DRIVES

Development and Research on Innovative Vocational Education Skills

#JA3B REPORT

THE JUNIOR AUTOMOTIVE APPRENTICESHIP ADVISORY BOARD

(The JA3B as an effective tool to raise awareness towards automotive apprenticeships)

Co-funded by the Erasmus+ Programme of the European Union

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JA3B REPORT - CONFIGURATION

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INTRODUCTION

For years, youth's opinon about its own future has been ignored.

„Why is it European youngsters are not willing to do an apprenticeship?", „why is it they are not attracted by the automotive sector as much as they are by others?", these are some of the question that seniors have been trying to answer...without directly asking youth; and when asked, their answers have not made it to the educational nor the employment authorities.

When in 2017, a young Gestamp shareholder wrote to us interested in our learning and development strategy and making very sound suggestions about our learning catalogue, we thought it was time to take notice. To listen to what youth had to tell us about the future of work within the automotive sector and the educational paths to make it possible for them to develop a thrilling professional career. We then contacted Mondragon University and jointly designed a forum for European youth to discuss sector employment and education, without the senior bias, and with the guarantee that their ideas would be advised to the members of the European Parliament. This is the #JA3B, the Junior Automotive Apprenticeship Advisory board.

1 THE #JA3B

#JA3B stands for **J**unior **A**utomotive **A**pprenticeship **A**dvisory **B**oard.

#JA3B is an initiative lead by Gestamp, in collaboration with our partner Universidad de Mondragon and our sponsors, that aims to boost vocational and professional training within the automotive sector.

#JA3B is an event hosting young people from 14 to 18 years-olds, from different European countries, organized to design and think collaboratively about the future of the automotive industry, not only in the professional field but also in academia. It aims include discussing their experiences of the automotive sector, its future challenges and to develop a strategic action plan to make it an exceptional place to work.

1.1 #JA3B GOALS

#JA3B is willing to promote collaboration, innovation and discussion. It is a great opportunity to meet teams from other countries and share with them three days full of unique experiences.

Bring the youth to the fore-front of decision making.

Interface between youth, business, vocational training centers and other institutions discuss opportunities.

Raise awareness:

- Students towards vocational training
- Educational entities towards updating the automotive skills curricula
- Automotive sector towards attracting the best talent

1.2 #JA3B PARTNERS AND SPONSORS

Gestamp together with the University of Mondragon leads this project but could not have made it without the support of others.

We would like to make give special thanks to the AIC - Automotive Intelligence Center (https://www.aicenter.eu/) that participated actively in the agenda of the event and sponsored a third of the event.

In addition, we also counted on the collaboration from the institutional entity responsible for the vocational studies within the Basque Country (Vice-Consejería de Formación Profesional del País Vasco - http://www.euskadi.eus/gobierno-vasco/fp-educacion/). As one of the objectives of the #JA3B was

to highlight the value of vocational studies within our industry, their participation and support of the event was very important.

Their sponsorization covered the following:

- One of the meals was hosted at the Vocational School for Cooking Gamarra in Vitoria: http://www.hosteleriagamarra.com/.

  #JA3B participants had the chance to enjoy the meal cooked and served by the students from the School. The quality of food and service was excellent.
- All the multimedia coverage (photos and video) was provided by Koora Studio (https://koora.studio/); a venture recently launched by alumni from multimedia vocational qualification studies. All pictures and video available together with this report come from their expertise and are available here or type in this link to your browser: https://www.flickr.com/photos/gestamp/sets/72157713420395342/

