

11. Innovation

OPEN INNOVATION CULTURE

→ Management of innovation proposals

TECHNOLOGICAL PROJECTS

→ Cybersecurity

Open innovation culture

CHALLENGES

- Continue creating and spreading the innovative culture in the company, involving all areas of the company.
- Promote the open innovation strategy by cooperating with agents external to the organisation in order to accelerate the internal innovation process.

AIMS 2018

- Call for the 2nd Edition of the INNOVA Awards.
- Training for employees in innovative agile methodologies and digitisation.
- Development of the organisation's digital cultural transformation.
- Promotion of open innovation.

MEASURES AND MANAGEMENT

- Involvement of all business units and airports in the deployment of the company's innovation strategy.
- System of ideas management to incorporate the expert knowledge of employees.
- Cooperation with partners, entities and organisations in the field of innovation.
- Innovation through large suppliers and *startups*.

PROGRESS IN SDG



- Participation in national and international projects with different institutions.
- Participation in five work groups to promote innovation in companies.

PERSPECTIVES AND FUTURE OUTLOOK

Develop the 'Smart Airport', within the connected city.

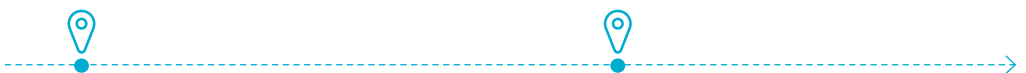
Accelerate the innovation process through newly created companies with innovative disruptive ideas.

Maintenance of our national and international leadership in the sector through new digital solutions and innovative technologies.

MAIN MILESTONES 2018

Resolution and delivery of the 1st Edition of the INNOVA Awards with three categories: Best innovative idea, Best idea to solve a challenge and Best practice already implemented.

Participate in the Innovation Plan for Transport and Infrastructure of the Ministry of Public Works, leading five initiatives and participating in another 33.



Results 2018

+100

innovative ideas received by employees.

53

people trained in innovation techniques.

8

newsletters with internal and external innovation news.



Your opinion matters

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Abbreviations and acronyms

Technological Projects

CHALLENGES

- ✔ Improve the passenger's experience as they pass through the airport.
- ✔ Compliance with high levels of quality of service.
- ✔ Incorporate actions of sustainable innovation in our management.

AIMS 2018

- ✔ Digital transformation strategy.
- ✔ R+D+i projects in collaboration with European consortiums.
- ✔ Definition of the biometric technology pilot project.

MEASURES AND MANAGEMENT

- ✔ Innovation strategy aligned with in-house strategy.
- ✔ Coordination of actions through the Innovation Management Group (R&D+i), across the entire organisation.
- ✔ Profitability guidelines and assumable risk.
- ✔ Close collaboration with partners and organisations in the sector, auxiliary industry, reference institutions and other administration bodies in the field of innovation.
- ✔ System to verify through real trial-error the theoretical expositions and identify the most relevant variables together with professionals of the R&D+i sector.
- ✔ Two cross-cutting working groups to develop new technological applications in the field of drones (RPAS) and optimise security processes (security control, passports, etc.) and implementation of BIM methodology (Building Information Modelling).

PROGRESS IN SDG



- ✔ Installation of high resolution panoramic cameras to visualise different areas of the flight field.
- ✔ DORA Project, to facilitate the connection without disruption of air transport of passengers with land transport.
- ✔ Expansion of technological and operational capabilities in cybersecurity.

PERSPECTIVES AND FUTURE OUTLOOK

Finding solutions and innovative practices that allow Aena to continue to remain at the forefront in the global market, favouring thus our leadership position.

Improvement of the passenger experience through the digital transformation of the services offered and the new technologies.

Strategic plan and BIM implementation. BIM integration pilot project in T3 of the Madrid-Barajas Airport Adolfo Suárez.

Implementation of biometric technology and validation without a ticket to streamline controls at the airport.

Development of the Airport 4.0.

MAIN MILESTONES 2018

Verification and calibration of PAPI systems through RPAs (remotely piloted aircraft).



Design of the Implementation Plan of BIM in Aena.



Results 2018

7 €M

assigned to R&D+i.

Aena at the technological forefront of the airport sector.

Training of a BIM - GIS laboratory.



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Abbreviations and acronyms

OPEN INNOVATION CULTURE

Aena promotes innovation as a lever for the sustainable development of its activity and the commitment of the organisation with its different stakeholders (including customers, suppliers and employees), encouraging innovative activities aimed at improving new processes, products and services that contribute to its national and international leadership in the airport sector.

