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# Public Management and Administration

*Edited by Ubaldo Comite*





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# PUBLIC MANAGEMENT AND ADMINISTRATION

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## Public Management and Administration

<http://dx.doi.org/10.5772/intechopen.72057>

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First published in London, United Kingdom, 2018 by IntechOpen

eBook (PDF) Published by IntechOpen, 2019

IntechOpen is the global imprint of INTECHOPEN LIMITED, registered in England and Wales, registration number: 11086078, The Shard, 25th floor, 32 London Bridge Street  
London, SE19SG – United Kingdom  
Printed in Croatia

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

Additional hard and PDF copies can be obtained from [orders@intechopen.com](mailto:orders@intechopen.com)

Public Management and Administration

Edited by Ubaldo Comite

p. cm.

Print ISBN 978-1-78923-638-5

Online ISBN 978-1-78923-639-2

eBook (PDF) ISBN 978-1-83881-645-2

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# Meet the editor



Ubaldo Comite was born in Cosenza, Italy, June 14, 1971. He received his degree in Law (1994) and Economics (1996) from the University of Messina (Italy) and his PhD degree in Public Administration from the University of Calabria (Italy), in 2005. Currently, he is a professor of Health Management, Budget, and Business Organization at the University of Calabria. Furthermore,

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His research interests are private and public management, nonprofit organizations and accounting, and health management.



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## Preface

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The public sector plays an important role for both regulation and in the delivery of services directly or indirectly. As in families, managing means dealing with life and dealing with income and expenses. Public administration means dealing with the life of the community (local, national, and supranational), protecting the rights of citizens and ensuring the services that the company deems appropriate to give to all, possibly under different conditions, of the general interest, of the common good, of what contributes to the well-being of all. In this context, it is important to consider transformation, change, and innovation, which are the elements on which the main determinants that influence public management and the administration of economic, social, and political systems are based.

This book makes it possible to realize the nature of the problem, its multidimensionality, and the need for original approaches, through the contribution of scholars belonging to different disciplines.

This book contains nine chapters in a single section (Public Management and Administration), which, through the different approaches to the subject by the authors, help to explain the issues of the public sector.

**Chapter 1** “Democracy in the Middle East: The Educational Battle” shows how the education in all countries is at the heart of the challenges to leadership. In most Middle Eastern countries, graduates from middle school upward have been guaranteed employment in the government. Failure to meet this promise has left thousands of educated youth unemployed. Further fueled by the overwhelming number of refugees, leaders in Jordan, Lebanon, and Israel are threatened by the unemployed and refugees’ access to technology and their democratic demands. Authoritarian countries such as Iran and Turkey are emphasizing religious education in order to increase the control of their people. Research, on-site visits, and media reports provide the basis for this study, which identifies three forces of the educational conflict: religious education, informal education, and access to technology. The possible solutions for future educational directions provide a roadmap for the future.

**Chapter 2** “Facebook Tools and Digital Learning Achievements” Perception of Learning Processes in the Cognitive and Affective Dimensions” explores the effect of tablet use for various subjects in Israeli schools on students’ perception of learning processes in the cognitive and affective dimensions.

**Chapter 3** “Information Security Awareness in Public Administrations” shows how the governments’ digital agendas worldwide go hand-in-hand with the digital transformation in businesses and public administrations as well as the digital changes taking place in society. The chapter summarizes the most important scientific findings and transfers them to the prac-

tice of public administrations in Germany. Moreover, it shows examples of learning methods and provides practical assistance for information security sensitization and training.

**Chapter 4** “The Digital Culture within Enterprises and Public Administration: Legal Aspects and Repercussions on the Country’s Socio-Economic Fabric” shows how Italy is going through a process of transformation and innovation affecting the services provided to citizens and enterprises; this process aims at administrative simplification through the use of digital technologies.

Digitization is affecting the Public Administration significantly. The unprecedented and large-scale impact of new technologies is resulting in a more effective system and, above all, in a closer link between Public Administration and users (both citizens and enterprises).

**Chapter 5** “Innovation Challenges in Latin American Administration” explains how the authors conducted a documentary survey on public administration responses in Latin America, which allowed them to distinguish the possibilities to progress an ideal of collaborative governance, new public policy values, and public-private partnership, thus reinforcing the arguments about a new logic for thinking about public administration.

**Chapter 6** “Overview of Marine Stock Enhancement, Restocking, and Sea Ranching in Ghana” shows how the fish stocks in Ghanaian waters are decreasing. There is therefore the need to rebuild the stocks through marine stock enhancement and restocking. Stock enhancement and restocking are the guaranteed routes to revive the stock. Other benefits will include sustainable employment, increase fisherman’s incomes, reduce poverty, ensure food security, and promote national development. According to the author, there are certain factors that must be taken into consideration if stock enhancement and restock programmes are to be successful, namely existing Fisheries Management schemes, socio-economic factors, institutional capacity, and aquaculture development.

**Chapter 7** “The Protection of Competition between National Law and EU Law: Main Features in Public Contracts” provides a general analysis of competition law and focuses on competition-related issues within public contracts. This chapter highlights the economic grounds that led to the introduction of laws to protect competition, as a functional tool for production efficiency. After a critical analysis of national and EU regulations on competition, the chapter analyzes the relation between competition and public contracts, by making a distinction between a ‘micro’ and a ‘macro’ view of competition. The chapter aims to highlight the main features of the Code of Public Contracts, focusing on the relation between two different principles: the protection of EU competition, on one side, and the power of Member States to determine their internal organization, on the other. The chapter also aims to understand to what extent can the European Union protect free competition without affecting the organizational freedom of its member states.

**Chapter 8** “Crowdfunding and Civic Crowdfunding: Theoretical Features and Future Prospects” analyzes the crowdfunding, an innovative financial tool based on fundraising activities intended for “crowds” of people, also meant as an antidote to the global financial crisis. After an introduction to crowdfunding, its origins, and evolution, the chapter pinpoints the specificities of the various models. Special attention is given to civic crowdfunding, which engages the citizens in financing or cofinancing public works meant to improve and preserve the territory or to support social and cultural activities. The chapter focused on critical

and successful factors of crowdfunding campaigns to then propose a research schedule meant to implement the future of this emerging tool.

**Chapter 9** “The Involvement of the Taxpayer in the Public Administration Decision” shows how the relationship between taxpayers and Tax Authority and the involvement of the taxpayer in the public administration decision is a very important area of investigation in Italian tax law. This relationship is based on equity and cooperation in good faith, which stems from constitutional principles, such as the principle of sound administration (Art. 97 Italian Constitution), fairness, and solidarity (Art. 3 Italian Constitution). Therefore, the Tax Authority must exercise its control and assessment powers in compliance with such principles. The fundamental expression of the involvement of the taxpayer in the public administration decision is the “right to be heard,” intended as anticipation of the future activities of the administration. Precisely, it is a phase of research, acquisition, and assessment of the evidence and of any other information, which may facilitate a better reconstruction of the application of the tax (“presupposto”). In these terms, the “right to be heard” is an implementing tool for taxpayer’s right of defense and for best practice in the public administration. Therefore, it should be mandatory, always and in any case, in accordance with Art. 3 and Art. 97 of the Italian Constitution and with European law. However, this assumption is not found to be peaceful in national and European laws and in the interpretation of domestic and supranational jurisprudence. Therefore, it is necessary to reflect on the appropriate instruments to make it a fundamental principle at the base of the relationship between taxpayer and tax administration.

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# Democracy in the Middle East: The Educational Battle

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.77581>

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## Abstract

The unrest in the Middle East has created vacuums where authoritarian and democratic powers are in conflict. Education in all countries is at the heart of the challenges to leadership. In most Middle Eastern countries, graduates from middle school upward have been guaranteed employment in the government. Failure to meet this promise has left thousands of youth who are educated but unemployed. Further fueled by the overwhelming number of refugees, leaders in Jordan, Lebanon, and Israel are threatened by the unemployed and refugees' access to technology and their democratic demands. Authoritarian countries such as Iran and Turkey are emphasizing religious education in order to increase the control of their people. Research, on-site visits and media reports provide the basis for this study which identifies three forces of the educational conflict: religious education, informal education, and access to technology. The possible solutions for future educational directions provide a roadmap for the future.

**Keywords:** democracy, Middle East, education

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## 1. Introduction

### 1.1. Historical causes of educational conflict

The people of the Middle East recognize the power shift taking place in the region. Democracy, after the events following the Arab Spring, seems to be in free fall. Structures which must be in place for democratic governance such as representative leadership, just elections, voter access without coercion, and leaders listening and taking action on the desires of the people, are not functioning in most Middle Eastern countries. The people are aware of their absence. Authoritarian leaders are battling democratic expectations with military force and arrests.

Informal education and technology through which citizens learn about democratic opportunities are a force in the shift of power in the region.

As a result of retaining the Ottoman educational goals, students in the Middle Eastern countries formerly ruled by the Empire expect employment in the government after graduation. Originally, the schools were constructed to educate native boys as religiously faithful bureaucrats who administered Ottoman rules and laws. Today, government schools continue to teach obedience to their religious, political rulers, memorization of government written textbooks, and tenants of Islam. Students are to accept the rewritten national narratives which are found in textbooks. In return, students only need to graduate to a secure government position. In contrast, democratic education prepares citizens to take on the responsibilities of citizenship, integrate with efficiency into the marketplace and prepare for upward mobility [1]. These principles are in place in private and informal educational systems. Today, the large number of refugees in throughout the Middle East wants citizenship and its rights, the opportunity to earn a living and a future for themselves and their families. These needs are forcing a shift in current political structures toward democracy as refugee's informal education is reshaping formal government-controlled education. Host countries with refugees cannot afford to support thousands of unemployed youth and adults. They must prepare them to work through informal, technological, and formal education.

Informal education does not necessarily take place in a classroom and can be delivered through means other than a textbook or teacher. As such, it is more accessible to students who want to acquire training or information. They can get instruction through social media, the Internet, on-line universities, and external agencies. Government schools are either accepting informal education for refugees and native youth or limiting access and forcing enrollment in religious schools as in Turkey, Iran, and Saudi Arabia. There, religious education is being used to control the thoughts of the people.

In the past, political leaders would meet with parliaments or other leaders in closed rooms to discuss individual needs with the leaders of factions or organizations. Power was built upon personal relationships and certainly not transparent. Now with the access to the internet, the power is shifting from government control of classroom education, television, and newspapers to informal educational forces speaking democratically through the representative voices of the people.

## **2. Maintaining authoritarian, religious education**

### **2.1. Iran, Saudi Arabia, and Turkey**

An example of authoritarian rulers' increase of power is the development of ruler's narratives while ignoring the needs of the people. In Iran and Saudi Arabia, the leaders are the political and Shi'ite (Iran) and Sunni (Saudi Arabia) religious leaders of their countries. In Turkey, the President is establishing himself as a religious leader. All have no mandate to serve their people and are responsible for representing Allah, continuing economic stability and exporting their

natural resources. As titular heads of their Islamic sects, they can command the obedience and loyalty of their citizens regardless of their actions. The current Iranian Ayatollah, Sayyid Ali Hosseini Khamenei, has also maintained his power through the Revolutionary Guard whose Commanders he appoints and dismisses as the military leader who directed the Iraq Iran war. Furthermore, according to a 6-month study by Reuters, he has amassed a 95 billion dollar fortune which gives him financial means to operate independently from the parliament and national budget without the construction of a heroic personal narrative. As the religious head of the Shi'ites, he expects the loyalty and obedience of the people. He operates his fortune through the company of the Headquarters for Executive Order of Imam, called "Setad" [2].

In Saudi Arabia, there are three branches of segregated education: general education for boys, education for girls, and traditional Islamic education to prepare male students to become religious ulema. Secular Western education was added to religious education after WWII. Religious subjects remain central in the curriculum: memorizing the Koran, understanding the Koran, and application of its principles to daily lives [3]. However, the quality of the education has been viewed as below average when high quality and low quality schools' student scores on the TIMSS are compared. Both groups of schools' average scores in math and science are below the international average for all 61 countries tested [4]. The poor quality of the Saudi educational system is unexpected given that 25% of total Saudi GNP is spent on education with a total of 14 billion in U.S. dollars spent on primary education and research [5].

In Saudi Arabia, the people are learning that the King has heard their complaints. The arrests of over 200 members of the royal family and business leaders on charges of corruption demonstrate concern about maintaining his power. According to King Salman, all arrested will be tried on charges of abusive behavior toward Saudi citizens which demonstrates a democratic principle. The King's son, Crown Prince Mohammed bin Salman, has also presented plans for constructing a new business center build upon the most advanced concepts of technology.

The Saudi educational system has educated religious students who are loyal to the King. At the elementary-school level, an average of nine periods a week is devoted to religious subjects and eight per week at the intermediate-school level. This concentration on religious subjects is substantial when compared with the time devoted to other subjects: 9 periods for Arabic language and 12 for geography, history, mathematics, science, art, and physical education combined at the elementary level; 6 for Arabic language and 19 for all other subjects at the intermediate level. At the secondary level, the required periods of religious study were reduced, although an option remained for a concentration in religious studies. For women, the goal of education as stated in official policy was ideologically tied to religion: "the purpose of educating a girl is to bring her up in a proper Islamic way so as to perform her duty in life, be an ideal and successful housewife and a good mother, ready to do things which suit her nature such as teaching, nursing and medical treatment" [2].

All Saudis receive a free education through the doctorate. Doctoral students are provided with a monthly stipend. Private schools also receive government funds for administrators, educational supplies, and teachers. The internet is available and like books, TV, and films, it is censored by the Kingdom.

In Jordan, which has long stood out as a model of relative Internet freedom in the region, journalists recently voiced concerns when the government passed amendments in which it can censor content and hold journalists liable for what they write. New amendments not only require the country's 220 news websites to obtain licenses by the government but also state that the website chief editors must be members of the Jordan Press Association, which is threatening the freedom of speech particularly in the online media [5].

