



PROGRESS REPORT



SUMMARY OF THE ONGOING AND PLANNED ACTIVITIES
UNDER THE INCODE.2030 INITIATIVE

PRESENTED AT THE
2ND CONFERENCE OF THE PERMANENT FORUM
FOR DIGITAL COMPETENCES

INTRODUCTION

We live today in a world that has been completely transformed by the digital over the last 15 years. The mobile phone began to change the way we communicate and from being a simple portable communication device, it has become something we use to take photographs and make films, to send and receive messages, to watch videos or the television itself, to listen to the radio or navigate the net, to know where we are and how we can go elsewhere, to have video conversations and, sometimes, even make phone calls.

About 2 million smartphones are sold daily in the world; close to 3.5 billion people actively use the internet, but even so, it is only half the world.

Yet, if we think that the industrial revolution has taken a long time to reach certain regions of the world - and in some regions it really never arrived - digital communications acquired an enormous standing in the most diverse parts of the world. In Africa, for instance, about one third of the population has a mobile phone. Tools such as M-Pesa (which allows the transfer of money by mobile phone) or M-Farm (which guarantees a permanent price information for harvests and changed the way business are done in certain parts of Africa), produced great positive impact.

E-commerce has been changing the way we buy things or how we sell them second-hand; in the industry, not only are prototypes replaced by the so-called "digital twins", which take much less time and less money to test new systems, but when it is necessary to replace a part, somewhere far away, sending (almost instantaneously) a file and using a 3D printer will solve the problem; and when we make a phone call looking for help for some problem, on the other side who will respond will be a computer - which already happens today, much more than we realize or imagine - and the answers will be more elaborate and will replace much of the current human intervention; cars will be electric, extending the sustainability of our planet and resorting to artificial intelligence to a large extent - they will be autonomous and probably much safer than when conducted by humans.

However, at the same time, advertising has largely passed on to companies in the digital world, challenging newspapers and television, whose role of proximity is still essential; in media companies, or software, the marginal costs of production are so much lower than the initial costs that the entry of new competitors is difficult and large firms are increasingly dominant; and artificial intelligence whose positive role can be fantastic is also the fundamental tool for manipulating information on social networks and having a decisive influence on individual choices, from what we buy to the politicians we choose.

The world will probably be better but also more complex and more dangerous; only a well prepared and informed population, able to understand the environment in which it moves, will be able to protect itself and take advantage of the emerging opportunities.

It is within this main objective that INCoDe.2030 is being tailored: fighting exclusion and digital illiteracy; helping to train young people in their educational process, not only for the use of technology but also for their ability to understand and solve problems; empowering and qualifying the active population that, due to age or inadequate training, has difficulty in entering the current labour market; through higher education, specialising professionals capable of being key players in these areas; and, finally, creating the conditions for the country to be an active partner of the international scientific community, innovating and producing the knowledge that will help create our collective future.

Pedro Guedes Oliveira

INCoDe.2030 Global Coordinator

THE NATIONAL INITIATIVE FOR DIGITAL COMPETENCES e.2030 (INCoDe.2030)

The National Initiative for Digital Competencies e.2030 (INCoDe.2030, in the Portuguese acronym) was publicly launched at the beginning of 2017. However, its actual and formal start was due this year through the Resolution of the Council of Ministers 46/2018 of February 13, 2018 and also because at the 2017 Forum Conference the emphasis was more in presenting the initiative than in the report on the activity carried out. This progress report gives an account of all the work done so far, advancing also some other activities that are in preparation.

INCoDe.2030, in its current format, is not exactly a program in the conventional sense. It is more an agenda (or a mission) that seeks to motivate a vast group of public and private partners, build or activate networks, with a view to improving the country's situation with respect to Digital, namely by fostering skills and conditions of access and work as well as specialised training and research in advanced areas.

Given the considerable amplitude of the domains involved, INCoDe.2030 is organized into 5 action lines: inclusion, education, qualification, specialization and research. Each of these action lines has a coordinating team, both for promoting the actions that are within its scope and for reporting what has been accomplished. Thus, the following succinct presentation is separated by action lines and refers to other documents for a more detailed description of these same activities.

