AI: Perspectives from the Point of View of an ICT Services Company

Data Science in Fundamental Physics and its bridge to industry & society

Pablo Méndez Llatas
Director of AI Department

Data Analytics & AI

Table of Contents

01

Altia *Overview*

Creating value. Sharing talent

Altia overview: **the big numbers**

Digital Group with a global vision

At Altia, we provide **future-proof digital solutions** that deliver real value and create meaningful change.

We are driven by a clear purpose: to **grow by spurring growth**, and to do so in a sustainable and long-lasting way. We know we will only remain relevant if we make a **positive impact** and **progress together**.

Our **international team** have been pouring their energy into truly relevant projects since 1994, bringing their innovative vision of technology.

3,500
People

+900
Global clients

30
Years of experience

+25
Locations

4
Data Centers

9
Countries

241
MN€ / Turnover for 2023

BME Growth
Altia is listed **on BME Growth**.
It is part of the IBEX Growth Market® All Share.

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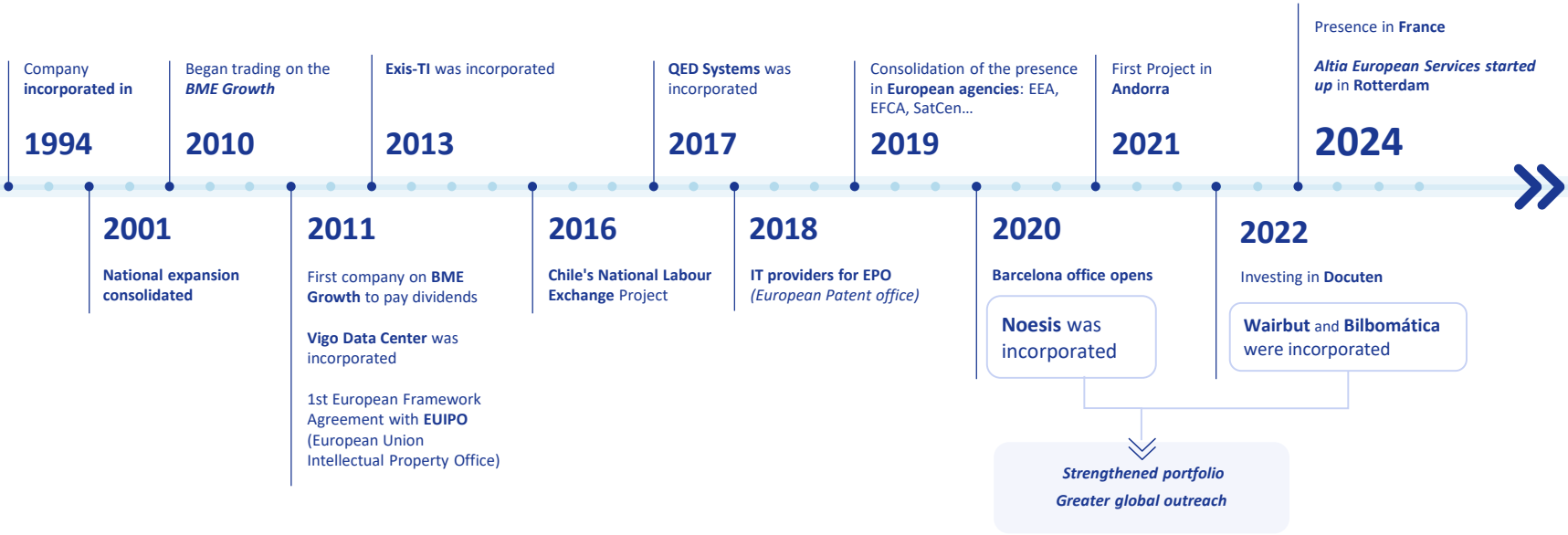
noesis an Altia Company
bilbomática an Altia Company
wairbut an Altia Company

Altia overview: **history**

Revolutionising technology since 1994



Services & Solutions

Creating value, re-imagining everything

With **continued growth** based on a broad range of products and services with an **end-to-end focus**, combined with a dedication to service, a passion for innovation and a **commitment** to our customers.