1.3 #JA3B DATES AND LOCATION

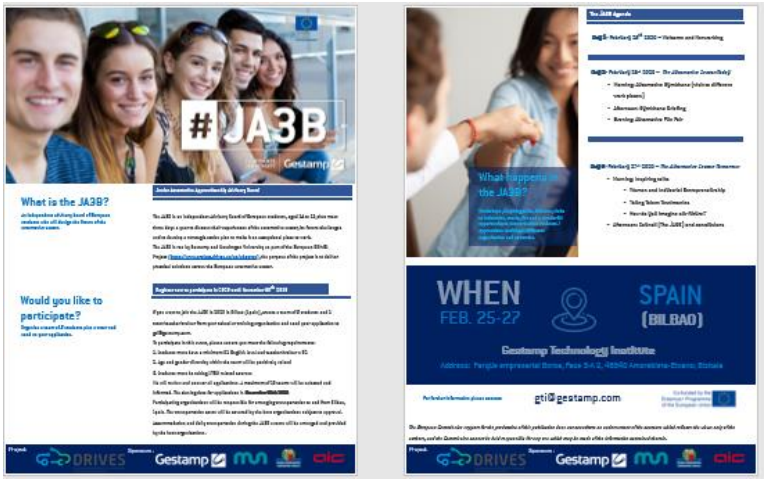
The dates agreed to host the #JA3B were intentionally chosen as being in the mid-term holidays in February 2020 in most European Countries: from Tuesday 25 to Thursday 27 February. The event took place in Gestamp Technology Institute - GTI (https://gti.gestamp.com/). The reason the venue was selected for the event was not arbitrary. GTI is committed to the development of all Gestamp employees professional skills through the design and delivery of innovative learning programs for our global business' technologies, processes, systems and rich portfolio of products. This Centre of Excellence fosters technical learning within the automotive sector to satisfy Gestamp professionals' continuous development; always from an innovative point of view, both from a theoretical and practical way.

As one of its corporate principles, Gestamp is committed to its people as architects of success. For that reason, Gestamp also invests in talent attraction programs that prepare young professionals to be the future architects of our corporate achievements, most of them coming from vocational schools nearby. Gestamp Corporate University has designed different programs for young people that combines advanced academic training and six months internship in any of the industrial plants around the world (over 120 plants in 21 countries)

1.4 #JA3B COMMUNICATION, CALL AND APPLICATIONS

Gestamp, a multinational company present in many countries in Europe, communicated the event and their involvement across its European manufacturing plants. The call was done in collaboration with

the Human Resources Managers of these plants in October 2019 who were requested they contact the educational entities (high schools and vocational schools) located near the plants and inform them about the project. The aim was to target young people who had not decided on their education options in their near future so they could learn about the automotive sector, the jobs related to it and the academic options that could prepare them to these. The application deadline set was November 30, 2019. Apart from making the call with several videoconferences, we also prepared some materials to be distributed with the most important information on the event:

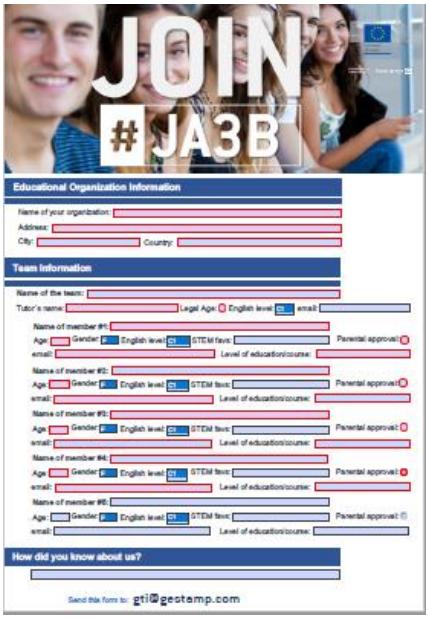


1.4.1 Application requirements

Educational entities and vocational schools were asked to communicate this project to their students.

