

FÓRUM futurália

FÓRUM FUTURÁLIA 2018

Education, Heritage and Knowledge

TIAGO BRANDÃO RODRIGUES

"By educating well, we simultaneously look after our most precious heritage, people, what is now referred to as human capital."

MARIANNE THYSSEN

"Portugal is a major guardian of European cultural heritage and is contributing to its development through investments in Education and Training."

**GUILHERME
D'OLIVEIRA MARTINS**

"Cultural heritage joins generations, provokes complementarities, crosses influences while based on the historical evolution of matches and mismatches."



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GONÇALO AZEVEDO

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PREFACE

Jorge Rocha de Matos

Commander and Chair of AIP Foundation



“Cultural heritage is the liaison element between past and present while projecting us towards the future.”

It was with great interest and opportunity that *Fórum Futurália 2018* joined in celebrating “European Year of Cultural Heritage”, whose main theme was “Education, heritage and knowledge”. Cultural heritage in its diverse aspects is known as a highly important strategic asset, thus contributing to the enrichment of the economy value chain.

The economic, social and cultural relevance of cultural heritage is undeniable, not only in terms of enhancing identity factors, but also generating differentiation, diversity and knowledge, that greatly contribute to our affirmation in the European context, and in a general manner, in globalization, product of an *acquis* of relationships that our shared history with many peoples, from all continents, has garnered over centuries.

In the generalized digitalization context of the economy in which we live in, new challenges and opportunities arise, in this sense, to enrichen this cultural heritage as a source of value creation, in which education and knowledge play

a key role. In truth, Cultural Heritage spans all that society preserves and values, with the aim of guarantee its perpetuity and affirmation of its history, culture, namely: historical and architectural; intellectual production; material goods; immaterial goods, among others. In this extensive scope, all production and actions associated with science, technology and knowledge, of a material and immaterial nature, configuring important base strategic assets that affirm and generate trajectories of economic sustainability and society in the future are thus revealed.

Even if there were no other reasons, this initiative, merely on its own, would be an excellent contribution to enhancing the value and diversity of Portuguese heritage in the European and international context, in its most global sense, in terms of values; memory; environment; architecture; traditions; science and technology.

This reflection is also necessary as a catalyzing element of a new attitude in consonance with great present

day societal, social and economic challenges, which, in effect, the various speeches given during this conference are a testament to.

Accordingly, cultural heritage is the liaison element between past and present while projecting us towards the future. Portugal can only be proud of its cultural heritage, so rich and diverse, and harness it as source of value creation.

EDITORIAL

Eduardo Marçal Grilo

Chair of Futurália Strategic Council



// In 2018, Futurália also featured an area dedicated to employability and jobs, which took place for the first time and which represents an effort in broadening the scope of this exhibition, by attempting to appeal to different age groups that traditionally visit this great showcase (...) //

Futurália is a fair that, throughout the years, has made its mark as one of the great public events dedicated to promoting study opportunities, training and each person's personal fulfillment, particularly among young people of school age. Such opportunities can be, most assuredly, found within the great diversification of courses offered ministered at universities, polytechnic institutes, professional training schools, or at the innumerable learning establishments dedicated to training and valorization of human resources. This fair represents an area and period of time that which are used by a large number of students who wish to come into close contact with the pavilions of learning establishments therein represented.

It constitutes a key opportunity for each of them to discover up close who the establishments that most interest and attract them are, and what they do.

These visits and contacts are important not only for students who are at the stage of choosing the course/degree that best suits their aspirations, but also for parents and educators who, at times, have so many doubts concerning the courses/degrees offered by the learning and investigation institutions whether they be higher learning establishments, or professional training and vocational schools.

Futurália decided, since 2017, to organize simultaneously with the Exhibition, a Forum that in this edition was dedicated to the digitalization process of companies and Public Service (*Indústria 4.0*) and whose goal, in the 2018 edition, was commemorating the *European Year of Cultural Heritage*. Consequently, a Forum dedicated to "*Education, Heritage e Knowledge*" took place on March 15th, with this initiative boasting the presence of many conference attendees as well as members of panels of vast experience and quality. Moreover, this forum was of the utmost interest for students, teachers/ trainers, agents and political-institutional decision makers, as well as for all the public or private learning establishments that interact with cultural heritage.

In 2018, *Futurália* also featured an area dedicated to employability and jobs, which took place for the first time and which represents an effort in broadening the scope of this exhibition, by attempting to appeal to different age groups that traditionally visit this great showcase but ,who, in certain situations, also need the space and the time where they can discuss and debate issues related to job/ professional training problems.

I hope that *Futurália* 2019 is a success thus mirroring previous editions.

FOREWORD

Marianne Thyssen*

European Commissioner for Employment, Social Affairs, Skills and Labor Mobility

It was with great pleasure that I accepted the invitation to the European Commission to join this initiative, which takes place in this beautiful city of Lisbon.

I know that this is the biggest annual event in Portugal on key issues in lifelong learning, employment and youth. I have dedicated much of my term on improving and proposing new policies in this areas.

Over the 11 editions of *Futurália*, this important event has brought forward the visibility of Vocational Education and Training, Guidance and Employment. It helps learners to have better and enhanced access to the labor market.

The *Futurália* exhibition is also a useful meeting point bringing together learners, Education and Vocational training providers, teachers, trainers, and employers. It is important that this initiative reaches out to all regions over the country, to raise awareness of opportunities for all.

It is also an occasion to showcase opportunities brought by the internationalization of education and training, particularly through learner's and staff mobility in another country. In this regard, I want to highlight a recent initiative I launched last year, ErasmusPRO.

It aims to increase the long-duration mobility of apprentices and vocational learners through work placements abroad, lasting from 3 to 12 months. The preliminary data, on the 2018 Erasmus+ applications, shows a strong demand for this type of mobility. I encourage all of you to make use of the significant financial support we have put forward for this initiative within the Erasmus+ programme.

The main theme of the *Futurália Forum* this year, is closely aligned with the "European Year of Cultural Heritage", and is dedicated to "Education, Heritage and Knowledge".

Treasuring the European Cultural Heritage as a strategic asset brings new challenges and opportunities for education and training. Through education and training, we must ensure that we prepare the people to be aware, and prepared them with the right skills to preserve our diverse and rich European material and immaterial heritage.

Vocational training with its focus on crafts, and the preservation and development of ancestral skills, has a key role to play in this respect.

Treasuring the European Cultural Heritage as a strategic asset brings new challenges and opportunities for education and training. Through education and training, we must ensure that we prepare the people to be aware, and prepared them with the right skills to preserve our diverse and rich European material and immaterial heritage.



Cultural heritage creates growth and jobs in cities and regions. Nowadays over 300,000 people are employed directly in the EU cultural heritage sector and 7.8 million jobs are indirectly linked to heritage, including for instances: tourism, interpretation and security.

The current Erasmus+ programme has supported 15 projects on cultural heritage in Portugal. These range from projects to support “Religious-Historic Heritage”, “Industrial Heritage” and “Intangible Cultural heritage”.

I want to give you a very concrete example of how European funding is supporting your work in Portugal. The Erasmus+ project “*Echoes of the Past – Heritage Futures*” led by “Fundação Robinson” from Portalegre, brings together 7 partners from 4 Member States to promote excellence in industrial heritage education and training. The main outcomes included a set of common methodologies, educational materials and training courses on industrial heritage learning.

Portugal is also an active partner in more than 100 other Erasmus+ projects taking place all over Europe, related with cultural heritage. This shows that Portugal is a major guardian of European cultural heritage and is contributing to its development through investments in Education and Training.

I would like to end by reminding you that the 2018 *Vocational Skills Week* that will take place from 5 to 9 November in Vienna, is also an excellent opportunity for you to raise awareness of how Vocational training can provide opportunities for both the young people as well as adults to “Discover their talents” to the benefit of our cultural heritage.

I hope that all of you take home lots of new projects, new perspectives and become inspired by the promising future of Vocational Education and Training.

Congratulations on this initiative and I hope it will be a source of inspiration and motivation for all those who will participate in the next four days.
Thank you.

“Portugal is a major guardian of European cultural heritage and is contributing to its development through investments in Education and Training.”

** This article corresponds to the video message sent by the European Commissioner, for the opening session of Fórum Futurália 2020, which took place on March 15th, 2018.*

EDUCATION, HERITAGE, KNOWLEDGE

Guilherme d'Oliveira Martins

National Coordinator for the European Year of Cultural Heritage 2018

Speaking of *Futurália 2018* in cultural heritage is to make an appeal for sowing of ideas, for education and for learning. The choice of European Commissions of cultural heritage as this year's theme was not the product of chance. It had to do with corresponding to the need to boost a common project that cannot progress without the memoirs of historical and cultural roots, nor without a strong learning, innovation and modernity challenge. The expanding of horizons regarding human development was only made possible due to attention and care, safeguarding and protection, and not forgetting and not abandoning. We have not forgotten the day when Denis de Rougemont and Albert Einstein idealized an institution such as CERN (the former Centre Européen pour la Recherche Nucléaire) to equate atomic energy with a sense of peace instead of the stigma of war. And if we recollect that fact, it is to make clear that cultural heritage, as a live reality, forms the connection between culture, education and science.

Therefore, Umberto Eco once said that the difference between those who do not read and those who do so is that the former only lives some decades while the latter lives the span of civilization, three or four thousand years. In effect, we can only be worthy of what we inherit from the generations before us if we know how to combat ignorance and mediocrity by understanding where we come from and where we're going.

The initiatives created for the *European Year of Cultural Heritage* are many, from study and investigation, scientific and technical interchange, professional enhancement, awareness and information, to education and professional training, creation and promotion; nevertheless, the motivation and participation of youth produces

the most meaningful and demanding challenge. This is one of the frameworks that Portugal has sought to define as essential, distinctive and of top priority.