All authoritarian Middle Eastern countries rely upon obedience and loyalty to the King, President or Ayatollah as political and religious leaders. When citizens have access to knowledge and information which is not censored or controlled, they develop skills necessary for democracy; critical thinking, how others have access to economic empowerment and achievement of personal goals. While the media and Internet are censored in these regimes, such censorship has been circumvented [6].

For example, in Iran, individuals with access to technology are creating their Personal Video Networks (PVNs). They have forced the country to develop its own PVN. This is supposed to satisfy those with individual PVN's. It is a short-term fix in order to establish control over a single aspect of social media where Iran lost authoritarian power.

*Access to major Personal Video Networks, international news sites and social-networking sites such as Facebook and Twitter are blocked by the country's (Iran) government, which has been waging a battle against what it calls "inappropriate" content on the Internet. After blocking access to Google's search engine and YouTube in September, Iran's government launched its own video-sharing site [6].*

Turkey's President Erdoğan is another example of increasing emphasis on religious education. First, he arrested over 1300 teachers working in secular schools in his 2016 coup [10]. Secondly, he has doubled the enrollment of students by 60,000 in religious schools or hatips from 2016 to 2017. This has happened even though many parents have not wanted to enroll their children [7]. It is not surprising that this 1973 graduate of Istanbul Imam Hatip School, a religious vocational school, is trying to become Turkey's Islamic and political leader. He was imprisoned for 10 months for inciting religious hatred after publicly reading the following Islamic poem:

*The mosques are our barracks,  
The domes our helmets,  
The minarets our bayonets,  
and the faithful our soldiers...*

As President for the past two years, Erdoğan has changed classroom instruction to emphasize his success in the 2016 coup. During that massive arrest of government, educational and political leaders, Erdoğan has built his narrative. The role of Atatürk, the historic father of the country, has been supplanted in the textbooks by President Erdoğan, the Islamic, political and military hero [7].

In such Middle Eastern countries as Saudi Arabia, Iran, Turkey, and Egypt, the rulers struggle to retain power through military strength and writing their own charismatic personal narratives. They also retain power by continuing the Ottoman Empire's guaranteed government

positions after graduation from all levels of education, free education through the doctorate and subsistence subsidies for food, housing, and transportation. In poorer countries such as Egypt, Jordan, and Lebanon, financial support from external sources is required to pay government salaries and stipends. The United States, World Bank, the EU and United Nations have been doing so in the past. Such financing is not guaranteed for the future.

## 2.2. Religious educational failures

In the legislature, social media, and in the streets, graduates of all levels of schooling are protesting for government employment which they are not getting. The social, economic, and educational quagmire that currently exists in the Middle East is the result of good intentions: free education for all citizens, guaranteed government jobs for all graduates, and economic subsidies for most who cannot survive on government salaries. These good intentions continued when most Middle Eastern countries, established after WWI, began governing themselves. This promise remains in effect in Egypt, Jordan, Syria, and Iraq.

This is not to say that the education received in national schools in these countries is inadequate for employment in the government. Its religious and procedural emphasis is not congruent with the needs of the marketplace. Egypt is an example of this poor fit. Although Egypt stopped guaranteeing government employment for its university graduates, the skills and competency of the yearly 750,000 university graduates has not greatly changed from when they were promised guaranteed government positions. As their skills are not those needed in the marketplace, the private sector is not eager to hire public school graduates. In the last 10 years, the unemployment rate for Egyptian youth has increased to 33%. Unemployment rates for youth throughout the region in the year 1991 are compared with that of youth in May 1, 2016 in **Table 1**.

Despite promises of government employment, unemployment rates have gotten worse rather than better in most countries. As **Table 1** demonstrates, with the exception of Qatar, unemployment of youth averages around 25% for all graduates. Qatar, however, only has 16% of its population in the labor force and has been blockaded by other Arab countries in the past year. Its unemployment rate has certainly changed. Other positions there are held by foreigners who are not citizens. According to economists, 6% unemployment is considered the highest rate for a healthy economy.

Israel's numbers, while close to acceptable, are questionable as they do not include the Hasidic and Ultra-Orthodox Jewish youth who do not seek employment. The exclusion of this population and the Arab Israeli from military service is another factor that skews their data. Also, there are 90,000 unfilled jobs in Israel [9]. Graduates of the Arab Israeli school systems are taught in Arabic limiting their ability to fill Hebrew language related positions. Graduates from the Hasidic religious schools are only taught religious subjects which do not include knowledge of social studies, science, math or computer science. They also do not have an appropriate educational background to be successful in the marketplace.

Education in Iraq, Egypt, Palestine (Gaza and the West Bank), and Jordan are examples of instruction established by British ruled countries after World War I. Their educational systems continue to be similar. The elementary and secondary education follows the textbook written by the Ministry of Education in each country. The teachers receive two years of pedagogical

	1991	2016
Egypt	24%	33.4%
Iran	21.9	26.2
Iraq	33.0	36.1
Israel	7.5	11.9
Jordan	30.7	34.0
Lebanon	21.5	21.3
Qatar	3.4	0.6
Saudi Arabia	27.1	31.2
Syria	13.2	31.5
Turkey	15.3	18.9
West Bank and Gaza	38.6	41.1
Yemen	21.7	33.8

**Table 1.** World Bank Data on unemployment of youth 18–24 in Middle East countries [8].

training if they teach elementary school. Secondary school teachers are thought to be masters of their content area such as math or social studies. They take a limited number of courses in instructional delivery. As a result of this preparation, it can be predicted that most teachers instruct as they were taught.

Year-end exams measure knowledge learned from textbooks under the direction of the teacher. If the answers to the questions are not stated in the exact wording from the text, they are marked incorrect. Furthermore, heating and cooling systems, water and electric systems are frequently not present or not operating in countries that are located mostly in desert climates. The teachers also are working in facilities that are in need of repair for their safety and that of the students. These conditions are found in public and UNWRA refugee schools and in many poorer Middle Eastern countries [10].

International tests, when administered, indicate a second area of decline in national and government schools. In Jordan, when 86% of the Jordanian students are tested on international achievement tests, they measure at the bottom of the 110 countries tested. On the Program for International Student Assessment (PISA) given to over 28 million 15 year olds in 2015, Jordan was 60 of the 69 countries tested. The tested subjects were science, math, reading, collaborative problem solving, and financial literacy. Jordan's average scores are compared to the mean of all countries in **Table 2**.

On the PISA and Trends of International Mathematics and Science Study (TIMSS), students in Egypt, Iraq, and Palestine (West Bank and Gaza) were not tested. When students in Jordan were tested, 3.1% of Jordanian students in 4th and 8th grade were reading above the average score of 500 in science and math. However, according to the test's technical manual, the curriculum of Jordanian schools was not examined as it was in most other countries that were assessed to determine if the content was taught in classes the same year as it was tested [12].

	Jordan	All other OECD countries
Science	409	493
Math	380	490
Reading	408	493

**Table 2.** PISA scores [11].

### 2.3. Democratic changes to government education

Democratic education promises to meet the needs of the people, prepare for the employment in the marketplace, and develop the skills necessary for upward mobility. These objectives are in place in Jordan, Lebanon, and Israel in order to meet the needs of the people. Their delivery is through informal education taught by external agencies and technology. With no capacity in facilities, resources or teachers to educate the refugees who have been in their countries for years, unique and formalized democratic changes have been implemented. King Abdullah II, President Netanyahu, and President Anou are demonstrating their concern for meeting refugee and citizen needs.

### 2.4. Jordan

King Abdullah II witnesses frequent protests in the street, media, and universities over terrorist attacks, state gas agreements, and discrimination against Palestinians. Unemployment data, when averaged for youth in Jordan, are 34%. The unemployment data, when separated by gender, result in 50% for females and 30% for males. Furthermore, 60% of the most educated women are unemployed [13]. These numbers for women speak to the security and benefits of employment in the government. Many graduates are willing to wait as long as 63 months after graduation to be hired into a secure position. The problem is how can the King satisfy and sustain the unemployed?

His power to address this and other social problems are based upon democratic tribal representation of 110 pro government members in the parliament. The Senate's 65 seats are appointed by the King. In 2008, an election was held for the 130 seat House of Representative members including positions for Christians, Chechen, and Circassians with 15 for women. During the election, the streets were filled with posters of candidates, tents of campaign workers, and loud speakers mounted on trucks and cars shouting support for over 800 candidates. Schools were closed for voting. The people participated in election process and voting. The King then closed parliament on November 23, 2009. A new parliament was elected for four subsequent years and closed again by the King on September 2016. It remains closed as of 2017.

While his appointed and elected parliament is closed, King Abdullah II is preparing Jordanians to enter the marketplace. He has implemented two 5 year programs with funding from the United States and Canada. Called Educational Reform for the Knowledge Economy (ERfKE I and II), these programs were implemented from 2004 to 2009 and 2010 to 2015. The first plan provided US 380 million dollars to develop educational programs in early childhood, youth, technology, and careers in the Shorouq Area (tribal area) of Southern Jordan. The knowledge

economy program places a particular emphasis on tribal Jordanians. This program also meets the second goal of democratic education to integrate with efficiency into the marketplace. Results seem positive according to the final report from one of the largest educational reform programs in the Middle East [13]. Results available from ERfKE II, which focused upon developing a national school based program teaching young adults the abilities, skills, attitudes, and values associated indicate bureaucracy has kept funding at 6.3% of funds allocated [14]. Youth were to learn employment skills but projects have not been completed.

According to USAID and the World Bank, ERfKE II school based programs are in half the schools in Northern Jordan. The guidelines but not the programs aligned with vocational and technical education are 70% completed. Lastly, eight community-based Parent Child Centers have opened to support parent education and health of early childhood needs [15]. These nationally adopted projects will move the schools and centers toward democratic goals of preparing youth for the responsibilities of citizenship through teaching the skills not currently taught in the government schools.

It is not that Jordan made the conscious change to implement informal education on a massive scale. The economic and social needs of the country, altered by the large influx of refugees and their need to develop human capital for the marketplace, caused the shift toward democratic education. The influx of refugees may bring external funding for reform. In Jordan, Iraq, and new Syrian refugees numbered 660,315 as of June 1, 2015 [15]. Jordan closed its borders in 2014 and is now vetting another 60,000 Syrian refugees living in the desert no man's land along its border with Syria. Fifteen years ago, 5% of Jordan's GDP was allocated to education [15]. In 2015, according to the World Bank Databank, Jordan allocates 3.6% of its GNP to education [16].

## 2.5. Lebanon

As a Confessional Republic, Lebanon has assigned each major religious group democratic representation in political leadership. The President since October 31, 2016, Mr. Michel Aoun, must be Maronite Christian. The Vice President must be Sunni Muslim and the Speaker of the House, Mr. Nabih Berri, must be a Shi'ite. The most recent Vice President, Saad Hariri, resigned November, 2017 while visiting his Sunni supporters in Saudi Arabia. Michael Young states, "He is the Saudis' guy... his margin of maneuver against the Saudis is very limited indeed. He's a de facto hostage all the time." [16]. Lebanon's parliament is elected from the various Islamic and Christian portions of the population. In this way, the religious groups are democratically represented in Lebanon's legislation. The members of Christian, Sunni, Shi'ite, Druze, and other religious groups vote and participate in an elected legislature.

Religious representation is also the basis of the Lebanese educational system which began, like the Ottoman educational system, funded and attended according to religious sects. Without government intervention providing portions of salaries to their employees, the Minister of Education estimates 60% of Lebanese youth would be unemployed [19]. Today, two-thirds of Lebanese children attend private mostly religious schools. However, when some of the population could not afford tuition, the government expanded public schools which are considered inferior to the private schools. Part of the basis for this belief is that private schools require two

years of pre-kindergarten which better prepares children for school. Language differentiation is another result of religious influence. The French Jesuits arrived 1500 and restarted their French language educational system in 1830. Most private protestant and Maronite Christian schools are taught in English, the Armenian schools taught in Armenian, and the government schools taught in Arabic.

Refugees are also overwhelming the Lebanese public and private schools. In Lebanon, 1.4 million Syrian refugees are living among the 4.5 million Lebanese. This number does not include the 450,000 registered Palestinian refugees living in 12 camps throughout the country. Most of the refugees are Arabic speaking. For ease of transition, most refugee children are attending camp Arabic language government or United Nations Relief and Works Association schools (UNRWA). The UNRWA schools only go through 8th grade. And as most Lebanese high schools charge tuition and expect fluency in French or English, transferring from UNRWA elementary schools to high school is unlikely for refugee students.

Lebanese government schools are attended by refugees and Lebanese with limited incomes. Employment in Lebanon is linked to citizenship. Since most refugees are not citizens, they are unable to work in twenty professions listed by the Lebanese government. If all Lebanese children went to public schools, there would be more refugee children than Lebanese. Currently, the majority of the Lebanese children go to private and/or religious schools which do not guarantee employment. As noted in the unemployment numbers, the increase in unemployment is stable at 21% for youth throughout the country.

Lebanon's government education is delivered in Arabic which prevents its students from attending the two highest ranked universities in the country: American University in Beirut and St. Joseph's University. One teaches in English and the other teaches in French. Not only is the language of instruction an obstacle to personal advancement to government students, the curriculum itself in government schools needs modification. According to the country's constitution, the curriculum is updated every 4 years. Lebanon's curriculum has not been updated in all subjects since 2000. Its history books only cover as far as 1943. These conditions explain why Lebanese students are listed as 58 out of 61 countries tested on the International Test of Mathematics and Science (TIMSS). Furthermore, the students' consistently (2007, 2011 and 2015) score below average (449 of 500 average) on the Program for International Science and Mathematics (PISA).