Another consequence of the amplitude of the 5 action lines is the diverse nature of the target groups for each action, as well as the specificities of these actions. However, aspects that currently will appear to be unconjugated will converge to produce positive overall results. Indeed,

- greater literacy and digital autonomy of currently excluded populations will increase access and use of the network and improve the willingness and adhesion to dematerialized access solutions offered by both the Public Administration and private entities;
- a more complete learning of ICT by the young population will foster a new wave of entrepreneurship, as well as a more qualified workforce and, simultaneously, a greater contingent of professionals specialized in these areas;
- a greater qualification of the active population, in the digital areas, will enable a more competitive industry and a more efficient public administration;
- a skilled workforce with higher education will not only feed the research and innovation centres, but will also be instrumental in providing advanced solutions for the most diverse areas, from health and agriculture, from traditional industry to advanced services.

It should be noted, finally, that what is described is only what arises from the activity framed by the general coordination and the action lines, stressing that there are many and very relevant activities left out, which are promoted by the most varied instances - from universities to companies and business associations, centres of research and other entities. INCoDe.2030 can only be satisfied if its action contributes to stimulating and giving meaning to what other entities are carrying out. Its effect will be felt in the global indicators that, throughout 2019, will be collected and disseminated by the National Observatory of Digital Competencies.

Action Line 1 1: INCLUSION

CREATIVE COMMUNITIES FOR DIGITAL INCLUSION (CCID)

1. Development of action models for digital inclusion (ongoing)

- Model 1. Municipal Plans
Pilot: Development of the Municipal Plan for the Digital Competence of Santo Tirso.
Model transfer: Municipal Plan for the Digital Competence of the Municipality of Alfândega da Fé
- Model 2. Itinerant
Pilot: Municipality of Amares
Model transfer: Albergaria-a-Velha
- Model 3. Intergenerational
Pilot: Municipality of Barcelos
Model transfer: Albergaria-a-Velha
- Model 4. Incubators of digital inclusion initiatives
Pilot: Dr. António Cupertino de Miranda Foundation
Model transfer: Metropolitan Plan for Digital Inclusion Metropolitan Area of Porto: 16 municipalities
Model transfer: Plan for Digital Inclusion of the Polytechnic Institute of Viseu
- Model 5. Networks
Integrating the digital inclusion component into existing Networks
Pilot: Intergenerational Project of Digital Inclusion with the Polytechnic Institute of Viseu's library network.

2. Other Projects in preparation:

- Digital inclusion project for Roma women
Pilot: Barcelos
- Awareness program: Digital Agriculture and Digital Training for a more efficient use of resources.
Pilot: Agrarian School of the Polytechnic Institute of Viseu
- Intergenerational Bootcamp for digital inclusion Project
Pilot: Vouzela
- CIM Coimbra - Digital Competencies, young entrepreneurship and gender
Activator: Intermunicipal Community of Coimbra
- International CCID
Pilot: Portuguese Community in Brussels
- Project Polytechnic Institute of Porto and Municipality of Felgueiras
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3. Mentorship INCoDe.2030 for Digital Inclusion

Technical people from municipalities, CCID mentors and people from local institutions

- Mentoring Training Course for the Digital Inclusion of Vulnerable, certified and accreditation population in b.learning mode
- Development of "Mentoria Júnior" workshops for digital inclusion

4. Development of instruments

- Instruments for diagnosis, monitoring and "impact measurement" (ongoing)
- Pedagogical Digital platform for diagnosis and self-diagnosis of digital skills for vulnerable groups (in preparation)
- Development of a platform for people with special needs (in preparation)

ACTION PLAN "CLOSING THE GENDER GAP IN DIGITAL TECHNOLOGIES" 2030 Agenda, MCTES & European Commission (EC)

1. An action plan has been drawn up for consideration by the EC

2. Under development:

- Pilot in Viseu - City Hall, IPV, ViseuTechCoopet
- Project with psychologists in the area of career guidance - FPCEUP
- Preparation of the *Closing the Gender Gap in Digital Technologies* International Meeting

CONSULTING

Consulting and follow-up of applications under various funding lines or other initiatives. (e.g., Portugal Social Innovation, Teach for All)

CREATIVE COMMUNITIES FOR DIGITAL INCLUSION *in numbers*

- 10 Creative Communities for Digital Inclusion already on the ground
- 5 Different action models
 - 4 cases of expansion / transfer of models for new contexts
 - 5 new models in preparation
- 750 direct beneficiaries
- 40 Mentors
 - 22 Mentors with training
- 3 Analysis Instruments already produced
- 4 training plans already prepared
 - Training for certified mentoring
 - workshops for junior mentoring - *Minimentors*
 - Workshop for digital inclusion awareness
 - Training for the digital inclusion of teachers
- 6 training actions (under direct responsibility of the coordination)
 - 3 CIM
 - AMP
 - CCDI Barcelos
 - CCDI Santo Tirso
- Preparation and follow-up on-site visits by the coordination
 - average of 3 follow-up visits by context
- Human resources used
 - Coordination
 - context's staff
 - Mentors
 - Master's student in Educational Sciences.