The involvement of schools, families, and of communities in the study, understanding, knowledge, attention, and care of cultural heritage should, however, represent one of the most serious and lasting investments of this initiative. That is what will endure. Thus the involvement of education and culture, Network of School Libraries, National Reading Plan, *Universidade Nova de Lisboa* in this European Year – allowing schools and young citizens to have contact with various forms of heritage: monuments, documents, archaeological artifacts, traditions, artistic manifestations, customs, languages, landscapes... Adopting a monument or a tradition (of gastronomy, or handicrafts, or music, or visual arts), rendering a symbol more understandable, preventing something with cultural value from becoming derelict, using new technologies to enhance the connection between cultural and natural values, seeking new paths, other regions or other cultures are fundamental acts... However, cultural identity must be open to, and available, – hence the challenge we issue, corresponds, for this and upcoming years, to the connection between close personal heritage and others' heritage. It is vital to privilege hospitality instead of hostility. Hence, the significance of a heritage cult that favors mutual respect, pluralism, diversity, and the importance of mutual ideals among different cultures. All this will allow us to understand the full richness of cultural heritage, ensuring that, at the end of this Year, we may have contributed to strengthening heritage awareness and cultural citizenship. No one better than younger generations to contribute to the essential task of ensuring that it is

“The challenges that cultural heritage faces and that have an impact in contemporary society, involve, in this manner, from transition to the digital era, to environmental and demographic issues, without forgetting the prevention and fight against illicit traffic of cultural goods. Fundamentally, we handle knowledge, culture and humanity...”

essentially civil society that takes on the responsibility of protecting and treasuring heritage, being that the State should guarantee the rigorous and motivational quality framework, on behalf of a common good. The tragedy that occurred a few years ago in Palmira (Syria), makes us seriously ponder – monuments were barbarically destroyed, however the historian that was an expert on those precious monuments was also killed. After all, only living rocks, as are people, can be the ones that can emanate strength, value and significance to dead rocks. Thus, because of this, the mobilization of schools, students, teachers, and families constitutes the best brand of continuity for this incentive. The other side of heritage reflects the need to go seek History and the Humanities, in the richest sense of mutual enrichment for difference... As such, we will continue to generate conditions that will train and mobilize better educators, investigators, and technicians, essentially better active

WLEDGE...

citizens, that can convert cultural heritage into a potentiator of human development. We now know it isn't true that Jean Monnet ever said that if he had to restart European construction, he would have chosen culture. In fact, the logic of a functional solidarity demands cultural diversity and exchange – which, in Jacques Delors' formula, should associate itself with peace and security causes and sustainable development. However, this doesn't mean that Monnet or Schuman underrated culture. They considered it, though, to be a common denominator of ideals, a source of freedom, equality and solidarity, as well as a belief of mutual respect and human dignity. In this sense, politics, economy and culture come together in the defense of a common good – in other words, in the search for common vital interests which contribute to peace and development. Hence the fact that sustainability should be considered through the worth of history, and with equity among generations – preserving the cultural heritage and protecting the nature of the irreversible depletion of resources...

The challenges that cultural heritage faces and that have an impact in contemporary society, involve, in this manner, from transition to the digital era, to environmental and demographic issues, without forgetting the prevention and fight against illicit traffic of cultural goods. Fundamentally, we handle knowledge, culture and humanity. Remembering signifies respecting ourselves, studying History and discovering its roots. Nurturing what we were given means taking care, and not abandoning, means knowing, studying, investigating, protecting and preserving. Furthermore, it signifies promoting cultural diversity, dialogue between cultures and social cohesion, stressing the economic contribution of cultural heritage regarding

creative sectors and development. Hence the fundamental connection that exists between education and cultural heritage – because of a multiplying efficiency and the refusal of a logic of celebration, momentary and of no social consequence. And if it is certain that this is the perspective that matters, then we cannot overlook the economic value of cultural heritage as a source of development – 7,8 million job posts in the European Union are indirectly linked to this theme, such as tourism, and so many other services connected to mobility, security and knowledge. 300 thousand persons are directly linked to heritage in the European Union. After all, more than half of the places (more than 450) classified as UNESCO World Heritage sites are in the old continent. One comprehends that the decision of the European Parliament in declaring 2018 as the year of Cultural Heritage corresponds to the affirmation of an ambitious design: based upon the need to consecrate mobility of wishes around a common inheritance, of a European ideal of mutual respect, of quality and humanity, certain that we cannot abandon what we inherited from previous generations, nor resign ourselves to irrelevance and mediocrity. The financial crisis was due to illusion, fragmentation, and the refusal to privilege medium and long terms and complexity... It is important to recognize which are the vital common interests and common cultural good, which can only prosper in the presence of diversity, mutual collaboration and a connection between social cohesion and society's innovative capacity. Ideals, cultures and memories make up the base of a Europe that should portray itself through "Unity in Diversity", resisting the fragmentation of selfishness and intolerance.



Away from the logic of closed identities, we should build open and complex realities which exclude no one. Belonging to a local community and the acknowledgement of the importance of proximity cannot be contrary to the idea of a multiple belonging and of a European and global solidarity. Cultural heritage joins generations, provokes complementarities, crosses influences while based on the historical evolution of matches and mismatches – opening paths of dialogue and of cooperation not only among communities in Europe, but also with other world cultures. It is a bridge between the past and future, a continuous process of creativity and innovation, which bases its roots on historical evolution while surpassing it in the name of a living culture and of an active and responsible citizenship. But, speaking of this theme, is to also name sustainable development, a solid social consistency and the direct as well as indirect emergence, of conditions for new job possibilities. Cultural heritage conveys harmony and beauty to our human and natural environment, but also allows for the development of well-being and quality of life.

“Cultural heritage joins generations, provokes complementarities, crosses influences while based on the historical evolution of matches and mismatches – opening paths of dialogue and of cooperation not only among communities in Europe, but also with other world cultures.”

OUR MOST PRECIOUS HER

Tiago Brandão Rodrigues

Minister of Education

Education, Heritage and Knowledge. Futurália 2018 could not have chosen three more adequate and mobilizing terms for an event such as this, that has future in its name and the people it mobilizes. Not only because these three words engage us in challenging and exciting processes, central of our time as well as of our collective destiny; but also, because presently they intertwine, and only make sense if defined together. While not exact synonyms, these three words that if used separately, lose their intended meaning.

By educating well, we simultaneously look after our most precious heritage, people, what is now referred to as human capital. This, while we provide them with the means to recognize the importance of continuing to preserve our common heritage, whether human, cultural, monumental or environmental; following in this manner, the spirit of expansion defined in 2005, during the European Council Convention held in Faro.

By conjuring Heritage, precisely in the European Year of Cultural Heritage, we are inviting ourselves to follow the proverbial words of our wise King D. Duarte, who in his, "Loyal Adviser" ("Leal Conselheiro") already, very loyally, recommended us: *"if you can look, see; if you can see, notice"*.

One and the other, Education and Heritage, converge in a common destination called Knowledge and in a time that should also be ours, named Future.

There is no other way of us reaching tomorrow greater than that of

assembling the necessary instruments and time to get to know ourselves better. Ourselves, others and generations that follow, because before us others were. A full existence that is self-aware, active and, hence, fulfilled and happy, certainly stems from this.

Many have sought to define youth, almost always immediately belied, as this is such a central as well as polysemic concept, in today's society. Much more than an age group, more than a biological study or a so-called generational culture, youth is marked by duty, by a sense of never ending action in an eternal present, that reproduces the past, that resigns itself to habits and necessity, but that projects itself in a creative manner, in an always uncertain territory, filled with promises and torments, a territory to which this exhibition aims to provide directions that broaden horizons without prescribed remedies. The future.

Young people nowadays have many more accessible routes than in the past – education and training have played a key role in this. We accept our share of responsibility, for example, in extending schools' independence and flexibility so that teachers and students can construct, with the close community, more creative and challenging routes of learning that make more sense to you. Or for investing in professional training as a means of qualification for young people. Still, we do not ignore the risks of a world filled with so many options. And these we counter with events, such as Futurália, where the many routes can be collectively constructed through information and the experimentation debate. And they can be equally countered by not giving up on

constructing, collectively, the essential learning skills which we consider young people have the right to develop to become full citizens, in today's society.

And by being aware that we all participate in a never-ending relay race in which the testimony – the same one that we grab with one hand to transfer it, pretty soon after, to another hand which nurtures it even better – is none other than the way in which, the present that exists daily, we add something to our life. And that something, if described in one word, indeed fits into the word knowledge.

We can only follow the advice of King D. Duarte, and look to see, and see to notice if more than retaining it, we exercise, live and experiment knowledge, through trial and error. Being aware of the double meaning of notice, of seizing in detail and in depth; but also, in the sense of repairing, improving, of us adapting to all that the world expects of us and to the place – and places – that in this world we are building as ours.

That is, moreover, the most important definition of the skills concept and, therefore, we attributed to it such an aggregating, guiding and mobilizing role of our educational policies of these last few years whether in the definition of the Profile of Student at the End of Compulsory Education, reference for work done in schools, or in the construction of a National Skills Strategy, leverage of our educational and professional training programs for young people and adults. Because, in such a diverse and uncertain world, so apparently absurd, it must be precisely clear which tool box we all should

ITAGE

carry to interpret, explore and build it. And which are the singular paths that each one of us can take to also find our place. A rather singular place, yet recognized by everyone else. A path that stems from decision and personal creativity but that also enriches our collective heritage.

