

STEM education strategies within the sporting context

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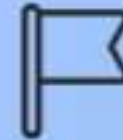
1. INTRODUCTION



I'm Innovation!
Berrikuntza Naiz!
¡Soy Innovación!



A project with a double objective



1. INTRODUCTION

1 Gipuzkoa
Physical Context

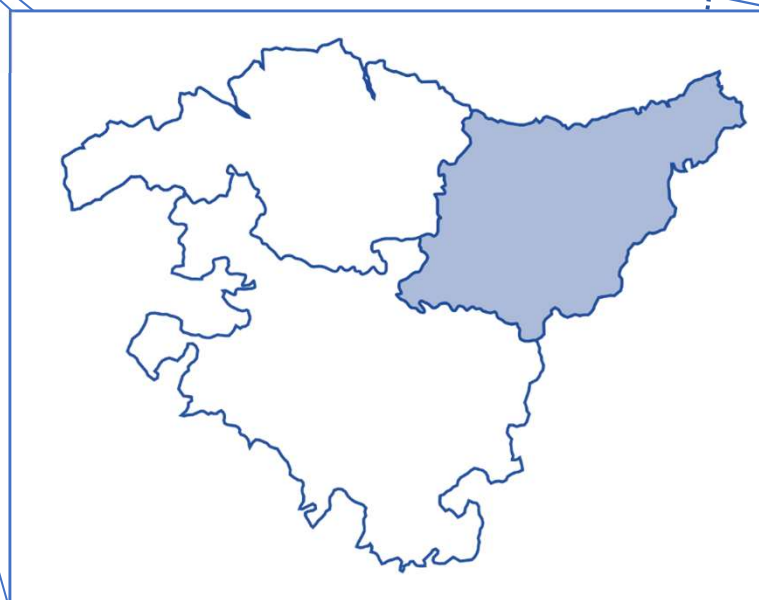
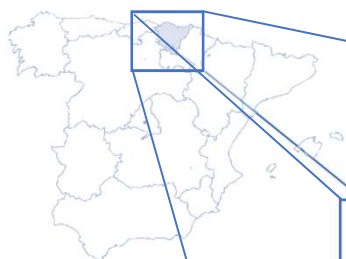
2 Etorkizuna Eraikiz
Conceptual framework

3 Challenges
Social challenges

1. INTRODUCTION.

1.1. PHYSICAL CONTEXT

GIPUZKOA



Gipuzkoa (Province)