In a constantly changing environment, such as the air transport sector, competing organisations develop and offer new services, customers demand novelties and suppliers offer new products.

In this scenario, innovation is presented as a synonym for differentiation and growth, and Aena, as a company that always tries to advance in the continuous improvement of its processes, has been incorporating new technologies throughout its history, which have made it a pioneer in many areas.

The involvement and coordination of all the units is fundamental for the internal management of R&D&i. Aena's Innovation Management Group, which cuts across the entire organisation, is made up of representatives from almost all areas of the company and, together with the Innovation Area, is responsible for spreading the innovation strategy throughout the company.

An organisation that learns and innovates is an organisation that listens to the talent of all its workers, so that their knowledge allows them to create new processes, products and services.

With this objective, a few years ago, the INNOVA platform was launched through the intranet, a portal through which Aena employees can contribute innovative ideas or good practices that have been applied or are likely to be developed in the near future in the workplace. To value this initiative, the 2nd INNOVA Awards competition was organised in 2018, where these contributions were awarded in three categories:

- Innovative ideas.
- Ideas to solve a specific challenge proposed by the organisation.
- Good practices already implemented in the company.

Innovation at Aena



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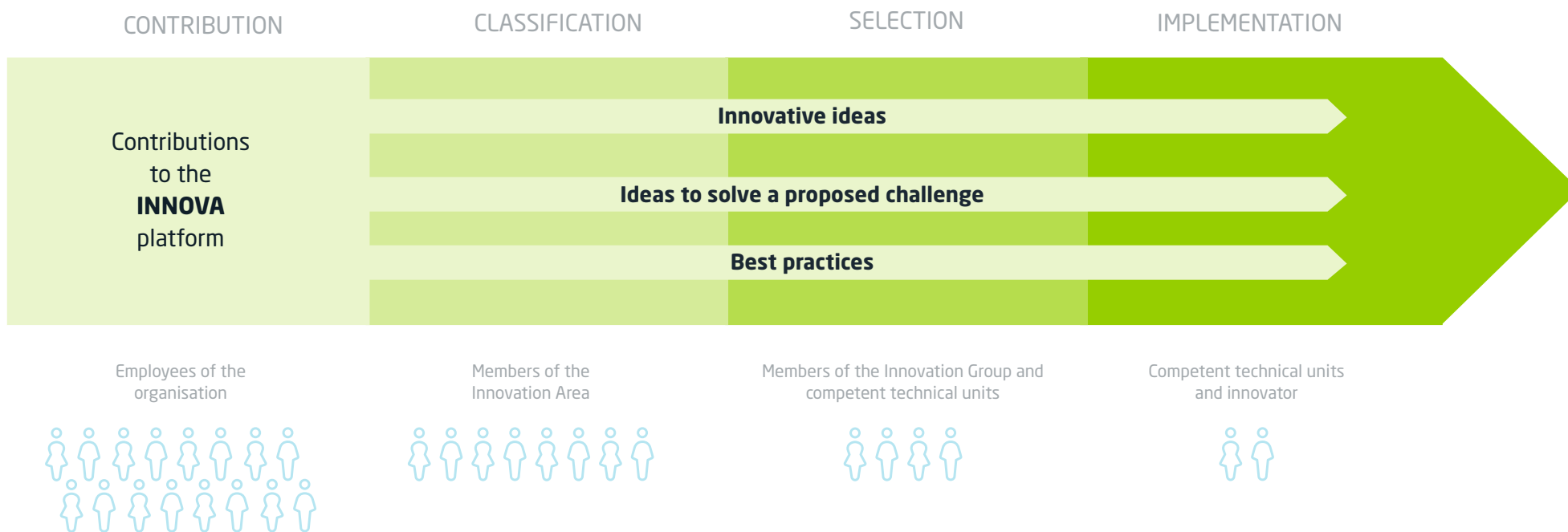


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Abbreviations and acronyms

INNOVA Awards



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Management of innovation proposals



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TECHNOLOGICAL PROJECTS

The investment effort made this year, together with the expert knowledge of Aena's employees, has allowed the undertaking of numerous projects in different fields.

The quality of the service, safety, productivity, environmental protection, planning, infrastructure development and optimisation of the management and operations processes were some of the fields in which an investment of €7 million was made in 2018.

Aena advertises the participation of companies and individuals to test new technologies and processes at its airports on its website, in order to find innovative solutions and alternatives for airport business lines.

The purpose of these tests is to verify that the proposed technologies and processes provide innovative solutions and are prone to development in a useful way within the airport environment. Anyone interested can direct their proposal to innova@aena.es.