And, thus, the world requires a lot from us. It expects us to know, what has been known for a long time, to learn what is just now becoming learnable and, most complex yet, to discover what we still do not know can be discovered. This is the biggest challenge within our capability as it is the challenge of our happiness. To be co-writers of the place that we create for ourselves in a world that needs our creativity, professionalism, and obviously, our knowledge. To be able to interpret it and, immediately after to know how to describe it to others in a practically compulsory manner that is, authorial. Only this way can education and training regain meaning.

Today, tomorrow and afterwards there no longer exists single and universally shared knowledge. There is and will be an individual knowledge and, because of this, particularly sharable. Not only by means of booklets or handbooks, but above all through dialogues, exhibition, audacity and encounters. Like dialogues, exhibitions, audacity and encounters marked *Futurália* 2018.

Avoiding the discourteousness of singling out some activities and representatives to the detriment of others, given the richness and diversity of the program, provided by such a vast and qualified array of entities, I would

merely wish to highlight the words of Marianne Thyssen, European Commissioner for Employment, Social Affairs, Skills and Labor Mobility, who possesses a deep knowledge of our country and our partnership in fighting for a more progressive and inclusive future. For the pivotal role, at a European level that she represents, in these areas, her message also echoes the relevance that *Futurália* has achieved outside Portugal.

Therefore, I cannot, conclude without proffering a special word of thanks and recognition for the wonderful *Futurália* team, to whom, in the person of Professor Mergal Grilo, I express my most earnest congratulations for their courage in thinking, convoking, and annually organizing such a rich and timely event, with the quality and contemporaneity that make it, among thousands of students and former students like myself, an unquestionably not to be missed moment. It's exactly on account of this, that for many years now, I have made a point of participating, whenever possible, in *Futurália* – and since becoming Minister for Education, I have not missed an edition – discovering continuously new (and renovated) reasons for being present and returning the following year.



“By educating well, we simultaneously look after our most precious heritage, people, what is now referred to as human capital.”

“One and the other, Education and Heritage, converge in a common destination called Knowledge and in a time that should also be ours, named Future.”

HERITAGE, CITIZENSHIP AND

Ana Paula Laborinho

Portuguese Director of Organization of Ibero-American Studies for Education, Science and Culture



“By living in the urgency of the moment, with no past and little attention to the future, the appreciation for heritage helps to convey to future generations a legacy of knowledge, know how, skills and those behaviors that are the very condition of humanity.”

During the European Year of Cultural Heritage, the 2nd edition of Forum Futurália selected as its theme “Education, Heritage and Knowledge”, highlighting its relevant role in economic, social and cultural development.

This approach is becoming increasingly present whereby heritage, citizenship and intelligent territories serve the dynamics of cities and span educational, scientific and cultural policies.

Above all, it is fundamental to approach the heritage issue in its plural and citizenship aspect. If heritage defines our identity and contributes to a sense of belonging, then it also permits an intercultural vision by identifying the distinctive cultural extracts of that same heritage.

In the face of new challenges, such as globalization, rapid development of digital economy, crisis of values and identity, climatic changes, conflicts, pressures created by human mobility, populism and racism, one must take advantage of the qualities of education and culture as engines of job creation, economic growth, social justice, human rights defense, and furthermore, as a means of the expression of identities in all its diversity.

If this cultural diversity is Europe’s distinctive trait, then the Ibero-American area likewise distinguishes itself through diversity and dialogue among different cultures. In this sense I would like to highlight the Ibero-American Cultural Letter, approved in 2006 by the Ministers of Culture of Ibero-American countries, inspired by the 2005 UNESCO Convention concerning Protection and Promotion of Diversity of Cultural Expressions.

With this political statement, the Ibero-American community conveys a universal message in favor of cooperation and utilization of culture as a tool, increasingly powerful, of the dignification of citizens and of dialogue among peoples but also of social consistency and economic development.

By living in the urgency of the moment, with no past and little attention to the future, the appreciation for heritage helps to convey to future generations a legacy of knowledge, know how, skills and those behaviors that are the very condition of humanity.

Thus, a link between heritage and culture is established, which implies a required commitment to human development and awareness in regard to the environmental, educational, scientific, linguistic and economic dimensions of culture.

D TERRITORY

It is essential to strengthen within the educational systems, on account of the close ties between culture and education, knowledge and appreciation of the cultural diversity of the different regions, to foster sustainability, to coordinate protection and appreciation policies concerning environmental and cultural heritage. Above all, it is imperative to acknowledge science and technology as vital components of cultural heritage.

Taking into account this binomial of culture and knowledge and considering the productivity of the data and information, it is vital that we develop digital skills and motivate innovation and entrepreneurship, thus contributing to the well-being of societies and to an active citizenship that respects cultural diversity.

School must, therefore, be a place of innovation and interaction among communities going from being “an ecosystem of learning” to becoming “an ecosystem of innovation”. It must undertake an intercultural approach as counterpoint to a merely cosmopolitan one. In that sense, programs, regardless of their area of specialization, must provide students with knowledge, know how, skills and attitudes for their life and not just for the workforce, in order to be able to

actively participate in the life of the society in which they live in.

While it's certain that participating in a global work force enhances the importance of accessing global knowledge, it should also serve the priorities of countries, adapting knowledge and technologies to local contexts, coordinating and complementing theoretical knowledge and generating critical analysis skills as well as a civic implication attitude in regard to sustainable development.

For this reason, we must promote education/professional training tied to the acquisition of technical skills, but also non-cognitive capacities which involve social and citizenship aptitudes, learning team player work style, as well as the perseverance, effort, and solidarity, as basic skills needed to enter the work force and participate as member of society.

Cultural heritage is what unites us through history and mutual ideals, representing the richness and diversity of those traditions that help us to chart the future. We live in a fragmented and complex world, but never before as now has richness depended on people and their potential. This is the challenge within reach.

“School must, therefore, be a place of innovation and interaction among communities going from being “an ecosystem of learning” to becoming “an ecosystem of innovation”.”

“We live in a fragmented and complex world, but never before as now has richness depended on people and their potential. This is the challenge within reach.”

PORTUGAL AND ASIA

Félix Ribeiro

Fundação Calouste Gulbenkian Advisor

Portugal, during the period following the era of Discoveries, was an extraordinary organizer of Empires of different locations and organization.

a) In Latin America, Portugal founded, contrary to Spain – a unique Portuguese speaking state entity – o Brazil, which was inhabited by Portuguese and other European immigrants;

b) In Africa and following a centuries long process of contact with local entities along the Western coast, where natural resources and slaves were object of international commerce, namely in the Atlantic, having later founded a group of colonies, during the period of intense competition between European supremacies for the division of the Continent.

In both cases – under diverse political – administrative ways – there were imperial constructions occupying extremely vast territories and centralized administration, with large scale Portuguese emigration.

c) Portugal's Asian empire was completely different from the previous ones – it was not an empire of occupation and colonization of vast territories. It was, in effect, an empire built and overseen by means of military control of extremely vast maritime areas, in the Indian and Pacific Oceans and the Persian Gulf:

- where they navigated in route to Europe, of fluxes of valuable merchandise, spices, whose trade was, in part, conquered from Muslim and venetian merchants who dominated it previously.
- where the Portuguese organized simultaneously a triangular commerce of high value goods which involved Japan, China and India.

During centuries, Portugal conquered and maintained a series of “mooring Points” (ex: Ormuz, Goa, Diu, Malaca, Macau and Nagasaki) where fortresses, ports, administrative, educational, and religious buildings were constructed, and in some cases, urbanizations created-places that served as knots of very intensive interaction (not always peaceful) with extremely developed civilizational locations for the times, although not all yet politically unified.

The Indian-Pacific and the Persian Gulf – the center of gravity of the rivalry between supremacies in the 21st Century.



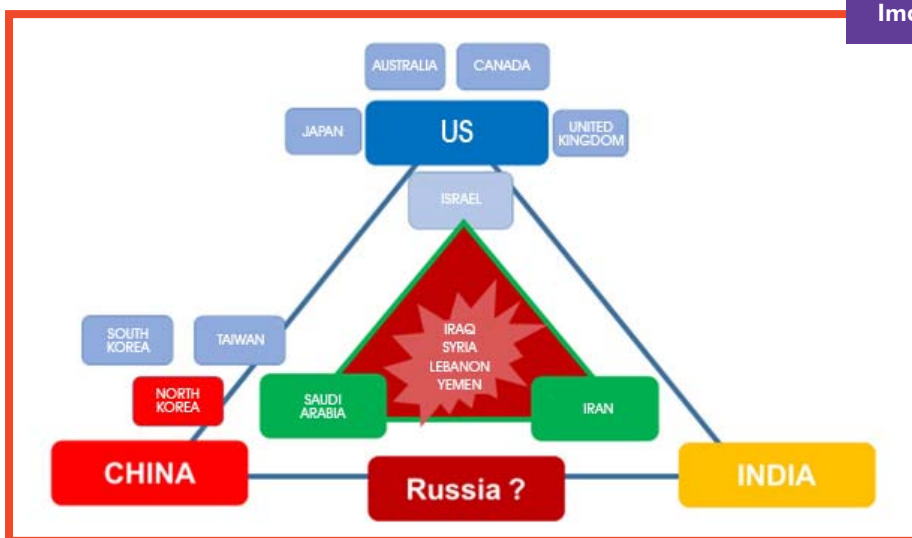


Image 1 Triangles of rivalries - which will chart the international system of the 21st century.

Image I seeks to illustrate two triangles that, from our viewpoint, will organize the relation among the foremost supremacies of the 21st Century.