89 MUNICIPALITIES



707.298 INHABITANTS

1.997 KM²

1. INTRODUCTION.

1.2. CONCEPTUAL FRAMEWORK



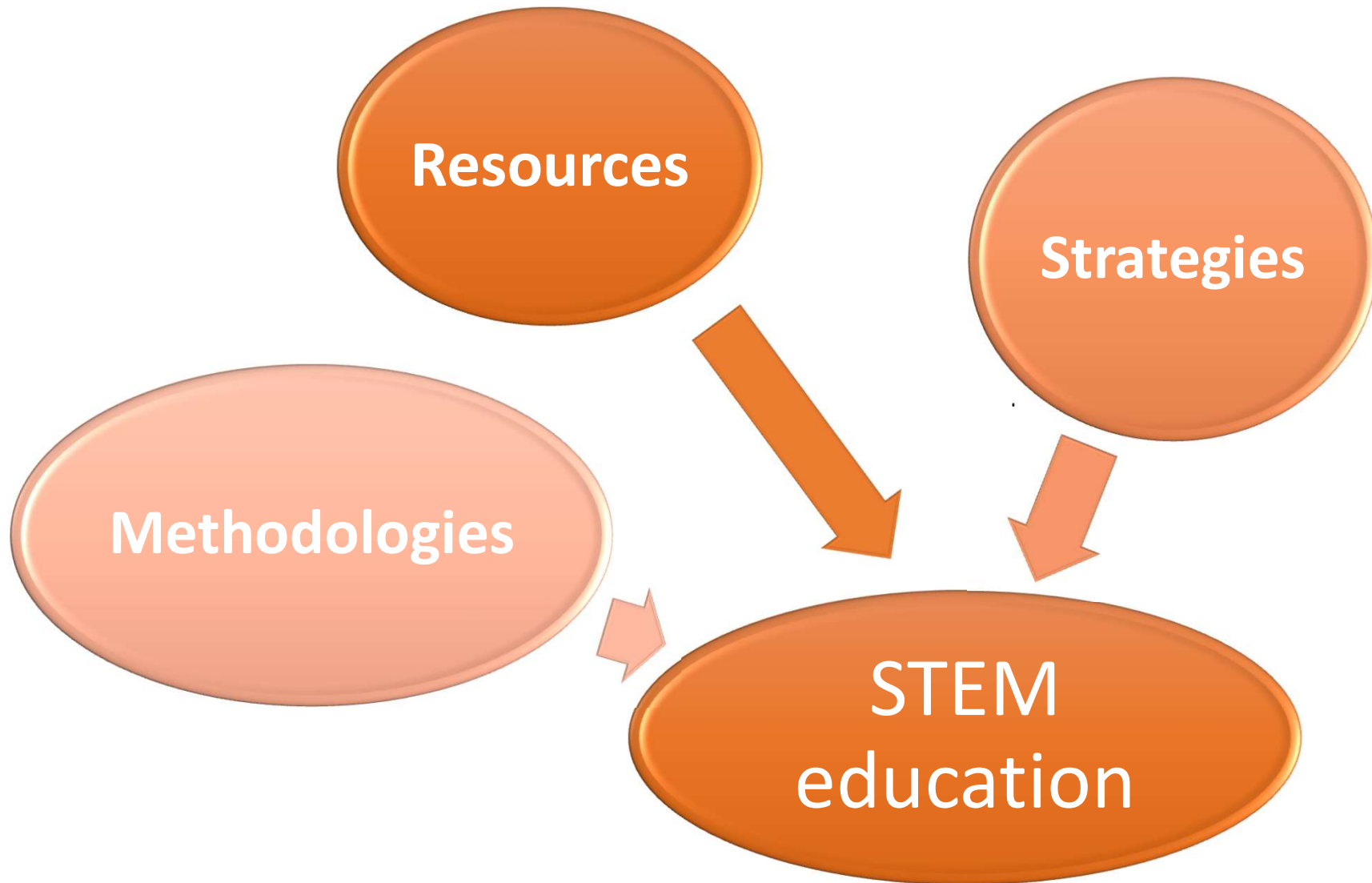
- Program of public policies
- Developed by the Provincial Council of Gipuzkoa.
- Open and collaborative governance model
- Reinforcing the institutional leadership, social capital and culture of the Gipuzkoan territory