Action line 2: EDUCATION

1. Extension of ICT in basic education curricula

- The ICT discipline was integrated in the curricula of the schools participating in the Curriculum Autonomy and Flexibility Project. 223 schools participated in this project;
- Following the above-mentioned project, the ICT discipline was integrated into the curricular matrices of all the years of basic education, applying to all schools;
- The corresponding Essential Learning was elaborated, by year of schooling, from the 5th to the 9th grade;
- In the case of the 1st cycle, because it is an area of transversal curricular integration, boosted by the globalizing dimension of teaching in this cycle, Curricular Guidelines were produced.

2. Development of digital educational resources

- They are in the initial stage of preparation, for the whole 1st cycle, in the disciplinary areas of mathematics, Portuguese and science;
- Diverse educational resources on digital citizenship are also being developed at an early stage.
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3. In-service Teacher training (basic and secondary education)

a) Short-term Training Actions

- Collaborative work and digital citizenship, among other topics - over 1000 teachers participated;
- Learning Laboratories: 84 formative actions, involving 1796 teachers;
- Regional events of the "Programming and Robotics in Basic Education" initiative: 5 events were held in the Mainland and Islands, involving around 500 teachers.

b) MOOC (Massive Open Online Course) in the following areas:

- Collaborative work in eTwinning: two editions, a total of 1690 teachers, having completed 428;
- Learning scenarios and stories: three editions, a total of 2671 teachers, having completed 616;

- Project of Curricular Autonomy and Flexibility: two editions, a total of 6426 trainees, having completed 1510.

Under development:

- Curricular Guidelines for ICT in the 1st CEB, for teachers of this cycle;
- Bullying and cyberbullying, intended for all educational agents;
- Cyber security, involving security forces.

c) Training workshops:

- "Introduction to Programming in Basic Education - training trainers" - 3 classes involving 60 teachers.
- "Learning laboratories: scenarios and learning stories" - 7 classes involving 108 teachers from the Mainland and Islands;
- "Active Learning Strategies using ICT" - 6 classes involving 80 teachers;
- "Collaborative work in eTwinning" - 3 classes involving 220 teachers.

d) Other:

- The "Programming and Robotics in Basic Education" initiative in the 2017/2018 school year developed a set of training activities (trainers training and teacher training):
 - 5 regional events in the Continent and Islands, involving about 500 teachers
 - 8 national online monitoring conferences (webcasts)
 - Final Event of the Project

This initiative was supported by the following partners: Microsoft, ANPRI, CCTIC of the University of Évora, CCTIC of ESE of Setúbal and CCTIC of the Institute of Education of the University of Lisbon.

- On 12 topics related to the Autonomy and Flexibility Curricular project were carried out 12 webinars;
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4. Promotion and dissemination of programming, robotics and digital literacy

- Promotion and dynamization of Programming and Robotics Clubs in schools - 191, in this school year, covering 10,993 students;
- Project "Programming and Robotics in Basic Education". In 2017/18 there were 260 Portuguese School Groups, 74 private schools, 13 schools in the Autonomous Region of Madeira and 3 schools in the Autonomous Region of the Azores, the Portuguese School of Macau and the Portuguese School of São Tomé and Príncipe, involving 1155 teachers and 64692 students;
- The pilot project UAC! - Using Arduino in the Classroom, developed in partnership with the TIC Competence Center Between Mar and Serra;
- The DGE joined the European Week of Programming (Code Week) promoted by the European Commission through the event "Programming and Robotics 2018", which took place on 19 and 20 October, involving about 90 teachers.
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5. Digital inclusion for special needs in education and in-service training

- There are 25 resource centers in mainland Portugal. The autonomous regions operate under the respective Regional Secretariats of Education;
- In Continental Portugal, 981 students were evaluated and 719 were supported;
- A total of 1109 training hours were given to a diverse audience of 162 parents, 956 students, 129 auxiliaries, 255 technicians / therapists and 2547 teachers;
- MOOC for teachers on Inclusive Education - in testing phase, to begin in January 2019.