## **2.6. Israel**

The Declaration of Establishment of Israel declares it is a Jewish State which precludes it from being called a democracy. Its Knesset is an elected body where the people vote for a political party. The party then selects the representatives who serve. The most powerful forces are the labor unions and Orthodox Jews who are able to command voting by their member Israeli citizens [17]. Israel is home to 33,204 refugees, most of whom are Palestinians who did not move or change citizenship after Israel terminated England's rule and presented the Declaration of Establishment. Many live in 1 of the 12 refugee camps in Israel that are conducted by the Israeli ministries.

Israel’s education has four separate branches which are not open to all citizens. However, Jewish citizens may select the branch they prefer. One system is taught in Arabic and serves Arab Israeli living in Israel. These students attend approximately 180 schools that teach the Jordanian curriculum in all but 10 schools [18]. The second branch is the Ultra-Orthodox schools that prepare male students for religious study and educate Haredi girls through the 8th grade. The third branch is the secular, Israeli schools where students follow the Israeli curriculum and receive religious education as selected by the family. The final branch is the vocational educational system which is entered after middle school and provides students with certificates in practical careers or technical studies. Secondary education in all schools is free but not mandatory. The Israeli Ministry of Education supervises all schools.

2.7. Possible solutions

Refugees are overwhelming educational systems in all host countries in the Middle East. If the countries have the economic ability to support refugees as in Turkey and Iran, they are still seeking outside funding. In 2016, Iran requested 19 billion dollars for refugee support from 12 countries in addition to the UN, EU and UNHCR [19]. Saudi Arabia has not accepted any refugees. Turkey has requested money from the EU, candidacy for membership and liberalization of Turkish passports for hosting refugees. As demonstrated by **Table 3**, UNRWA schools in refugee camps sometimes educate more students than the local government schools as in Jordan where enrollment numbers are available. These numbers indicate the importance of examining refugee education in considering how those inside and outside of these in schools are being educated [20].

Some 78% of children in Za’atari camp and 50–95% across host Jordanian communities are out of school. The key reasons include: lack of information about education services available; Syrians’ belief that they will return home soon; violence and harassment en route to and from school; domestic or work commitments for children; long distances to school, especially for girls; and transportation costs.

For Syrian children who are in school, learning environments are compromised by: students’ poor nutrition; crowded classrooms; inadequate school supplies; corporal punishment by teachers and principals; violence and harassment by students; discrimination in host

School authority	Elementary I	Preparatory	Secondary
UNRWA School	86,931	54,283	0
Gov’t. School	38,180	25,938	2943
Private School	2616	1347	18,488
Total	127,727	81,568	21,431

**Table 3.** UNRWA, government and private school enrollment in Jordan.

community schools; and inexperienced teachers in camp schools. With conditions such as these, it is not surprising that parents do not want to send their children to schools.

The first recommendation is to increase funding to UNWRA for education in refugee camps so that they may effectively educate refugee children and those who are not enrolled in schools. This possibility would centralize funding that now it is delivered to multiple countries through multiple sources. As an international agency for refugee education since 1949, UNWRA has been instructing increasing numbers of refugees with declining resources.

The second solution is to provide informal education through computers, ipads, and mobile phones. Currently, there are massive movements to offer internet courses and university degrees in the Middle East. There are courses provided at cost and free from prestigious universities like MIT, Oxford, and Open University. This author has offered university courses simultaneously and multiple times from the U.S. to South Korea and Russia. Distance education is enrolling students globally.

Elementary and secondary education is not as familiar to refugees and Middle Eastern instructors. Two useful examples of technology delivered informal education will be profiled. These programs can be offered as a supplement to classroom education, after school programs, or delivered in mosques, office buildings or in homes. Both are more effective if part-time tutors are available when students have questions about the content. However, full time teachers are not required.

A recommended prototype, Virtual Academy, currently instructs school dropouts, home-schooled, seriously ill and never attending youth throughout the Midwest United States. For the State of Missouri, this program is built upon the state core curriculum that is required for all middle and high school students. Students can access the program with mobile cell phones, ipad tablets or stand-alone computers. Virtual Academy delivers videos, study questions, and exams over math, science, literature, history, civics, and other required courses. The students can take the exams as many times as they want before they pass on to the next level of instruction. This is called mastery learning. Administrators are available at each centralized high school location with tutors. The tutors are college students hired and trained by the Regional Institute of Tutorial Education. The program is offered to students enrolled in different school districts across the region. It provides students who do not fit into school at this time with a pathway to graduation and to a future. Students do not without necessarily have to attend classes but they must be enrolled in a school district. In this way, student attendance and continuation are credited. Virtual Academy also enrolls students who have indicated by their grades that they are potential drop-outs even though they are enrolled in classes in school. The students can graduate by coming to school, working from home, or a combination. In all cases, the parents are informed regarding student attendance and academic success.

A second program, Stride Academy, is used in elementary schools to teach English language skills to French, Spanish, and Chinese speaking students. This program automatically adjusts to the language needs of the students. Students who learn English grammar or writing are rewarded with tokens that enable them to play different games at the end of the academic unit. With the aid of tutors, ESL students learning English have gained fluency in a year

of computerized instruction with tutor support accessible. In every Middle Eastern country, there are individuals with English fluency who would be able to assist citizens and refugees who need to learn English to facilitate marketplace employment. This is a second currently existing prototype.

Virtual Academy increases student access, individual achievement, and secondary graduation potential. It does not assign career paths. It does assist students in learning at their own speed. In the educational conditions existing in most of the refugee camps and remote locations, access to the internet, ipads, and electricity would be needed to operationalize such programs. However, the prototype, improvement of academic knowledge, and opportunity to increase student enrollment has educators encouraged with these multi-state and potentially multi-country opportunity for youth.

### 3. Conclusion

The academic achievement and learning conditions in most countries in the Middle East partially explain why unrest exists across the region. Failure to provide promised employment with a livable wage has frustrated thousands of government school graduates. They can see through media and technology how their lives might be. In order to supplement the low government salaries, most countries have solicited external funding from international organizations and other wealthy countries. Pacifying a large and growing population by paying salaries and subsidies from foreign funding is a precarious position at best. In order to control the unrest of the people, rulers have closed and censored internet access, maintained or expanded religious education, and solicited external funding.

Few countries have considered reorganizing their educational and economic systems in order to develop responsible citizens, prepare graduates to work in the marketplace, and prepare students with skills for upward mobility. This would mean a shift toward the democratic goals.

Instead, many are expanding government education in order to admit refugees with the knowledge that the results will be low academic achievement scores. The pressure in all Middle Eastern countries with the exception of Saudi Arabia is how to employ thousands of refugees, children, youth and adults, without the facilities, teachers, and resources to do so. No country can afford to feed, house, provide health care, and educate hundreds of thousands of refugees. Refugees must be able to earn their own living. However, the high unemployment rate of citizen graduate government schools has shown the disinterest of local and international businesses in hiring native graduates. Furthermore, they are even more reluctant to hire refugees, if the refugees are allowed to work. Fortunately, the democratic goal of preparing youth to prepare for upward mobility appears to be innate in the graduate and refugee populations. The unemployed graduates and refugees will try to not starve. Their numbers will increase and will require external financial support for their survival. Informal education through the Internet, non-government agencies, international organizations, and apprenticeships can meet their needs to expediently enter the marketplace. Religious and government education is failing to help them get employed.

Education will move by the necessity from location specific classrooms with a teacher as deliverer of instruction to mobile transmission of knowledge with multiple individuals as teachers. This will be the new pathway to education. The knowledge in the past was found in books and textbooks. In the future, it will be transmitted in modules, videos, threads, and interactive connections from content hubs located at universities, public school administrative offices or television stations. Access to instruction will not be thwarted by facility space, number of qualified teachers, absence of transportation, and cost or dangerous routes to the school. Bullying, refugee discrimination will not be issues when on-line interaction can be monitored and edited. Learning will take place as rapidly or slowly as needed without class-wide embarrassment or boredom. Student interaction can take place across disciplines or within discipline nationally or internationally. For those who need step, by step instruction, the mastery learning format can be an option.

This pathway is not accessible today in government schools and refugee camps. It could be. Tutoring is the third largest expenditure behind rent and food of most families in the Middle East. The children are tutored at home in groups or individually by professional tutors or by their classroom teachers who work as tutors in side jobs to supplement their wages. Tutoring is necessary for children to pass the national tests. These tests, as stated earlier, must be passed in order to advance to the next level in the current educational system. Those enrolled in religious schools are also required to pass these tests. If the household money spent on tutoring were allocated to individual or group licenses for informal educational programs, funding could be reallocated. Financing aside, all parents want their children to be happy and prosperous. Today, the expected reward for their children's long walk down the education pathway is not worth the trip.

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## References

- [1] Labaree DF. Public goods, private goods; the American struggle over educational goals. *American Educational Research Journal*. Spring 1997;34(1):39-81
- [2] [www.reuters.com/investigates/iran](http://www.reuters.com/investigates/iran)
- [3] Chapin H. Saudi Arabia, A Country Study. Washington: GPO for Library of Congress; 1992
- [4] World News and Education Reviews. Education in Saudi Arabia. New York, NY; Nov. 11, 2017. [wenr.wes.org](http://wenr.wes.org)

- [5] [www.cnn.com/2010/WORLD/meast/02/10/press.freedom.mideast/Feb.09.2010](http://www.cnn.com/2010/WORLD/meast/02/10/press.freedom.mideast/Feb.09.2010)
- [6] Musil S. Government blocks use of popular tool used by many Iranians to circumvent internet restrictions and mask their activities. *Filter*. Qatar: World Digital Library; March 8, 2013
- [7] Akkoc R. Turkey's most powerful president since Ataturk: A profile of Recep Tayyip Erdoğan. In: *Telegraph*. London, England; April 20, 2015
- [8] World Bank. Unemployment rates for youth 18-24 in middle eastern countries. Geneva: The World Bank Group; [www.worldbank.org/en/region/mena](http://www.worldbank.org/en/region/mena)
- [9] Cochran J. Israel: Divided by religion and education. *Digest of Middle East Studies*. 2017;23(3):32-55
- [10] Alon Y. *The Making of Jordan: Tribes, Colonialism and the Modern State*. London: I.B. Tauris & Co. Ltd.; 2007. p. 154
- [11] Program for International Science Achievement. 2015. [nces.ed.gov/survey/pisa](http://nces.ed.gov/survey/pisa)
- [12] Trends in International Mathematics and Science Survey, [TIMSSandPRLS.bc.edu/timss](http://TIMSSandPRLS.bc.edu/timss); 2015
- [13] Akour M, Shannah R. Jordan educational reform for the market economy-supplemental project. *Microthink Institute, Journal of Management Research*. 2009;4(4):4-8
- [14] Ii E. [www.moe.gov.jo/uploads/ERfke/ERfKEII](http://www.moe.gov.jo/uploads/ERfke/ERfKEII). Amman: The Hashemite Kingdom of Jordan; April 2013
- [15] Van Elsveld B. We are afraid for their future, barriers to education for Syrian refugee children in Jordan. In: *Children's Division of Human Rights Watch Report*. New York; August 16, 2016
- [16] World Bank Databank. New York; 2017
- [17] Akerman Lior, Is Israel a democracy, *Jerusalem post, Israel*, Jerusalem; May 15, 2014
- [18] Cochran J. Palestinian education throughout the Middle East. In: *Democracy in the Middle East*. Lanham, MD: Lexington Books; 2011
- [19] UNHRC. Global Focus. Islamic Republic of Iran; November 13, 2017. [unhr.org/publications](http://unhr.org/publications)
- [20] UNWRA. Evaluation. [unwra.org](http://unwra.org); November 17, 2017. [unwra.org/publications/evaluation](http://unwra.org/publications/evaluation)

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# Facebook Tools and Digital Learning Achievements

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Nitza Davidovitch and Margarita Belichenko

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.77189>

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## Abstract

During recent years, there has been a significant increase in the usage of technological tools in general and in academic teaching in particular. Many programs have been developed, including online teaching and online courses, at educational institutions. In this chapter, we discuss the Facebook social network and its use at the University. The research shows that Facebook groups are used to facilitate communication between students, to foster a positive social climate, to create dialog, and to share learning material among group members. This chapter examines students' achievements and their satisfaction with the impact of the Facebook group on the academic course, in order to examine whether the use of Facebook groups in academic courses can improve course quality and students' achievements.

**Keywords:** Facebook, information resources, online courses, higher education, structural analysis, digital learning

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## 1. Introduction

It is evident that there is a new generation of students known as members of the “digital and network generation,” who are surrounded by information and communication technologies that include Internet, smartphones, and mass media. Course Facebook groups are used to facilitate communications among students to foster a positive social climate in the classroom, to create dialog, to engage students, and to serve as a learning tool. This chapter examines the level of achievements of students and their satisfaction as part of an educational Facebook group.

The changes created by the technological age have had a great impact on universities. Many students now come to class equipped with laptops that offer great access to the Internet at any time, including during lectures. These mobile devices support students' active learning

and serve as substitutes for traditional classmates, creating a personal learning environment in the classroom and outside. The use of laptops allows students to be connected to learning resources even when they are not at the university, creating a learning continuum independent of time or place. In other words, even at home, students can continue learning continuously. The contribution of online instruction is reflected not only in the effective learning of students but also provides faculty with a rich and knowledgeable approach to the transfer of lesson content [1, 2]. It has been shown that lecturers who refer students to real and relevant information during class produce interesting and diverse learning experiences for their students [3].

## **2. Problem statement**

The use of technological tools during class has positive effects, both on the quality of learning and on students' motivation for learning. However, despite many advantages that technological tools produce, there are also negative effects on students, such as distraction caused by surfing websites that are not related to the lesson, checking and sending e-mail, social networking, and playing attractive games [4, 5].