INNOVATION PROJECTS

PROJECT	CONTRIBUTION TO STRATEGY FOR THE COMPANY	DESCRIPTION
A-CDM system	Improvement of punctuality and predictability in departures.	Aena forms part of the European SESAR programme, whose purpose is to ensure the modernisation of the European air traffic management (ATM) system. The 'Airport Collaborative Decision Making' system (A-CDM) consists in the collaboration between the different parties involved in the process of rotation of an aircraft at airports, i.e. between ATC, air companies, handling agents and airport operator. Currently, it has been implemented in the transcendental processes of the main airports and work is being done to extend it to other processes and adapt it to medium and small sized airports, with emphasis also on: <ul style="list-style-type: none"> • PRM processes and departure baggage. • Greater automation and sophistication that allows CDM procedures to be simpler for the actors involved, especially for handling, while achieving important improvements in the management of the scale.
Control system and monitoring of aeronautical lights	Improvement in maintenance management. Reduction in repair response time.	System that allows the monitoring and individual control of visual aids installed in the field of flights to facilitate repair and inventory of them at the Palma de Mallorca Airport.



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Abbreviations and acronyms

Effort in R+D+i projects

7 €M



1.39%

investment in R+D+i / Total investment Executed in Aena.

INNOVATION PROJECTS		
PROJECT	CONTRIBUTION TO THE STRATEGY OF THE COMPANY	DESCRIPTION
Panoramic camera system	Improved security and airport control	Installation of high resolution panoramic cameras to visualise different areas of the flight field.
Management of passenger flows	Improvement of airport control and passenger experience	Measurement of how long it takes for passengers to get through as part of the management of passenger flows at different points of the terminal.
Application development and maintenance service	Improvement to entrepreneurial management	Evolutionary developments of commercial applications such as: Web of reservations in the cloud, analysis of pricing, payment by registration.
Online auction	Improvements in procurement management.	According to the provisions of Law 31/2007 and Law 9/2017 on Public Sector Contracts, an electronic auction may be held for the purpose of awarding the contract, which takes place after a first full evaluation of the bids, for the submission of improvements in prices, based on an electronic device through automatic evaluation methods.
Electronic platform for the submission of bids	Improvements in procurement management.	In accordance with the provisions of Law 9/2017 on Public Sector Contracts, a platform has been developed and implemented that allows bidders to submit their bids by electronic means.
Mini-wind turbine in self-consumption at Valencia Airport.	Improvement in environmental aspects.	Pilot project that aims to reduce greenhouse gas emissions and increase the use of renewable energies. Seeking out synergies with photovoltaic technology projects in order to maximise energy production.
AlgaEnergy	Improvement in environmental aspects.	Collaboration project between Aena and AlgaEnergy, in order to promote research into the generation of biofuel from microalgae, by transferring the necessary land for the location of a Technological Platform for Experimentation.
Photovoltaic solar plants in self-consumption in Canarian airports	Improvement in environmental aspects.	Installation and start-up of photovoltaic solar plants in self-consumption in the Canarian airports.
DORA	Improving passenger experiences.	R&D project, within the Horizon 2020 programme, whose objective is the use of technology to facilitate the connection without disruption of air transport of passengers with land transport and, specifically, 'the development of technology that supports operators and users of air travel in Europe', including information services, with the distinctive feature of also considering the travel segments to and from airports.
BIM	Improvement in the management of information processing.	Development of methodology for the implementation of 'Building Information Modelling' (BIM) in airports and pilot test in terminal T3 of Adolfo Suarez Madrid Barajas Airport.
PAPI drones	Improvement in maintenance management.	Use of drones to calibrate PAPI lights in airports.



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Abbreviations and acronyms

A-CDM system



Aena App



Aena Recruitment Portal



R&D+i tests carried out



Telematics service portal



Cybersecurity

Aena is exposed to a series of threats associated with the massive use of information and communications systems, which support the vast majority of its business processes. Aware of the risks associated with the potential materialisation of these threats, Aena has a thorough Cybersecurity Plan, approved by the Board of Directors, to adequately manage these risks. This plan includes a continuous improvement process and a complete programme to

increase defensive capabilities (awareness, training, technological resources, intelligence capabilities, etc.).

Although this year there was no information security incident with a relevant impact on the business, Aena is already taking measures and continuously improving the response capabilities (organisational, real time, procedures, collaborations, etc.). In 2018, the technological and operational capacities were

expanded in line with the continuous evolution of threats and risks, in order to guarantee that the residual risk remained at an acceptable level.



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incidents of information security with a relevant impact on the business



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