6. Pilot experiences and joint work on the integration of ICT in teaching and learning processes, along with schools, municipalities, the Ministry of Education, higher education institutions and companies

- 10 ICT Competence Centers - CCIC under protocols established with the Ministry of Education in 2018, carried out more than 200 training and awareness actions, involving more than 8000 teachers;
- "Safer Internet Day" campaign - about 60 municipalities and more than 400 groups involved;
- Cybersecurity month Campaign - about 300 groups involved;
- eTwinning - collaborative projects between European schools using digital technologies: 1757 schools, 15907 teachers and 8314 projects registered in Portugal;
- Training of teachers in Digital Citizenship, in partnership with CPCJ, Sintra Occidental covering 11 groups;
- Apps for Good Project - 217 schools involved;
- Mathematics and Khan Academy Project - partnership with the PT Foundation to translate educational resources into mathematics;
- Milage Learn + - teaching and learning math with mobile devices: covers more than 4000 students;
- Teachers Try Science - project in the area of science and ICT, in partnership with IBM: students and teachers from 10 groups participate;

- Tell us a story (digital stories produced by children): 512 classes from 1st to 4th Year;
- Seguranet Challenges - 30000 participants, including students, parents and teachers;
- Digital Leaders - 700 students and about 100 teachers, influenced more than 12,000 people in the issues of safe use of the Internet;
- Digital Security Seal - currently around 300 groupings participate and more than 250 stamps were awarded;
- National Defense Day - more than 100,000 young adults received training on issues of safe use of the Internet;
- Partnership between the Union of Journalists and the Directorate-General for Education, on Education for the Media - Pilot of "Media Literacy" - 30 schools participate, involving about 90 teachers;
- Code Portugal Movement - in 2017 involved 813 schools from the Mainland and Islands.

Action line 3: QUALIFICATION

IAPMEI

The Capacitar i4.0 program, presented on December 6, 2017, at the 1st Conference of the INCoDe2030 Permanent Forum, integrates the national initiatives Industry 4.0 and INCoDe.2030, and aims to qualify individuals and organizations to respond to challenges of the 4th industrial revolution which is characterized by the introduction of intelligent, interconnected cyberphysical systems in production processes, in the value chain, in relation to the customer and in the business model. This program is structured in eight lines of action (Academies i4.0, Learning factories, hiring of researchers in the critical areas i4.0, intercompanies actions' in i4.0, instruments of evaluation of the maturity of the companies in face of the industry 4.0 challenges; of actions and reference contents in i4.0; Network of qualified trainers in the themes i4.0; Partnerships i4.0) and the following initiatives have already taken place:

1. Academies i4.0

Two calls for training. About 160 applications received. 46 approved for a total of about 2 M €. The areas are not yet known

2. Intercompany shares in i4.0

Data protection: 12 seminars about 690 participants

Digital Marketing: 2 initiatives 97 participants

Industry 4.0: with INESC TEC and 300 participants

Cybersecurity: with CISCO 5 seminars, about 150 participants

Training-action "SME Academy": 119 hours of training + 78 hours of consulting. 21 actions promoted by business associations

3. Tools for assessing the maturity of companies towards the challenges of industry 4.0

Project: "SHIFTto4.0 - Diagnostic tool i4.0": with ISQ; tool development and validation with 80 companies

INA

This report presents a situation regarding the actions taken by INA in the development of the measure 3.8. - Digital Qualification of Civil Servants, of the national strategy INCoDe.2030. This action relies on two large banner projects. Zero Infoexclusion and Digital PA 4.0.

1. The Zero Infoexclusion

It is based on a diagnosis of basic digital skills for workers and managers of the Central Administration (developed with AMA and based on the QDRCD) and also in the design of a training plan to fill any gaps. To date, 8,074 workers have made the diagnosis:

8% revealing the need to develop at least one of the dimensions of the reference

0.4%, three or more of mentioned dimensions.

Four new courses were also designed to be introduced in the INA Training Program to develop skills in this area.

- Introduction to informatics
- Internet and E-mail
- Introduction to Productivity Applications
- Digital Security and Citizenship (designed in collaboration with AMA)

2. The Digital Public Administration 4.0

It aims to reinforce the training offer in digital skills, seeking to update, specialize and deepen the knowledge and skills of public sector workers, namely those who perform ICT functions.

Eleven new courses were added to the INA Training Plan, which is an offer of 40 courses in the digital field.

- DevOps and Agile Methodologies: Introduction
 - Quality Assurance and DevOps Initiatives
 - Introduction to Data Science
 - Data Science: Advanced level
 - Digital Transformation: Impact on the Administration of Public Administration
 - Management of High Performance Teams
 - Scrum Master Foundation
 - Scrum Product Owner
 - Agile and AP Business Analysis
 - Problem Solving for Leaders
- Improvement in general concepts of Cybersecurity (in collaboration with the Navy)³⁹ training actions were carried out, covering 621 trainees.