The requirements were as follows:

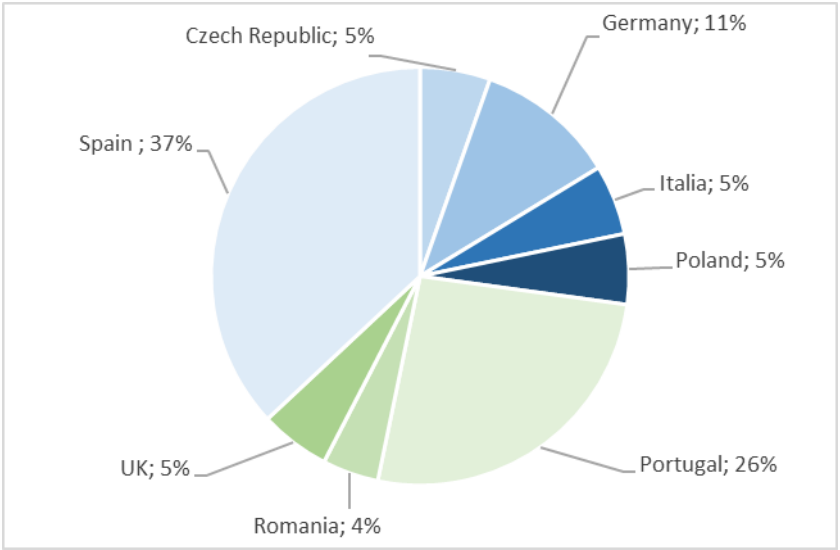
1. Create a team of 5 students (from 14 up to 18 years-old) and 1 tutor/teacher/trainer from their school or training organization and send the application form to gti@gestamp.com before the deadline.
2. Students must have a minimum B1 English level and teacher/trainer a B2
3. Age and gender diversity within the team was positively valued
4. Students must be taking STEM related courses



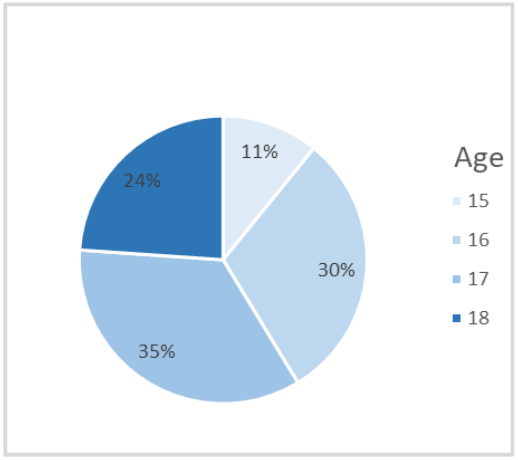
1.4.2 Applications received

The response received to the initiative was very positive. We received applications from 19 teams in total.

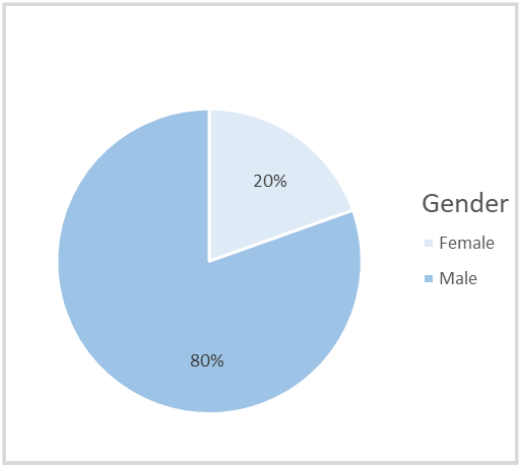
Geographical distribution of applicant teams:



Age distribution of aplicants:



Gender distribution of applicants



1.4.3 Selected teams

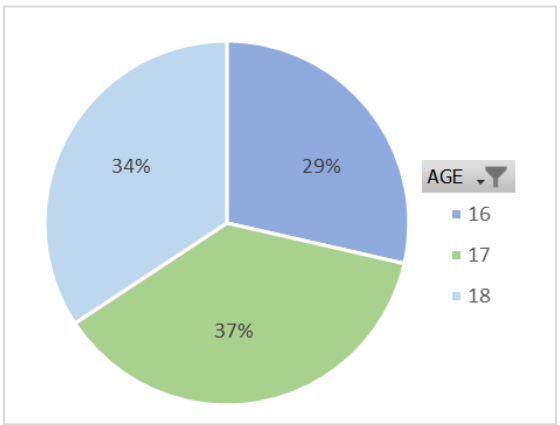
After reviewing all team applications, the seven selected were:

