PROPOSAL TO DEVELOP

THE TABLE TENNIS IN CHILE

Stage 1 - Conceptualization

Project for the ITTF 2018 Mentorship Program.
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I. Introduction

Table tennis in Chile is currently in a complex situation due to lack of competitive and administrative development.

At the American level we have suffered a historical stagnation, which has 15 years ago without a medal in a Pan American Game, the last one to get one was Berta Rodríguez, who reached a bronze in the games of Santo Domingo 2003. Today Chile is in the 9th historical position with 1 silver medal and 8 bronzes, we have never won a gold medal in these games.

At a Latin American and South American level, Chile has had innumerable achievements in the different categories during the last 30 years; achievements that are not replicated in the competitions outside the region.

Historically Chilean players have never placed in the top 100 of the world ranking.

At the local level, Chile does not have national, regional or school leagues; only a few tournaments every two or three months that do not allow constant competition in the different categories. The interaction between clubs, and between these and the national technical body, in administrative and especially technical terms, is scarce and inefficient; this means that there is no collaboration and coordination between the most relevant actors for the development of table tennis.

The question that all the above triggers is: ¿What should be done to make the qualitative and quantitative leap that allows to improve the current performance?, Performance that can be qualified as low, persistently low, of recent years.

Considering what has been described, I started an investigation to discover what tools, methodologies and processes are necessary to define, build and implement such that they constitute an effective aid for clubs, coaches and players to improve the management, communication, planning and control of all aspects sports and administrative that give meaning to the existence of these clubs and the participation of players and other actors in the discipline. This project is the result of the investigation, my response and proposal to achieve the much desired advancement of table tennis in Chile.

II. Project general description.

The first thing that is concluded when starting this investigation is the quantity and diversity of factors that must be considered: player, technicians, planning, objectives, statistics, communication, training, training, analysis, competences. All these factors, although well known, have not been developed in greater detail or with a comprehensive vision. Each club and / or technicians have a particular and probably partial view of the relevance and importance of these and other factors; in addition, they do not have a tool that allows them to know with accuracy and quality, objective data of the development of a player, which facilitates analysis and planning.

Therefore, the essence of this project is to deepen the conceptualization of the factors that influence the development of table tennis, create a logical structure around them with a comprehensive and centralized view via implementation of a software or application to manage them, software that must comply with the following characteristics:

- Flexibility Each club or technician must have the ability to customize or adapt the software according to their own vision, knowledge and experience.
- Completeness The software must provide the functionality to manage all the factors and constituent elements for the management and development of table tennis. According to the vision of each technician, will give greater or lesser relevance to certain factors, but on a basis of prior knowledge, via training, of all the factors considered.
- Legal. The software must contemplate aspects related to the laws associated with data privacy and the conditions for the use of this.
- Technically advanced. The software must be developed with the best practices that guarantee: Scalability, integrity, consistency, non-redundancy, and usability. In addition, it must be documented and include online help.

The general name of software is:

"Portal for the management and control of Table Tennis in Clubs and Associations of Chile"

From now on and for simplicity it will be called "The portal"

Among the most important elements of the portal are:

- User Management
- Detailed record of players and technicians
- Flexible Planning of Sports Training. With record of objectives, schemes, hits, sequences, repetitions, division of time and more.
- Flexible planning of physical preparation.
- Schedule of training, skills, physical preparation and psychological support. Includes notification via email or other messaging tool.
- Detailed record of individual data, successes and errors, in training and matches.
- Technical profile of each player, with goals to meet.

- Statistical data, which reflect the detailed actions at the level of each stroke that a player makes in matches and in training.
- Annotations and general observations.

Having a portal with the features and functions previously mentioned, will allow statistically know the weaknesses and virtues of each player and rivals, then transfer this information in an orderly and intelligent to the planning of training, becoming a virtuous circle as described in diagram 1:

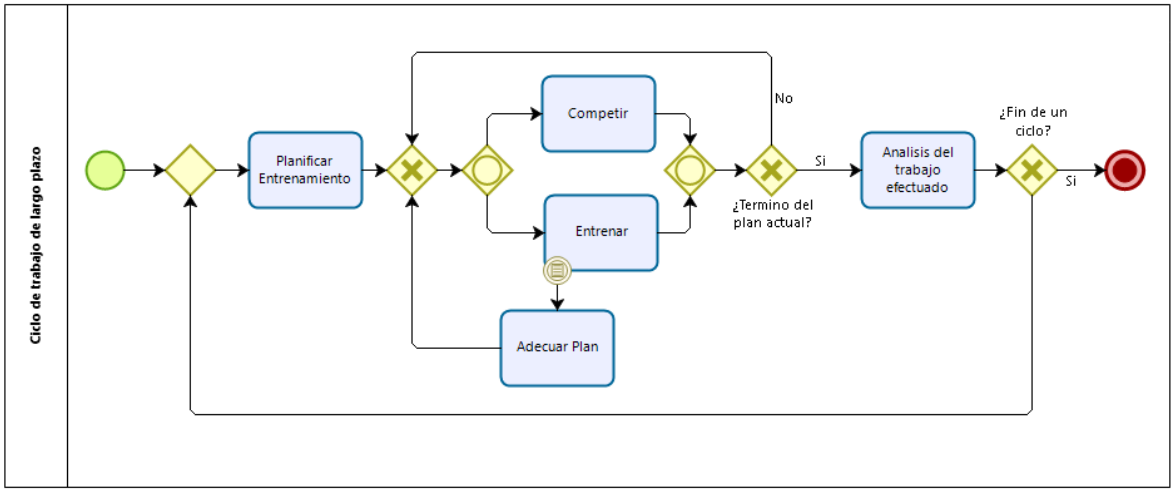

Diagram 1 - Sequence of a long-term work cycle

In each of the activities identified in diagram 1, the portal interacts with different data.

In activity "Plan training" the plan is entered in detail in 1, 2, 3 or more months, it is scheduled, players are entered, technicians, schemes, objectives, skills in which it will participate along with other data.

In the "Compete" activity, all the possible matches of a competition are participated and played, the videos are recorded, the detailed information of the matches of all the players is analyzed and recorded.

In the "Train" activity, the technical work is executed as planned for the corresponding day and time. All data related to the performance of the training is entered, this record is in detail: All the schemes, repetitions of each scheme and hits made in each repetition. By virtue of the information known in a specific training, the activity "Adapt plan" can be executed

In activity "Adapt plan", given the flexible dynamics of table tennis, an authorized person can re-schedule dates, change the structure of the training plan, add or remove competences, among other changes. Those who communicate automatically electronically to all interested parties.

In activity "Analysis of work done", at the end of a technical and / or administrative work plan they will be able to analyze the statistics, modify the technical profile of a player, evaluate performances among other actions.

If a cycle has been concluded, either because the current long-term planning has been completed, by technical change, by strategic decision of the club, by change of objectives or a combination of the above. The cycle is concluded and a new cycle begins, without losing the historical data obtained from the previous cycle.

III. Objectives of the project.

The general objective of the integral project is to have the application "Portal for the management and control of Table Tennis in Clubs and Associations of Chile", a modern software based on the web for the planning, management and control of trainings and administration of clubs and table tennis associations in Chile that contemplate what is indicated in the presentation of this document.