3. New partnerships

Protocol signed between the Navy and the INA in February 2018 and the Protocol to be signed between the CCISP and the INA.

The courses with the INCoDe.2030 label included in the INA Training Program, redesigned new or redesigned, were carried out in 2018 and November 15, 40 courses covering 649 trainees.

Competence Areas	Number of trainees
Programming	45
Information Security	62
ICT Quality Management	16
Data Science	30
Business Intelligence	69
Information Management	111
Network Administration and Management	31
Productivity Tools	206
Digital Marketing	30
Innovation in Digital Technologies	49
TOTAL	649

IEFP

1. Professional Training in ICT held by the CEFP of the IEFP (2016-2018)

In order to guarantee the fulfillment of the objectives proposed within the scope of the INCoDe.2030 initiative, since 2016, the IEFP has defined minimum percentages of ICET training actions for each of the Activity Plans of its Employment Centers and Vocational Training (CEFP).

Thus, for the areas of Audiovisuals and Media Production, Computer Science and Electronics and Automation, the following percentages should be taken as reference:

- Learning Courses 20%
- Adult Education and Training courses 20%
- Active Life Measure (level 4) 30%

Funding: ESF (POISE, POCH and Regional POs) of variable contribution depending on the region.

2. Professional conversion of graduates for the ICT area - articulation with the CCISP (2018)

- Cooperation Agreement aims to establish a requalification training program for the digital area, to be administered by the Polytechnic Institutes that are part of the CCISP.
- Development of special requalification training projects aimed at unemployed graduates and long-term unemployed, equipping them with digital skills and enhancing the entry or resumption of professional activity

This program is funded by the IEFPP, has a financial envelope of 3.5 million euros, and will cover about 1500 trainees, all over the country.

To be implemented in early 2019, in a first phase with the Polytechnic of Setúbal, Leiria, Cávado and Ave, Bragança Viseu and Castelo Branco.

- Promote and strengthen internationally recognized certification processes of digital industry competencies.

3. Training in Skills for Digital Citizenship (2018)

Training is intended for citizens aged 18 or over, employed or unemployed, with a particular focus on those with lower levels of digital literacy.

Training courses are being developed by IEFPP, in partnership with CINEL and AMA, and aligned with QDRCD, through a Collaboration Agreement between the three partners, with the implementation of a pilot project for the basic level by the end of 2018, and the dissemination of the project, both in terms of territory and in terms of other levels of the Framework, in 2019.

The training will contemplate 3 levels: basic, intermediate and advanced. The achievement of the basic and intermediate proficiency levels will each have a duration of 75 hours, with a different level of depth, and integrate:

- A Short-term Training Unit (UFCD) in ICT: 25 hours;
- A component integrating training in areas related to active citizenship, namely electronic mail, electronic notifications, social networks, most common digital devices, e-commerce, use of online public services and digital security: 50 hours

In addition, the project integrates the training of trainers necessary for implementation and dissemination in the territory, to be developed also in partnership between the parties.

4. Cooperation Agreement with CESAE

The cooperation agreement with CESAE - Services and Business Support Center, signed in 2014, had as main objective the financial support for the realization of a program to boost digital employment, through the implementation of training actions in emerging ICT areas, aimed at short- and long-term unemployed with levels 4, 5 or 6 qualification, with lower employability.

The Cooperation Agreement with CESAE aims at boosting digital employment through the implementation of training actions in the emerging ICT areas, tailored for people in situations of unemployment and lower employability. Within this scope, the following training courses were developed, which already count with more than 200 certifications in the professional areas of:

- Web Developer & Mobile
- Management Systems and IT Management Applications
- Digital marketing
- Visual Art and Computer Graphics.

5. Qualifica IT

A Cooperation Agreement was concluded between IEFPP, the University of Minho and InvestBraga for the development of a training program in ICT areas consisting of 7 months of theoretical training followed by 3 months of work-related training for graduates enrolled in public services for employment, providing them with training in the areas of STEM. About 100 graduates participated in the first edition, circa 90 having completed it successfully. In the 2nd edition, the training passed to 9 months length, including both parts, theoretical and in-work context.

6. Code Academy (2016-2018) IEFPP signed a protocol with the Code Academy Bootcamps Academy of Code, with support from POISE and having as investors the Calouste Gulbenkian Foundation, ALTRAN and ASSOP, IEFPP being the public sector entity partner for this initiative. It consists of an intensive program of 14 weeks that aims to requalify young unemployed, giving them technical training in computer programming. The protocol covers 200 young people in a period of 3 years, having already made 3 editions in Lisbon and Fundão. All participants were recruited up to 2 months after the end of the program.