Organization contact	Country	Name of the Team	Fields of interest
Gestamp Louny s.r.o.	Czech Republic	Střední škola technická, gastronomická a automobilní Chomutov	Engineering
Gestamp Polska Sp. Z.o.o.	Poland	ZSP Gestamp Polska	Engineering
Erasmus-Gymnasium Grevenbroich	Germany	The Erasmus Physicists 1	Physics, Mathematics
ITIS "E.MATTEI"	Italia	ITIS	Robotic and automatic systems
AEVA - Associação para a Educação e Valorização da Região de Aveiro	Portugal	"Os Patrícios"	Work Practices
IES San Felipe Neri	Spain (Jaen)	The thinkers	Electromechanic maintenance
Lauaxeta Ikastola	Spain (Amorebieta)	Tropicauto	Mathematics, Technology

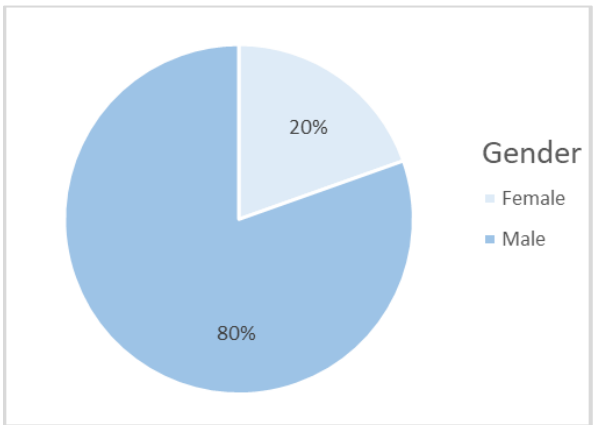
(1) The Italian team ultimately could not join the event due to the COVID-19 situation in Italy

(2) Tragically one of the students from the Portuguese team lost their life only three days after returning home in a terrible motor accident. He was just 17 years old. Our condolences to his family and friends. Rest in Peace.

Age distribution of attendees:



Gender distribution of attendees:



2 #JA3B AGENDA

When designing the agenda for the #JA3B, it was very clear from the first moment that in order for the young participants to debate about the future of the automotive sector, they needed some ideas on the sector (main sectorial magnitudes, megatrends, etc.) and also about the manufacturing processes.

2.1 BEFORE ARRIVING: #JA3B WARM-UP

In order to generate pre-event enthusiasm and knowledge and to start the #JA3B experience, it was suggested to their tutors (necessary collaborators for the success of the #JA3B) that they asked their students to research the following questions:

1. How many vehicles were produced in 2018 worldwide?
2. Which are the 3 countries that produce the most vehicles worldwide?
3. Which are the 3 countries that produce the most vehicles in Europe?
4. What is the difference between an OEM and a Tier 1? And between Tier 1 and Tier 2?
5. Which 2 OEMs merged last year?
6. How many types of hybrid vehicles do you know?
7. How many electric vehicles were sold in Europe in 2019?
8. Which is the European country in which most electric vehicles were sold last year?
9. Which is the European country which has the most public charging points?
10. For you, which are the main bottlenecks that Electric Vehicles are suffering?

Answers to these questions were provided during the #JA3B.

2.2 DAY 1: A WHOLE VIEW OF THE MANUFACTURING PROCESS

Day 1 – Wednesday 26 February 2020

The purpose of the first day was to make the participants understand the current manufacturing process: from the designing, prototyping, stamping and welding processes to the final assembly step.

We were helped by the different Gestamp Areas that, not only hosted the participants, but also explained the processes concisely and holistically so they had a broad overview on the materials, manufacturing steps and technologies at stake.