## **3. Facebook**

Facebook was created in February 2004 by Mark Zuckerberg at Harvard University. The network was initially limited to students and later became a global phenomenon, accessible by anyone with an e-mail address. Facebook has become one of the seven most popular sites in the United States, with users around the world [6].

Facebook is also one of the most popular social networks in Israel. According to a ComScore survey, penetration of Facebook among Internet users aged 15 and over is 89.8%. This is the second highest penetration rate in the world, after the Philippines. Israel is leading in duration of use, reaching about 10.5 h a month per user (Comscore.com).

## **4. Facebook and its applications at Ariel University**

With the emergence of Facebook groups that do not require members to be "friends" or expose their lives to one another, the option of creating a "study group" with students and lecturers is on the rise, and the effects of using Facebook groups as an alternative learning management system (LMS) has become increasingly relevant.

Any Facebook user can set up a Facebook group. After the group is established, the group founder can invite other Facebook users to register for the group. Groups can choose to restrict membership to specific individuals or open the group for access by anyone. Unlike other Facebook activity, a closed learning group does not appear in any user's activity records and is published only among the members of the group [3].

The main uses of Facebook learning groups include posing questions about homework, test material, exams, and assignments, and sharing summaries uploaded by students [7].

As a tool of learning, Facebook has also reached universities. The ability of higher education to utilize social media to advance professional development, to expand institutional development, and to increase students' success is no less than revolutionary. A few decades ago, most students came from society's elite classes, but today, the student population has changed and students come from all levels of the population, increasing cultural diversity among students, with all the implications. In addition, today's students are digital natives: they have grown up into a reality with sophisticated technology, availability, and intensive use of mobile and social media. Despite the development of technology and the fact that every student now has a mobile device and a laptop, teaching methods in most academic courses have retained a traditional form. The students' learning environment must be updated to include classroom teaching and home tasks that utilize the capabilities of mobile media and social media [8].

Motivation refers to the process in which goal-oriented activities are energetic, directed, and sustained. A student's motivation was found to be a major factor in learning achievements. Other studies have explored basic questions such as how and why some students succeed in the learning process, while other students struggle to develop knowledge and cognitive resources necessary for academic success. Therefore, in designing a new learning environment that makes use of new technologies, the role of motivation must be taken into account. Researchers and educators have focused on new design projects, curriculum reforms, and innovative technological tools to raise motivation [9].

## 5. The learning process model

The penetration of social networks into everyday life has attracted the interest of many organizations and researchers to explore the influence of social networks on teaching and learning and has triggered efforts to use social networks for teaching and learning purposes. According to a learning process model developed by Biggs and Moore [10], the learning process contains four key components that influence learning outputs:

1. A well-structured knowledge base: The quality of the knowledge base is assessed by three characteristics: the quantity of knowledge, the quality of the organization of knowledge, and the accessibility of the knowledge. Anything that helps the student know more, organize the material in their minds or increases its accessibility, will improve the quality of students' knowledge base.
2. Motivational context: Certain conditions encourage students' intrinsic motivation. Two key conditions are clear goals and instructions, and a warm, positive climate that the teacher creates.
3. Interactions: Learning comprises three main interactions: teacher-student, student-student, and content-student, with an emphasis on the essential role of the teacher-student interaction in the teaching process.

#### 4. Active learning.

Another model of interaction analysis was suggested by Hodges [11], who distinguished between four types of interactions: social, cognitive, procedural, and explanatory.

- Social interaction refers to a dialog of a friend-like nature: the teacher encourages students to express feelings. Oren [12] found that in these forums, almost no interaction is created.
- Cognitive interaction entails investigation into the depth of a topic, linking it to other subjects, raising questions, critiquing and analyzing it. Doron [13] found this kind of interaction in social network forums: the more involved the student, the more active and the more applied to his learning.

In general, Biggs and Moore's message to the teacher is: Do not do it, let the students do it. Based on this model, the following five research questions were formulated:

1. Do Facebook groups enhance students' knowledge base?
2. Do Facebook groups increase students' motivation for learning and their active participation in the learning process?
3. Do Facebook groups encourage student-student interactions?
4. Do Facebook groups encourage social and cognitive interactions?
5. Do Facebook groups encourage active learning by students?

The results of our study show that Facebook plays a constructive role in all four components of the model, including motivation and climate. Facebook groups contribute to students' motivation for learning, especially in a situation where students and teachers have good communications. In addition, Facebook groups contribute to a positive course climate and to students' motivation for their self-development [14]. A pioneering study in which Facebook was presented to graduate students as an alternative learning management system found that students expressed satisfaction with the Facebook-based learning method and a desire to use similar study groups in other courses as well.

Findings of a recent study offer evidence of students' positive attitudes and satisfaction with their learning experience using Facebook groups. Most students agreed that the collaborative work on Facebook was interesting, informative, and effective. Positive attitudes toward learning in the Facebook environment were not, however, associated with students' academic achievements on their final test [15].

## 6. The impact of technological tools in Academic Institutions

Today, many students come to class with laptops that provide great accessibility to the Internet at any time. These mobile devices support students' active learning and offer a substitute for traditional study tools. With these devices, students bring with them a personal

learning environment to the classroom and outside. The contribution of online instruction is reflected not only in effective student learning but also enables the faculty to have a knowledgeable approach to the transfer of lesson content [1, 16, 5, 2]. It can be seen that lecturers who refer students to real and relevant information during the lesson produce interesting and broad learning experiences for their students [3].

Technological tools in and outside class lessons have positive effects, both on the quality of learning and on students' motivation for learning, but there are also negative effects on learners, such as distractions caused by browsing websites that are not related to the topic, and engagement in social networking [4, 5].

## 7. The teacher's role in digital learning

Online courses in general and the role of lecturers in online teaching, in particular, are topics of extensive research in institutions of higher education around the world [17–19]. Teaching and digital learning enable and require changes to traditional teaching methods or looking for new ways to adapt to the transition from the teacher's role in traditional learning and her role in online learning environments. E-learning is different from traditional teaching in several respects, including in the roles of facilitator and students, models of communication, interactions, and learning flexibility [20]. Researchers and educators are introducing new insights into online learning. In their opinion, to ensure that the transition to electronic courses is not merely technological, online instruction must be based on constructivist and cooperative approaches, which go beyond presenting information that is passively absorbed by students.

The usage of constructivist theories as a rationale and a fundamental principle of instruction is adapted to network technology. The goal is to ensure that students in computerized courses will not function as passive learners who receive the material from the lecturer but will become active learners who construct knowledge themselves. Students are therefore expected to seek information, create meaningful connections between different content, and build new knowledge in the field. In the opinion of these researchers and others, the teacher is the most important component in this process to ensure successful e-learning. It is not the technology itself, but the way it is implemented by the teacher that determines the effectiveness of learning.

A review of the professional literature [21] in the field reveals the following key characteristics expected of the teacher-facilitator in digital learning environments:

- Conducting a dialog that includes three features: academic interaction, interaction of cooperation, and interpersonal interaction. The mentor-facilitator's management influences these interactions.
- Active construction of knowledge, when the role of the teacher changes from the transfer of knowledge to mentor, counselor, and colleague who accompanies and directs the student, assists her, and enables her to construct knowledge. For this purpose, students need active guidance from the teacher rather than passive guidance.

- Awareness and consideration of students' individual learning needs. Students differ in their needs, learning styles, and quality preferences. Therefore, high-quality e-learning must also be directed at each student's individual needs. It is no longer possible to be satisfied with a general model for everyone, but rather the teacher must provide individualized learning services that support each student's subjective preference profile.
- Creating social learning and encouraging interaction in the course. There is an emphasis on the lecturer's need to improve communication skills with the students in order to create a community of learners. Quick responses to learners' questions increase their confidence and motivation for learning.

## 8. Nira Hativa's cognitive-emotional model of learning

A study based on classroom observations found that the main behaviors of effective teaching were enthusiasm, clarity of explanations, and interactions and positive relationships with students. Hativa's model of good teaching and key teaching behaviors [22] suggests that, in general, a good teacher has teaching capacity in two dimensions:

*The cognitive dimension* represents the teacher's skills in channeling the material to the students. This dimension consists of three types of teaching behaviors:

Organization of the course and lesson—The student is well placed in the framework of the course and the lesson, he knows at every stage of the course what lessons they have learned so far, what they are learning now, and what they will learn in the next stages. Also, lesson time is well spent on learning.

Clarity of the lesson—The teacher clearly explains the course and content of the lesson so that the students can understand and implement their understanding and perform the assignments and homework.

Interest/promotion of concentration and attention, intellectual challenge—The lesson is interesting and strengthens concentration and attention among the students. The teacher manages to keep the students engaged throughout the lesson so that they will be focused.

*The emotional-affective dimension* represents the teacher's skills in creating a pleasant and positive classroom atmosphere that promotes openness, promotion, and a desire for learning. This dimension comprises two types of teaching behaviors:

Respect for the students, a warm and sympathetic attitude, empathy for their difficulties in learning, caring and helping them succeed in learning.

Maintaining positive and beneficial interactions with students, such as encouraging questions and providing good, useful answers to their questions.

In such circumstances, students are satisfied with the teaching, organization, clarity, interest, and challenge of the studies, and the lecturer's approach is favorable to them. This is equally applicable in different content domains such as engineering and the humanities. To be perceived by students as an outstanding teacher, the teacher must excel in creating clarity,

organizing the lesson, and creating a positive classroom atmosphere. Outstanding teaching has a unique and personal aspect: outstanding teachers are like artists who know how to help their students grow and develop with great skill. Good teaching involves a number of factors that interact with one another and affect student learning effectively [8].

In digital teaching, we find similar principles. Students express satisfaction with two main aspects of the digital means at their disposal: the cognitive dimension, which includes organization, clarity, interest, and challenge, and the emotional dimension, which represents atmosphere, student encouragement, and positive classroom interactions. The research hypothesis is that there will be a positive correlation between achievements and satisfaction of students who participate in an educational Facebook group.

## **9. Method**

The sample included 150 students studying at Ariel University of Samaria, between age 20 and 30, enrolled in BA programs.

### **9.1. Research tools**

We developed an online questionnaire that examines the relationship between participation in an educational Facebook group and students' achievements and satisfactions. The questionnaire examines two main issues: the first is the effectiveness of the group and the student's achievements (cognitive) (e.g., Do collaborative Facebook groups allow students to be involved in all stages of learning in the course?). The second topic examined satisfaction and atmosphere among students (emotional aspect) (e.g., Do Facebook collaborative groups create a positive atmosphere that fosters openness among students and a desire for learning?).

### **9.2. Procedure**

Participants were sampled on a voluntary basis and recruited throughout the Ariel University campus. Participants were informed that participation in the study was not mandatory, and they were permitted to terminate their participation at any stage of the study if they felt that their privacy was violated. Participants completed a consent form before receiving a questionnaire, confirming that they were participants of their own free will. The questionnaire was distributed throughout the university at convenient times for participants. A series of demographic questions was followed by a questionnaire on satisfaction with the emotional and cognitive aspects of their Facebook groups.

## **10. Analysis**

Dependent variable: level of achievement and satisfaction.

Independent variable: participation in an educational Facebook group.

Based on the data transferred to the statistical analysis, descriptive statistics were presented. Various analyses were conducted on the variables: Facebook group use for learning purposes, level of achievements, and level of satisfaction. To rule out alternative explanations, gender differences, differences between academic years, and other differences were also examined.

11. Findings

To test the hypothesis regarding a positive correlation between the level of achievement of Facebook group members and their satisfaction, a Pearson test was conducted. A strong positive correlation was found ( $rp = 0.863, p < .01$ ), indicating that students who were more satisfied with the Facebook group also had higher achievements in the course and vice versa (Tables 1 and 2, Figure 1).

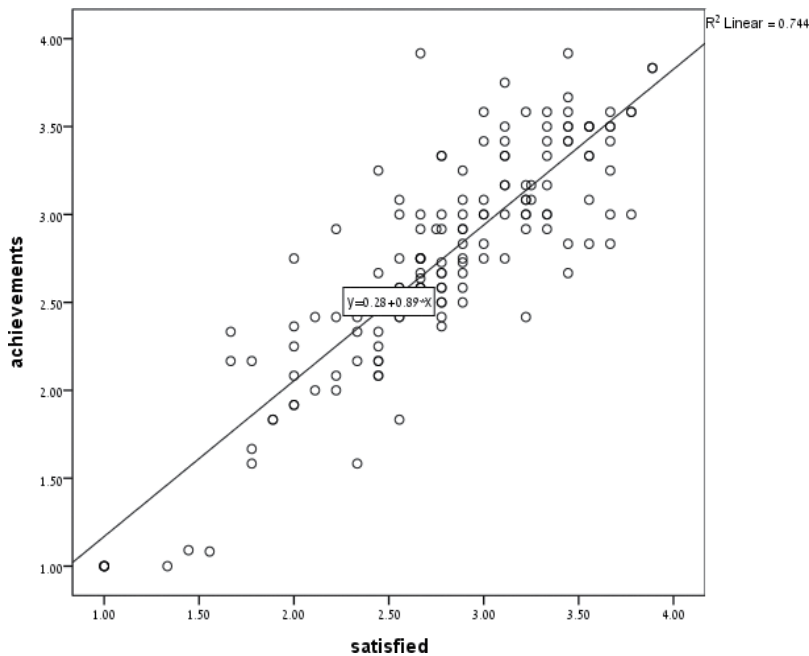
In conclusion, the present study examined the relationship between success and achievements of students at Ariel University, and their satisfaction with the contribution of a collaborative

Variable		N	%
Sex	Male	56	37.3
	Female	94	62.7
Family status	Single	92	61.7
	Married	51	34.2
	Divorcee	7	4.1
Religion	Secular	45	30.2
	Traditional	19	12.8
	Religious	85	57
Year of studies	A	35	23.3
	B	31	20.7
	C	50	33.3
	D	17	11.3
	Other	17	11.3

Table 1. Socio-demographic variables.

