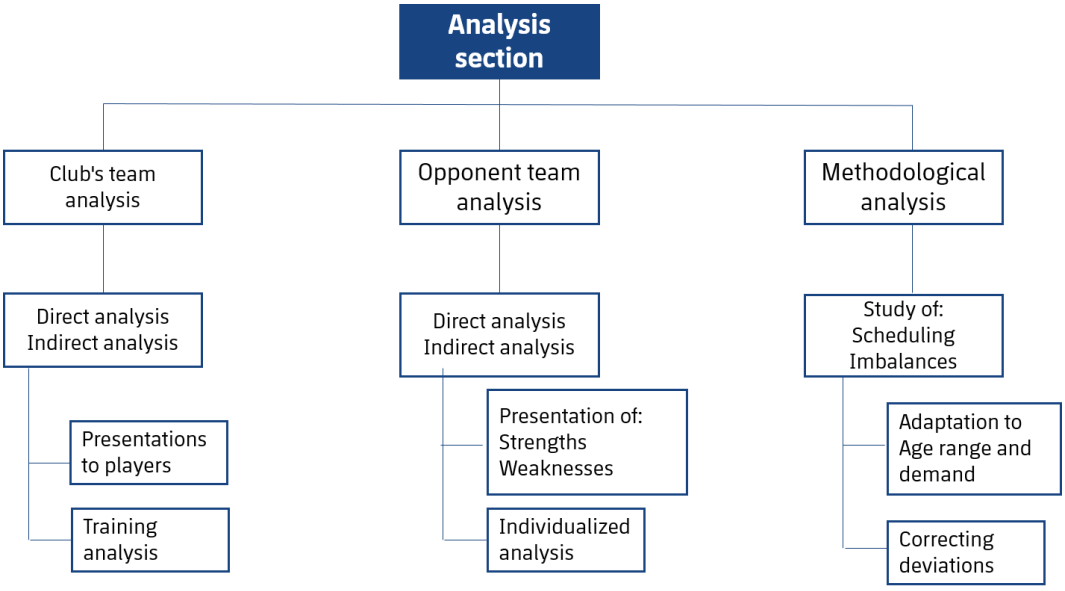
- Data technicians (collection and analysis of all kinds of useful data)

Many of the actions described above may be integrated within the responsibility of one or more analysts depending on the resources available to each club.

- **Audiovisual technicians**. These professionals are in charge of managing the image and sound, the software associated with information management and everything that has to do with the technical aspects of the observation processes, whether it's capturing direct images or virtual reality, used for the reproduction of specific situations under the tutelage of a performance analyst.

The **organization** of tasks within the analysis department is dependent on the number of elements involved. The availability of more or less human and material resources will determine the complexity, enabling a high pace of work and maximum quality.

Figure 3: Analysis department: Performance analysis



Source: Own elaboration

Reporting

The enormous amount of information identified in the analysis processes has to be handled according to the final recipient. The overall *dossier* becomes part of the department database and is submitted to the head of the technical staff for assessment and study, and can be used in their subsequent game plan and strategic planning of training processes.

The chief analyst communicates directly with the technical staff in order to optimize the flow of information from one department to another and consolidate its use in terms of operability and efficiency.
Likewise, the information that is submitted can be complemented with reports derived from device tracking used by the physical trainers through the different technological elements they have, operating big data that must be managed and registered correctly in order to be contextualized in each case and circumstance.

Qualifying the data and the informative is also a responsibility of the performance analyst integrated within the working context of the professional technical staff.

The reports that are submitted can be of different types and formats, but we will focus mainly on two of them:

- Written reports
- Image reports
  - Virtual reality
  - Highlights of specific games

The head coach decides how to filter the information that is then transferred to the rest of the technical team, and primarily to the players, who should receive two types of reports:

- Team report, of which the interested party is a direct or indirect participant.
- Individual player report, either for the team or for the opponent, providing basic information to help with subsequent decision making and real game actions.

Player reports should be specific, brief and easy to understand.

The data processed by the head coach must be individual or collective, depending on the parameters that he/she considers necessary. The analyst will provide information according to the requirements and needs of the coach. "The Analyst must also have the ability to effectively interpret and extract operational meaning from the information gathered" (Vales Vázquez, 2012. p. 177).

External relations

The analysis department is responsible for keeping abreast of technological developments and is the main forum for informing the club of the necessary resources to be incorporated into the entity, depending on the economic and human resources available.