1. INTRODUCTION.

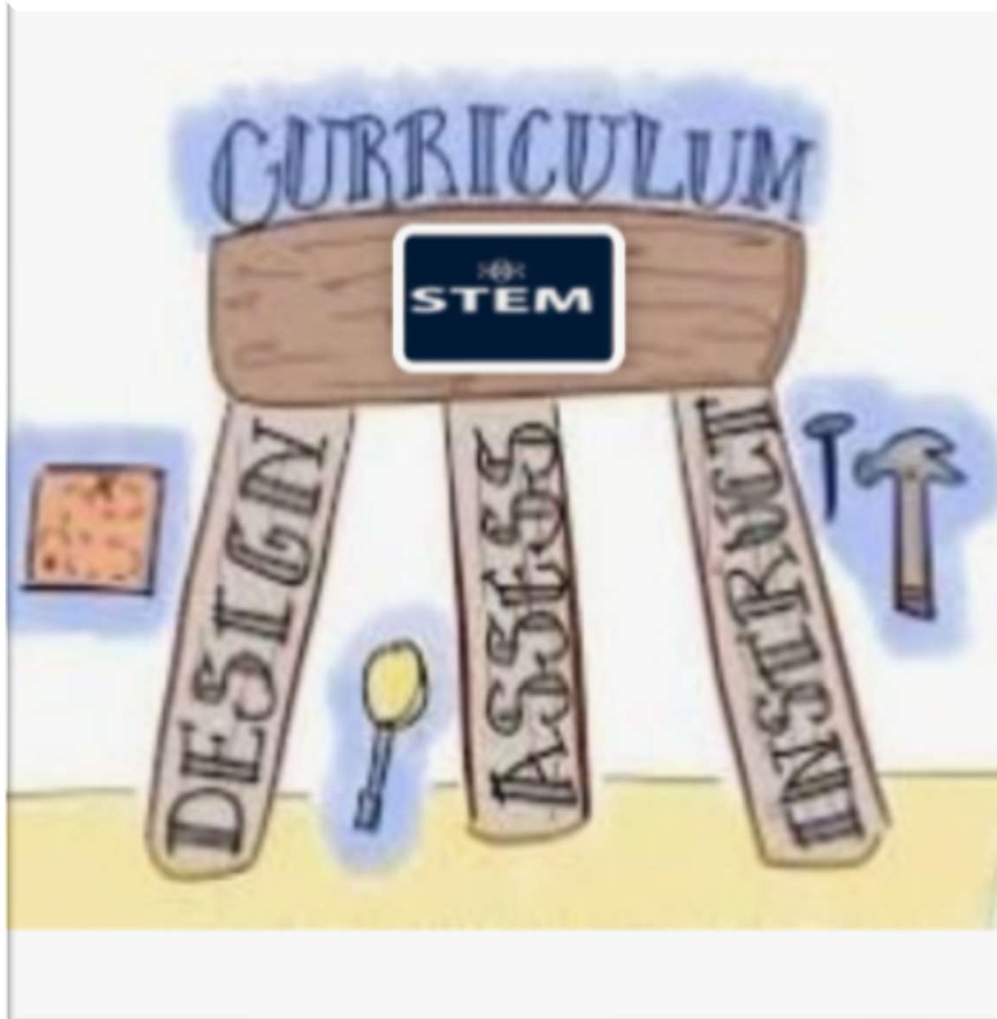
1.2. CONCEPTUAL FRAMEWORK



1. INTRODUCTION. 1.3. New challenges in STEM education strategies



1. INTRODUCTION. 1.3. New challenges in STEM education strategies



*The integration of
STEM
education in the
curriculum*





*STEM learning
strategies have
generally been
applied in higher
level education*



2. THE BASQUE LANZADERA PROJECT

“ How to design a STEM training proposal for primary and secondary schools, that integrates all subjects, that is compatible with the school curriculum and that is possible to apply? ”

2. THE BASQUE LANZADERA PROJECT



The purpose of the BL project is to promote the creation of teams of children and young people between 10 and 18 years old, who are sponsored by companies and guided by teachers and monitors, | participate in

tournaments
related to STEAM.

2. THE BASQUE LANZADERA PROJECT

The sporting context



This project promotes STEM skills from a sporting point of view.