The specific objectives of this first stage of the project are:

1. Generate a data model consistent with the concepts of table tennis.
2. Describe a method of progressive training based on the registration and detailed analysis of data of each training and game in which it participates, including also the processes and procedures that normalize, facilitate and promote the rigorous and dynamic training of Table Tennis.
3. Define the elements, concepts and general requirements that will serve, in a second stage, to design and develop the portal described in the initial presentation.

IV. Stages of the project.

This project is divided into three stages:

1. General description of the project and definition of basic and proactive concepts.
2. Based on the concepts defined in stage 1, document the requirements and technical, legal and procedural requirements for the development of the portal.
3. Based on the survey achieved in stage 2, carry out the design, analysis, development, testing and pilot implementation of the application "Portal for the management and control of Table Tennis in clubs and associations of Chile”

IV.1 Scope of this document.

Due to limited time and resources, this document is limited to the first stage of the project, composed of:

- Description of basal concepts.
- Development of propositive concepts.

The explanation of the concepts and examples only considers schemes of two players and individual matches. In the second stage of the project, the data for these variants will be complemented.

V. Description of baseline concepts.

The concepts that will be described do not consider all the technical rigor of a computer requirement. The objective is to discover and know these concepts and the main data that are part and define the concept itself.

In stage two of this project, the definitive data that the portal should contemplate will be completed and described with technical rigor.

V.1 Club

It is understood as a club, a private law institution, which brings together a group of people who promote and practice table tennis.

For the purposes of this project, the club will be interested in using the portal to record their activities and obtain statistical data that will allow them to be organized, updated, trained with new tools and work methodologies that allow them to grow and project as a competitive club and promoter of new talents.

CLUB REGISTRATION	
FACT	**OBSERVATION**
DNI	
Name	
Address	
City	
Own data of the club	This refers to the parameterization and personalization of the portal according to the needs and characteristics of the club and its leaders. They will be able to enter the club's own objectives, concepts to be evaluated in the technical profiles, training schedules, outstanding players, club achievements, history, regulations, among many other elements.

Table 1 - Data for registration of a club

V.2 Tecnichal (Coach)

The coach is the person with the knowledge, ideally formal, sufficient to lead the training sessions, making sure that the established objectives for the development of a club are met.

Each club must have a technical head who must also have the skills and knowledge to plan a long-term work and establish the different stages that comprise it. The technical manager must coordinate the work of the different technicians instructing them and explaining the general and particular objectives of each plan. Therefore, the technical manager must have the necessary skills to lead a human team and commit to achieving results.

REGISTRATION OF TECHNICIANS (COACH).	
FACT	**OBSERVACION**
Code	
Name	
DNI	
Category	According to parametric table (Head Coach, coach, assistant)
Phone number	
Mail	
ITTF Level	
Curriculum	
Historical achievements	
Date of obtaining level ITTF	
Date of entry to the club	
Date of incorporation as a technician	
State	Active, Suspended, Inactive

Table 2 - Data for technician registration

Stage two of this project should consider variable data such as:

- Time availability to train
- Time blocks assigned for the next n months.
- Performance evaluation

V.3 Technical Profile

The technical profile corresponds to a standardization and homogenization of the concepts to be evaluated in a player to determine in an objective way the level of a player in general, and the level by individual concept.

To achieve the above, the technical concepts to be evaluated by a player are defined and parameterized.

PROFILE DETAILED BY CONCEPT	
FACT	**OBSERVATION**
Code concept	
Type concept	According to parametric classification to group concepts. For example: Speed, Take off, Reception, Rotation, balance, etc.
First name	Short name: Cut off service, long right attack
Description	Optionally it can be described in more detail
Application level	Player level in applying the concept may be one m to s
goals	All the objectives associated with the concept are related
Criterion assignment of notes	Formula based on the associated objectives achieved and not achieved
Description	The technical level reached is explained in greater detail

Table 3 - Data to define technical profile concepts.

The concepts that are part of the technical profile of a player will be those that match the technical level of the player.

The note of each concept of the technical profile for a player will be determined by a criterion of assignment of notes, according to the objectives associated with the concept. The development of this criterion will be done in the second part of this project. The result after applying this criterion will be a note in following scale: Insufficient, regular, good, very good and excellent.

The general qualification of the technical profile of a player, which will help to qualify the level of a player, will be done with a formula (to be defined in the second stage of this project) that ponders the notes obtained in each concept.

V. 4 Player

The table tennis player is a sports lover who likes to practice it, improve his technique and level of play to achieve sporting achievements in his respective category. All players accept the rules of the game stipulated by the ITTF and the regulations of the club to which they belong.

For the purposes of this project, the player is the main beneficiary because the goal is to develop the level of play of all players to achieve an elite of first-rate players.

To achieve this, each player is important to know and record data and information, according to the following structure:

BASIC DATA	
FACT	**OBSERVATION**
Address	
First name	
Address	
Mail	
Dni	Unique identifier of each person in Chile
Birthdate	
Attorney	Only if the player is a minor
Date of admission	It refers to club membership
State	See table of states and sub - states

Table 4 - Basic data to register a player.

TABLE OF STATES AND SUBSTATES		
STATE	**SUB-STATES**	**DESCRIPTION**
Leaflet	n / a	Newly integrated player, has no technical profile
Active	n / a	Fully active player, with development of his technical profile
Discontinued	Trip	Player belonging to the records of the club, which is temporarily untrained. If the sub-state is by default, it must be for less than n months
	License	
	Abandonment	
Inactive	Transfer	Player who was part of the club, but no longer participates. If the sub-state is by default, it must be for more than n months
	Abandonment	

Table 5 - Possible states of a player.

INITIAL DIAGNOSIS (only)	
FACT	**OBSERVATION**
Diagnosis	Text with the result of the diagnosis
Date of diagnosis	
Player code	
Actions	Work to be done before obtaining the first technical profile
Evaluation date	Date on which the first technical profile will be made

Table 6 - Data recorded in initial diagnosis of a player

Each club must standardize and define the elements to be evaluated in the diagnosis of a player.

GENERAL PROFILE (Must be updated regularly)	
FACT	**OBSERVATION**
Profile date	
Player code	
level	Level code reached (parametric)
Description	Summary profile text

Table 7 - General log of the technical profile of a player

In the case of the general profile or technical summary of a player, the level reached is indicated, a level that corresponds to a scale defined by each club or technician. The portal will include and propose a scale, which may or may not be used by the club that adopts and implements the portal.

PROFILE DETAILED BY CONCEPT	
FACT	**OBSERVATION**
Concept	According to the parametric table of concepts considered by thetechnical head
Player code	
Date of registration	
Scale	According to the parametric evaluation table
Description	The technical level reached is explained in greater detail
Specific goal	Description of the expected goal for the concept
Target code	According to parametric table of objectives

Table 8 - Logbook for the technical profile of a player.

Player development is gradual, s or evolution can be very quickly on one aspect (concept of technical profile) and very slow in another; therefore, it makes no sense to make a comprehensive evaluation, which is tedious, whenever you want to indicate an advance. In this sense, each club will define the concepts that will be evaluated in the technical profiles, and for each concept it will indicate the evaluation criteria as explained in point IV. Technical profile

The registration of the profile is by concept. At a certain time the coach can reevaluate a single concept of a player, not necessarily all; A Yes, the time comes when the technician has assessed the progress of many concepts you decide to change the overall profile of the player.