Note de following:

a) A first triangle incorporates:

- The US – a supremacy that dominates at an international level even nowadays – combining a presence in the Pacific Indian and Oceans and in the Persian/Mediterranean while benefiting from a set of partnerships with States vital to the exercise of its influence in these same sea locations – United Kingdom, Japan, Israel, Canada and Australia;
- The two Asian supremacies competing for the future reorganization of Asia – China and India;

Russia is also included within this first triangle– presently maintaining the uncertainty whether it will continue to hinder the actions of the US or will a converging relationship be found – albeit autonomous – with the US;

b) A second triangle incorporates:

- The key regional supremacies in a competition among states that spans the Middle East /Persian Gulf – the macro region that functions as a fundamental energetic base of the two Asian supremacies: Iran, Saudi Arabia and Israel.

If we observe the suggested geographies found in these two triangles, we can conclude that it will be in the Indian-Pacific and Persian Gulf, that the future relation of controls will take place between the foremost supremacies of the 21st century. Location that matches what was once the Portuguese empire in Asia.

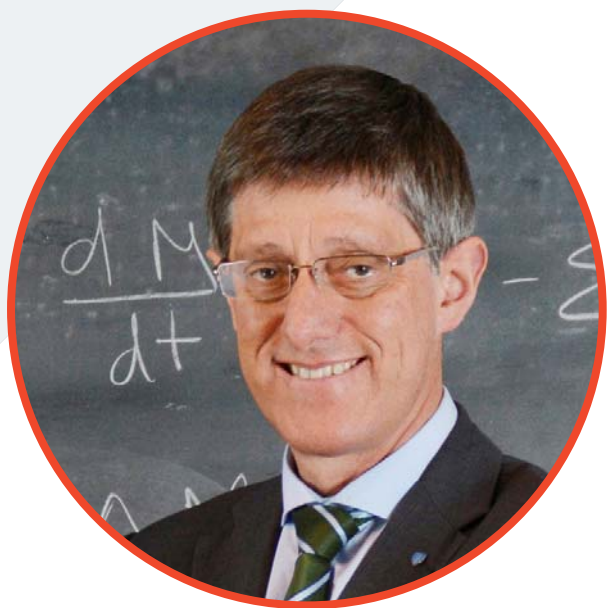
“During centuries, Portugal conquered and maintained a series of “mooring Points” (ex: Ormuz, Goa, Diu, Malaca, Macau and Nagasaki...) where fortresses, ports, administrative, educational, and religious buildings were constructed, and in some cases, urbanizations created-places that served as knots of very intensive interaction (not always peaceful) with extremely developed civilizational locations for the times, although not all yet politically unified.

“(...) it is in the Indian Pacific and Persian Gulf that the future balance of power between the main supremacies in the 21st Century will take place. After all, this area was once part of what was then the Portuguese Empire in Asia.

THE QUALIFICATION CHALLENGE IN INFORMATION AND COMMUNICATIONS TECHNOLOGIES

Arlindo Oliveira

President of Instituto Superior Técnico



Universities should not only train engineers of this field, in greater quantity than at present, but also integrate ICT training in all the other areas of study, including in this range, fields of law, economics, medicine, as well as so many other fields that traditionally have little or no ICT training.

The information and communications technologies (ICT) are, more than ever, essential in an open and competitive economy. With the globalization of the economy and with the ever-increasing importance of data science and engineering regarding the competitiveness of businesses, the deficit in the ICT fields becomes increasingly evident.

Skills in this area are necessary at every level, from non-specialized professionals, who should master basic interaction techniques of a computer, to those who possess PhDs and the skills to develop new technologies and solutions, as well as engineers and ICT technicians.

The responsibility of training these human resources, so vital to the economy of the future, must be divided between the various players, from elementary schools to universities and businesses. It's fundamental that, at elementary school level, computational thought is seen as having the same importance as other areas, such as mathematics, physics or Portuguese. At high school level, it's crucial that there exist opportunities for young people who are not interested in attending college, but who must possess professional ICT skills. Universities should not only train engineers of this field, in greater quantity than at present, but also integrate ICT training in all the other areas of study, including in this range, fields of law, economics, medicine, as well as so many other fields that traditionally have little or no ICT training. Finally, businesses should fund training and requalification sessions, in collaboration with universities, which guarantee the adequate and updated training of their personnel.

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Within the large ICT segment, there exist numerous fields with very distinct specificities, and that which should appeal to different types of students. These fields include infrastructures, information security, data science, games, user interfaces, software engineering, information systems architecture, artificial intelligence, robotics, telecommunications and mobile applications to list but a few of the areas that will continue to develop in the foreseeable future and become increasingly larger shares of the digital economy.

There exist presently in Portugal more than 10.000 unfilled positions in the vast ICT field. It is foreseeable that in Europe in 2020, there will exist approximately a million positions to be filled, at different skill levels. This lack of human resources currently represents a significant brake on the development of national and European economies. This is one of the reasons why Europe may be on the verge of losing competitiveness in this field. Of the 15 largest businesses of the digital area, not one of them is headquartered in Europe, whereby nearly all the them are in the United States and China. Countering the shortage of human resources that characterizes this field is not only essential for the future competitiveness of the European continent, but also for the quality of life of all Europeans.



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CREATIVITY: THE “KEY” TO CHAN

Ana Lehmann*

Former Secretary of State for Industry

These days it is imperative that people be creative in order to benefit from changes introduced by the 4.0 Industry, a new era that Ana Lehmann, Secretary of State for Industry, views as “an opportunity not to be missed”. However, to accomplish this, it is necessary that businesses cross over to digitalization and that people are prepared to work in new 4.0 environments. Two reasons that lead to the creation of initiatives such as i4.0, Portugal INCoDe.2030 and Capacitar i4.0.

Fórum Futurália (FF): What assessment do you make of Portugal i4.0 Initiative, launched in January 2017, which aims to support businesses in their transition into this new industrial era?

Ana Lehmann (AL): the 4.0 (i4.0 Industry), made up of 64 policies, is the great flagship program of the Portuguese Government that aims to support the transition of businesses into digitalization, from capacitation to internationalization. In a little over a year that has passed, more than 80% of these policies have already been executed or are being undertaken, which is a great result in terms of hands-on implementation of the program. The key challenge now is to move forward with digitalization of small and medium sized companies and ensure that their employees possess the needed skills for this transition.

FF: One of the hubs of this initiative is based on qualification, training and professional reconversion. What results do you foresee that Portugal may reach, in this matter, until the end of the four-year program?

AL: Our workforce must be prepared to work in 4.0 environment. We have several policies to support this project. From the beginning, INCoDe.2030 has been an extensive governmental that addresses this topic and, in the tangible scope of industry, there is *Capacitar i4.0*. In terms of results, we hope to develop the technological skills of tens of thousands of persons, which equates an effort by all the *stakeholders*, a strong valorization of professional learning, the strengthening of “experiencing” and the proximity between businesses and schools. It is an effort at every level of learning that also convenes the private sector. We must strongly increase professional training as well as the variety of courses offered in relevant areas to the 4.0 initiative, which, in effect, is already being undertaken in regard to professional learning. Percentage-wise, concerning all professional learning establishments, the courses offered related to the 4.0 Industry will increase by 26% during the 2017/18 school year and by 40% during the upcoming year.

FF: Nowadays we talk a lot about the capacitation of young people with the necessary skills for the jobs of the future. In your opinion, is it possible to identify skills that are mutual and

essential to future jobs regardless of the sector in question?

AL: With the fourth industrial revolution we must commune with advanced robotics, artificial intelligence, new materials, biotechnology, among others more creative. And to be able to benefit from these changes, people have to be more creative. At the same time, they need the skills related to information and communication technologies which generate a strong capacity in working with these novelties, as well as the capacity to access and process data and information.

FF: What key policies should be implemented or reinforced by education and training systems in response to the demands and constant changes that exist in the industrial world?

AL: In my opinion, promoting a broader participation of businesses in the definition and teaching of courses is crucial, but so is strengthening the practical and experimental aspect.

FF: In regard to industrial entrepreneurs and managers, what could be done to accelerate industry’s digital transformation?



AL: We wish to speed up this transformation and massively reach small and medium sized businesses and as such, we are marshalling initiatives at various levels. The locations and demonstration activities are fundamental. Therefore, we are reinforcing demonstration activities, by means of, for example, *Open Days*, such as the ones that are being promoted by COTEC and IAPMEI. Furthermore, in conjunction with the Secretary of State for Science, Technology and Higher Education, we are presenting the potential of the *FabLabs* network as hubs of prototypes, experimentation and learning. Another central policy included in the strategy for 4.0 Industry, consists of launching *Digital Innovation Hubs*, as areas of diffusion and experimentation, knowledge and digital technologies. There are two mappings in Portugal, officially recognized by the European Commission, and we are working on increasing this number. We hope to reach 10 by the end of the year in such varied areas that range from precision agriculture to advanced automation as well as the Internet of Things. We are also keeping a very close eye on the financing component, whereby since early 2017 notices were launched with an allocation of more than €700M to support businesses in adopting technologies and developing skills in the i4.0 scope. The training-action programs have also played a key role as training instruments in the capacitation of management. And we are going to continue to invest in these programs.

FF: Within the scope of this initiative are several projects that seek to increase the appeal of the industry among young people.

What should be communicated and in what manner for young people to feel more attracted to industry- related jobs?

AL: Industry nowadays is living challenging days, with the constant upsurge of new technological solutions and launching of new products. Many of the tasks are enhanced by technologies which constantly appease their less attractive components. In regard to products, industry contributes, as no other sector, to the innovations that are transforming the way we live and interact. Creativity is of the utmost importance. Industry promotes the development of stable and lengthy careers, with the possibility of lifelong valorization. In addition to these aspects, businesses are more and more mindful of the need for the constant improvement of work conditions and balance between work and family life.