LINES OF BUSINESS

Consulting
Outsourcing
Hardware & Software
Development and Integration
Innovative products

FOCUS CAPABILITIES

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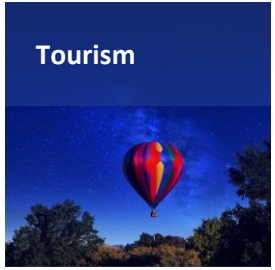
Altia's vision

Industries

We design strategies to meet market needs in all business areas.

With a transforming vision based on client specific business goals, we develop new formulas to face the digital revolution.



Global clients

Technological partners

We work with different manufacturers and technologies to adapt to the our clients' needs.

Focus on quality

We see **quality and continuous improvement** as a differentiating and valuable component.

A **commitment** that has a direct impact on customer satisfaction.

A **continuous effort**. Necessary to achieve a more efficient and productive company, with the ability to resolve situations and learn from experience.

ISO 9001

ISO 14001

ISO/IEC 20000

UNE-EN ISO 22301

ISO/IEC 27001

ISO/IEC 27017

UNE-EN ISO/IEC 27018

ISO/IEC 330000 Software Process Improvement Capability Determination *(Level 3)*

CMMI Development *(Maturity Level 3)*

ENI - National Interoperability Scheme

ENS - National Security Scheme *(Medium and High category)*

SAP® Certified in Hosting Operations

SAP® Certified in Cloud And Infrastructure Operations

SAP® Certified in SAP HANA® Operations

02

AI techniques and knowledge

Different customers means **different needs**

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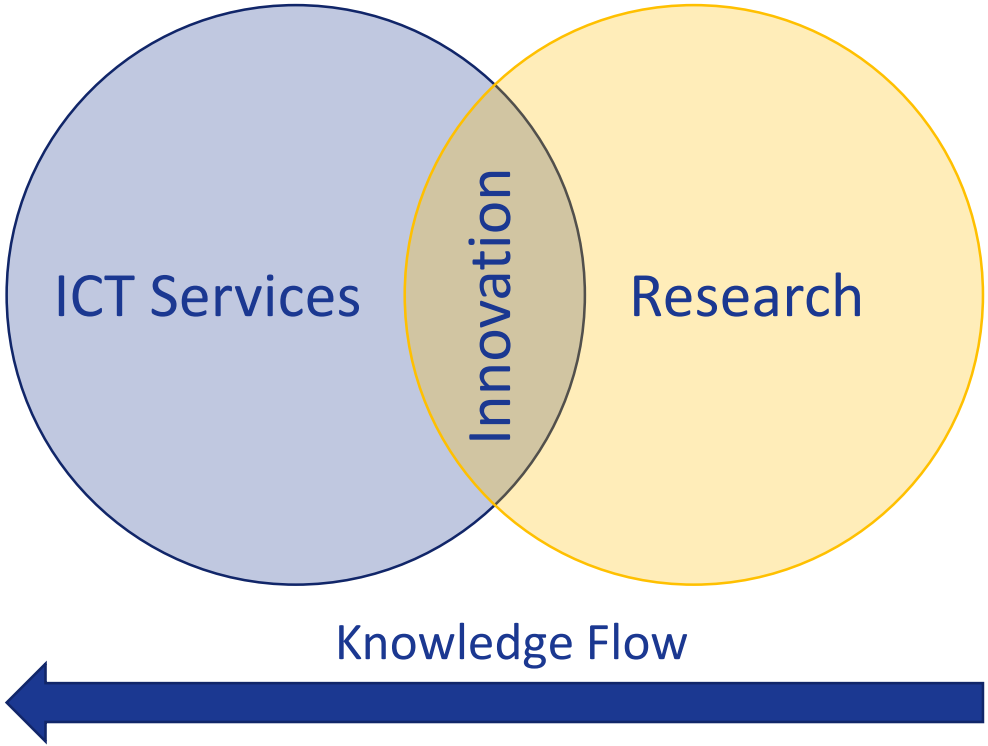
Statement