Variable	N	Range	Average	Standard deviation
Age	150	18–35	24.44	2.78
Religiosity	150	1–4	2.72	0.933
Satisfaction	150	1–4	2.72	0.937

Table 2. Descriptive statistical data of the research variables.



**Figure 1.** Pearson correlations between achievement and satisfaction among Facebook group members.

educational Facebook group. This digital process can be said to have significantly contributed to the students' success and satisfaction, and the Facebook group can certainly serve as an additional tool to supplement traditional frontal instruction. Therefore, the research's recommendation is to integrate Facebook groups into academic courses to facilitate the transition of academic material beyond academic walls, expand study hours, strengthen the connection between students, and create a comfortable learning atmosphere.

## 12. Conclusion

This chapter examined satisfaction among students taking part in a collaborative Facebook learning group and how collaborative Facebook groups influence students' achievements. The findings suggest that there is a strong correlation between these variables, which may help raise awareness of the potential of using the Facebook group platform for educational purposes.

## 13. Research contributions

The current study may help raise awareness of the potential use of Facebook groups for educational purposes. Using the Facebook groups for study purposes expands students' study hours beyond the hours of frontal study in the classroom, and takes the study material out

of the university. Moreover, the use of collaborative Facebook groups may enhance students' achievements as a result of positive interactions among group members, including mutual assistance, sharing of educational materials, and other learning-related activities. To overcome the limitations of the study, additional studies should explore this issue with an equal number of men and women.

The Facebook network has great potential that expands the hours of study beyond the frontal hours at the University, yet this advantage may be offset by the loss of a face-to-face learning experience. Does technology help the social aspects of frontal teaching? Is there any point in frontal teaching? Is this tool still relevant for our times? What is the image of the classroom or of the University today? Do lecturers make effective use of the digital platforms at their disposal? All these questions are necessary in order to identify the lecturers' role in the learning process and whether they will disappear in the future in which teaching becomes digital.

Confirming the research hypothesis, a positive correlation was found between Facebook users' level of achievement and their satisfaction. The findings of the study can be explained on the basis of Ariei and Rimor's [15] study, which reports students' positive attitudes and satisfaction with their learning experience on Facebook. Notably, participation in a Facebook group allows students to examine the material at home and bring additional knowledge beyond the hours of frontal study. Moreover, students can help each other clarify a subject or discover new knowledge, correct each other's errors, and offer comments. The contribution of the Facebook network should also be examined using additional means and variables that potentially affect its contribution to higher education.

## Author details

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## References

- [1] Barak M, Lipson A, Lerman S. Wireless laptops as means for promoting active learning in large lecture halls. *Journal of Research on Technology in Education*. 2006;**38**(3):245-263
- [2] Mifsud L, Mørch AI, Lieberg S. An analysis of teacher-defined activities with mobile technologies: Predecessor and successor tool use in the classroom. *Learning, Media and Technology*. 2013;**38**(1):41-56

- [3] Mishar-Tal H, Kurtz J, Pietersa A. Study group on Facebook—Can it be used as a substitute for a learning management system? In: Alkalai Y, Caspi A, Eden S, Geri N, Yair Y, Kalman Y, editors. Chais Conference on Learning Technologies Research 2012. Ra'anana: The Open University. 2012. pp. 175-182
- [4] Gehlen-Baum V, Weinberger A. Notebook or Facebook? How students actually use mobile devices in large lectures. In: Ravenscroft A, Lindstaedt S, Kloos CD, Hernández-Leo D, editors. 21st Century Learning for 21st Century Skills. Vol. 7563. Berlin Heidelberg: Springer-Verlag; 2012. pp. 103-112
- [5] Kraushaar JM, Novak DC. Examining the effects of student multitasking with laptops during the lecture. *Journal of Information Systems Education*. 2010;**21**(2):241
- [6] Bosch TE. Using online social networking for teaching and learning: Facebook use at the University of Cape Town. *Communication: South African Journal for Communication Theory and Research*. 2009;**35**(2):185-200
- [7] Cohen EL. Patterns of use of Facebook among youth and attachment to educational processes. In: Eshet-Alkalai Y, Caspi A, Eden S, Geri Y, Yair Y, Kalman Y, editors. The Chais Conference for Learning Technology Research 2012: The Person Who Studied in the Technological Era. 2012. p. 158
- [8] Division N. Why and How to Integrate Contemporary Technologies into Academic Teaching?, Issue 6. Tel Aviv University. 2015. pp. 1-11 [Hebrew]
- [9] Pintrich PR. A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*. 2003;**95**(4):667
- [10] Biggs J, Moore P. *The Process of Learning*. New York: Prentice Hall; 1993
- [11] Hodges H. *Technology in the Ancient World*. California: Amazon; 1992
- [12] Oren A. Bioenergetic aspects of halophilism. *Microbiology and Molecular Biology Reviews*. 1999;**63**:334-348
- [13] Doron Y, Saar G. Learning with technology, a survey of Israeli teens on technology-assisted learning and teaching. College of Administration. Retrieved from <https://www.colman.ac.il/lecturer>. 1999
- [14] Lev Y, Ne'eman N, Amit C. The Facebook contribution for teaching in academic courses (poster). In: Eshet-Alkalai Y, Caspi A, Eden S, Geri N, Kelman Y, Yair Y, editors. The Chais Conference on Learning Technologies Research 2013: The Person Who Studied in the Technological Era. 2013. p. 275
- [15] Arie P, Rimor R. A play in English hosted on Facebook: An examination of the achievements and attitudes of students regarding the study of a play in English in the Facebook environment. In: Eshet-Alkalai Y, Caspi A, Eden S, Geri N, Kalman Y, Yair Y, editors. The Chais Conference on Learning Technologies Research. The Person Who Studied in the Technological Era. Raanana. 2013;**2013**:197

- [16] Campbell AB, Pargas RP. Laptops in the classroom. *ACM SIGCSE Bulletin*. 2003;**35**(1): 98-102
- [17] Dabbagh N. Using a web-based course management tool to support face-to-face instruction. *Technology Source*. 2002. Retrieved from: [http://technologysource.org/article/using\\_a\\_webbased\\_course\\_management\\_tool\\_to\\_support\\_facetoface\\_instruction](http://technologysource.org/article/using_a_webbased_course_management_tool_to_support_facetoface_instruction)
- [18] Danchak MM, Huguet MP. Designing for the changing role of the instructor in blended learning. *IEEE Transactions on Professional Communication*. 2004;**47**(3):200-210. Retrieved from <http://ieeexplore.ieee.org/ie15/47/29409/013315>
- [19] Easton SS. Clarifying the instructor's role in online distance learning. *Communication Education*. 2003;**52**(2):87-105
- [20] Young S. Student views of effective online teaching in higher education. *The American Journal of Distance Education*. 2006;**20**(2):65-77
- [21] Nir-Gal O, Nur T, Gelbart R, Reingold R. The Online Teacher's Role – An Analysis Reflected by Field Data. Research Report. Achva – College of Education, supported by the MOFET Institute. 2005 (Hebrew)
- [22] Hativa N. What does the research say about good teaching and excellent teachers? *Hora'ah Ba'academya*. Hebrew. 2012;**5**:50-55

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# Information Security Awareness in Public Administrations

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Margit Scholl

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.74572>

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## Abstract

Government digital agendas worldwide go hand in hand with the digital transformation in businesses and public administrations as well as the digital changes taking place in society. Information security (IS) and awareness (ISA) must be an integrated part of these agendas. The goal of IS is to protect information of all types and origins. Here, the employees play a necessary and significant role in the success of IS, and the entire staff of an institution need to know about their specific roles and be aware of the information security management system (ISMS). As there are still fundamental strategic deficiencies in the institutions themselves, humans should not be called “the weakest link” in the security chain. Rather, sustainable awareness-raising and training for people should be established in the institutions using interactive, authentic, and game-based learning methods. Psychological studies show the great importance of emotionalization when communicating IS knowledge and the reliable exchange of experience about IS. However, in many institutions, a change in culture is becoming necessary. IS must be integrated into all (business) processes and projects, and viable safeguards must be included. This chapter summarizes the most important scientific findings and transfers them to the practice of public administrations in Germany. Moreover, it shows examples of learning methods and provides practical assistance for IS sensitization and training.

**Keywords:** digitalization, threats and vulnerabilities, information security (IS), data protection, IT security, cybersecurity (CS), cyberattacks, sensitization, information security awareness (ISA), security culture, knowledge—attitude—behavior, information security awareness training (ISAT) design, lifelong learning (LLL), learning and teaching methods, authentic learning (AL), game-based learning (GBL), problem-based learning (PBL), success factors, information security management system (ISMS), risk management and safeguards

## 1. Introduction: A talk about security

Public administrations have always been information-processing organizations, and nowadays government digital agendas around the world (see, for example, the Federal Government of Germany or—at the European level—the European Digital Agenda [1]) are seeking to keep abreast of digital networking and the digital changes in society based on information technology (IT). However, ever-increasing digitalization is leading to fundamental changes in business processes in public administrations as they try to offer customer-friendly services to citizens and businesses. In light of this, new safeguards must be implemented in the form of continuous information security (IS) and legally compliant data protection. “No one in industry, commerce and administration would any longer dispute the need for adequate protection of their IT environment. IT security incidents can have far-reaching repercussions that harm business or interfere with the performance of tasks and thus result in high costs being incurred” [20:5]. Digitization affects almost all areas of life in an increasingly rapid way, and the underlying information communication technology (ICT) transmits, electronically processes, and stores large amounts of data and a wide variety of information [2]. In his guest contribution to a special publication of the *Handelsblatt* (November 27, 2017) on the topic of cybersecurity and privacy, the president of the German Federal Office for the Protection of the Constitution, Dr. Hans-Georg Maaßen, explains, “It is a commonplace platitude: the more we network with the outside world, the more we connect not only with opportunities and potentials but also with risks and dangers” [3]. One should be aware of the distinction between the terms “safety” and “security” in English-speaking countries. “The term ‘safety’ refers to the functional safety of the machine or plant and thus addresses the protection of the environment against abnormal operation. The term ‘security’ describes the protection of IT-supported systems against deliberate or undesired errors. Safety systems must also be protected against attacks” [76:10].

As the president of the Federal Office for Information Security (BSI) pointed out at the 14th German IT Security Conference [4], the potential for digitization offers a highly developed form of industrialization of the kind that Germany cannot do without—but at the same time cybersecurity is creating new challenges. The term IS, as used in (inter)national standards, consists of more than just IT security. The goal of IS is to protect information of all types and origins, regardless of whether they are stored on paper, in computers, or in the employees’ minds [2]. In contrast, IT security is specifically oriented toward the protection of information processed and stored electronically. Nowadays, the term cybersecurity (CS) is often used. CS deals with all aspects of security in information and communication technology. The field of action of classic IT security will be extended to the entire cyberspace. This includes all information technology connected to the Internet and comparable networks and involves communication, applications, processes, and processed data or information based thereon [5]. In this chapter, the term IS is used as the general term including IT security as well as CS.

One of the relevant standards for IS is 27001 “Information Security Management Systems” (ISMS) of the International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) [6]. An ISMS includes four components: management principles, resources, the IS process, and the people (personnel) [20:14]. The IS process itself includes an IS policy, in which the IS objectives and strategies for their implementation are

documented, an IS concept, and the developed IS organization of the institution. When an ISMS is implemented, it is crucially important that the information and data protection are properly handled and the employees are fully aware of the consequences of misusing sensitive data [7]. In Germany, ISO/IEC 27001 IS protection certificates have been available since 2006 combined with the IT-Grundschutz as best practices [8]. The responsible public administration is thus the BSI as the national CS authority that “shapes information security in digitization through prevention, detection, and reaction for government, business, and society” [9]. The employees of an institution are a necessary and significant factor in successfully and efficiently realizing IS within an institution [10]. Therefore, all employees of the institution need to know about their specific roles and be aware of the information security management (ISM). According to the BSI [10], all employees need to know the security objectives of the institution and understand the security measures, as well as being willing to support these effectively. In particular, they must know what is expected from them in terms of IS and how they should respond in security-critical situations [10].

According to the IT-Grundschutz glossary of the BSI, IT security is “a state in which the risks posed by the use of IT due to the threats presented are limited to an acceptable level through adequate safeguards” [2]. Technical solutions for IS are necessary to address certain vulnerabilities such as viruses, denial of service attacks, etc. Nevertheless, IS as well as IT and CS are about more than technology [11], because information systems involve human beings, and users do not always act the way they are supposed to [12]. This is why human beings are often characterized as the “critical factor” within the reports and literature on IS processes. However, nowadays, there is a rethinking of this characterization of people [13], because there are fundamental strategic deficits in institutions themselves, as shown by several reports and studies:

- Less than 50% of organizations have an IT security and training program for employees [14]—meaning that at the time of the study, more than 50% did not train and educate their employees in IS.
- 46% of all companies believe that they have a critical shortage in terms of their cybersecurity skills [15].
- Only 63% of respondents in Germany take measures to raise awareness of information security and 40.5% of these organizations do not measure the effectiveness of their training [16].
- Not even half of the (surveyed) companies in Germany are sufficiently prepared for a cyberattack. Moreover, only four out of 10 companies have emergency/continuity management (43%) [17].
- 74% of security incidents remain undetected for more than 6 months [18].
- Managers prefer to pay ransom than invest in new protection features—a big risk, because ransom payments are usually six-figure amounts [19].