Generally, the chief analyst or someone delegated by the chief analyst, as well as the audio-visual technicians, are the ones who can or must maintain relations with service providers who propose technology proposals that adapt to the demands of the club.

Similarly, they represent the entity in national or international events in which professionals of the sector meet to learn about the latest developments (Congresses, Summit, Fairs, etc.).

Analysts help train future analysts, so they can transfer knowledge in public or private academic forums where they are required to teach this discipline.

Today, analysts are fully integrated into the sporting structure of a soccer club, with attributes that evolve as the dynamic and complex system of the soccer entity develops over time.

As in any production process, the quality control of the service provided is a fundamental element to test the value of what is offered. Analysts form part of the context in which this quality control is tested and defined in terms of maximum performance, in contrast to the forum in which the activity takes place, which is the maximum competition to which he/she has access.

Every complex and collective process is based on a plan, an organization and leadership aimed at service and control. Analysts have enough information to share and emphasize action processes related to the planning of contents, organization, advising in the management of the process and, finally, in the monitoring mechanisms that allow us to measure the deviation between what is accomplished and what was intended.

If information is power, an analyst is an influential element within a soccer team.

4. Analysis department linked to the methodological development and the training process of soccer in the academy

When setting up an analysis department, it would be interesting to include a contribution to the formative process within the structure of the soccer academy, the vital force of the club.

Having information that provides a guide and an element of judgement to the soccer teaching processes from a specific point of view is a tool that helps optimize this process and increase the probability of success in relative terms within the entity itself and its organization.

When validating the information derived from a study like this, we must take into account the human factor and the available resources. This will limit or favor the possibility of facing the challenge from a minimalist perspective or in terms of maximums (Couto Lago, 2017).

The analysis department is able to contribute to the team's training process in the following way:

- **Methodological analysis of training processes**

The follow-up of the trainings and the recording of the relevant parts or sections previously agreed on with the corresponding trainer, enables them to define the validity of the chosen method and its evolution over time, to compare what happened today with what evolved in the future and its past starting points. The methodology has an important synergy with the analysis department, as they have the necessary tools to supervise and monitor the training processes across the different age groups and make the necessary adjustments on teams that need a

methodological reinforcement, allowing them to maintain the aspects that define the institution's training.

- **Study and assessment of the programs aimed at each age group, i.e. professional soccer training, intermediate soccer training or beginner's soccer training**

Each soccer team, each entity is particular and has unique and non-transferable characteristics. Therefore, improving the training processes will be conditioned by the particularities of the people who make up each team and of the trainers, who impart the corresponding curriculum.

Teams and players evolve in one way or another, depending on the different ways they absorb and interpret the training contents at formative ages.

Having tools available in the form of images, written reports, audio or even software platforms that allow comprehension limitations to be adapted to teaching processes facilitate the improvement or slowing down of learning processes, according to the needs of each age range.

Generating specific technology programs for positions regardless of age or tactical improvement programs and decision making, can be a contribution that arises from a successful collaboration between the methodological department, the analysis department and academy management.

- **Adaptability of the curriculum to the different levels of demand to which soccer players in training are subjected in different competitions**

The analysis department can offer tools to determine the applicable curriculum at the beginning of the training process or at the beginning of a competitive season by offering the necessary observation and analysis tools to reach a consensus, after having reviewed the contents and the consequences of their execution, on the agenda that will correspond to each specific age group, mainly in the beginner and intermediate training.

- **Analysis of the individual, group or team evolution and its deviation from the estimated values in the curriculum programming**

Just as the analysis department prepares individual and group reports of professional players in a specific competitive context, it can track each player through individual reports or contextualized within a

collective scope to examine the evolution of players and the variation in relation to the performance estimates defined.

Similarly, a collective performance analysis can offer first-hand information that facilitates the decision making of those who create content for the soccer academy, and generate added value in all the areas that conform the formation of the soccer structures of a player in the making (specific structure, technique and tactics, conditional structure, emotional structure, psychological structure, etc.).