Each time a concept is evaluated, the next objective to achieve for that specific concept must be indicated. These objectives are also parametric and defined by each club and / or technician. For more information regarding the objectives, see the description of this propositive concept in point VI.1 Objectives.

From table 8, it is inferred that the player has associated objectives according to concepts of the technical profile. In effect, a player can be assigned two types of objectives:

- General - Associated with an achievement. For example, to reach a certain instance of a championship, reach a certain level in its technical profile.
- Specific - Associated with a concept

For statistical analysis, it is essential to record and maintain a historical log of the objectives achieved.

OBJECTIVES ASSIGNED TO A PLAYER	
FACT	**DESCRIPTION**
Code	It refers to the objective code
Date of assignment	
Kind	General or specific
Technical profile concept	
State	In process, achieved
Date of achievement	
Evaluation weighted	

Table 9 - Data to associate objectives to a player

ANNOTATIONS	
FACT	**OBSERVATION**
Date of registration	
Grade	According to parametric data (Example: Mild, medium, severe, very serious)
Description	The fault committed is recorded, the warning received
Annotation code	According to the parametric fault table

Table 10 - Record of a player's score.

In the case of the annotations, each club may include, in addition to the absences, positive type annotations, which may be added to the parametric annotation table.

PARTICIPATION IN COMPETENCES	
FACT	**OBSERVATION**
Competition code	According to the parametric table of competences
Party code	According to parametric table of matches
Date of the match	
Match time	
Technician who directs	Technician or player code that fulfills the role
Phase	According table phases (Groups, final, end, etc.)
Rival code	According to the parametric table of club players and external players
Result	I win, lost
Others	Game data is captured and recorded for each hit made during the match
Video	E Nlace to YouTube or another portal to watch the game

Table 11 - Registration of participation in a player's competitions

Each club will enter the competitions in which they participate and the portal will assign a code, the organizer, dates, and other relevant information will be indicated. These data will be completed in stage 2 of the project.

The entry of the day and time of each game will allow knowing the previous load of matches that help explain the development of a game.

T he data "Other" is referred to the detailed and fine each stroke executed during the match record, these data allow to obtain statistics and conclusions for the next planning.

Finally, for each player a record will be taken with the physical and psychological analysis. These data and their registration will be addressed and completed in stage 2 of the project.

V. 5 Division of the Table

For definition and structuring of the different strokes and schemes, it is necessary to previously make an appropriate division of the playing surface or table, specifically one of the halves of the table.

The result of that division will be used to simply and directly reference the position of a player and the direction of the ball in each hit

The division of the table is designed considering the following aspects:

- Simplicity

- Easy to memorize
- May R subdivision allows Granularity when required
- Reference coordinates with two characters.

To achieve the above, suppose a square divided into 9 parts, there will be 3 rows and 3 columns. E ach row and column is identified by a word in English for easy identification.

	Left l	Center c	Right r
Far f			
Medium m			
Near n			

Diagram 2 - Initial division of a surface of 9 sides

Based on the foregoing, each of the 9 sides would have the following reference coordinates:

		Left l	Center c	Right r
Far	f	fl	fc	fr
Medium	m	ml	mc	mr
Near	n	nl	nc	nr

Diagram 3 - Coordinates of the initial division.

The identification of each part, although it is mnemonic, requires two characters, to simplify it we choose numbers, according to the number disposition in the calculators, like this:

		Left l	Center c	Right r
Far	f	7	8	9
Medium	m	4	5	6
Near	n	1	2	3

Diagram 4 - Numerical coordinates of the initial division.

The numerical coordinates of diagram 4, dispose the smaller numbers near the observer and the larger numbers away from the observer, which facilitates the later reading and understanding.

Similar to a clock, in which the same circle is divided into 12 hours and 60 minutes, one hour being equal to 60 minutes. We will subdivide each of the 9 parts into 9 more parts like this:

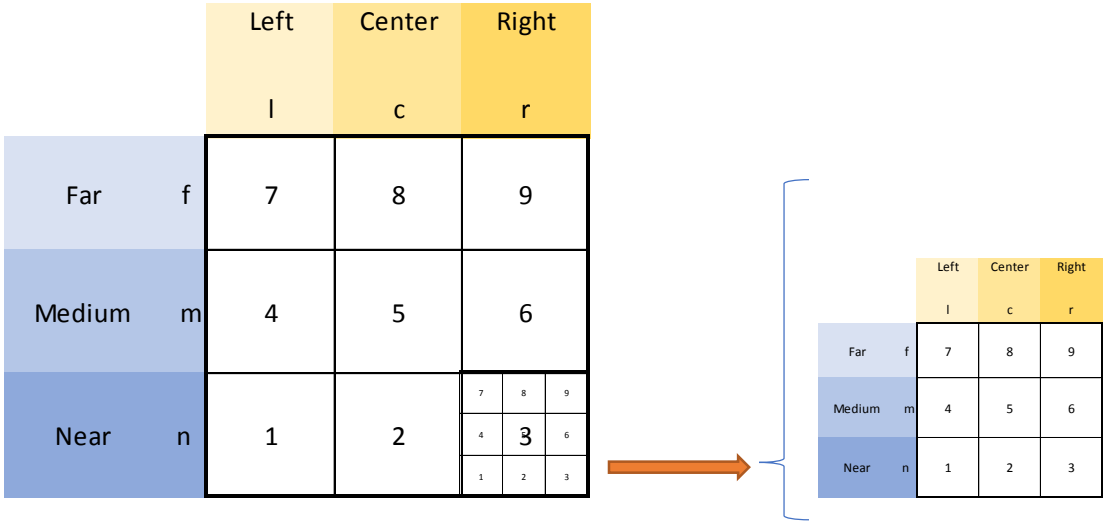

Diagram 5 - Subdivision of the initial surface.

In diagram 5 , we see that position 3, is divided into 9 positions, with the same nomenclature for the coordinates seen . We can say that two levels of division are defined.

Now, in this project it is established that the first level of the table will only have 6 parts or divisions.

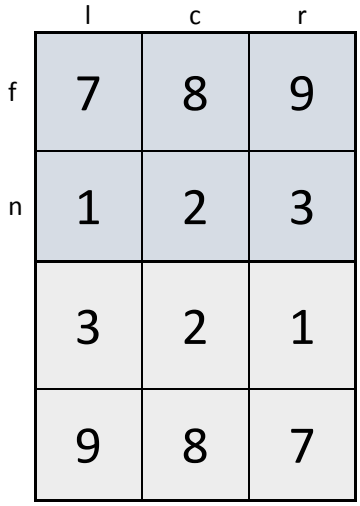

Diagram 6 - Division of the table.

The choice of numbers 7, 8 and 9 , indicated in diagram 6, instead of 4,5 and 6, is due to the fact that the two rows are the fence (near) and far (far), according to the agreed nomenclature ; BE WRONG very strange assign the number 4 (for position 7), for that number belongs to the medium row (medium), and clearly that part is not the center of the table, but the farthest .