7. Technology Academies: Cisco; Microsoft; Samsung; Spring; Huawei

CISCO Academies (Cisco Networking Academy)

The Cisco Academies program under the network of Employment and Vocational Training Centers of the IEFPP was set up through a Memorandum of Understanding between IEFPP and Cisco Systems Inc.. Seven Cisco Academies are at the final phase of implementation either through the acquisition of necessary equipment, or

implemented the training / certification of trainers in accordance with current and internationally established technical standards.

These academies do not have the monopoly of training in the scope of Computer Network Management, but serve as Reference Organic Units to support the preparation of CISCO exams and certification at a national level. Any IEFP center can develop training in the area of Computer Network Management.

Examples of courses created within the CISCO Academies include the following:

- 1- IT Essentials
- 2- CCNA Routing and switching
- 3- CCNA Security
- 4- Introduction to Internet of Everything (extra CNQ)
- 5- Introduction to Cybersecurity (extra CNQ)
- 6- NDG linux essentials
- 7- NDG Introduction to linux I
- 8- Entrepreneurship
- 9- Get Connected.

SAMSUNG Tech Institute

IEFP, SAMSUNG Electronics Portuguese S.A and CINEL, signed a Cooperation Agreement with the objective of promoting a set of initiatives that compete for the qualification of professionals in the area of electronics and automation.

Microsoft IT Academies

A cooperation agreement was concluded between the IEFP and Microsoft Portugal, which led to the setting up in each of IEFP's 30 employment and vocational training centers of a Microsoft IT Academy which aims, inter alia, to:

- a) providing Microsoft Office Pro Plus licenses free of charge to all IEFP users unemployed in vocational training;
- b) installation in the network of Professional Training Services of the 30 Microsoft IT Academies, with a view to:
 - b1) professional training in the field of Information Technology, using Microsoft platforms;
 - b2) Microsoft certification in the scope of a wide range of certifications

Primavera Software

IEFP and PRIMAVERA BSS signed a Collaboration Protocol that establishes a strategic partnership aimed at training professionals in technological areas with strong demand and growth potential, and under which the courses of Management, Accounting, Business Sciences and Information Systems provided by IEFP, now includes free and practical training in the use of PRIMAVERA technology management solutions, as well as access to business simulation labs, which enables trainees to develop skills in the digitization and modernization tools available for various sectors .

HUAWEI

Under the memorandum of understanding between the Portuguese State and HUAWEI, a Cooperation Agreement between IEFP and HUAWEI will be signed next December with a view to the installation of HUAWEI Laboratories in the CEFP.

8. Distance learning - Training of trainers and pilot project of career training

A project is being developed to provide b-elearning (hybrid) training in career training services, in view of which the following actions have already been developed:

- Pilot project with the adaptation of two UFCDs for e-learning format, already disseminated.
- Development of a framework for Continued Pedagogical Training of Trainers - "Distance UFCD trainer (hybrid format)" and the implementation of three continuous training actions, aimed at providing trainers with the technical skills necessary for the development of training according to this new methodology.

- Creation of a Pedagogical Specialization Training Reference - "Distance trainer (e-trainer)", and two pilot actions were carried out to test this referential, covering 29 trainers.

9. Some implementation data

In the area of ICT-specific training, several projects have already been carried out in both 2017 and 2018. Because the 2018 data are not yet closed, we only report data for 2017:

Projects Graduates

E-learning training for unemployed publics - pilot project 545

Microsoft 712 Competency Certified Trainees

Trainees with dual certification in areas in the field of information technology - Networks, Computer Systems and Software Development 1.161

Trainees covered by qualifying training whose functional content is integrated into ICT areas 10.145

Trainees covered by training courses that provide digital skills that integrate online content and services (Modular Training, Active Life and Training for Inclusion) 12,586

10. SWitCH

Program of requalification of CTEM graduates, promoted by Porto Tech Hub and ISEP, using project-based learning methodologies (PBL)

- The first phase of the academic phase (2 semesters) was concluded for the first group of 29 students;
- A one-year internship began at one of the project companies for all students;
- The 2nd season of the program began, now with 2 classes (58 students)

Action Line 4: SPECIALIZATION

Increase in vacancies and number of students placed in Higher Education in the ICT areas.

- Between 2017 and 2018 there was a 30% increase in the number of students enrolled in TESEs in the ICT area, which in absolute terms represents more than 415 students, totaling 1,715 students at the National level.
- It should be noted that growth of CTeSP students and vacancies in the ICT area took place entirely outside the two large urban centers of Lisbon and Porto.