Technology solutions alone are not sufficient to ensure IS countermeasures. These address the challenges of IS management (ISM) in institutions, because management and behavioral aspects are pivotal to building an ISMS in organizations [20, 21]. To protect the organizational assets, including user information and systems, the human side of security should also be

managed [22–24], as is particularly evident in social engineering (SE) attacks [24]. The human element plays a significant role in the successful delivery of IS in today's organizations, and security behavior is greatly influenced by employees' personal perceptions of risk. However, these perceptions can be changed [25] through awareness-raising and IS trainings. Therefore, the tasks and duties of the management of an institution play an important role [20:18]. First of all, the topmost management level has overall responsibility for the correct functioning of the institution and for IS too. IS must be integrated into all the institutional processes—"and for that the management has the responsibility. The management level must actively initiate, manage and supervise the security process"—as an important point, sufficient resources must be made available [20:18]. Moreover, as studies confirm [26], the management has the function of a role model, must set achievable goals within the institution's IS, and should set up/initiate efficient communication and effective documentation. "One of the most difficult tasks is weighing up the costs of IS against the benefits and risks"—however, "experience shows that the most effective measures are not always the most expensive" [20:19].

The aim of this chapter is to summarize current science-based findings in the area of ISA and to merge them with the requirements of the IS standards to derive practical benefits for awareness-raising and trainings in public administrations. The structure of the chapter is as follows: section two summarizes the current scientific findings concerning ISA (sub-Section 2.1), learning methods (sub-Section 2.2), and organizational culture (sub-Section 2.3). In Section 3, these ideas are transferred into the practice of public administrations. This means a focus on information security (awareness) trainings (ISAT) in general (sub-Section 3.1), as they relate to the IT-Grundschutz (sub-Section 3.2), and with regard to cultural aspects (sub-Section 3.3). Section 4 provides a summary and outlook. This is followed by the acknowledgments and references at the end.

## **2. Current findings from scientific literature review and research**

### **2.1. Information security awareness (ISA)**

A constant analysis of threats that companies face is essential to understanding how the strategies of attackers evolve and to building more reliable defenses. The summary of all the reports investigated reveals that cyberattacks target people not technologies [13]. The question is "why?" One main finding, by Solms, is that Internet- and web-based systems have been introduced for millions of customers without adequate IS [27]. One direct result of this has been that criminals have shifted their attention to the end user under their new motto: "Do not try to hack into the company's IT systems; it may be very difficult—go for the naïve end user!" [27].

The idea of considering the user as the "weakest link" in IS can be found in the large volume of studies that try to explain employee adherence to or noncompliance with IS. Companies' information security efforts are often threatened by employee negligence and insider breaches [29]. The lack of ISA, ignorance, negligence, apathy, mischief, and resistance are at the root of user mistakes [30]. Herath and Rao found that employees in their sample underestimate the probability of security breaches [31]. Pattinson et al. (2016)

found a strong ISA correlation for the measure relating to the three behaviors “Internet use,” “mobile computing,” and “email use,” while the other four behaviors investigated were not significantly correlated (“password management,” “social networking,” “information handling,” “incident reporting”) [32]. Moreover, how “dangerous” an employee is for his company is also determined by his age [18]. According to the study, 51- to 69-year-old people are particularly easy to fool—they are most likely to fall for phishing attacks and social engineering, but otherwise stick to the guidelines [18]. The middle group, on the other hand, is more arrogant: the group of 35- to 50-year-olds is most likely to ignore well-known rules [18]. However, in the study, the millennials age group (18–35) is—with 64%—the riskiest group: while they are less prone to fraud and arrogance, they use all sorts of technologies, such as unauthorized third-party apps and third-party mobile devices at work, and this results in a loss of control for the central IT [18]. However, it is important to bear in mind that if a single user action can compromise an entire security program, the problem is the security program itself [33].

According to the Federal Office for Information Security in Germany (BSI), the risk situation in the area of ISA is characterized by the following specific threats and vulnerabilities [10]:

- Insufficient knowledge of regulations

Just setting information security regulations does not guarantee that they will be respected. All employees must also be aware of the applicable regulations. Vulnerabilities due to insufficient knowledge of the regulations can compromise the confidentiality, availability, and integrity of information [10:2].

- Insufficient awareness of information security (ISA)

Experience shows that it is not enough just to implement certain security measures. Without an understanding of the reasons for the measures and their purpose, they are often ineffective or ignored. The security culture, the security goals, and the security strategy of the institution must be understood in the real world of work, otherwise this leads to a lack of acceptance of IS measures [10:2].

- Carelessness in handling information

It is frequently observed that despite a variety of organizational and technical security procedures, an institution’s security requirements often go unheeded. When employees deal carelessly with information, established processes of information security become ineffective. Economic espionage can also take place [10:3].

But what is ISA actually? Our comprehensive review of leading academic journals shows that there is no uniform and binding definition of ISA [13]. Many theories build on the background of the scientific literature. A number of articles in the international scientific literature are based on the KAB model—knowledge, attitude, and behavior—and show that user knowledge of, or education about, IS is a basis for reflecting on their own attitudes. The overall goal of scientific literature in this research field is to get a better understanding of people’s behavior and to develop it in the proper way [13]. Therefore, a large spectrum of theories has been consulted in this context to gain knowledge of actual security behavior and the factors that

influence it. The theories that are most applied as a means to explain IS behavior are the Theory of Planned Behavior (TPB), the General Deterrence Theory (GDT), the Compliance Theory (CT), the Protection Motivation Theory (PMT), the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Social Bond Theory (SBT), and, as a final example, the Involvement Theory (InvT) (see also tables in [34]. For example, Briggs et al. (2017) provide a historical overview of Protection Motivation Theory (PMT) and apply it to cybersecurity [35]).

Applying the Fogg Behavior Model (FBM) [36], we can identify a wide range of factors that can affect motivation and the ability to adopt secure behaviors. The FBM [37] asserts that for a person to perform a target behavior, he or she must (a) be sufficiently motivated, (b) have the ability to perform the behavior, and (c) be triggered to perform the behavior. Fogg further introduced the notion of *kairos*—the idea that the trigger needs to be present at an opportune moment to succeed. Fogg defines that moment as “any time motivation and ability put people above the behavior activation threshold” [37]. The investigations in [36]—based on the FBM and in-store interviews with 85 customers across 4 branches of a major UK retailer—showed that low motivation and ability among the customers questioned are, for example, combined with the attitude that because risky activities are avoided, no security is required. In contrast, high motivation and high ability among customers are not only coupled with technical affinity and the implementation of security advice but also with the desire to keep children safe and protect work files [36]. This suggests that those customers have a sense of responsibility and take social considerations into account.

One increasing threat is the human social engineering (SE) attack as a first step for further cyberattacks on institutions. SE has increasingly become a standard tool for criminals—the prospects of success are high and the awareness rate is low [38]. In SE, one is—to different degrees, depending on the perspective—perpetrator and victim at the same time: perpetrator, because one may have made a mistake and violated the security policy of one’s own organization (e.g., as a result of disclosing confidential information to the attacker), and victim, because such a disclosure is always achieved as a result of deception or manipulation [38]. From the point of view of communication and psychology, a person directly affected by SE is, in any case, always a victim—the fact that someone, possibly because of “reckless” behavior, has “fallen for” an SE attack does not make him or her a culprit and, from the perspective of the social sciences, only to some extent an accomplice. And even the security experts should not view “social weaknesses” as connivance but should treat the victims as victims and therefore see them as important witnesses who contribute to the investigation of white-collar crime. However, such an attitude is not found in many organizations, and, where this is lacking, companies rarely have full access to the valuable feedback they could receive [38].

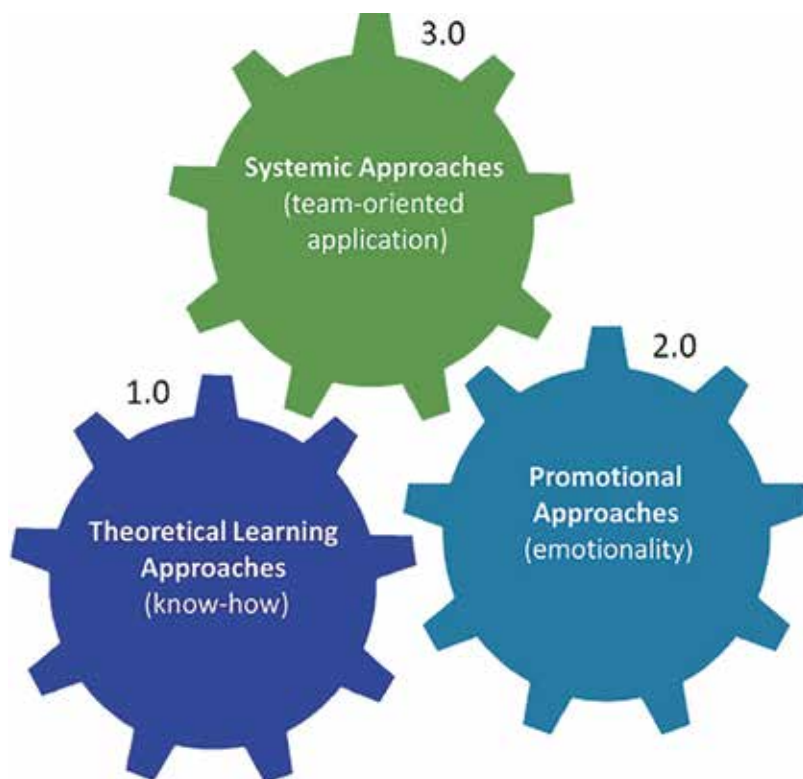
All in all, there are gaps between human knowledge and human attitudes as well as between human attitudes and *real* human behavior. Psychological factors, subjective norms, and the sociocultural, gender, and age background in nonlinear and complex interactions have a major influence on human ISA and IS behavior [13]. A main problem for human beings seems to be the application of IS knowledge in *real-world* situations [39]. But this—the concrete application of IS knowledge and situation-appropriate behavior—is necessary in real time for each employee in an organization. Employees themselves must decide how to implement IS in their own specific work contexts, and this needs higher-level ISA skills and intention as a motivational factor.

## 2.2. Learning methods for ISA

Learning methods for ISA should clarify threats, vulnerabilities, attacks, and possible damage as well as the main values of IS and data protection. The three basic values of IS used by the BSI in the IT-Grundschutz as well as in the international standard family ISO/IEC 2700x are confidentiality, integrity, and availability. Confidentiality requires protection against the unauthorized access to and disclosure of information. Confidential information should only be accessible to authorized persons and those using the permitted access methods. A situation in which unauthorized persons have access to data is referred to as a loss of confidentiality [2:22]. Integrity refers, on the one hand, to ensuring the correctness (uncorruptedness) of data and, on the other, to the correct operation of systems. A violation of the integrity of information takes place when the data itself—as well as other specifications relating to this data (metadata)—are changed without permission or are incomplete. Falsified data can lead to poor decisions and incorrect evaluations and can have serious consequences [2:22]. Availability means that services, the functions of an IT system, IT applications, IT networks, or even information are available and can be utilized as intended by the users at any time [2:22].

Additional values include authentication, commitment, and reliability. Authentication refers to the function that guarantees that a person, an IT component, or an application is actually the person or object it is presenting itself to be. Authenticating information is a means of ensuring that it was generated by the specific source [2:22]. Commitment combines the value of authenticity with one additional value, non-repudiation. When transmitting information, this means that the sender has provided verification of its identity and that the recipient is unable to deny having received the message [2:22]. Organizational commitment can be defined as follows: “In organizational behavior and industrial and organizational psychology, organizational commitment is the individual’s psychological attachment to the organization” [40]. The reliability (also called dependability) of IT components is determined by their quality in terms of correctness, robustness, and fail-proofness so that their typical functions can be executed with the necessary precision and during the normal period of use [2:22].

In many organizations, ISA and the training of corresponding competences (ISAT) are limited to knowledge-transfer measures. For example, trainings with appropriate presentations supported by flyers, posters, brochures, or web-based trainings (WBT) are often used as an awareness campaign, which the employees can or must complete at a particular place and at a time of their choosing. Notwithstanding the benefits of WBT, studies show that approaches that focus only on knowledge transfer do not generate any lasting safety/security awareness among employees [41–44]. We call these ways of raising ISA “1.0 Learning Theoretical Approaches” (see **Figure 1**) [45]. Based on these empirical findings and in addition to knowledge transfer, some awareness-raising activities include marketing elements, which capture the attention of the addressees and emotionalize them on the subject of IS—“2.0 Advertising Approaches,” according to our classification (see **Figure 1**) [45]. However, psychologically based research [38, 39, 42, 46, 47] shows that in addition to the theoretical approach to knowledge transfer and the marketing-oriented approach of emotionalizing, a more comprehensive systemic approach with emotions and social participation in the team as well as personal communication and interaction in actionable scenarios is needed to create lasting sensitization to IS and promote security-related behaviors [41, 46, 48]. This is why the learning methodology for ISA should be



**Figure 1.** IAS needs learning 3.0, meaning a systemic approach that includes not only knowledge transfer and emotionalization but also interactivity with team-oriented exchange.

“3.0 Systemic Approaches” (see **Figure 1**) [45], which were implemented at the Technical University of Applied Sciences (TUAS) Wildau [49–51]. Here, at a research university with a strong practical emphasis, a consistent combination of research and teaching not only serves to meet future challenges but is also crucial for starting a career. The education of students as future employees should therefore be based on the current state of science and on practical requirements in companies, administrations, and institutions. This includes building knowledge to engender a holistic understanding of technology and develop sensitivity to IS issues. This applies, above all, to less technology-related courses such as business and administrative studies because awareness of and competence in IS cannot be delegated only to IT professionals. Instead, every employee must contribute to IS and is responsible for it in his or her specific environment.