Techniques and knowledge: **personalized focus**

Each case is different

Different **business**

- ✓ Energy
- ✓ Pharma
- ✓ Public Services
- ✓ Food/Beverage
- ✓ Insurance
- ✓ Health
- ✓ Professional Services

Different **data maturity**

- ✓ No rules
- ✓ Standardization
- ✓ Integrated
- ✓ Centralized
- ✓ Shared
- ✓ Governed
- ✓ Data Driven

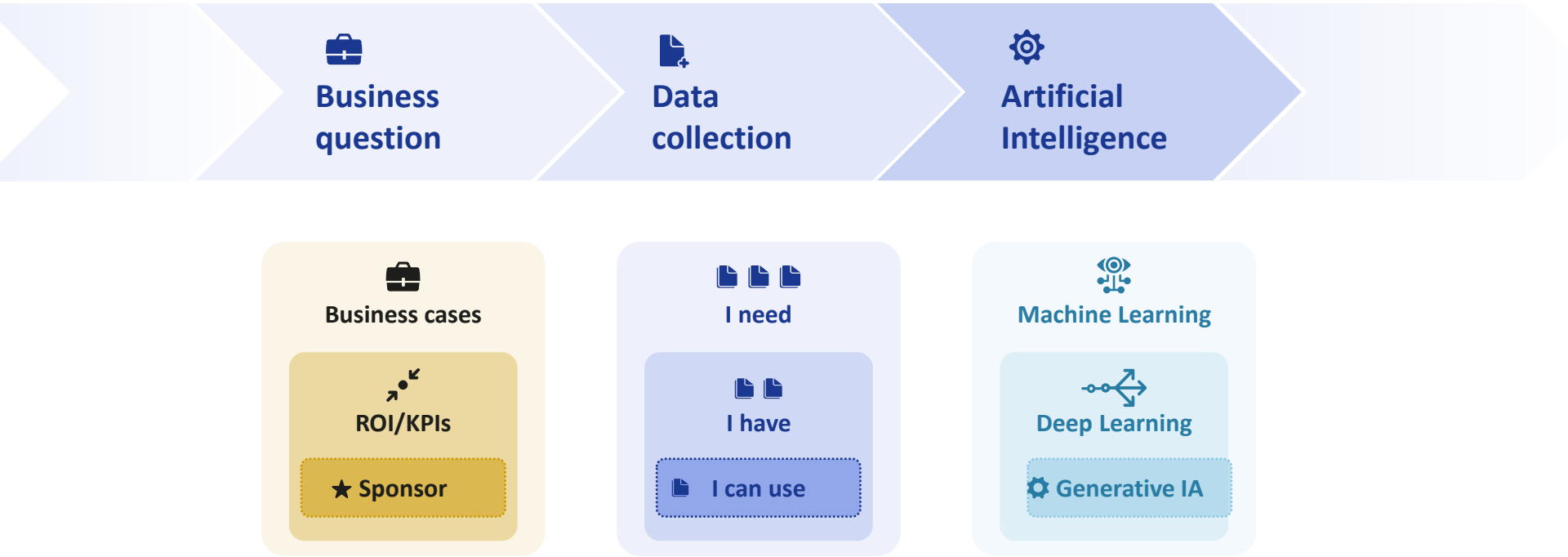
Different **culture**

- ✓ On prem/Public Cloud/Hybrid
- ✓ Multi-cloud
- ✓ Open Sourced/Licensed
- ✓ Managing/Managed
- ✓ IaaS/PaaS/SaaS
- ✓ DevOps/MLOps/DataOps
- ✓ Settled/Migrating

Different **needs**

- ✓ Querying/Descriptive
- ✓ Predictive
- ✓ Reporting/Dashboards
- ✓ AIaaS/Specific AI
- ✓ Unsupervised/Supervised
- ✓ Reinforced
- ✓ NLP/Computer Vision/Audio
- ✓ Classification/Regression
- ✓ Anomaly detection
- ✓ Chatbot
- ✓ Generative
- ✓ and more…