Each of the 6 parts or divisions, will be divided into 9 parts. Therefore, each side of the table will have 54 parts, enough to make fine reference, in the case of advanced schemes that require specifying greater precision.

So far explained, the division of one side of the table see like this:

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 7 - Division of the table into two levels.

In diagram 7 the following is represented:

- With a green background, the coordinates of first level letters.
- With yellow background the coordinates of the second level
- With white background arrangement of the table with the number and locations of first level undo sec.

To indicate a section of the table, two characters divided by a point, the first character refers to the first level and the second character to the second level will be used.

Rules of notation

- It is allowed to refer only to the first level, in which case the second level is left blank or with a 0 (zero).

- If a letter is specified in the first level, the second level can only specify a letter of the same type as the letter of the first level; that is, if in the first level is a row, the letter of the second level must correspond to a row; In addition, the number 0 (zero) is allowed in the second level.
- For the first level the letter c or the numbers, 4,5 and 6 are not allowed.

We illustrate the power of this division with the following examples, the sector table indicating the coordinate is highlighted in purple.

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 8 - Coordinate f.0

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 9 - Coordinate f.f

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 10 – Coordinate 7.f

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 11 – Coordinate r.0

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 12 – Coordinate r.l

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 13 – Coordinate 9.c

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 14 – Coordinate 8.0

		l			c			r		
		l	c	r	l	c	r	l	c	r
f	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3
n	f	7	8	9	7	8	9	7	8	9
	m	4	5	6	4	5	6	4	5	6
	n	1	2	3	1	2	3	1	2	3

Diagram 15 – Coordinate 2.8

With these examples, we graph the potential and facility to point out different sectors of the table, which we wish to describe in a stroke of a scheme

In addition to the division described, at the ends of the table indicates the relative position in which a player must be located to execute a stroke, the same letters of the rows are used.

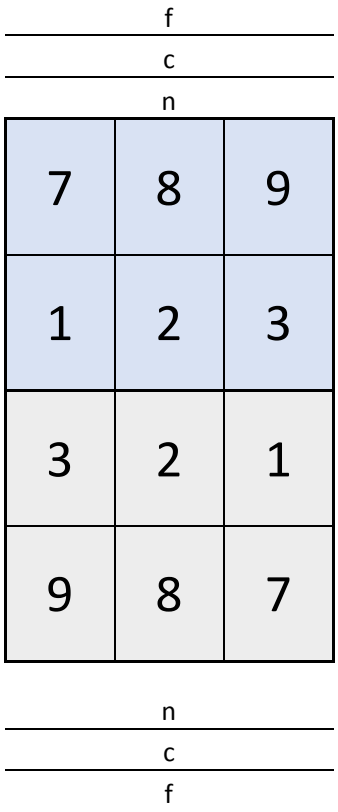

Diagram 16 – Division of the table with the player's position.

The position of the player with respect to the table is identified by the letters n, m and f.

n.	Near (Near)	- Normal distance
c.	Medio (Medium)	- Average distance
f.	Far (Far)	- Long distance

V. 6 Stroke, structure and nomenclature

Contact between the racket and the ball with the aim of locating it on the opposite side of the table with the correct speed and precision.

This simple definition entails an incredible complexity in its execution that requires a technique that takes years to obtain.

To facilitate the communication, description and definition of the technical activities that will be described later in the schemes, the types, subtypes and effects that define each particular stroke are identified and codified.

KIND	CODE
Service	S
Forehand	F
Backhand	B

Table 12 - Types of strokes.

Table 12 shows the types of hits and the mnemonic code that identifies them.

SUBTITLE	CODE
Pendulum	PN
Inverted Pendulum	PI
Japanese	JP
Tomahawk Forehand	TF
Tomahawk Backhand	TB
Backhand	BH
Initiation (No service)	IN

Table 13 - Subtypes of service

Table 13 details the blow subtypes for the service (S), plus the mnemonic code that identifies them.

Note: The "Initiation" service subtype is defined only to structure schemes that start without a real game service.

For service hits (S) different effects can be applied.

SPIN	CODE
chopped	C
Mixed	M
Side	L
Without effect	W
Cork Spin	K

Table 14 - Spins **on the service.**

Table 14 identifies the effects that can be applied in a service, plus the mnemonic code that identifies them.

Not all effects are valid for all service subtypes.

RELATION BETWEEN …	EFFECT	chopped up	Mixed	Side	Without effect	Cork Spin
AND SUBTITLE	CODE	C	M	L	S	K
Pendulum	P.S.	✓	✓	✓	✓	✓
Inverted Pendulum	PI	✓	✓	✓	✓	
Japanese	JP	✓	✓	✓	✓	
Tomahawk Forehand	TD		✓	✓	✓	
Tomahawk Backhand	TR	✓	✓	✓	✓	
Reverse	RV	✓	✓	✓	✓	
Initiation	IN				✓	

Table 15 - Relationship between effects and services.

Table 15 establishes the existing valid relationship between a service and the type of effect that can be achieved in that service.

SUBTIPO	CODIGO
Top Spin	TS
Loop Spin	LS
Side Spin	SS
Drive (liso)	DR
Smash	SM
Flip	FL
Chop	CH
Push	PU
Block active	BA
Block pasive	BP
Counterattack	CA
Chop Block (desviaciones)	CB
Globes	GL
Tetraloops (wheelchairs)	TL

Table 16 - Subtypes of forehand and backhand.

Table 16 shows the subtypes of strokes for the Forehand (F) and Backhand (B), plus the mnemonic code that identifies them.

Unlike the service (S) the forehand and backhand blows consider in their definition the effect that must have.

With all the above, the description of a hit can be simplified with a compact notation in the following way: ABBn.m. Where A is the type of hit or the type of spin if it is a service, BB is the hit or service subtype as the case may be and m.n is the character that identifies the target position of the hit on the table. As explained in point V.5

As an example, consider the following blow: " Drive forehand to the right side of your rival middle zone " can be reduced to the following notation: (F DR 1.f)

The use of this syntax for the notation of blows is of main relevance for the description of the schemes and records of the blows made in each match.

V. 7 Scheme

Scheme is understood as the repetitive realization of a sequence of strokes.

Next, a methodology for the construction and communication of the training schemes is presented.

Classification of schemes

The schemes can be correlated:

... according number of participants

- 1 player - Work with hunter and trainer
- 2 players
- 3 players
- 4 players

... according an application stage in the current training plan (it can be more than one, ATR, traditional or the one that the coach deems appropriate)

- Accumulation
- Transformation
- Realization

... according an applicability in play

- Real
- Not real

The "no real" type is considered to work speed, endurance or other item to r To reinforce a player.

... according regularity

- Regular
- Semiregular
- Irregular

Considerations

1. Not all schemes start with a real service.
2. For all the strokes the position of the table to which the ball should be directed must be indicated.

3. For some strokes, in addition to the target position should specify whether the point should go to s m away from the measured position from the grid.
4. Schemes can end the coup last ú sequence or clear the culmination as if it were a match point.
5. In the case of two players s OM, the sequence 2, 3 or more strokes (According to the number of players) can be repeated n times (n being an integer inform)
6. For some strokes, the position of the player in relation to the table must be indicated, from which he must execute the stroke. See what is explained in point II. Division or n of the table.