The project “Information Security Awareness for Job Beginners” (SecAware4job) at the TUAS Wildau, which was funded by the Horst Görtz Foundation in the period from September 1, 2015, to August 31, 2017 [50], set out to sensitize students as future employees (especially those doing nontechnical courses) to the day-to-day challenges involved in creating IS and protecting digital infrastructure. With SecAware4job, a job-oriented additional qualification for students has been created in the past 2 years in the form of an innovative training with certification to increase ISA and competencies in IS. Specifically, the additional qualification should

- develop the competencies in IS required for starting a career,
- encourage and support changes in consciousness and behavior,
- facilitate risk assessment and decision making, and
- provide traceable, certified qualifications for entry into the profession [50].

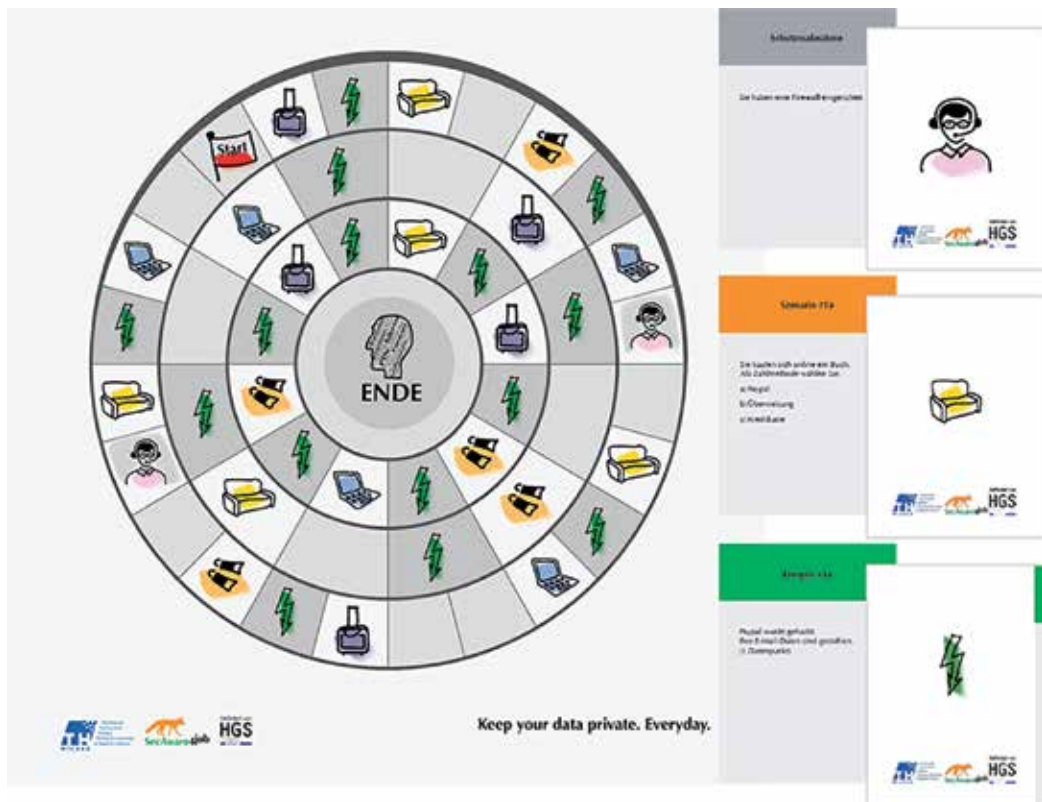
In order to convey the abstract and complex topic of IS with all its facets (legal framework, standards, protective measures, security concepts, etc.) to the students in an easily comprehensible and tangible way, a methodical approach to the additional qualification was chosen that includes as many creative and interactive teaching and learning methods as possible. Based on current research findings on the effectiveness of awareness-raising measures, analog and digital game-based learning (GBL) scenarios were developed and tested according to the GBL approach [49]. Ten stations in the “Security Arena,” which had been procured via the former third-party project “IT-Security@SME” in the period 2013/14 and adapted with the project partner known\_sense, are now focused on the new target group (students) and also translated into English (see **Figure 2**) [50]. In addition, five analog GBL scenarios have been redesigned and implemented, including a new board game “Keep your data private. Every day.” (see **Figure 3**) and a social engineering role-playing game, which are two very comprehensive game developments in the research project SecAware4job [50]. To supplement and complete the analog learning scenarios, eight digital GBL scenarios were conceived and programmed: these can be retrieved via the SecAware4job website [52] and used free of charge [50].

The additional qualification that had been developed was tested in three rounds as a (compulsory) module “Sensitization for IS”. The accompanying scientific research on the effectiveness of the additional qualification and the learning scenarios developed show that the students are very satisfied with the methodological approach. In terms of an authentic learning (AL) approach, adaptations of GBL scenarios to the specific target group and their real references are of great importance for learning success. Further teaching and learning methods have already been compiled in the former European project “Community of Integrated Blended Learning in Europe” (COMBLE) [53] as Methopedia [54]. Moreover, by discussing current public security incidents, the problem-based learning (PBL) method has been introduced into the classroom too. So, the challenge of the general learning approach for ISA is to combine AL with GBL and PBL in a smart way. In addition to the specification of content, cultural and linguistic aspects must be taken into account. In the project SecAware4job, English-language learning stations were designed and tested and will now be available in international degree courses like European Management. Moreover, in this winter semester (WS 2017/18), the master’s degree course European Management (EMM17) developed new ideas for GBL scenarios relating to the European Union’s new General Data Protection Regulation (GDPR) as pilot games. The student project teams presented three analog games and one digital App game in January 2018 (see **Figure 4**), which will be tested in the coming months with other target groups.

Overall, the application of materials and methods to ISA in many other events and with other target groups like employees and guests at the TUAS always leads to very positive feedback. The challenges in developing the IS learning scenarios lie in a good didactical structure as well as in simplifying complexity and limiting the content to the essentials. The strength



**Figure 2.** Adapted, analog game-based learning scenarios in the English-speaking “Security Arena” as final results of the project “SecAware4job” [50]. The games can be purchased through our project and cooperation partner, the Cologne-based company known\_sense.



**Figure 3.** Newly developed analog game-based learning scenarios (in German) relating to Internet services and data protection as a final result of the project “SecAware4job” [50]. The game can be purchased through our project and cooperation partner, the Cologne-based company known\_sense.

of the analog games is in the necessary systemic approach with emotionalization and the exchange of peoples’ experiences. As part of the “Security Arena,” most games are designed to be completed and discussed in less than 15 minutes. They can also be used very well as team circuit training, which can also be set up as a competition. The goal of the digital learning scenarios, which can be completed alone and irrespective of time and place, is to expand, deepen, and sustainably anchor individual knowledge. However, this alone would not help to raise ISA. We need a smart combination (Figure 5).

### 2.3. Information security awareness culture in an organization

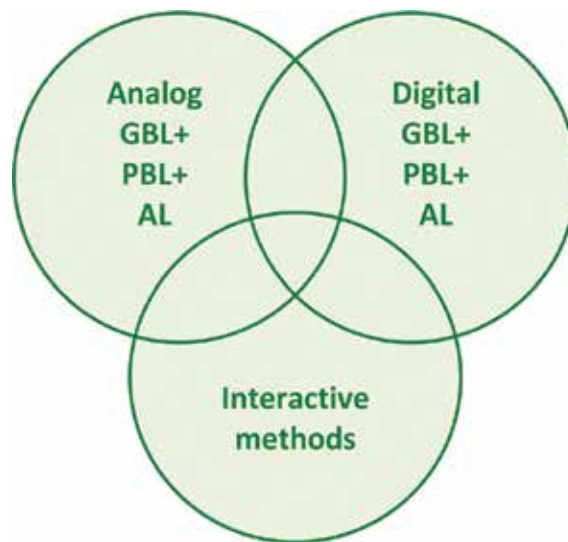
As the BSI points out in all standard documents, IS concerns all personnel without exception. By acting responsibly and with quality awareness, every individual can avoid causing damage and contribute to success. Increasing ISA and providing appropriate training for staff members and all management personnel are therefore fundamental prerequisites



**Figure 4.** Newly developed ideas for game-based learning scenarios (A, B, C analog; D digital) focused on the General Data Protection Regulation (EU), generated by the student group EMM17 in WS 17/18.

for IS. In order to be able to implement security measures as planned, personnel must have the necessary basic skills to do so [20:24]. Here, the top management has responsibility as a role model. The management must play a proactive role in shaping employee compliance with IS behavior [26]. Advice should be seen as an enabler that supports the organization's goals [25]. In addition to knowledge about how security mechanisms must be operated, this also involves an understanding of the spirit and purpose of security measures. The work atmosphere, common ideals, and the commitment of personnel are all factors that decisively influence IS. If new personnel are taken on or existing ones are given new tasks, they must be provided with thorough training so that they can adjust to the new situation. This must also involve teaching them about the security-related aspects of their job. If personnel leave the institution or their responsibilities change, this process must be accompanied by appropriate security safeguards (e.g., the withdrawal of authorization or the returning of keys and identity cards) [20:24].

Employees must be made aware of relevant hazards and know how they can affect their institution. The better the employees know the risk situation, the sooner the corresponding security measures will be accepted. Employees must have the necessary knowledge to be able to understand and apply measures correctly. For this, there must be an awareness of security and a safety culture can be set up and designed [10]. Although there are many sanctions available in dealing with disregard of the rules, employees will not be rewarded if they comply with the IS security policy [55]. While many organizations are aware that this “comply or die”



**Figure 5.** Integrative usage of analog and digital game-based learning (GBL), combined with problem-based learning (PBL) and authentic learning (AL) for sensitization and to mimic real situations in the workplace and private life as well as interactive learning methods with emotionalization through user experience, team exchange, and storytelling as a means to raise information security awareness (ISA).

approach does not work for modern enterprises where employees collaborate, share, and show initiative, they do not have an alternative approach to fostering secure behavior [56]. “Countermeasure awareness was shown to be a significant indicator of the perceived need for digital IS. This implies that increasing users’ security awareness level through education and training may be an effective way to encourage the adoption of security tools that leads to safer technology use” [57]. It seems that attitudes toward compliance with IS organizational policies also have a significant effect on behavioral intention with regard to IS compliance, whereby the policies must be livable. Tsohou et al. argue that ISA processes are associated with interrelated changes that occur at the organizational, technological, and individual level [58]. As a result of this, an organization needs to roll out a series of ISA programs oriented toward perception, comprehension, and projection [23].

As summarized in [13], for organizations it is important to realize that

- creating an effective ISA program requires targeted communication and training that caters to specific employee groups;
- for proper commitment to security, the optimal IS culture must be carefully defined in each case; and
- the top management must be a role model and give advice—they should be seen as an enabler supporting the organization’s goals.

In light of the gaps between IS knowledge, attitudes, and real behavior and the fact that acting in real-life situations is very important for an appropriate security level in institutions,

trainings for ISA should be a continuous IS factor. Moreover, the emotional level should be explicitly addressed, because social participation in a communicative team process is a key component in awareness-raising activities based on psychological theories [45, 51]. Learners must directly see/feel the consequences of their actions and should get a sense of their knowledge level in dialog. Therefore, sensitization for ISA and trainings of IS should use the smart combination of GBL plus PBL plus AL based on real-life situations.

### 3. Transference to practice and public administrations

The improvement of perception and comprehension vis-à-vis IS can advance a person's ability to project real-life situations if there is an overall exchange in the institution. Moreover, it seems that the constructs of organizational impact and attacker assessment have a stronger influence on the ISA than technical knowledge. Management and employees need to understand the pivotal role they play for the IS of an organization [13]. The learning process in organizations must be based on the user-centered approach, which pays attention to target groups, gender, and culture, based on individual knowledge and skills as well as on concrete workplace needs and contexts. The user-centered approach should also allow staff exchanges regarding IS along the business process chain. The integration of formal and informal mechanisms—initiated by the management—can enhance the important exchange and interaction between employees and could be a stabilizing factor in raising ISA in the institution. Frequent interaction is the basis for the formation of interpersonal relationships and psychological attachment to the organization. Since threat analysis, self-efficacy, and response effectiveness have a significant impact on the intention to comply with IS guidelines, such aspects of emotionalization and motivation should be incorporated into the sensitization to and training of ISA [13].

In Germany, with its federal structure, public administrations are very differently positioned in respect of IS. Large federal agencies are often at the forefront of many current topics, such as legislation (IT security law, e-government law, and the digital agenda) or application content like big data analysis or IS. For example, almost two-thirds of the administrations currently surveyed continue to see issues of data security and privacy as a key challenge in using big data analytics [59]. Only one-third believe that a company's own staff has the skills and knowledge to continually drive the administration through data analytics [59]. However, only 37% invest sufficiently in appropriate education and training [59].

If we take a closer look at IS, my experience as a BAKöV qualification center [60] is that it is very difficult for small and medium-sized enterprises (SME) and small municipalities to build up a corresponding IS know-how and general training program in their organization. Instead, the training program for the "IT Security Officer in Public Administration" (ITSO) has been established in the federal administration for a decade and is increasingly being used by medium-sized and large state administrations during an annual three-week summer academy in Brühl (Germany). Since 2007, the modular training course for ITSO has been developed and offered by the BAKöV in coordination with the BSI acting internally for the federal agencies. Besides knowledge transfer in 5–15 days, it includes an IS-relevant written project

submission and a two-hour exam on a personal computer (PC) program. A form with 120 questions must be filled out with a score higher than 75%—successful students are awarded a certificate valid for 5 years. A total of approximately 600 certificates have been awarded so far [62]. In addition, there are other certified training courses at federal level—e.g., for the data protection and emergency officer. Moreover, there are a wide range of e-learning courses for the employees of the federal authorities. Nevertheless, the development of procedures and models for measuring and assessing the level of IS in federal agencies remains a challenge.