FF: In Portugal, should Industry 4.0, above all, be considered a threat or an opportunity not be missed?

AL: It is most certainly an opportunity not to be missed. With new digital technologies, factory robots taking on more skills, with the development in the realm of artificial intelligence, the interaction between computers, robots and workers evolves into a state in which man and machine are reconciled – machines nearing humans – propelling industry into new levels of speed and perfection.

“We must strongly increase professional training as well as the variety of courses offered in relevant areas to the 4.0 initiative, which, in effect, is already being undertaken in regard to professional learning.”

“(...) industry contributes, as no other sector, to the innovations that are transforming the way we live and interact.”

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** This interview took place in June 2018.*

LET'S BE HUMAN AND LEARN

Agência Nacional para a Qualificação e o Ensino

One of the present-day uncertainties that has led to many concerns and angsts, concerns the following: what must humanity do to maintain jobs, a dignified life and life in society, with room for all, as machines and robots take the place of humans?

Of the many answers that have been given, one of them, patently obvious, seems to be the most appropriate: let's be human, because this is what can distinguish us from machines...

As several writers have shown us, as Max Tegmark, MIT professor, and author of the book "Life 3.0", or Yuval Noah Harari, the Israeli historian, we will, for the first time, in the history of humanity, be faced with a separation between intelligence and conscience. Now, if intelligence is something that we are already starting to share with machines, then conscience is inherent to humans. Hence, it makes sense that we utilize it in favor of humanity, leading us to make choices, founded on values and principles, that allow us to use artificial intelligence and *deep learning* in the construction of more fair and prosperous societies where all of us (without exception) can be happier.

Another intrinsically human trait is our capacity to learn. It has been this capacity, in effect, that has led humanity to evolve, overcome obstacles, solve problems and invent the solutions and technologies that we have today and which, paradoxically, frighten us now.

If there exists an interest and presumed conscience of the use of technology in the edification of a brighter future for all, then our great challenge will involve creating conditions that ensure that we are all effective learners throughout our lives, taking advantage of all the benefits that technology may offer: more comfort,

more health, more free time and an unlimited access to new insights.

Learning, thus seen, will not only a necessity (to human survival) but also a consequence of what it means to be human, corresponding to something so natural in our lives as being able to breathe.

In other words, more than an obligation, learning is a privilege, for which, if we comply with who we are, we will need to continuously learn. As such, it is essential that conditions are created for learning to occur during our lifetime and be reachable to all. This leads us to consider that the future requires some changes in this respect.

First, learning cannot be limited to initial training, ending as soon as students reach what educational and training systems have identified as elementary or base education. This will also have to occur when the students move on to the job market, and later, on to retirement, whereby there is no level from which learning no longer occurs.

Moreover, learning must adapt itself to the student, being, more and more, tailored to their needs, never overlooking who is the student, their academic journey, and what they expect from this learning. This change will not only result in the student's wish to learn more, but also lead them to more successful routes where they won't have to relearn what they already know. The flexibility of learning can be a good solution for what we need, namely, through the recently implemented possibility in Portugal, of schools developing a flexible management of the curriculum by promoting values and skills of diverse nature, (cognitive and meta cognitive, social and emotional, physical and

practical) which one hopes young people will attain at the end of obligatory schooling, or still, in the education and adult professional training camp, by means of the "Passaport Qualifica", created in 2017, with the objective to organize and guide training paths already taken by adults (often solo) bearing in mind the capitalization of skills and knowledge for the redesigning of new stages of qualification.

Learning should also be adapted to the work context in each period. If the work force is in constantly and rapidly changing, educational and training systems must be able to provide the essential learning for the development of skills that trainees will need as they end their training cycle. If it isn't possible to determine with preciseness what the job market will entail in medium term, at least the systems will have to be able to offer trainees transversal skills that can guarantee them the necessary conditions to maintain their employability.

In this domain, the extension of the use of *Sistema de Antecipação de Necessidades de Qualificações* (SANQ), created by Agência Nacional para a Qualificação e o Ensino Profissional (ANQEP), in 2014-15, to all education and training offers (young people and adults) and with broader purposes than merely restructuring the supply network (as occurs presently with professional training courses) can be a good jump to the transition to a new era of learning.

Furthermore, and not less importantly, learning must materialize for everyone. This constitutes one of the biggest challenges, and most likely the hardest to achieve in the short time span that separates us from an uncertain future, because it presumes a change in the thinking and mobilization of that part of

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society that still is unable to perceive the relevancy of qualification in their lives.

Almost all studies, both European as well as national, show that those who are more mobilized for learning are precisely the ones that least need it. Those least qualified tend to stay away, as disinterest in professional training intensifies as we become older and this situation perpetuates itself in future generations.

European data clearly shows how much we need to branch out to more adult qualification journeys. In Europe, almost 70 million people manifest difficulties in tasks related to reading, writing, numeracy and computer usage. In Portugal, according to the recent data, the 2017 edition of INE - Instituto Nacional de Estatísticas (National Institute of Statistics) 7,3% of our population of 15 years or older did not possess any level of schooling and the percentage of those who had quit without having graduated high school between the ages of 18 and 24, was 12,64%.

According to the European Commission, Member States should meet this challenge with the initiative “Percurso de melhoria de competências: Novas Oportunidades para adultos”, “Paths of skills improvement: New Opportunities for adults” having been adopted by the Council of the European Union in December 2016, founded upon one of the 20 fundamental principles of “Pilar Europeu dos Direitos Sociais” (European Pillar of Social Rights) which in turn, establishes that all persons have a right to inclusive and quality education, professional training, and learning throughout their lives.

In this regard, Portugal is one of the countries that may in the best position to comply with this recommendation. With the strategy of Program *Qualifica*, launched by the present administration, Portugal pledges its commitment to counter the structural deficit found in the qualifications of its population by means of an integrated education and adult training strategy as well as valuing the importance of lifelong learning for everyone.

Furthermore, what is decreed in the European initiative presumes that the States define learning paths for adults founded on three stages: evaluation of skills, personalized training offer, and validation and recognition of skills. There is in effect a great similarity between these stages and the work that is being done by the *Qualifica* Centers, the presently existing structures in our country with capacities to welcome, guide, direct and ensure the recognition of the previous skills retained by adults who have not yet reached the minimum qualification level or that need to strengthen their professional skills.

This statement, therefore, leads us to believe that we are on the right track to building a future of eternal learners, so essential in meeting challenges in regards to the future as complying with our humanity.



“Learning, will not only a necessity (to human survival) but also a consequence of what is means to be human, corresponding to something so natural in our lives as being able to breathe.”

“(...) learning has to materialize for everyone. This constitutes one of the biggest challenges, and most likely the hardest to achieve in the short time span that separates us from an uncertain future, because it presumes a change in the thinking and mobilization of that part of society that still is unable to perceive the relevancy of qualification in their lives.”

"WE HAVE TO THINK OF THE FATE

Leonel Moura

Plastic Artist

The creator of the robots that paint and sign artwork argues that, instead of resisting, we have to rapidly and creatively evolve in order to be able to continue to coexist with machines in a symbiotic relationship, as presently occurs in its creative process. In his opinion, we cannot, "isolate in the alleged superiority of human beings" but rather, "understand how we are going to coexist with these new entities" and therefore preserve the fate of humanity.

Fórum Futurália (FF): At Fórum Futurália, dedicated to education, heritage and knowledge, you argued that nowadays our relationship is not so much with things but rather with their digital representation. Are we condemned to live more in a virtual world than in a real one?

Leonel Moura (LM): We already live in a more virtual than real world. Television, computers, cellphones, and their "derivatives" make up our landscape. We also digitally replicate everything. Objects, buildings, entire cities and even people. Our reality is more and more that of a remote, dynamic and parallel world. It is not by coincidence that it called virtual reality. And even digital currency was invented, and presently with quite successful.

FF: As you state in one of your books, the technological restlessness in which we live can rapidly make us obsolete, however you suggest that, instead of resisting, we should evolve even faster with the creativity that technology can generate. Are we capable of being continuously faster?

LM: The question is simple and Darwinian: we either evolve or

disappear. The reaction to the rapid changes have been in many cases, to relativize and resist. It is said that machines will never be better than human beings or technological evolution is rejected. Actually, technophobia is growing, where one would and should least expect, in the field of culture. It's an illusion. There are already many machines with more abilities than us. The issue is not to isolate ourselves in the alleged superiority of human beings, but rather to understand how are we going to coexist with these new entities. Moreover, I believe that presently humanism is above all a force of resistance, more harmful than beneficial to humanity itself, because it overestimates the subjective component of human beings, particularly in their supposed superiority, while underestimating the objective questions that technological evolution raises.

FF: Which skills do you consider essential for the development of our youth and for what will be their future, especially in professional terms?

LM: Technological areas will continue to exponentially progress. Society will need many computer engineers, mathematicians, system inventors, data scientists and above all, programmers.

Programming is the great profession of the future. The more inventive programmers are and will continue to be sought worldwide. In effect, they are the ones who create new successful technologies. There was a time when restless youngsters wanted to be rock stars. Today they should want to be geeks.

FF: When technology and machines are already inventive, how do they demonstrate their works (for example, the Robotic Action Painter), what added values can human beings bring to artistic productions?

LM: My robots paint pictures. They demonstrate just how much this human activity is obsolete. Since the beginning of the 20th century many artists and movements declared the end of painting. I went a little further when I invented machines that definitely place the human artist outside the circuit. My work as an artist belongs in the order of the evolution of art history and not in creating pretty things. However machines are also going to be inventive within other domains and not only in the visual arts. For now, our role is to create what creates. In the future, we shall see.