Anatomy of an AI Project



Before considering AI…

Usually data change

Society/costumers change, so do your data

Your **data** sources may **improve**

Your **data** share may **augment**

So, **performance** may **decrease or could increase**

Consider **later costs**:
- **Data engineering maintenance**
- **IA Maintenance**: retraining, MLOps

Specific AI risks

Your **business data is unique**

Your **need may be unique**

Your **data may be biased**

Any way, your **AA-AI project is innovative** nowadays

"Science", in "Data Science", is not there by chance

Upfront performance to attain, in many cases and within **temporal bounds**, is just mostly unknown

Our advice

Start with a **problem that seems simple** to you, but **with a clear expected benefit** for your business. **Untangle the complexity**.

In terms of your use case, you should be open to experimentation and the **science life cycle**:
experiment-evaluate-improve-experiment-evaluate-improve…

Measure the tangible benefits after deployment.

Keep going simple, as long as you can do so.

Techniques and knowledge: **how we can help**

Services we provide

Data Strategy

Define the next data maturity step

- Understand your As-is
- Envision the To-be scenario
- Propose a next step
- Design the next step
- Make a plan adapted for your needs and capabilities

Data architecture

Implement your data next step

- Understand your culture and current data implementation
- Select the pieces that best fits on it
- Make a plan adapted for your culture and needs
- Data Engineering design
- Implement
- Operate

AA&AI Development

Implement your AA-IA use case

- Understand your business and needs
- Assess the data needed
- Study nearest SOTA/viable solution
- Make a plan
- Make a PoC if possible
- Implement the plan
- Operationalize (DataOps/MLOps)

Cloud migration & operation

Move to the public cloud

- Understand your business timings
- Assess the migration scope
- Assess the migration steps
- Make the migration plan
- Migrate as planned
- Operate

Capacity services

Elastic talent provision

- Capture your professional needs
- Study our profile proposals
- Make a plan
- Integrate on your teams
- The talent you need, the time you need

Methodology we use

No cost for you

- Know your business
- Know your needs
- Know your culture
- Know your data

No cost for you

- Study sample data
- Study solution
- Make a proposal
- Refine with you
- Make a plan P-3

Depends on PoC

- **Recommended**
- **Not always possible:**
  - ✓Define & build a PoC
  - ✓Evaluate results
  - ✓Decide if keep going
  - ✓Make a plan P-3B

- If you want to keep on
- Execute plan P-3B
- Agile development
- Evaluate
- Put into operation
- Shadow escorting

- Operate a solution
- Support service

Timing we expect

Phase 1	Phase 2	Phase 3-A	Phase 3-B	Phase 4
Know you	**Proposal**	**PoC**	**End-End**	**Operate**
Hours	**Weeks**	**Months**	**Months**	**Final**
5	3	6	12	
3	2	3	6	
2	1	1	3	

Main AA&AI tools we use

03

Real examples

Some challenges **we work(ed) on**

Highlighted collaborations

EUIPO
EUROPEAN UNION INTELLECTUAL PROPERTY OFFICE

Lanbide
Euskal Enplegu Zerbitzua
Servicio Vasco de Empleo

Departamento de Seguridad

SANDOZ
a Novartis company

中粮 COFCO

McDonald's

European Environment Agency

amtega

Estrella Galicia

GOBIERNO DE ESPAÑA
VICEPRESIDENCIA PRIMERA DEL GOBIERNO
MINISTERIO DE ASUNTOS ECONÓMICOS Y TRANSFORMACIÓN DIGITAL

Morgan Lewis 150 YEARS

04

Insights into future trends

What we expect in the near future

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Future trends

THE TEXAS TRIBUNE

Texas will use computers to grade written answers on this year's STAAR tests

> The state will save more than $15 million by using technology similar to ChatGPT to give initial scores, reducing the number of human graders needed. The decision caught some educators by surprise.