Structure of a scheme:

In the definition of a scheme, you must:

- Sort according to each type.
- Indicate the number of repetitions to be made.
- Indicate the sequence of beats per repetition.
- Clearly apply the detailed case in the "Considerations" section.

Every scheme must be communicated and understood with ease, therefore, the structure of a scheme must be simple, orderly and descriptive.

Note:

You must differentiate between the definition of hit (see point II, Strokes) and the definition of the strokes in a scheme. The blows in a scheme besides the "pure" hit defined above, contains other elements that define it.

A scheme is composed of several blows, each of these blows is made up of elements. The elements of mandatory character are those that define the blow itself.

ELEMENT	INCLUSION	VALUE	TYPE OF NOTATION
Opening Sub sequencing	Optional	" ("	Normal
Type of hit or effect in each service	required	According shot types table s or service purposes	Normal
Subtype of hit	required	According to table subtypes of blows	Normal
Position for execution	Optional	" n ", " m ", " f "	Subscript
Target position of the ball	required	Coordinates x and according to division of the table	Normal
Close subsequence	Obligatory if opening subsequence	")"	Normal
Repetitions of the subsequence	Mandatory if sub sequent was closed	Whole number of 1	(x)3
Separator	Mandatory if another stroke is added in a scheme	"/"	Normal

Table 17 - Syntax of a scheme.

In Table 17 presents n elements defining a blow scheme, is also presented valid notation rules that secure the schema syntax.

Rules

1. Each stroke within a scheme corresponds to a sequential number. According to that number, the blow is called "Ball n"
2. In any scheme, the service hit will always correspond to " ball 1 " , given that particularity it is established that in the position intended to indicate the "Hit Type ", since it is a service , the type of effect of the service , setting default is a service and not for another blow .
3. If a scheme does not include the actual service, for " Ball 1 " it will be indicated r the service initiation.
4. To indicate that the scheme ends with a free sequence, it is possible to indicate r in the last stroke of the scheme, only in the last one, position 0, which, because it does not exist, indicates free play.
5. Each time a scheme is used in a training plan, the number of repetitions of that scheme must be indicated.

Examples of schemes according to established syntax

Valid for two right-handed players. In the case of a left-handed player, this will be recognized by the position from which he hits; For example, left-handers hit the forehand mainly from position 1 and right-handed from position 5.

EJEMPLO DE ESQUEMAS		
N°	**TIPO**	**SECUENCIA**
1	Regular	SIN9/(BLS9/BBP9/FLS9/RBP7/FLS9)ⁿ
2	Semirregular	LPD9/BLS9/BLS9/BBP9/BLS7/FLS0
3	Irregular	CPD2/FPU7/FTS0

Table 18 - Examples of schemes.

Description and understanding of each example

Example No. 1

Ball 1. Initiation service without effect to position 9

Ball 2. Reception Loop Spin from BH to position 9

Ball 3. Passive blocking from BH to position 9

Ball 4. Loop spin from FH to position 9

Ball 5. Passive blocking from BH to position 7

Ball 6. Loop spin from FH to position 9

After the 6th ball, it is repeated n times from ball 2 to 6.

Example No. 2

Ball 1. Lateral pendulum service to position 9

Ball 2. Reception Loop Spin from BH to position 9

Ball 3. Loop Spin from BH to position 9

Ball 4. Passive blocking from BH to position 9

Ball 5. Loop Spin from BH to position 7

Ball 6. Loop spin of free FH.

Example N ° 3

Ball 1. Service cut from pendulum to position 2

Ball 2. Reception of FH cut to position 7

Ball 3. Free FH Top Spin

Data to register a scheme

SCHOOL REGISTRATION SCHEME REGISTRATION	
FACT	**OBSERVATION**
Outline code	
Difficulty level	According to parametric table of difficulty for schemes
Classification according to regularity	Regular, semi-regular, irregular
Number of participating players	
Training cycle	In each type of planning, time can be divided into different cycles. It must be indicated for which cycles, the scheme applies.
Applicability in play	Yes or No - (That is, it is or is not a natural game sequence)
Sequence	According to the nomenclature and syntax explained above
goals	All the objectives for which the scheme is useful will be indicated. This will facilitate the choice of schemes knowing the objective sought

Table 1 9 - Data to define a scheme

Table 19 summarizes the data with which a scheme can be defined in the portal.

V.8 Match

Match is defined as the confrontation between players (singles or doubles), which is developed according to the official regulations of the ITTF.

For purposes of this project, we focus on the data generated in each game, capture, record and process them to obtain statistics, information and decide work plans.

The same syntax and methodology to structure a scheme, allows to inform the development of a game as hard data. This facilitates data capture of both the schemes and the games.

Since in the case of a scheme, the sequence of blows this preestablecid to a single player from participating in this scheme should indicate which was the successful achieved last ball. The system will immediately recognize the successes and errors to obtain statistical data later

In the case of a match, the observer of this must necessarily review the video with which he / she can pause and play the video at his / her discretion to capture the correct and accurate data. Each hit of the

match will be registered with the indicated nomenclature and syntax (as if it were a scheme) , at the beginning it will be slow, but once the practice is achieved , the registration of a match will be a quick and efficient task. It must be considered that the portal will validate that the data record is correct and complies with the rules of syntax.

Unlike the schemes, matches must be completed with extra information, such as the following:

- Unforced error
- The execution of the hit touched mesh
- The execution of the blow touched the edge of the table
- The blow did not fall on the table
- Quality of the blow
- Execution error in the stroke, according to the parameterization table of errors in the stroke.
- Type of error in blow (According to parameterized data of errors per stroke)

These and other valuable data of a match will be defined in stage 2 of this Project.

V.9 Competition

According to the ITTF, there are different types of competition:

- An international competition is one in which players from more than one Association can participate (Country)
- An international meeting is held between teams representing Associations (countries)
- An open tournament is one in which players from all Associations can register.
- A closed tournament is one in which registration is restricted to specific groups of players, other than age groups.
- An invitation tournament is one in which the registration is restricted to certain Associations or players, individually invited.

To the above you can add the official national tournaments or not, between different associations or clubs.

For purposes of this project, the competences are the instances in which the progress achieved according to the process and planning agreed by a club must be reflected. To get information beyond the results, you must capture all the data of the matches, as explained, and then get information by competition, on the performance of a player. By way of example, independent if it won or lost, you can know for a player the effectiveness of the service and the type of error in the most common service you commit, measured as a percentage of the total number of errors you commit.

Associating the statistic of matches, competition and type of competition and the instance of the match in the competition, helps to evaluate the performance of the player at a psychological level with concepts such as mental strength, confidence and much more.

VI. Development of propositive concepts.

Described the basic concepts that constitute the central axis of what is table tennis and its regular practice, we go on to describe the propositive concepts of table tennis. The proposal of these concepts, are made on the basic concepts; that is, its description and understanding have meaning and value if we consciously associate them with the basic concepts.

V I. 1 Objectives

In general, describing and communicating objectives in relation to a job turns out to be a tedious and exhausting task; it tends to recycle objectives without further analysis and therefore disconnected from

reality and what is interesting to correct or develop in a player. In summary, the objectives are written by obligation and fast.