Application of project-based teaching / learning methodologies (PBLs) in SEcS

- The introduction of this teaching methodology promoted the student's role to an active agent level, and the results are still under analysis. However, the preliminary evaluation indicates an improvement in the results and a decrease in dropout rates among students.

Creation of SEPs in partnership with companies.

- Design and implementation by IP Setúbal and Deloitte of a CTeSP in Information Technology, developed to the specific needs of Deloitte and using the PBL methodology.
- Building on the lessons and success of this partnership, we are now promoting the extension with Deloitte itself, to other Polytechnics.
- CTeSP in partnership between Altran and the IP of Castelo Branco, operating in Fundão, in the Communications area
- CTeSP between Softinsa and Take IP in the area of Database Management
- CTeSP in the area of the Automobile Industry - with some repercussions in the area of ICT between the companies SODECIA, ACI, DURA and COFICAB and the IP Guard

Specific CTeSP for training and re-qualification of company assets

- Currently a CTeSP is being developed for people in the active and with professional experience, involving like partners the Higher Institute of Engineering of Porto, the Superior School of Technology and Management of Felgueiras and the Business Association of Baixo Ave (AEBA) which includes companies such as Leica, Continental, Microprocessor, Nibble, among others.

Development of an MOOCs platform

- NAU Project: is a Public Education Distance Learning Project for Large Hearings, constituting the national initiative for the construction and operation of a technical and operational infrastructure to support the publication and dynamization of contents in MOOC format, developed by FCT - FCCN.

Google Digital Ateliers

- Accomplishment of about two dozen Digital Ateliers Google in several HEIs, aiming a direct reach of this training to more than 2000 people;

□ In development:

- ASTROLÁBIO project aiming the development of content in digital areas and a joint initiative of the engineering schools of 6 public universities: U.Minho, U.Porto, U.Aveiro, U.Coimbra, U.Lisboa and U.Nova de Lisboa.
- Professional Masters with the Engineering Schools of several universities
- Negotiations for the creation of SPCs in the cloud area, to be replicated in several IPs.

Action line 5. RESEARCH

1. Data Science in the Public Administration

- The Program in Data Science and Artificial Intelligence in Public Administration is promoted by the Foundation for Science and Technology through public competitions to support new R & D projects involving partnerships between the public administration and scientific institutions. Fifteen projects were approved.

2. Portuguese Advanced Computing Network (RNCA)

The RNCA operating and management model was defined. Its' aims the development of skills in fields such as big data, high performance computing, quantum computing, cognitive computing or visualization of large data volumes.

- Development of the Minho Advanced Computing Center (MACC) with 20 racks of the Texas Advanced Computing Center (TACC). The operating and management model was established.
- A call for mobility grants was opened to national researchers and technicians, and steps are being taken to integrate the National Advanced Computing Network into RES.ES (Red Española de Supercomputación) and from then on Portugal has connected to the world's computing centers.

3. National Strategy for Artificial Intelligence

- A national strategy was set out in Brussels on 23 October 2018.

4. International partnerships

- International partnerships were renewed between Portugal and 3 American universities: Carnegie Mellon University, Massachusetts Institute of Technology and UT Austin. A new partnership was also established with the Fraunhofer Gesellschaft

5. Portuguese Alliance Blockchain

- Development of an ecosystem that brings together companies, academia and government entities in order to provide the Portuguese business system with solid knowledge in Blockchain.

6. Science in Portuguese Program

- Collaboration with Brazil

Held in October at the ISCTE of the ConfOA conference, which aims at the joint development of service management and definition of policies related to Open Access to Knowledge and Open Science

- Collaboration with Angola

A joint project for the creation of a Digital Scientific Repository for Angola is under development

- Collaboration with Mozambique

Collaboration between the Eduardo Mondlane University, the University of Minho and the Foundation for Science and Technology of Portugal and the Brazilian Institute of Science and Technology of Brazil with a view to developing an open access policy in EMU and in the country

OTHER ACTIVITIES AND INITIATIVES

WITHIN THE COMPETENCES OF THE TECHNICAL SECRETARIAT

1. Monitoring of activities and planning carried out by public entities (AMA, DGE, DGES, FCT, IAPMEI, IEFP, INA, CCDRs, CIMs, Municipalities) and others
2. Database maintenance of ongoing actions, either cross-cutting or integrated in INCoDe.2030 action lines, with sufficient information so as to observe their evolution and assess their impact
3. Communication and Image of INCoDe.2030, through campaigns and activities, as well as its website www.incode2030.gov.pt, Twitter @incode2030, Facebook, LinkedIn and Instagram