GENBETA

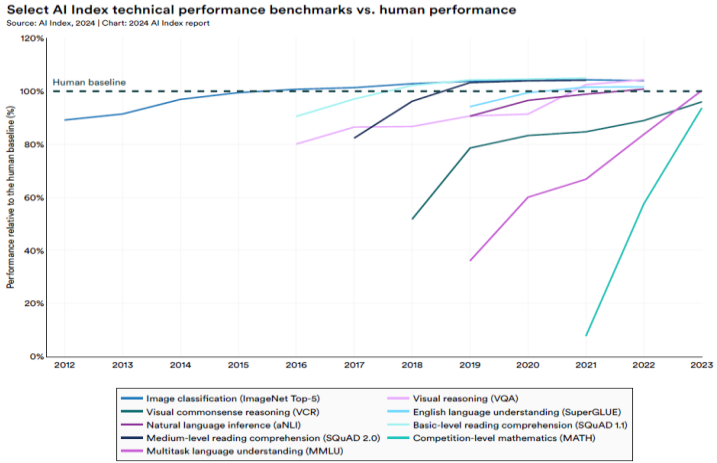
Un sobresaliente en tiempo récord gracias a ChatGPT: este estudiante sacó un 9,4 estudiando solo tres días

El usuario, quien documentó todo lo que hizo en el foro de Reddit, aseguró **no haber atendido nunca a clases de inglés** debido a problemas personales y acabó en la situación de estar a tres días antes de su examen. Si bien lo daba por perdido, se le ocurrió hacer uso de ChatGPT para conocer si podía sacarlo adelante.

Artificial Intelligence Index

Stanford University Human-Centered Artificial Intelligence

2. Industry continues to dominate frontier AI research.
3. Frontier models get way more expensive.
5. Robust and standardized evaluations for LLM responsibility are seriously lacking.
6. Generative AI investment skyrockets.
7. The data is in: AI makes workers more productive and leads to higher quality work.



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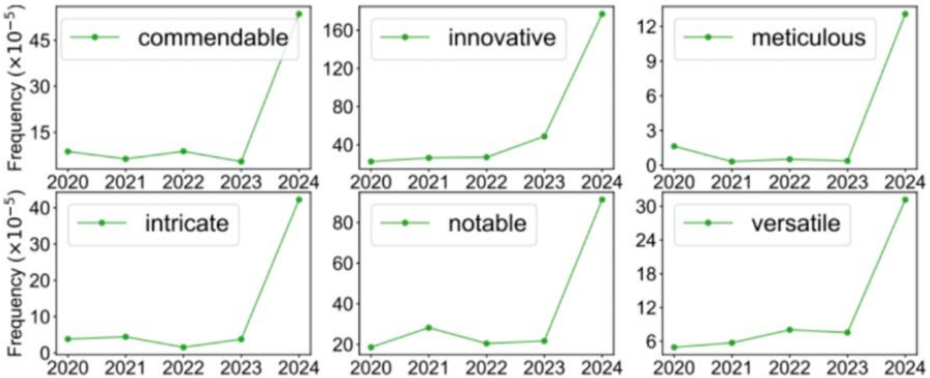
Future trends

How Much Research Is Being Written by Large Language Models?



Monitoring AI-Modified Content at Scale: ACase Study on the Impact of ChatGPT on AI Conference Peer Reviews, Y. Zou et al., arXiv:2404.01268 [cs.CL]

In two papers looking at LLM use in scientific publishings, Zou and his team* found that 17.5% of computer science papers and 16.9% of peer review text had at least some content drafted by AI. The paper on LLM usage in peer reviews will be presented at the International Conference on Machine Learning.

Human-Centered Artificial Intelligence (HAI), Standford University

Future trends

1. We are not yet in a thermodynamic equilibrium state with respect to LMs
2. All of us are going to work with AI LMs assisted integrated on all sort of products within few years (if we are not already using it nowadays)
3. Personalized AI needs are going to decrease, given the power of LMs
4. Models are going to decrease in size at inference time, and so in costs terms
5. In general, no deep AI knowledge will be needed, but some training does
6. Technology dependence on foreign technology is a real threat
7. Academia will need resources and collaboration to be on the wave

Thank you!

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Data Analytics & AI

Providing knowledge and value to the business decisions

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