The essence of this project is to make plans based on statistical analysis of a large volume of captured data, which allows knowing the next goal or objective to be achieved. Therefore, it is important to manage the objectives in a structured manner, such that it is easy, efficient and agile to determine them.

In order to manage the objectives in an agile and friendly way, it is necessary:

- Structure the objectives
- Parameterize the objectives, with which the exhausting and tedious work is done only once.
- Establish the criteria for evaluating the objectives, which can be objective or subjective.
- Establish evaluation guidelines for the subjective evaluation criteria.
- Set the grade or level, according to the player's level, to qualify an objective as achieved.
- Associate the objectives to some of the basic concepts and planning.

The portal will offer a series of objectives, which can be used or not by a club and its technical team, as expected is that each club, take advantage of the portal's flexibility and complement the objectives according to their needs.

In the process of defining an objective, an evaluation does not make sense, this is done once it is associated with a concept that is feasible to evaluate, for example, associated with a player or a work plan.

The evaluation of the objectives is binary and absolute: Achieved or not achieved.

For each objective it must be indicated how it is weighted to qualify as "Objective achieved", this weighting will be based on one or more evaluation criteria associated with the objective.

It has already been indicated that there will be objectives that can have evaluation criteria of two types: Objectives and subjective.

The evaluation criteria that are objective will be supported for their measurement with statistics (See point regarding statistics)

The evaluation criteria that are subjective will be supported by pre-established evaluation guidelines that will be entered into the portal as a form.

As an example, let us consider for Objective 3 " Increase speed to pivot" (See more below the examples of objectives), the following rating scale of 5 levels:

SUBJECTIVE EVALUATION GUIDE - OBJECTIVE 3	
LEVEL	**CRITERIA TO ACHIEVE THE LEVEL**

Excellent	The reaction and anticipation in pivoting movement is first level, it is achieved successfully at least 90% of the time and the impact time of the ball is optimal.
Very good	Almost always he manages to pivot and get the expected quality hit and the impact time of the ball is correct.
Good	He manages to pivot by 50-60%, most of the time he gets a stroke of quality and the impact time of the ball is good
Regular	In few occasions he manages to pivot, when he does not hit the ball in time.
Unachieved	The player fails to pivot correctly

Table 20 - Example of an evaluation guideline.

All evaluation guidelines should have the same escal to level, the difference will be in the criteria to be defined so that an assessment level (or note) is reached, these criteria to assign a note help to the coach to ponder and qualify a player in the evaluation.

STRUCTURE OF AN OBJECTIVE	
FACT	**OBSERVATION**
Code	
Date of admission	
Origin	Predefined; Own (defined by the club)
Description	
Goal level	General, specific
Player level	Optionally you can indicate the level of the player for which the objective is applicable
Application stage	Optionally you can indicate at what stage of a training plan it is recommended to associate the objective; Accumulation, transformation or realization.

Associated concepts	It refers to the concepts of technical profile with which a caus relationship is established to effect; that is, if this objective is chosen and achieved, the concept of the technical profile can be re-evaluated for a player
Stroke	Optionally you can indicate the specific blow that the objective seeks to improve. For example: DDR1 (Straight to position 1)
Evaluation criteria	It describes the points to take into account to achieve the correct evaluation
Achieved with	You must specify, for each player level applicable to this objective, the weight that each of the evaluation criteria must meet, to qualify as "Achieved" the objective

Table 2 1 - Data for the definition of objectives

In table 21, the minimum data to be considered is specified, with which a pool of objectives can be defined, the association of these objectives with a player, scheme or plan will be facilitated with the search according to the values that have these data.

In stage 2 of this project, this concept will be further deepened in order to have a tool for the definition and search of simple, fast and friendly objectives.

Examples of specific objectives:

For a better exemplification of the objectives, we will base ourselves on the examples of schemes previously seen.

For the first example of diagram (ESQ1): SIN9/(BLS9/BBP9/FLS9/BBP7/FLS9)^{n}

We can associate the following objectives, which remain to n permanently defined in the table of objectives and usable for other schemes, players and plans.

FACT	VALUE
Code	OB1
Description	Regularity in basic strokes
Goal level	general
Player level	Beginner
Application stage	Accumulation (In the case of an " ATR " type plan)
Associated concepts	Sequence maintenance
Stroke	N / A

Evaluation criteria	Criteria or objective: Measure the amount of hits on the table held by the player.
Achieved with	Beginner Player: It is considered achieved when the player consistently maintained in l a s últim to s 10 training sessions for 100 times the ball table, both in law and backhand.

Table 22 - Objective N° 1 of example

FACT	VALUE
Code	OB2
Description	Coordinated movement of legs
Goal level	general
Player level	Beginner
Application stage	Accumulation
Associated concepts	Footwork
Stroke	N / A
Evaluation criteria	Objective criterion: Chronometry of strokes per seconds in outline
Achieved with	It will be considered successful if you clock n strokes in m seconds, consistently in x training sessions. (The values will depend on the level of the player)

Table 2 3 - Objective N ° 2 of example.

FACT	VALUE
Code	OB3
Description	Increase the speed to pivot
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Speed; Pivoting
Stroke	N / A
Evaluation criteria	Subjective criterion The technician based on his knowledge, experience and mastery of the expected technique must evaluate and weigh this objective according to the evaluation guideline.
Achieved with	Must reach the "good" level of the guideline

Table 24 – Objective N°3 de example

FACT	VALUE
Code	OB4
Description	Increase the speed to search for a distant ball to the right
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Speed; Remote ball
Stroke	FLS 9
Evaluation criteria	Subjective criterion. The coach based on his knowledge, experience and mastery of the expected technique must evaluate and weigh this objective
Achieved with	Must reach the "good" level of the guideline

Table 25 – Objective N°4 de example

FACT	VALOR
Code	OB5
Description	Ubicación de bloqueo pasivo de revés en un solo punto
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Ubication
Stroke	BBP7
Evaluation criteria	Objective criterion: Measurement of % error that is committed in this shot. Subjective Criteria: The technician based on his knowledge and expertise will evaluate according to the evaluation guideline

Achieved with	Beginner player: must have less than 30% error and achieve a "Good" evaluation of the subjective criterion

Table 26 – Objective N°5 de example

The association of these objectives with the scheme must be carried out as follows:

OBJECTIVES ASSIGNED TO A SCHEME					
FACT	**VALUE 1**	**VALUE 2**	**VALUE 3**	**VALUE 4**	**VALUE 5**
Scheme Code	ESQ1	ESQ1	ESQ1	ESQ1	ESQ1
Target Code	OB1	OB2	OB3	OB4	OB5
Applicable to player 1	Y	Y	Y	Y	N
Applicable to player 2	Y	N	N	N	Y

Table 27 - Association of objectives to scheme 1

For the second scheme example (ESQ2): LPD9/BLS9/BLS9/BBP9/BLS7/FLS0

We can apply objective 1 (OBJ1) already defined and four new ones defined below:

FACT	VALUE
Code	OB6
Description	Improve fast service
Goal level	Specific
Player level	Beginner
Application stage	Accumulation