OF HUMAN BEINGS"



FF: Your works tend to express a pacific interaction between man and robots. Do you believe that this is what will ensue with humanity?

LM: My relationship with robots is symbiotic. Like bees and flowers. Without me robots don't do anything, and without them I don't have any paintings. It is the ideal relationship between men and machines. Yet, I doubt that we can generalize. Not through the fault of robots but because of human irrationality. Note the construction of autonomous, intelligent and lethal robots. This is nonsense. Dangerous. But unfortunately this is how human society works.

FF: As an artist you have mainly insisted upon the invention of processes that give rise to works that are created and even signed by robots. Did the human artist take a back seat or is the process you created more pertinent than the final result achieved by the robots?

LM: I have taken a back seat in regards to creating paintings, but am in the front row while creator of a new form of art. It's no coincidence that this is the theme of the exhibit currently held at that Grand Palais, in Paris, where I hold a prominent place. Does it make sense in 2018, in the era of artificial intelligence, robotics, and biotechnology that as an artist, I continue to paint canvases by hand com a paintbrush and acrylic paints?

FF: Do you see yourself as a forerunner of industry 4.0 applied to art when, in 2001, you chose

the track to robotics and artificial intelligence?

LM: I understood that more than doing things we were heading towards a time where things are done to themselves. From the old mechanic and repetitive industry where everything is conceived and foreseen by engineers, we move on to a new type of dynamic production that designs, modifies and remakes itself at every turn, as needed. It's a process industry and not a linear assembly line. My first robots at the beginning of the century originated from this concept. Machines capable of creating their own paintings and not mine. In that sense, I was forerunner in art and maybe in other domains as well. For example, I was the first to create robot colonies with some capacity of cooperation.

FF: You also wrote an unpublished work "Robotarium", a sort of robot zoo. Are robots beings that continue to deserve protection or must we reverse the situation and create protection for human beings instead?

LM: In this work I wanted to provide robots with a condition similar to the one we give animals, treat robots as a new species that is emerging on planet Earth. And, as is the case with human beings, put them in cages. *Robotarium* is one of my favorite works, since it features several reading levels and is, in its apparent simplicity, complex. For example, robots feed from solar energy. But it's true, we have to think of the fate of human beings. As, perhaps sometime in the future, very advanced robots may create a *Humanarium*.

"Humanism is above all a force of resistance, more harmful than beneficial to humanity itself, because it overestimates the subjective component of human beings, particularly in their supposed superiority, while underestimating the objective questions that technological evolution raises."



HERITAGE, CITIZENSHIP AND INTELLIGENT TOURISM

Miguel de Castro Neto

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Those cities and territories that, due to their material and immaterial heritage, were successful as tourist destinations, as is the case in Portugal with Lisbon and Porto, today face huge challenges in regards to the response for the demand of infrastructures and services and, most importantly, in being able to ensure the sustainability of the social fabric, which, upon final analysis, is what distinguishes and embodies the touristic destination itself.

It is precisely in this framework that, instead of maligning tourism in a generalized manner, we should be striving to comprehend this phenomenon and find, within the possibilities offered by means of digital transformation of urban areas in the context of smart cities, solutions that make it possible to conciliate the various interests and various players in a worthy manner, and able to produce positive results for everyone involved while simultaneously ensuring social, economic and environmental sustainability.

This challenge, although not easy, can determine answers for what is known nowadays as intelligent tourism. Among the possible definitions of intelligent tourism I prefer the one defended by António Muñoz (President of SEGITTUR) that refers to it as "Innovative touristic destination, built upon a technological infrastructure that guarantees the sustainable development of touristic areas, accessible to all, which simplifies the contact and integration of attendees, increases the quality of the experience at the destination, and improves the life quality of the residents" as it, in fact reflects the potential and obligation of tourism, if developed in an intelligent manner, being able to create value for all parties involved in an innovative, broad and sustainable fashion.

Therefore, the challenge we presently face in our country lies in developing tourism planning and management models, drawing from the most recent technological developments based on the usage of analytical solutions that can explore the available extensive data. This approach will stimulate, on the one hand, better management of the most visited locations and, on the other hand, promote other not yet discovered destinations with strong potential.

It is within this context that urban intelligence can and must have a say. In this case, where a city has developed a Smart City strategy based on its identity and constructed in a broad manner while taking advantage of the most recent

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technologies available, most probably single local values have emerged in the process that will become the pillars of the intelligent tourism strategy.

The challenge will then be to generate a planning and management method of that intelligent tourism strategy which is, not only aligned with the Smart City strategy already created, but also perfectly integrated as well, since the goal of reaching the so named sustainable, inclusive and innovative intelligent tourism implies that the necessary steps must be taken in order to achieve the embodiment of a city as a platform where the best technological solutions are used (i.e. those that best respond to the traits and challenges of each territory while not necessarily the most sophisticated) drawing on the data generated and collected from operational systems, the internet of things and collective intelligence.

The city will, therefore, have at its disposal the data which translates in real time, the metabolism of the city. Presently data is often considered the oil of the 21st century, and as oil, must be refined to provide the value it closes. Hence, an analytical intelligence must be created that can transform this data into information and guide the activities of those who oversee the preparation and management of tourism.

Since technology is a means and not an end, the real secret to the success of an intelligent tourism destination is the existence of identity values that function as foundations for the construction of this intelligent tourism and, for those who are familiar with the national territory, are perfectly aware that we possess an absolutely exceptional wealth of values that render each municipality unique and capable of creating a distinctive

high quality supply, taking advantage of cultural, gastronomic, natural, and industrial characteristics and so on.

Therefore, this is an exclusive opportunity to produce solutions that can contribute not only to a better tourist experience, but more importantly, to support better tourism preparation and management, while newer and bigger tourism revenues are generated.

For merely illustrative purposes and from a tourist's perspective, we could and should provide information regarding possibility of anticipating the visit (starting the interaction at the origin), namely cultural and gastronomic points of interest found in the location to be visited, or the program of cultural events that occur during the visit timeframe. During the visit, the concept extends to solutions capable of providing contextual information of the most varied aspects at this time we perceive an increased usage of reality heightened for this effect). And, no less important, continuing from the two previous aspects with the aim to promote a dynamic visitor management in that, if we were to pursue efficient data management, in which we recognize in real time where the tourists are and their respective profiles, thus being able to create an individual visitor experience according to each tourist's profile and investing in cocreation tourism. From the possibility of their acquiring tickets with previous booking by date/time of visit, to being able to inform them of how long the wait in line is, and furthermore, letting them know that 350 meters away there is another point of interest without any waiting lines and its description (eventually associating a promotional event to this information) the potential at our disposal is huge. In this new management model, it is possible to control touristic pressure without causing

great impact on tourism, since it is executed by induction in real time and in accordance with the knowledge we possess.

Another aspect which decidedly can still be improved upon consists of the connection between the aforesaid solutions and the creation of new business and marketing opportunities for services and local commerce. If tourists are using apps that provide them with context information, then we have the necessary and sufficient data to promote proactive visitor management and its interrelation with the local economy, as this cannot be the only information included in the app, and more interestingly, to launch promotional campaigns in real time according to nearness and tourist profile (for example send a message that not only informs how near a local business is, but also offers an immediate and short-lived discount).

Lastly, and eventually the least explored aspect and presently the one with the biggest growth potential, we can use these apps (or rather, the data they produce) to improve the planning and management of territory supply/demand. In effect, if the city or village developed a smart city strategy that lead to an integrated and interoperable model of systems and data, we will then be able to go further and promote an integrated and truly intelligent method concerning tourism in the sense that we can achieve not only the aforementioned benefits, but also guarantee that services and city infrastructures management responds in an effective way and in real time to both resident populations and the dynamics of tourism. Therefore, should this occur, the city will automatically adjust its public transportation, its urban hygiene services, security, etc. based on the spatial distribution of tourism and of the traits



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of the tourists that visit the city at any given time (nowadays, with the available technology, a static supply of services and infrastructures is unacceptable, particularly one that doesn't meet the needs of the city in a dynamic manner and in real time).

An example that materializes this vision: in a city as a platform approach, the town possesses a portal of open data where businesses that develop apps obtain data regarding the city's cultural events agenda, thus being able to inform tourists that the afternoon an outdoor market will be held in the town square late afternoon the following Friday. At the same time, the information management system of the cultural agenda is connected to the other systems of the town and when we reach late Friday afternoon, the public lighting system will mechanically adjust the lights to a higher intensity during the period when the market is open, the urban hygiene services will be automatically reinforced, the preventive measures of the municipal police guaranteed and so on.

Undeniably, negative effects caused by tourism do exist in some of our towns nowadays, yet most of the time they originate more from the incapacity of territories in enhancing planning and tourism management models, namely taking advantage of the available technologies that I referred to previously, than from tourist behavior. That is, I consider that those who manage territory should be liable for acting proactively in order to guarantee that tourism can be "intelligent" as well as a valuable ally in the sustainable economic development of the cities and villages of our country in an inclusive perspective capable of ensuring the quality of life not only of those who visit but also and especially, of those who live and work there and that are truly responsible for the identity and the attraction capacity of these locations.

In this framework, territorial governance still has a long road to follow because as they are the first accountable for planning tourism in cities and villages, town mayors nowadays take responsibility many times for situations that are beyond their control considering that there is a clear surplus of institutions in charge of sectorial interests as well as a recognized incapacity to

promote collaborative and collective solutions.

In conclusion, this vision of intelligent tourism will only materialize if the following challenges are faced:

Firstly, and probably the most defining, it will be necessary to promote the construction of a Smart City strategy that includes an image of the city as a platform, in the sense that only an integrated and holistic approach to the various aspects of city life will permit ensuring an intelligent planning and management of tourism, drawing from the most recent technologies and data science.