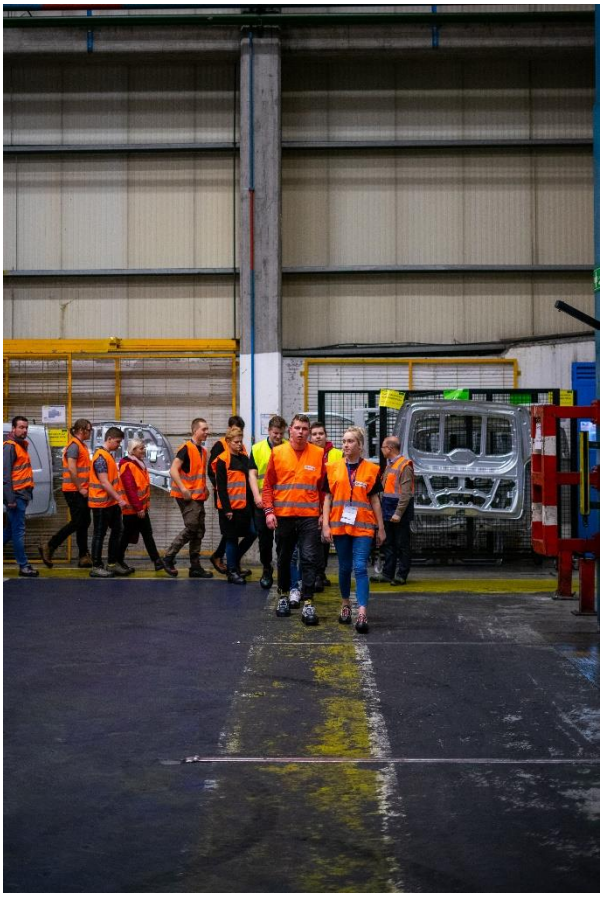
We would also like to thank the Mercedes-Benz Plant in Vitoria who kindly accepted our request to visit their plant. Due to public visiting hours we had to start from the end of the process, going to Mercedes-Benz first, and then continued with the visit backwards.

During the visit to the Mercedes-Benz Plant, students showed their interest in the areas they identified as being a priority for them: **Mechatronics and PLC programming**.

The students then visited one of Gestamp biggest Plants in Spain: **Bizkaia Plant in Abadiño**.

This Plant manufactures many of the components provided to Mercedes-Benz for the vehicles assembled there: the Vito, Mercedes Class-A. During this visit, the #JA3Bers had the chance to understand and see first-hand the different processes and technologies that the plant carries out: **cold and hot stamping lines, welding cells**.

During the visit, a strong focus was made on the importance of **security** within the Plant. The students were all given the relevant individual protection equipment and instructed on the mandatory rules when working in an industrial Plant, such as following the designated paths and giving preference to forklift trucks over pedestrians.



Again, students were impressed by the level of **automation** of the industrial processes and saw first-hand the necessity of acquiring **digital and programming competencies** to work in the sector.

The final industrial visit of the day was to **Gestamp Chassis** where the students got to know the **design and prototyping** steps prior to the manufacturing process. The visit focused on one of the most complex components of the car: the chassis.

During the visit, one of the most critical moments when manufacturing a chassis was explained to the #JA3Bers: the stress tests. For a short and concentrated period of time, the chassis "suffers" the equivalent of 10 years of normal usage. In the stress test labs, engineers can test and monitor where and how this suffering "damages" this vital part of the vehicle, which is one of the most important ones for the security of passengers.

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2.3 DAY 2: INSPIRING TALKS FACING THE FUTURE OF THE SECTOR

Day 2 – Thursday 27 February

The day was divided in two sections: the first part was for the #JA3Bers to set their objectives concerning the future and the second was focused on opening the debate and holding the Board.

The morning started with a visit to our Partner AIC (Automotive Intelligence Center) where they could see the **latest smart manufacturing trends** and the most updated **research on autonomous cars**.

After this warm-up, students returned to GTI to listen to some short but impactful inspiring talks. The first two had a focus on their near future academic options with a clear objective of showing the sector to be attractive to women.

As a starting point, **Patricia Barquero** shared her own experience on completing a University Degree and then, after checking her professional options, deciding to pursue **Mechanical Vocational Studies** at the **University of Mondragon**. This choice was self-funded which meant she had to combine her academic programme with a job so she could afford these studies. After completing them, and thus being an Alumni, she gave the #JA3Bers her perspective of some of the advantages of this option: a total experience learning-based option and more immediate professional options after graduating.