Associated concepts	Fast service
Stroke	LPD 9
Evaluation criteria	Objective Criterion: Measurement of hits in table during scheme and Measurement of points won with direct serve during scheme. Subjective Criterion: Evaluation of speed of service, quality of execution of the latter according to the evaluation guideline
Achieved with	80% of hits at the table and 40% of points won with direct serve and quality of execution weighted as "good"

Table 28 – Objective N°6 of example

FACT	VALUE
Code	OB7
Description	Change of location in backhand attack
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Loc ation
Stroke	N / A
Evaluation criteria	Objective: Measurement of correct table during schema and correct in position spec í fies the table Subjective: Evaluation of impact time when changing the direction of the ball, according to evaluation guidelines.
Achieved with	70% of hits on the table and 40% of hits in a specific position and evaluation of the time weighted as "regular"

Table 29 – Objective N°7 of example

FACT	VALUE
Code	OB8
Description	Improve reception of long and fast serves
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Reception
Stroke	N / A
Evaluation criteria	Objective: Measurement of hits during the scheme. Subjective: Evaluation of power when hitting the ball, according to evaluation guidelines
Achieved with	65% of correct guesses and evaluation of the weighted power as "regular"

Table 30 - Objective N ° 8 of example

FACT	VALUE
Code	OB9
Description	Improve speed in transition from back to right
Goal level	Specific
Player level	Beginner
Application stage	Accumulation
Associated concepts	Transition speed
Stroke	N / A
Evaluation criteria	Objective: Measurement of% of errors in hit and% of specific location of the ball. Subjective: Evaluation of the speed of leg movement on the part of the coach, according to the evaluation guideline.
Achieved with	65% of hits and 50% of hits in location and evaluation of the displacement speed weighted as "good"

Table 31 – Objective N°9 de example

The association of objectives to scheme 2 (ESQ2) is as follows:

OBJECTIVES ASSIGNED TO A SCHEME					
FACT	VALUE 1	VALUE 2	VALUE 3	VALUE 4	VALUE 5
Esque Code m a	ESQ2	ESQ2	ESQ2	ESQ2	ESQ2
Target Code	OB1	OB6	OB7	OB8	OB9
Applicable to player 1	Y	Y	Y	N	N
Applicable to player 2	Y	N	N	Y	Y

Table 32 - Association of objectives to scheme 2.

For the third schematic example (ESQ3): CPD2/FPU7/FTS0

We can apply the following objectives to define:

FACT	VALUE
Code	OB10
Description	Improve short service to the middle of the table
Goal level	Specific
Player level	Medium
Application stage	Realization
Associated concepts	Short service
Stroke	CPD 2
Evaluation criteria	Objective: Measurement of points won with direct serve, Measurement of% error in service, % error in specific location of the required table. Subjective: Evaluation of quality of rotation of the service, according to the evaluation guideline.
Achieved with	70 % of points won, 75 % of hits in serves and 60% of hits in the position and evaluation of rotation quality weighted as "good"

Table 33 – Objective N°10 de example

FACT	VALUE
Code	OB11
Description	Improve regularity, power, location and intensity in the attack of the third ball of right
Goal level	Specific
Player level	Medium
Application stage	Realization
Associated concepts	Attack
Stroke	FTS0
Evaluation criteria	Objective: Measurement error, % measurement error location and specific required.

	Subjective: Evaluation of power and intensity at a "very good" level, according to the evaluation guideline.
Achieved with	70% success in hit and 50% success in the position and evaluation of power and intensity weighted as "excellent"

Table 34 – Objective N°11 de example

FACT	VALUE
Code	OB12
Description	Search depth with reception to the right
Goal level	Specific
Player level	Medium
Application stage	realization
Associated concepts	Reception
Stroke	FPU 7
Evaluation criteria	Objective: Measurement of error in hit, measurement of% error in specific location required Subjective: Intensity of reception at the "good" level according to the evaluation guideline, impact time according to the evaluation guideline.
Achieved with	70% success in hit and 50% success in the position and evaluation of reception intensity weighted as "good"

Table 35 – Objective N°12 de example

FACT	VALUE
Code	OB13
Description	Improve blocking reaction to free attack
Goal level	Specific
Player level	Medium
Application stage	realization
Associated concepts	Reaction to a free attack
Stroke	N / A
Evaluation criteria	Objective: Error% measurement. Subjective: Blocking quality, according to the evaluation guideline

Achieved with	70% success on hit and evaluation of blocking quality weighted as "regular"

Table 36 – Objectiv N°12 de example

The association of objectives to scheme 3 (ESQ3) is as follows:

OBJECTIVES ASSIGNED TO A SCHEME					
FACT	**VALUE 1**	**VALUE 2**	**VALUE 3**	**VALUE 4**	
Scheme Code	ESQ3	ESQ3	ESQ3	ESQ3	
Target Code	OB10	OB11	OB12	OB13	
Applicable to player 1	Y	Y	N	N	
Applicable to player 2	N	N	Y	Y	

Table 3 7 - Association of objectives to scheme 3

It is clear that a scheme can serve several objectives and that an objective can be achieved by working different schemes.

Analyzing the previous examples of objectives associated to the examples of schemes previously seen, we can visualize the potential that the tool will offer and the facility to associate objectives already registered in the repository of objectives with the schemes that are registered.

As already indicated, there are elements and topics to delve into relative to the objectives, especially in relation to evaluation criteria and weighting according to the levels of the players.

The same objective may be applicable to players of different levels, therefore, the evaluation is differentiated according to the degree or technical level of each player.

The assignment of the objectives to a player was already described above in table 9 of point V.4

VI.2 Statistics

For purposes of this project, statistics are descriptive; that is, description, visualization and summary of data originated from the events of table tennis. The captured data can be summarized numerically or graphically. The objective is to organize and describe the characteristics of a set of data in order to understand them and make decisions.

Statistics are relevant for understandable measurements from thousands of data capture to n.

In general terms, statistics serve two purposes for this project

First:

Clubs need general information about the Develop activity to.

The following examples help to understand this point:

- Number of matches in official competitions played by club players.
    - Number and percentage of matches won
    - Number and percentage of matches won by men
    - Number and percentage of matches won by women
    - Number and percentage of matches won by children
    - Number and percentage of matches won by youth
    - Number and percentage of matches won by children in higher category competition.
- Same as above, changing games by matches
- Idem to the above, changing points by matches
- Comparative statistics of the above, between equal periods: one year against another, last twelve months, compared with the previous 12 months. For quarterly, half-yearly periods, etc.

This and much more will be possible to get general information by the data capture to n.

Second:

Each club that adopts and implements the portal, would initiate a process to obtain long-term achievements. Each process will be divided into several plans made up of schemes according to the different levels of the players.

The process, plans, schemes and players will have general and specific objectives.

By definition, all other elements mentioned process and must be measurable and quantifiable, l as measures should be formal, clear, understandable, assertive; The evaluation of the measures must be consistent, regular and methodical.

In the section on objectives, we saw that each objective must have evaluation criteria. In some objectives, the criteria are objective, in others subjective and in others a combination of these.