4. Development of the QDRCD (Dynamic Reference Framework for Digital Competences), associated with the European Commission's DigComp
5. INCoDe SEAL to be assigned to relevant activities, based on 3 instruments
 - Concept definition for INCoDe.2030 SEAL
 - Rules for an activity to achieve the SEAL
 - Compliance check grid
6. INCoDe recognition of ICT Academies
 - Definition INCoDe.2030 Academy concept
 - Rules for an academy to be recognized by INCoDe
 - Compliance check grid

WORKING GROUP FOR THE PUBLIC TELECOMMUNICATION SERVICES INTEGRATED NETWORK

- The goal of the Working Group (WG) is to develop a plan for improving the communication network of primary and secondary schools and to ensure free wireless access to the internet in all parishes
- The WG includes representatives from Min. of Science, Technology and Higher Education, Min. Education, Internal Administration and ANAFRE
- The group has been meeting regularly and its plan is expected to be concluded by the end of November

EVENTS ORGANIZATION AND PARTICIPATION:

- Participation of Pedro Guedes de Oliveira (PGO) in the Digital Competence, Qualification and Employability Lifelong Learning gathering, named "All competent, all digital: teaching and working in the AI era". An APDSI organization in ISCAP.
- Presentation of INCoDe.2030 at the event organized by TAGUSVALEY concerning "The Society of Digital Competencies"
- PGO participation in the organization of the Computing and Society Seminar, within the context of the Gulbenkian Forum, of the Calouste Gulbenkian Foundation
- PGO participation in IV FILM - Informal Forum on Media Literacy, organized by the National Education Council
- Presentation of artificial intelligence and data science projects for administrative modernization
- Active participation of INCoDe.2030 in the annual event "Science 2018"
- Ana Neves participation in the panel AS DIGITAL FRONTIERS: THE TECHNOLOGIES IN THE PUBLIC ADMINISTRATION OF THE FUTURE, during the 10th National Congress of Public Administration, held in Lisbon in October 31, 2018.
- Presentation of the INCoDe.2030 Program during the visit of the Dutch Economy Minister
- Sofia Marques da Silva (SMS) participation in Development Groups in the scope of the National Plan for Adult Literacy
- Presentation by SMS of the INCoDe.2030 Initiative to the Laboratories Community of U.Porto Meida Innovation Labs, on May 17 in Porto.
- Presentation by SMS of the article "Gender inequalities, education and costs, Equality in Education", at the European Policy Conference, Limerick Institute of Technology, June 9.
- SMS Participation in Meeting with Citizens - The Technological Revolution: Ethical and Values Challenges, which took place on November 9 and 10, 2018, in the Intermunicipal Community of the Coimbra Region.

CONCLUSION

As we have said in the introduction – and we think is clear through the description of what was accomplished in the 5 action lines –, it is difficult to provide a direct and comprehensive view of what was done so far, by INCoDe.2030. Most goals are only measurable in the medium / long-term and it is challenging to self-assess and appreciate the work done.

This is why it is so important to have an external and accurate view of the planned and ongoing activities, which has led to the constitution of the High Level International Advisory Board that will start its work in 2019.

Simultaneously, the data that will be collected in 2019 and made available by the National Observatory for Digital Competencies will provide an outlook of the results of INCoDe.2030, along a set of indicators that allow to observe the path covered by Portugal as well as its position within the international community, particularly in the scope of the EU.

Some facts are, however, already clear: attention to the relevance of digital competencies has been growing both within the scope or directly promoted by INCoDe.2030, as well as by society in general; the importance that educators and parents give to digital skills in their children's education creates a friendly environment to the growth of their importance in the curriculum of primary and secondary education; young people themselves understand the professional and job opportunities offered by ICT areas, and the number of applicants that are choosing ICT as the first option to access higher education (around 12% of all applicants) is increasing; and even for the students of the professional path of their secondary education, the continuation of studies in ICT, especially at the level of the CTESP (the 2 year professional training provided by the Polytechnic Institutes) has increased by around 30% between 2017 and 2018.

INCoDe.2030 had only a partial contribution for this process. Yet the impetus created by a global and long-term initiative that, in an inclusive way, seeks to stimulate, and also welcome and disseminate, everything that civil society, business, associations or any other entities that carry out activities in the interest of improving the national situation in digital skills, has played, we believe, a relevant role.