Then **Nerea Marrodán** from the **University of the Basque Country** gave her views. She explained she decided to take a **University Degree in Engineering** because it complemented her participation in the **Formula Student Racing Team** at the University, of which Gestamp is also a sponsor.

Nerea explained that no matter what the academic option students would opt for, there are some key drivers that should help them in their future. She highlighted the following:

- **Attitude**: "Whatever happens, take responsibility."
  - Passion
  - Hard work
  - Perseverance
  - Trust
- **Thinking**: "The important thing is not to stop questioning. Curiosity has its own reason for existing."
  - Creative
  - Innovative
  - Resolute
  - Critical
- **Communication**: "Talent wins games, but teamwork and intelligence win championships."
  - Interpersonal
  - Commitment
  - Teamwork
  - Public Speaking

- **Internationalization**: “Education is the most powerful weapon which you can use to change the world.”
    - Adaptability to change
    - New experiences
    - Reliance
    - Interculturality

The first two talks focused the #JA3Bers on their academic options. The agenda then looked at **the Future of cars**: a talk addressed by **Nadia Maestro from the AIC**.

During her speech, she pointed out the importance of the automotive sector in different countries, and especially in Europe. The change of trends towards more sustainable cars: electric, hybrid, bio fuel, etc… and how car manufacturers have had to adapt to this change of consumers demands. Nadia also answered the questions researched in advance by our #JA3Bers (see section 2.1)

Jorge Vázquez Cancela, from Gestamp Industry 4.0 Area talked about **the Future of Car Manufacturing**. We live now in a revolution of car manufacturing; the fourth one from our era. Big data, blockchain and Artificial Intelligence will determine the future of the manufacturing processes.

The final talk was given by **Miguel Moreno**, also from **Gestamp new business unit for Electric Vehicles** and his focus was on the **Future of Mobility**. Companies from the automotive sector are focussed on the sector megatrend summed-up as **C.A.S.E** - an acronym for **Connected, Autonomous, Shared and Electric** - which will define the future of mobility and so much more. It will change the future of cities as they'll be more connected, affect consumer behaviours and working and leisure routines. Data collection from both cars and the surrounding infrastructure will create new opportunities and business models and will therefore impact greatly on the current and new employers within the sector. Will the existing OEMs evolve to become broader technological companies?

After these inspiring talks some refreshment was needed before facing the last and most important part of this European meeting: the **#JA3B**.