The statistics relate directly to the assessment criteria which measure is objectiv to

Here are some examples for better understanding:

- Number of services performed in schemes in the last month, error%
- Number of services performed in a competition
    - Number of services with error, with lost point
    - Number of services with error, with point earned
    - Amount and percentage of service with error, depending on the type of error (This type of error in service must be parameterized, could be: location, height, lost, etc.)
    - Quantity and percentage of correct services, according to the quality of service measurement (The values of this measure must be parameterized)
- Idem to the above, changing service with reception, right attack, blocking, etc.

The above examples are feasible to get even finer data, for example % error for a "short service middle of the table".

For a player it can be indicated that his objective is to dominate that service, and the evaluation criteria can be:

- The execution of the serve in schemes must have a 95% accuracy
- The execution of the service in matches must have a minimum of 85% accuracy.

For this example, the technician may execute the function of updating the objectives that have an objective evaluation criterion based on the new data that has been captured and entered.

Therefore, technicians should only evaluate the objectives that have subjective evaluation criteria.

These subjective evaluation criteria will have evaluation guidelines as explained in the previous point; objectives.

Interestingly, the result of an objective or subjective evaluation becomes a statistical data for the preparation of reports. For a better understanding two examples of statistics:

- Number of players who have achieved objective 3 with a remarkable evaluation.
- Players who have more than 50% of their objectives achieved with excellent evaluation and / or 95% in the case of objectives with objective measurement via statistics.

Example of statistics to propose a work plan

- List of goals with the lowest% achievement in beginner level players
- Idem for intermediate players.

For the second stage of the project the definitive statistical model should be structured, which should consider a solid and permanent central structure combined with flexible and parametric elements that allow the different clubs, after training, to define their own statistical report and measurements.

VI.3 Planning

Planning is understood as the set of activities to be developed in order to comply with the general and specific objectives at the level of the club, group of players and / or a player. This composed by

- Processes to execute, includes the procedures and activities to be carried out in the time that each plan lasts.
- General and specific objectives
- Tools and methodologies to use

- Roles and functions that participate in the plan.
- Actors who participate according to their roles
- Schedule of activities with a term.

Training planning is first and foremost the result of the coach's thinking. This thought should be as far away from improvisation as possible; integrate the s knowledge in a structural system and organized as close to science and technology.

It is, considering the above, as has been written, which has raised the ultimate goal of this project: Provide a portal, conceived, designed and developed best practices in software development that includes flexible features that allow n one personalized configuration according to the thinking of each coach to manage and manage the plans, cycles, training, types of schemes, objectives, technical, physical and psychological characteristics of the player.

With regard to planning, the portal will allow to manage each of the activities to be developed for each training

Data to consider in order to schedule, manage and control a planning:

GENERAL PLANNING	
FACT	**DESCRIPTION**
Code	General plan code
Addressed to	The level or group of players are indicated
Head Coach	
Coach	
General objectives	
Specific objectives	
Duration	In months, weeks, etc
Specific plans	Number of specific plans
Start date	
End date	

Table 3 8 - Data to define a general planning

SPECIFIC PLANNING	
FACT	**DESCRIPTION**
General plan code	Code of the general plan to which it belongs
Specific plan code	
Head Coach	Appointed by the chief technician
Coaches	
General objectives	
Specific objectives	
Duration	In months, weeks, etc
Start date	

End date	
Items included	Trainings, competitions, physical preparation, concentrations and others
Start date	
End date	

Table 3 9 - Data to define a specific schedule

PLANNING - PLAYERS	
FACT	**DESCRIPTION**
Specific plan code	
Player code	
Date integrated into the plan	
Specific objectives of the player	It is recorded indicating the concepts of the technical profile to be improved, plus other objectives related to the physical and psychological aspect
Duration	In months
Evaluation of the player with respect to the plan	Subjective comment of the coach, with a note.

Tabla 40 – Datos para asociar jugadores a una planificación

PLANNING - ACTIVITIES TO BE INCLUDED IN TRAINING	
FACT	**DESCRIPTION**
Specific plan code	
Activity code	According to parameters. Examples: Warm-up, Service session, schemes, multi- balls, among others
Allotted time	Some activities are flexible and others have allotted time.

Table 4 1 - Data to associate the activities of a planning.

PLANNING – TRAINING SCHEDULE	
FACT	**DESCRIPTION**
Specific plan code	
Training code	Sequential training code
Schedule date	
User that agendo	
Date of execution	
Time block	According to the club's block register
Kind	Group Personalized
Player code	In case of being customized
Technician who directs	
State	Scheduled, Canceled
Training evaluation	Evaluation given by the technician
Player evaluation	Average of the evaluation given by the players
Comments	

Table 42 - Data to define the training schedule for a planning.

In addition to the training agenda, physical preparation, competition, concentration, travel, vacation, medical and psychological sessions will be considered in the second stage.

All the agendas will be intertwined to ensure that they do not overlap, this will allow each player and technician to have a real-time visualization of their sports schedule.

PLANNING - SCHEMES OF A TRAINING	
FACT	**DESCRIPTION**
Training code	
Schema code	

Execution time	
Objectives of the scheme	Of all the objectives that a scheme supports, those that matter to the plan are indicated

Table 43 - Data to associate schemes to a training.

PLANNING - TRAINING ASSISTANCE	
FACT	**DESCRIPTION**
Training code	
Player code present	

Table 4 4 - Data to record attendance at a training.

With the registered information you can have numerous and varied information, examples:

- Number of trainings per cycle, scheduled and actually executed.
- Amount of hours of training, scheduled and executed.
- Exercises per training session and objective of this.
- Number of exercises for training and results.

In addition, the functionalities of the portal considers aspects such as:

- Divide training according to the profile requirements of the player or players
- Cancel and re-train workouts online, with automatic notifications
- Periodic evaluation of the development of a specific or general plan, to redefine it if necessary.

The depth and detail related to the functionality, data, profiles, accesses that the management of a general or specific plan considers, will be done in the second part of this project. However, with what has already been described, we are convinced that we have managed to communicate the strength, flexibility and functionality that the portal planning module will have. Characteristics that once shaped and implemented, will go directly to help, support and collaboration in the management of clubs or institutions for the development and fulfillment of their plans and objectives.

VII. Conclusions.

William Thomson, commonly known as Lord Kelvin, a renowned British physicist and mathematician, who at one point remarked: "When you can measure what you are talking about, and express it with numbers, you know something about it; but when you can not measure it, when you can not express it with numbers, your knowledge is poor and unsatisfactory: it may be the beginning of knowledge, but you have hardly advanced in your thoughts to the stage of science ".

These words of William Thomson, which maintain their validity and veracity, I have applied in this project, convinced that it is possible to bring our beloved sport as close as possible to the classic "scientific method", creating a systematization of information that will facilitate the analysis of all the data that we manage to capture within the variables of table tennis; to, with this, favor the accomplishment of the planning, to know better the weaknesses and virtues of our players and rivals, and, mainly to stop advancing through subjective appreciations of the trainers.

I am sure that this project will be a real contribution to the development of table tennis, with methodologies and innovative tools to work in trainings in a professional and rigorous way, leaving the minimum space for improvisation and making participants of each of the areas of training to all the actors involved.

My vision is that by developing and implementing this portal, to manage and control in detail all the factors inherent in table tennis, both in the technical and administrative areas, we can contribute to the long-awaited step towards the professionalism of table tennis in Chile.