At the same time, it is essential to invest in open data policies (involving public and private entities) as are the cases of Lisbon, Cascais and Oeiras, since not only do they permit a larger transparency and involvement of citizens, but also, boost the economic development based on innovation and entrepreneurship leveraged by the analysis in real time of the data of the city.

Connectivity is key aspect that has lately been warranting the attention of national and European authorities. We must guarantee, with the broadest possible territorial coverage, free internet access. Many times, considered an expense, the internet access networks managed by town halls can boost the creation of new models of generating revenue, because the data collected from them plays an irrefutable role in understanding

in real time, the metabolism of the city (with benefits that largely go beyond the context of tourism) and generate the creation of business opportunities within the local economy.

Lastly but not less important, a final note concerning the potential of collective intelligence in promoting solutions which will allow the cocreation of tourism, that is, where tourists can contribute in an active way as well as participate in the definition/arrangement of the visit.

In conclusion, nowadays, we have the required and adequate conditions so that tourism can contribute to a sustainable, resilient and inclusive economic development of cities and territories, should there exist the capacity and leadership capable of creating models of governance that can be called "Smart Tourism".

Undeniably, negative effects caused by tourism do exist in some of our towns nowadays, yet most of the time they originate more from the incapacity of territories in enhancing planning and tourism management models, namely taking advantage of the available technologies that I referred to previously, than from tourist behavior.

"OUTSIDE THE BOX TALKS"

with Euro-deputies

"Digital acceleration is a great opportunity that we have to change the economic and social context, the world". This was one of main messages transmitted by Carlos Zorrinho, deputy of the European Parliament, during the initiative "Talks outside the box" that took place on March 16th at *Espaço Emprego & Empregabilidade*, (Job and Employability Area) involved in the event "Futurália", in Lisboa.

In a conversation that he defined as "collaborative", mediated by Etelberto Costa (member of the Futurália Advisory Board) with children, young people, education and training professionals and teachers, the euro deputy explained that, faced with the change that is coming, we have two options: "or we go along and will have circa 10% of the world's population living in comfort and the other 90% with great survival difficulty", or "we use technology to change a lot of things, including values".

"The future depends on what we want to do with it"

Using the expression that is also the title of Pedro Domingos' book, about artificial intelligence, Carlos Zorrinho added that "the master algorithm will learn from us and from the chief standard that we define", and it is up to us, as human beings, to outline it with values, associated with a European identity that we wish to build. "If Man is at least a nanosecond ahead of the machine, we could have a really great world". In short, he concluded that the future depends on what we want to do with it, and the skills in which we invest in, bearing in mind a resolve, and

existing only one way of anticipating the future: "with us designing it!"

Consequences of acceleration of reality

In the "Talk" that followed, moderated this time by Carla Mouro, also member of the Futurália Advisory Board, the Deputy of the European Parliament, Carlos Coelho expressed concern over the fact that people have little predisposition for the acceleration of reality which we are living, with consequences in jobs of the future. The euro deputy reminded everyone of the OCDE (OECD) data, according to which 65% of the children who start school presently will have jobs that have not yet been created, as well as of the projections that point to a deficit of approximately 5 million job posts until 2020.

"The majority of your generation will be faced with a paradigm of evolution which has huge impacts on those who have to regulate" Carlos Coelho stated, before an audience of young people, adding that legislation has been unable to keep up with the evolution of science, the same way that school has not been able to keep up with the evolution of jobs. As education is a field without EU competence, the Euro Deputy made an appeal for the need to strengthen the ties between school and civil society and for each person to become an advocate of change. After all, young people "are not merely consumers of an educational product, they are social agents with the skills to mold it."



THE FUTURE STARTS HERE

Futurália 2018

The 11th edition of the biggest national education and vocational training fair, welcomed, between March 14th and 17th, more than 82.000 attendees at halls 1 and 2 of the International Fair of Lisbon (FIL).

Under the motto “There are no two futures alike. Choose yours.” *Futurália* featured once again, a vast spectrum of the many qualification opportunities of high school level, namely in the areas of vocational training and higher learning.

With an exhibition and interactive area of more than 20 thousand square meters, visitors, whether on their own or included in school visits, were able to find universities, polytechnics, professional schools, training centers, language institutes, Armed Forces, entities specialized in international exchange programs as well as other institutions that offer vocational training and working life integration programs.

Once again, prominently presented were innovative solutions and initiatives were that are geared to increase attendees awareness of the benefits of investing in education and training.

Culture and knowledge

Following the nomination by the EU of 2018 as European Year of Cultural Heritage, *Futurália* welcomed several initiatives within this scope.

Forum Futurália, under the theme “Education, Heritage and Knowledge”, reflected upon the importance of heritage, whether material or immaterial, in the country’s cultural but also economic and social development.

As a counterpart to the Forum, the fair welcomed, for the first time, the exhibit “*FuturáliaCULT*”, with the aim to arouse students’ interest in local, national and European heritage, fostering a broader knowledge of history, civic and patrimonial conscience. This initiative consisted of a showcase of fine, performing and audiovisual arts developed by high school, professional school and university students from different regions of the country.

A step towards the future

Destined mainly for students, parents, teachers and learning institutions, this year’s edition expanded its intervention area by creating a new space.

Titled “Jobs & Employability”, this area was meant to meet the needs of both young people and adults, businesses and employers in general, focusing on the portfolio of qualifications and skills and the attractiveness of talents, always associated with knowledge, creativity, education and training throughout life.

Likewise, within the same space, recruitment processes, debates and capture sessions were dynamized. In total, approximately 800 young people and adults attended in search of new job opportunities.

At the same time and with the objective of inspiring young entrepreneurs, *Futurália* hosted the App Start Up

contest, designed to support app projects of twenty teams, made up of youngsters from age 10 to 18, participants of the Apps for Good program.

Cooz Wizard, an app which intends to “make life easier for mothers, fathers or students who daily have to cook and don’t know what to make” was the winner of the contest, consequently attracting investors so that, it will be, before long, available for download on smartphones and tablets.

Dreams guide life

Futurália also hosted many workshops and conferences, among which we highlight the Dream Conference (Conferência do Sonhadorismo) which intended to inspire young people to follow their dreams, through the testimony of Madjer, beach soccer player, Mateus Dantas, skipper and NBC musician.

Madjer shared aspects of his career while recalling the accident that could’ve kept him from ever competing again. But the truth is that he never gave up and was distinguished three times with the award for world’s best player in beach soccer. An example for younger generations, for them never to give up believing in themselves and in their potential.



From arts to sports

During the four days in which it was held, *Futurália* provided kids and adults alike a panoply of activities, from concerts, workshops, debates, interactive theater and even the opportunity for fans to meet their favorite youtubers, Sirkazzio or Miguel Paraíso.

At *LG Live stage*, visitors attended performances of artists such as Anjos, Enoque, Paulo Sousa, Pedro Gonçalves, Caelum, among others. More than just attending the concerts, visitors had the chance to vote for their favorite bands, in a contest for performances at MEO Sudoeste. B3L2 and RichFellaz were the winners of the passport.

For dramatic arts lovers, *Expolíngua* presented the play “Murder and Mayhem at Montague Manor”, a sort of “Clue” with real performance, whose story revolved around who killed Lord Montague. During the performance, spectators were invited to take part in the play, interpreting different roles. This play, performed in English, permitted simultaneously, participants to practice a foreign language and improvise.

Besides arts, sports activities returned to *Futurália*, through the presence of dynamizing organisms such as Instituto Português do Desporto e Juventude (IPDJ), (Portuguese Sports and Youth Institute) and sports federations of the most diverse areas.

At the end of four days of much liveliness, music and varied attractions, *Futurália* promises to return next year, from April 3rd to the 6th, with more animation, and also firsthand job and vocational training solutions.



EDUCATION, HERITAGE AND KNOWLEDGE A PROSPECTIVE RETROSPECTIVE

Fórum Futurália 2018

"Education, heritage and knowledge" were the terms that outlined on March 15th, *Fórum Futurália*, essential fragment of "Futurália", with the intent of celebrating the significance and diversity of Portuguese heritage, in the actual European context.

As ascertained Jorge Rocha de Matos, President of Fundação AIP, "not only are identity factors strengthened because of cultural heritage, but also those factors that distinguish us in globalization."

The opportunities that result therefrom were not only emphasized by this speaker but also by the European Commissioner, Marianne Thyssen, in a video message. According to the European Commissioner, "through education and training we must ensure that we are preparing people to be aware and to have the adequate skills needed to preserve the diversity and richness of the material and immaterial European legacy." Besides the cultural significance, Marianne Thyssen stated that cultural heritage is presently responsible for directly employing 300 thousand persons, while there are still 7,9 million indirect jobs in all of Europe."

Likewise, Tiago Brandão Rodrigues, Minister for Education, accentuated the logic in connecting the three terms – education, heritage and knowledge – education being a form of "taking good care of our most precious heritage (human capital) for us to later on, take care of our cultural heritage." Midst the vastness that these three terms represent, Alexandre Quintanilha,

President of the Permanent Commission for Education and Science of Portuguese Parliament, chose to discuss our challenge in adapting ourselves to the discontinuity of the new era, with the aid of knowledge. However, to attain this we must know how to promote it, through curiosity, imagination and passion. In his words, "without curiosity we don't ask questions; without imagination we don't risk answers; and without passion we give up exploring".

Heritage, citizenship and intelligent territories

Within the context, the Forum proceeded with the realization of two panels.

The first established a connection between heritage, citizenship and intelligent territories.