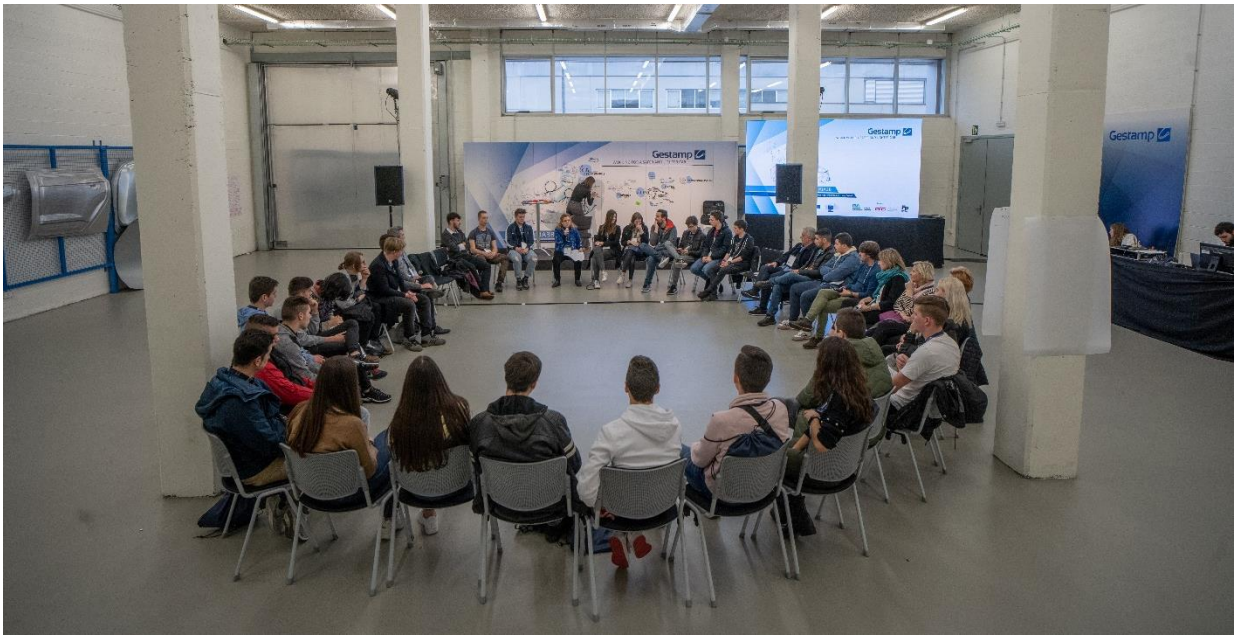
3 THE #JA3B

From the very first moment when designing the #JA3B, it was very clear to us that we needed someone to lead this activity in order to motivate and energize the #JA3Bers to actively participate in the Board. Arancha Gayoso (https://www.linkedin.com/in/aranchagayoso/) was the person appointed for this responsibility who, fortunately, accepted the challenge. From the very first moment, she understood the potential of the #JA3B and the great opportunity that this event would create not only for the young people participating but also to the Drives Partners, Companies and Academia. Arancha is an excellent facilitator with great experience with students and promoting the empowerment of girls and women. She is a Mentor at the The Madrid Professional Women's Network (PWN).

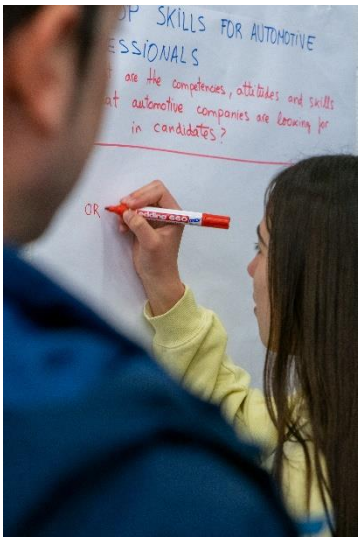
Arancha was involved in all the activities across the 2 days enabling her to learn first hand from the experience in the same way as the rest of the students and, therefore, would have more inputs when facing the facilitation of the #JA3B.

To start with, she proposed the run an **Open Space Technology**. This is a technique for running meetings where the participants can create and manage the agenda themselves and it is ideal to get them gaining ownership of the issues raised and come up with solutions. In 2 hours, the most important ideas would be discussed and conclusions were documented graphically in a mind-map which was being drawn live.

During the Board, these were the topics being discussed by our #JA3Bers:



The top skills for automotive professionals (what skills do you need to become an automotive technician? What are the competencies, attitudes and skills that automotive companies are looking for in candidates?)

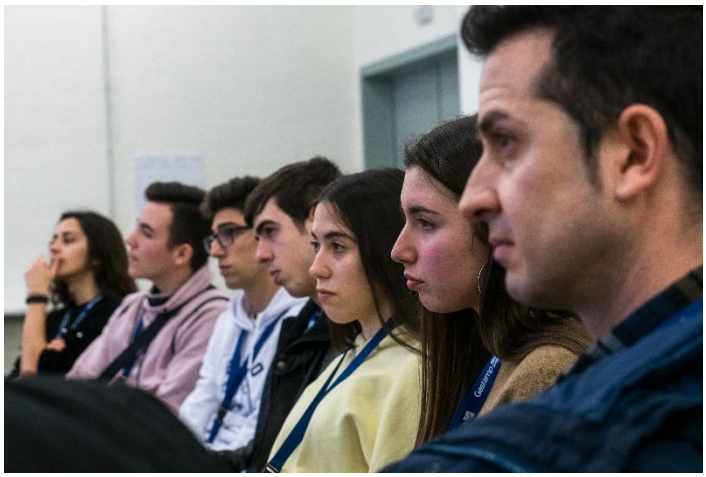
Attitudinal competencies	Soft skills	Hard / Technical skills
Originality Happiness Constancy Vocation Practice Self-reliant Self-confidence Politeness Loyalty Be able to talk about his/her weaknesses Can show off his/her achievements Patience	Creativity Teamwork Cooperation Motivation Communication Flexibility Adaptability Responsibility Discipline Leadership Learning agility Global mindset Being multidiscipline	IT skills Coding Languages (English, Esperanto, linguistic adaptability) 