STEM sports tournaments are linked to schools

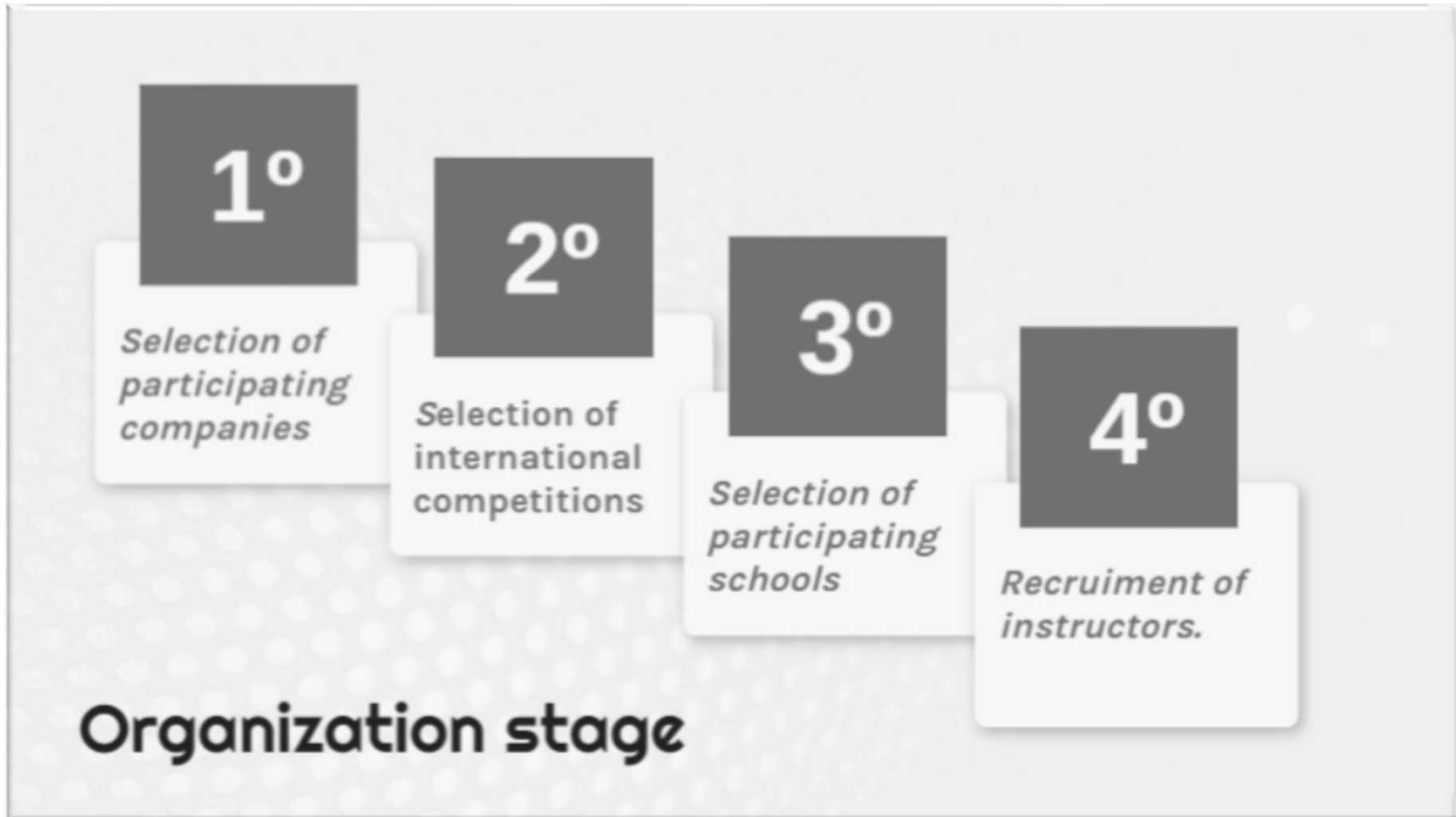


STEM sports tournaments are linked to companies



Each tournament is run and sponsored by companies.