Workflow proposal. Characteristic of a professional soccer team:

> **1.** Definition of a work strategy; the internal structure and different functions within the department are specified, as well as the theoretical-methodological criteria that will support the work to be carried out.
> **2.** Reception and production of information (data, images), immediately after each game observed. It can be prepared internally (the club's own human resources) or externally (hiring specialized companies).
> **3.** Storage and management of information in structured data and image databases that allow quick access and handling.
> **4.** Information analysis and preparation of technical reports, for the technical staff about their own team, rival teams or players in a follow-up phase.
> **5.** Guidelines defined for performance optimization, based on concrete technical proposals, to adjust the team's game and training plan. (Vales Vázquez, 2012, p. 175)

Conclusions

The main element that allows a system to survive is information. With the input of information into the cycle of the complex, dynamic, open, non-linear, adaptive system that is a soccer team, entropy is eliminated. In other words, that which erodes the ability of a system to function. Providing certainties generates added value to each process and protocol that makes up the optimization of a modern sports entity. Complementary informative contents and their alternative uses provide paths of evolution and development tending towards specificity that also guarantee performance specialization, and this leads to the constant and continuous creation of emerging properties that increase the future possibilities of action, generating a cycle that will grow

exponentially as the institution absorbs and defines its process of content generation (Couto Lago, 2018).

In the analysis department and in the processing of specific information generated by the game, soccer has discovered a tool that presents a competitive advantage from the moment the intradepartmental and interdepartmental relations are consolidated. The common denominator of any complex process linked to soccer is the game and its derivatives, i.e. disciplines that make it easier for players and teams to play within an appropriate area of cohesion.

Having technical and tactical information is crucial to increasing the odds of victory.

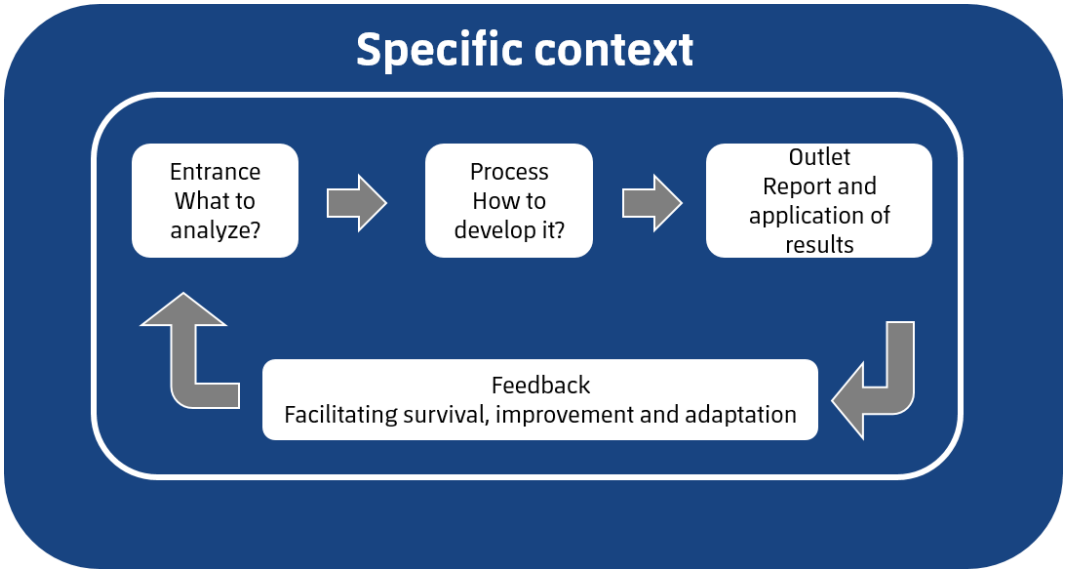
To have data related to the potential possibilities of our players to resist and to be stronger than our opponents increases general soccer possibilities.

Managing the possibility of anticipating injuries through the use of preventive protocols based on acquired information of the morphological, biomechanical and/or biochemical particularities of our players is a competitive advantage.

Illustrating complex aptitudes of a player and a team with the knowledge of suitable competitive attitudes, knowing the neurotransmitters that lead us to optimize behaviors is a doorway to success.

This is why everything forms a superstructure that must include continuous and adequate feedback to facilitate the survival, improvement and adaptation of the institution to the challenges of the future.

Figure 4: Analysis department feedback loop



Source: own elaboration.

It is imperative that

> all the people involved in this process have a clear strategy about what they want to analyze, how the process is going to be carried out and, most importantly, how the information gathered is going to be communicated and applied to the programming and adjustment of the game and training model to improve the competitive performance of the teams (Vales Vázquez, 2012, p. 178).

References

Couto Lago, A. (2018). *Fútbol Total. Los estrategas que han cambiado la historia*. Barcelona: Base.

Couto Lago, A. (2017). *Catenaccio. El arte de defender*. Malaga: T&B.

Vales Vázquez, A. (2012). *Fútbol: Del análisis del juego a la edición de informes técnicos*. Spain: MC Sports.