University vs. Vocational Studies
Which one will you choose? Advantages & disadvantages

	University Studies	Vocational Studies
Advantages	More in-depth knowledge Higher graduation More range with 1 degree Better positions, better salaries More options for scholarships and state funding More incentives and motivation to get better More options to specialize so could me more specific in the end	More practical Faster for real-world job options Cheaper More personal It is easier to achieve (is this a stereotype?)
Disadvantages	More anonymous More expensive More difficult Takes longer (numerous degrees?) Need for better grades to access	Targeted to people with less money (is this a stereotype?) Less choices, especially targeting for higher positions Always being a second choice to graduates in job interviews Less adaptability and flexibility No options of changing within your field (in comparison to University where you can do multiple Masters after one Bachelor's Degree Students have smaller voices to prove it. Targeted for easier jobs
Mix proposal: dual studies with work and Uni!		

Electric cars vs petrol cars (advantages and disadvantages of each type)

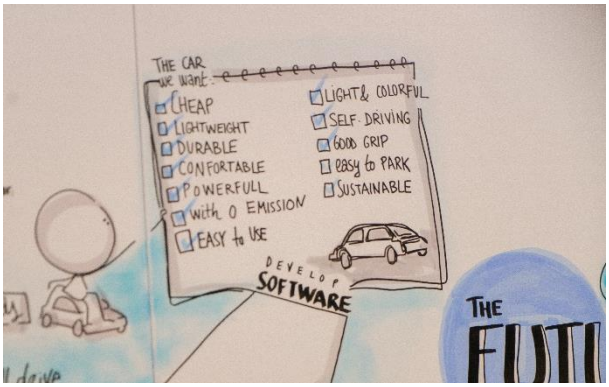
	Electric Cars	Petrol Cars
Advantages	Do not pollute the air (less CO2 emission) Lower taxes for electric car owners More parking spaces for electric car in city centers	Easy fuel process and faster Better range Safer Less accidents because you can hear the car Easier maintenance in case of defects More experienced technology Larger choice Options of bi fuel
Disadvantages	More electricity needed so the costs will rise Charging takes too much time Not enough charging points Electricity is produced at nuclear power plants by burning fossil fuels Short range Small choice of them Raw materials needed for batteries, like lithium, are mined in 3rd world countries (environmentally unfriendly) Cost expensive to buy	Fossil fueled Noisy More difficult implication of autonomous driving “Closed loop” outsourced technology that doesn’t leave much room for new



The future of car manufacturing (what does the future hold for the Automotive industry?)

- More resistant and lighter materials
- Introducing to a process superior to Industry 4.0
- More use of Artificial Intelligence
- Sensors to provide more flexibility
- Less manpower and more technicians
- A lot quicker
- More software, more simulation, more efficiency
- More investment in R&D: a bridge between designing and producing is filled by Artificial Intelligence (no more need for meticulous manual PLCs)

How is your dream car?



- Economic, Light weight and durable
- Safe, with car assistance and powerful
- Comfortable, cheap and zero emission
- Aerodynamic (flying cars but interconnected for safety reasons)
- High range, fast, good acceleration
- Good grip, strong and 4x4
- Easy and fast to fuel up, solar energy and the possibility of self-driving
- Electric, light and colorful
- Automatic with a manual option
- Automatic snow chains change

4 FINAL MIND-MAP

Until next year!