3. THE RESEARCH: STAGES



3. THE RESEARCH: STAGES

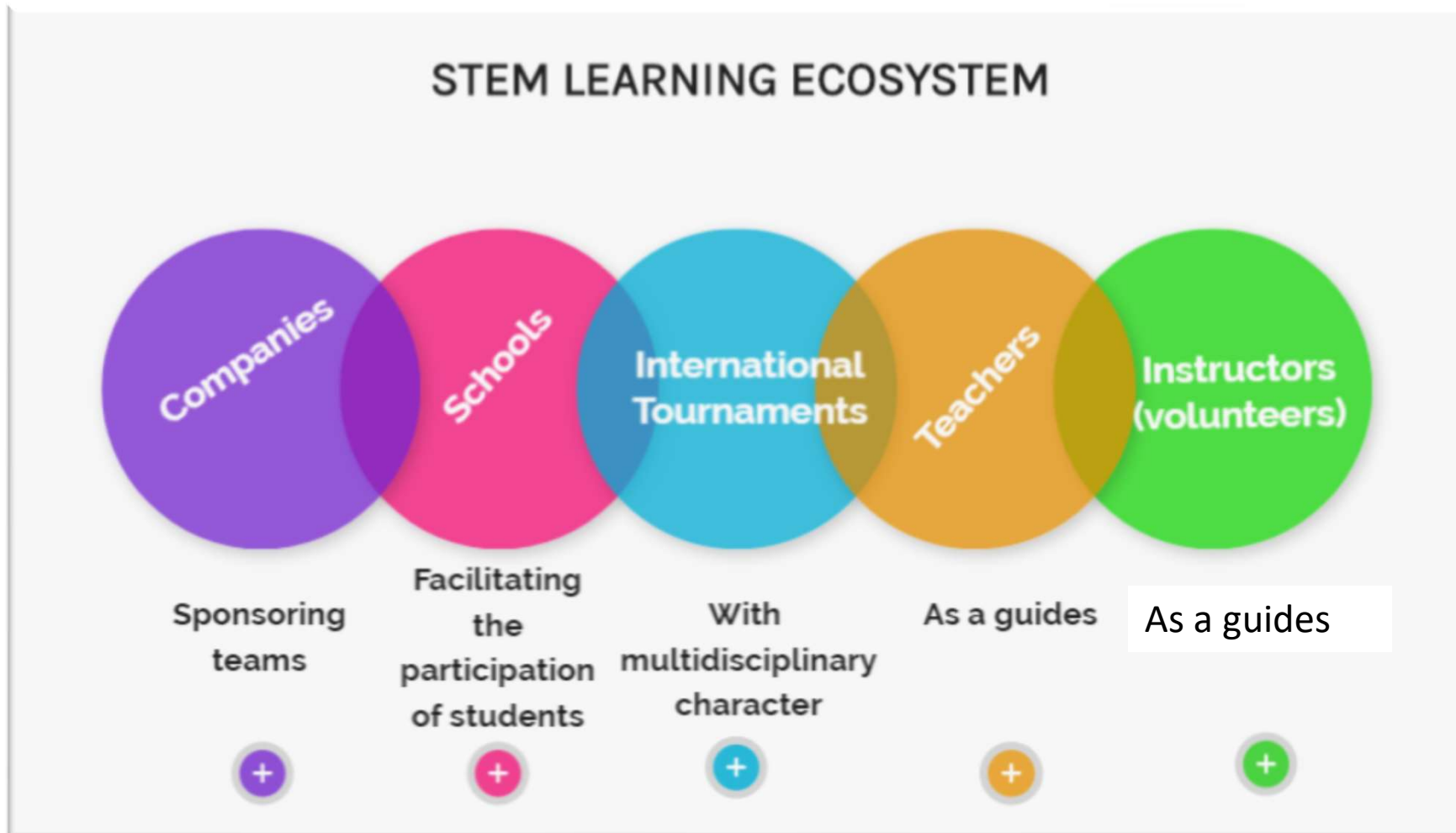
Matching of
companies
and
tournaments

Creation of
competition
teams

Organization
of the
tournaments
in Gipuzkoa

Action stage

3. THE RESEARCH: STAKEHOLDERS



3. THE RESEARCH: ASSESSMENT



3. THE RESEARCH: ASSESSMENT

Values table



- Inspiration
- Discovery
- Team spirit
- Integration
- Teamwork
- Effectiveness
- Efficiency:
- Professionalism
- Inclusion
- Respect
- Competition

Scientific project table



- Identification of problems
- Information sources
- Analysis of problems
- Review of existing solutions
- Innovative solution
- Team solution
- Innovation
- Implementation
- Communication:
- Sharing
- Creativity
- Effective presentation

3. THE RESEARCH: ASSESSMENT

Design
table



- Mechanical design
- Durability
- Mechanical efficiency
- Mechanization
- Electro-electronic design
- Energy management
- Electronic efficiency
- Economy
- Programming
- Programming quality
- Programming efficiency:
- Automation, navigation, communications
- Design process

4. RESULTS AND CONCLUSIONS

The value of the sporting context

The teams represent a collective (school) and immediately generate a sense of affiliation in their community.

In addition, if the team "wins" a prize, it generates respect and admiration.

The parents show and transmit to the other parents the immense pride they feel when they see their children put in a lot of effort to overcome a demanding project.

Teachers find highly motivated students in their areas because they need that knowledge to compete with their team.

4. RESULTS AND CONCLUSIONS

5 tournamens, 15 companies, 20 schools and 4 Universities



- Through offering STEM activities in the form of a tournament, the schools additionally experience the added benefit of increased enrollments.



- The learning space created in this sporting ecosystem is a meeting point where companies and educational centers can work and benefit each other.



- It successfully engages families, increases mutual understanding and creates the capacity among parents to support their children's learning.



- STEM competition allows for the building of children's practical science skills and knowledge through multiple experiences.
- The young who competes in a group are more socially integrated, and gain prestige in their community.

4. RESULTS AND CONCLUSIONS



- The sense of belonging to a club creates stronger bonds and greater affiliations and encourages the participation of parents, friends, and the community as a whole.
- This methodology allows the participation of very early ages students.
- It has the additional benefit in terms of social impact of engaging the wider community (parents, enterprises and teachers).
- The possibility of replicating and extending this model of competitions is exponential.
- A collaborative and open environment drives the appearance of creating social value projects.

3. RESULTS AND CONCLUSIONS

The main contribution of this paper is the use of **Competition-Based Learning** to design a methodological process of **STEM learning and teaching through competition**, building up an **ecosystem of learning** similar to sports competitions.



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THANK YOU

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