As panel chairman, Miguel de Castro Neto, Subdirector of NOVA IMS, Nova University of Lisbon, demonstrated how we can continue to ensure the quality of life in cities, while knowing that there will be a greater resource and energy consumption resulting from population overload (today approximately 50% of the population lives in cities, in 2050 it'll be 70%). The answer lies in being able to "view the city as a live organism" and thus "administer it according to the knowledge that we have of that territory". Intelligence, as explained by this speaker, lies in "cross checking data to ensure citizens a better citizenship experience". Furthermore, we should consider data "to be the oil of the 21st century, not because

of its worth, but because it also must be refined". Hence, according to this expert, it is the afore mentioned notion that is pertinent in administering a territory.

Gonçalo Azevedo, Founder of GAP Year Portugal, added another level to the theme, when referring that one of the problems that exist deals with the fact that young people have very little involvement in the heritage maintenance policies. He defended, as a solution, a bigger investment in citizenship education and a new focus on the heritage that is rediscovered many times when one has the opportunity to travel and discover other cultures.

According to Ana Paula Laborinho, Director of the Organization for Ibero-American Studies of Education, Science and Culture, we must be able to perceive heritage in a more global manner. Considering that heritage is inseparable from knowledge, we may be heading towards a world made up of contrasts, where some are rich, and others are poor in knowledge and this "is as disturbing as carbon dioxide emissions". Furthermore, "Europe consists of diversity which is an essential factor for innovation and our wealth." This is the "plural" sense of heritage that, according to Ana Paula Laborinho, is linked to freedom, and citizenship, whereby, of the utmost importance, is "an ethic of being for us to have a future".

From this vision of the future, we traveled to the past with Félix Ribeiro, of Fundação Calouste Gulbenkian, with

OWLEDGE:

his plea to start “looking at Portuguese heritage not as a succession of monuments, but rather as a narrative” that originated from House (Casa) de Borgonha (“the wealthiest, most powerful and most knowledgeable House that existed at that time”). It was from this House, Félix Ribeiro reminds us, that Conde D. Henrique comes to Portugal and from where a dynasty is born that made Portugal a forerunner and renown nation worldwide, not only because of the territorial conquests but also because of the diplomacy and influence that made us “masterful builders of empires”.

Cultural and creative industries: challenges of the qualification of the digital revolution

The second panel dedicated to qualification and digital revolution challenges of the cultural and creative industries, began with Arlindo Oliveira, President of Instituto Superior Técnico. This professor showed how unrealistic it is to think that enterprises can uphold their business in the way they currently exist. New skills are needed, and here lies a problem: the importance of training in science and mathematics is known for those who enter technological fields, however, the same cannot be said regarding computational thought. And, explains Arlindo Oliveira, “this isn’t about knowing how to program” it is knowing how to identify a problem, create its abstraction, solve it and create value.

Another problem identified by the artist, Leonel Moura, was described

as the necessity of having “the entire environment digitalized”.

Pedro Colaço, President and CEO of *GuestCentric Systems*, stated that “we are the first generation whereby what we do is massively and rapidly applied”.

For that reason, he believes that “more than specific skills, what is necessary is for people to be very curious and unafraid of experimenting”.

Beyond the digital, it also became clear that traditional heritage can equally be recreated or reinvented, acquiring a new meaning. As example, Paulo Osório, administrator of *Réccua Vinhos, S.A.*, spoke about the history of this company that was able to project the richness of the Douro Wine Region, considered World Heritage, through the creation of cocktails and online sales.

The example of this company that was able to grasp that “wine does not start from grapes but rather in its consumption, sensations and emotions”, allowed Augusto Mateus, CEO of AM&A, to close the panel, concluding that, in face of the irreversible changes of this new world, there is not only a question of rhythm “but also of sense”, which we should attribute to this innovation opportunity. This innovation “also needs to be social, institutional and civilizational”, which requires that “we change what changes at a slower pace, such as laws and convictions.”



At the closing of the event, Eduardo Marçal Grilo, president of the Strategic Council of Futurália, recalled that “what we are watching is a digitization of life and not just of heritage and economy”. To face this “completely unpredictable” world, we must have “three pillars” in our education: “knowledge; attitudes and behaviours; and values”.

Lastly, Guilherme d’Oliveira Martins, National Coordinator of European Year of Cultural Heritage, systemized all the day’s ideas, subsuming heritage and learning: “heritage is what we learn, it is an active notion that points toward the future” and also is “the recognition that learning lies at the heart of humanity” while knowledge is “what distinguishes an advanced society from a backward one”. The future depends, therefore, on us being able to “transform innovation into knowledge, and knowledge into wisdom”.



GAP YEAR: A YEAR THAT'S MUCH MORE THAN Gonçalo Azevedo

Founder of GAP YEAR Portugal

For Gonçalo Azevedo it all started in 2012, with a round the world trip that took him to 25 countries. Subsequently, this trip led to the creation of an association, Gap Year Portugal –, an entity that provides support for Portuguese young people who wish to take a “sabbatical year.” Besides the development of innumerable skills, Gonçalo Azevedo highlights from this experience the broadening of horizons and expectations, even because “everything is a question of how hard we are willing to work to achieve this”.

Fórum Futurália (FF): For you, it all started with a year's interruption of your studies, that allowed you to discover other cultures and establish an association - a Gap Year Portugal. Would you have been able to seek this adventurous path had it not been for your previous contact with 25 different cultures? Why?

Gonçalo Azevedo (GA): No. To establish and help raise an association that has reached the dimension of Gap Year Portugal was a process that was as rewarding as it was demanding. A great capacity for effort and sacrifice was fundamental, and this was only possible due to a clear vision concerning the importance that Gap Year can have in the lives of thousands of young people in Portugal, in conjunction with a great perseverance which was developed during the most complex days of the trip. During that journey I started to lose my fear of aiming high and of being ambitious. And this was decisive in Gap Year Portugal having reached this far.

FF: What exactly does the Association Gap Year Portugal do?

GA: Gap Year Portugal is responsible for promoting Gap Year in Portugal and

for supporting all the young people who wish to pursue it. In this sense, we travel yearly to approximately a hundred schools and universities and provide assistance to everyone who seeks us, by helping them prepare their trips, find places in which to do volunteer work, or even professional internships and programs of academic experiences that allow them to enroll in courses during short periods of time during their Gap Year in order to understand what they want to pursue next.

FF: You had the opportunity, during your Gap Year to develop new skills. Which ones would you accentuate as being the most relevant in shaping the person you are today?

GA: I feel that I developed all those capacities that are today designated *soft skills*. However, I would point out as being the most relevant, the vision “there are no limits to what we can achieve”. Nowadays it's hard for me to understand goals that others see as unattainable or impossible. For me, everything is a matter of being willing to work towards achieving this.

FF: The resumption of studies and the choice to pursue a degree in

Economics were decisions due to Gap Year, or do they correspond to an option that you already had?

GA: The orientation Economics/Business Management stems from a previous period. But nonetheless, Gap Year continues to be a period of elucidation in terms of what I really wanted, since it was an opportunity to truly understand who I was; what drove me. The big problem that Portuguese students encounter is being obligated to choose a degree without really knowing who they are and what they want to be.

FF: Why do you ratify that travelling the world can help young people to involve themselves more in the defense and preservation of our cultural heritage and to solidify citizenship?

Heritage is part of the identity of cultures – it's what makes us want to travel and it's what makes us want to return home.

N A VOYAGE!



GA: Travelling is a form of awareness on many levels. In this case, it is vital to refer to the civic and cultural plan. Civic since it allows us to discover our capacity for creating impact and the notion that we can effectively change something (namely through volunteering). This mindfulness of our capacities leads us to the perception that we are indebted to society, and, therefore, of being active citizens. Likewise, understanding the importance of heritage for so many cultures throughout the world leads us to increasingly value our own heritage and want to conserve it. Heritage is part of the identity of cultures – it's what makes us want to travel and it's what makes us want to return home.

FF: *Do you feel that when choosing a candidate for a job position, businesspeople value more someone who has had a Gap Year? Why?*

GA: Yes. Presently, a large majority of students possesses, at least, a college degree. Today, a college degree or even a master's degree represents little in view of competitiveness. Practically all knowledge can be found just a click away. Businesspeople do not need young people who can recite books by memory, they need critical human beings able to create value through their social skills, that are good sales persons, that can create a motivating environment among coworkers, that are entrepreneurial, and can improve processes, be leaders, etc... and of course, in this sense, Gap Year emerges as an indicator of how young people, potentially, will have these skills. Doing

volunteer work in remote areas of India, professional internships in Portugal, working to be able to afford their trips, travel alone, (solving all those problems that one is constantly faced with) are some of the elements that will endow young people with very important skills for the value creation of a business.

FF: *Recently, the Portuguese Parliament emitted a recommendation for the government to adopt support measures for the practice of a sabbatical year (Gap Year) in Portugal. Which measures, do you believe would, in effect, be the most adequate and necessary?*

GA: First, increasing the logistics, financial and advisory support to Associations such as Gap Year Portugal. The truth is that we are changing the way students consider their academic journey in terms of their choices, but also in terms of what they're looking for, and with this, change the school system itself. Government cannot exclude itself from working on this issue with us, under penalty of maintaining a completely inadequate school system, ill-prepared to face the requirements of the job market and of the world itself as we presently know it.

“(...) Gap Year continues to be period of elucidation in terms of what I really wanted, since it was an opportunity to truly understand who I was; what drove me. The big problem that Portuguese students encounter is being obligated to choose a degree without really knowing who they are and what they want to be.”

“Businesspeople do not need young people who can recite books by memory, they need critical human beings able to create value through their social skills, that are good sales persons, that can create a motivating environment among coworkers, that are entrepreneurial, and can improve processes, be leaders, etc...”

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