The literature review reveals a general lack of trainings, which is cited as a top reason why contingency and response plans are not effective [22]. In particular, it seems that over the past 15 years institutions have not put their main focus on developing ISA and ISAT-responsible information users [61]. In Germany, after the establishment of the federal project “Security wins!” in 2010, about 80,000 employees from 143 federal authorities were sensitized to IS in the workplace prior to 2017 [62]. The insight from this federal ISA campaign with interactive methods and GBL scenarios is, on the one hand, that raising awareness is an issue that needs to be revisited again and again. On the other hand, the central control system of the federal agencies has proven itself with framework agreements and decentralized implementations and adjustments. For the federal administrations, very valuable materials have been compiled as a so-called “toolbox”: flyers and posters, moderation cards, and a CD about live hacking, which is very popular. Hacker’s live shows in particular demonstrate how well emotionalization can lead to concern and attention. Moreover, they also show the importance of awareness in thinking about or pointing out the role of the aggressor—a possibility which should be incorporated into awareness-raising and trainings that include psychological aspects [38, 39, 42, 46, 47]. Nevertheless, this campaign is just a drop in the ocean when we consider the entire group of employees. It should be noted that it is the Länder and Kommunen that represent the main proportion of employees in Germany’s public administration; the proportion constituted by the federal government is only about one-eighth of the total number of employees. Moreover, public administrations are also responsible to their citizens, and the question arises as to whether information campaigns on IS in public places should not also be part of urban and regional planning [34].

### **3.1. Information security (awareness) trainings (ISAT)**

Although scientific research indicates a general need for (cyberthreat) education, trainings, and awareness [22, 63, 64], our review of the scientific literature [13, 65] shows that the design of the ISA trainings has not been the subject of significant research. Only a few studies from the literary field of knowledge, attitude, and behavior give (general) recommendations on the design of training measures (see [66, 67]). As mentioned above, it should be a user-centered approach and “awareness campaigns should be tailored to employees’ needs” [25]. The BSI training describes in general how to set up and maintain an (effective) awareness-raising and training program for IS [10]. The aim of such programs is for employees to perceive safety-critical situations and mitigate their impact, while also providing the necessary knowledge and skills for safety-conscious behavior [10]. In particular, the module “ORP.3 Sensitization and Training” describes the procedural, technical, methodological, and organizational requirements for awareness-raising and IS training [10]:

- *Few successful awareness-raising and training activities*

The activities carried out for ISAT are not always as successful as desired. The causes for this can be lack of management support, unclear goals, bad planning, lack of success control, lack of continuity, or too few financial and human resources. If no appropriate measures are taken to ensure the success of the activities carried out, the goal of the respective training activity can often not be achieved. If the institution has insufficient activities to raise awareness and train employees, IS can be at risk, which leads directly to restrictions on task performance [10:2].

- *Inadequate training of staff on security functionalities*

Employees often do not apply newly introduced security programs and features, because they do not know how to operate them, and because they are considered time-consuming in their day-to-day work. In addition, the lack of ISAT after the introduction of new software can lead to unintentional operating errors or incorrect configurations and to errors in the operation and delays in work processes. Therefore, the procurement and installation of (security) software is not enough. In critical IT systems and applications, misuse can threaten the very existence of the business [10:3].

- *Risk that security incidents will not be identified*

The daily operation of IT and ITC components can cause many failures and errors. There is a risk that security incidents will not be identified as such by staff and that cybersecurity attacks or attempted attacks go undetected. Security incidents and technical errors are sometimes not easy to distinguish. If users and administrators are not specifically trained and sensitized, vulnerabilities can go undetected and may be exploited. If security incidents are not detected in time or are completely missed, full countermeasures cannot be taken in time. Small security loopholes in the institution may be exacerbated and become critical threats to integrity, confidentiality, and availability. This can hinder business processes, cause financial damage, or lead to regulatory and legal sanctions [10:3].

- *Understanding and accepting safeguards*

Technical security safeguards often lead to less user-friendly IT. Users will only accept such safeguards when they understand why the restrictions—for example, for surfing, for sending and receiving e-mails, or for password usage—are necessary [2:204]. Employees are only able to actually follow the security policies that have been decided upon when they know how to handle the IT securely and confidently [10:3]. Insufficient acceptance of IS must be corrected.

Neither the BSI training description [10] nor the BAKöV manual [2] describes specific learning and teaching methods in detail but only refers to the possible content of training courses and potential confounding factors. Tsohou et al. conclude from recent global security surveys that ISAT are not currently working [68] and the question is, why have mainstream ISA techniques failed for so long? The following aspects are likely to play a role:

- One aspect might be a “technocratic” view of risk communication, meaning the tendency for technical experts to tell people what they think and ought to know [69]. This is fundamentally flawed and has been strongly criticized by experts in safety risk communications as ineffective and inefficient [69]. However, providing simple advice directly to nonexperts is no trivial matter, and even experts can disagree about what is important [70]. Moreover, it might disregard the daily mix and overlap between work and home, and therefore ignore an insight from practice—as stated by Ian Kilpatrick, chairman of the Wick Hill Group—“If you don’t change home security behavior, it is hugely more difficult to effect change in the office” [71].
- A second aspect might be in policies “ending up as long lists of dos and don’ts located on web pages most employees only access when they have to complete their mandatory annual ‘security training’ and which has little to no effect on their security behavior” [56]. Maybe there is also a “proxy agency effect” [36], where a person defers to experts to ensure that they themselves can still do the things they want to do [28]. Forget et al. [72] consider that users may “disengage” from security if they have already transferred the responsibility to somebody else. Moreover, employees may look for routines to prevent life from “tipping into chaos” and to give them “the confidence to go about their daily activities” [73].
- A third aspect relating to IS campaigns is that a training aimed at addressing security awareness gaps cannot be sufficient to ensure compliance with a security culture [74]. The necessary cultural change in institutions must go hand in hand with a mutual learning process between the top-down requirements of the management and the bottom-up activities of the employees—described as a “spiral of transformative interaction” [13, 34].

In the design of ISAT, emotionalization—as mentioned above—is extremely important for the motivation of employees. Emotionalization must address people’s specific concerns, be it at work or at home—including aggressor thinking—to create PBL and AL scenarios for ISAT. Psychological studies [38, 39] show that people have to “understand”—through emotional engagement—that they are themselves affected. GBL is increasingly viewed as an effective method for teaching and learning in education. It is especially effective as a means to stimulate motivation and change behavior and should be explicitly used for ISAT. With the learning approach 3.0 (see Section 2.2), learners can directly see the consequences of their actions and get a sense of their knowledge level in dialog. The integrated AL/PBL scenario development and usage of interactive analog/digital GBL also support IS abilities, which we increasingly need in daily life and in the workplace—for example, communication, cooperation, social interaction, and creativity [49–51]. The emotional level should be explicitly addressed, because social participation in a communicative team process is a key component in this third stage of awareness-raising activities based on psychological theories [45]. Integrated analog and digital game-based ISAT with interactive elements lead to the further involvement of human actors.

### 3.2. Content of ISAT and institutional programs

The “IT-Grundschutz catalogs” published by the BSI [8] provide a summary of the elementary hazards that are important for ISA and ISAT. Institutions and employees should be aware of

cyber espionage, which can cause considerable damage. In addition, the disclosure of information that is meant to be protected, identity theft, abuse of personal data, abuse of permissions, and social engineering in general are growing threats. If aggressors are able to infiltrate the institution, it is possible that equipment or data carriers may be destroyed or that unauthorized persons use or get administrator access to devices and systems. Lower levels of knowledge and awareness among employees could lead to the incorrect use or administration of devices and systems, data loss, and the loss of integrity of sensitive information. As stipulated in the EU's new GDPR, the violation of laws or regulations can result in huge damage claims. Moreover, without a good work atmosphere, employees may deny having made a mistake, and there is also the potential for insider threats to arise. All these elementary hazards must be addressed in any case in an ISAT oriented to the target group.

The following are specific requirements for ISAT set out by the BSI. The ITSO—nowadays also called Information Security Officer (ISB in German)—is responsible for meeting these requirements. Deviations should be mentioned separately in an institution's requirement guidelines. The ITSO/ISB of an institution should always be involved in all processes and also in strategic decisions. Besides that, the ITSO/ISB is responsible for ensuring that all requirements are met in accordance with the security policy that has been defined and then checked [10]. The BSI differentiates between basic requirements for ISAT, which must be met by institutions in any case, and standard requirements, which should be met in principle [10]. In addition, exemplary proposals are made for requirements that should be taken into account when there is increased need for an institution to be protected. Here, the concrete determination takes place within the framework of a separate risk analysis [10]. It should be clear which basic values are given priority by the requirement.

The basic requirements are as follows [10]:

- The institution's top management **MUST** actively support security campaigns and trainings for its employees. Therefore, before the start of ISAT and the IS program, the support of the management must be ensured. The management must be sufficiently sensitized to security issues. All supervisors must support IS by setting a good example. Managers must enforce security standards and alert their employees to compliance [10:4].
- There **MUST** be contact persons (ITSO/ISB) for security issues who can answer both seemingly simple and complex or technical questions. The contact persons **MUST** be known to all employees of the institution. This information must be easily accessible and available to everyone in the institution [10:4].
- All employees and external users who use the ICT and IoT components **MUST** be trained and sensitized, inasmuch as this is relevant for their work. To this end, the organization must have binding, understandable, current, and available guidelines specifying the use of the respective components. If ICT or IoT systems or services are used in a way that is in the interests of a competitor institution, this must be communicated [10:5].

Contrary to the findings from the research, the BSI sees the gearing of ISAT and the program to the respective target groups only as a **SHOULD** in the standard requirements [10]. An audience analysis should be carried out so that action is based on specific requirements. The program can then be created in response to different background needs. It should be regularly

reviewed and updated. However, it should be noted that, according to the research findings, a target group and needs analysis should be mandatory to ensure the success of the action. Moreover, according to BSI [10:5], the training of all employees with regard to their responsibilities for information security issues is also only a SHOULD. Sensitization and training programs SHOULD be regularly checked to ensure that they are up-to-date and adjusted and further developed as necessary [10:5]. Security officers SHOULD be familiar with the IT-Grundschutz methodology and for that, an appropriate IT-Grundschutz training course should be planned on the basis of practical examples [10:5]. The learning success in the field of information security SHOULD be measured and evaluated according to the target group to determine to what extent the objectives described in the awareness-raising and training programs are reached. The measurements should include both quantitative and qualitative aspects and the results should be used to enhance sensitization and improve the appropriate training courses [10:5]. Further requirements may be necessary to increase the protection of any exposed institutions or organizational areas. Particularly exposed persons such as managers and security workers SHOULD undertake in-depth training with regard to possible hazards and appropriate behaviors and precautions [10:6].

Since 2007, the BaköV training course for the ITSO of federal agencies [2] has recommended that security officers initiate and establish the sensitization and training of employees in a modular manner. The course content is grouped into the following 13 training areas, which are in turn assigned to six defined target groups (see **Table 1**). Of course, not all target groups need all the training modules, so some can be used optionally or are not needed at all.

BAköV training modules [2]	Target group/function					
	A	B	C	D	E	F
1. Basic concepts of information security (IS)	x	x	x	x	x	x
2. IS in the workspace	x	x	x	x	x	x
3. Laws and regulations	x	x	x	x		
4. The organization's security concept	x	x	x	x		x
5. Risk management		x		x		x
6. (Information) security management		x		o		
7. IT systems		x				x
8. Operational area		x				x
9. Technical implementation of security safeguards		x				x
10. Emergency management		x		x		x
11. New developments in the IT sector	o	x	x			x
12. The business management side of IS	x	x	o			
13. Infrastructure security		x		x		o

Recommendation of training modules and target groups from the BAKöV [2: 207] (x: the module is recommended, o: the module is optional). Six examples of defined target groups (A: supervisor, B: security management, C: data protection officer, D: infrastructure security officer, E: users, F: administrators). In order to clarify that this assignment is only meant to serve as an example and must be adapted concretely to the particular institution, undefined target groups are listed here as...

**Table 1.** BAKöV matrix.

### 3.3. Measurements of ISA and compliance for information security

To support organizations in discovering the evaluation methods and metrics that meet their individual needs, an overview of current measures for assessing effectiveness was given in [65]. The advantages, disadvantages, and appropriate application of methods like monitoring security procedures, surveys, and security benchmarks are discussed [65]. While the number of firms that apply such measures is increasing, surveys of corporations show that it is unusual for these measures to be accompanied by specific in-depth evaluations of their effectiveness. The literature review reveals that only a few organizations use different metrics for deeper and continuous measurement of their awareness program [65]. However, ISAT should be ongoing as the organization changes and employees move into and across roles, with a focus on what is necessary for their jobs [75]. Therefore, ISAT should not overwhelm employees with information or take up excessive paid work time [76]. As a consequence, security officers should specifically adapt the above BAKöV matrix (Section 3.2) to their institution, to their content, and to their target groups. Rather than relying on generalized computer-based packages, IS training should be geared to the specific work environment. IS officers should carefully analyze the concrete situation in the institution: for example, if factors such as noncompliance with security measures, poor acceptance, or social engineering are present, as described in the BSI training [10]. In addition, they should determine which IS core values are particularly at risk in which processes, at which locations, and at which times. Since these awareness-raising measures demand resources such as time, money, and the willingness of employees, every institution should have an interest in assessing their effectiveness [65].

The developed spiral of transformative interaction between an organization and its staff with regard to (IS) learning processes [13] shows the interaction between top-down specifications and individual bottom-up influences on the establishment of a modern, future-oriented organizational security culture. We seek to implement and test our conceptual project design on the transformative interaction between human-based and organizational (IS) learning processes and to promote in-depth ISA measurement in game-based learning environments. Situational and specific ISAT combined with IS awareness-raising measures and evaluation should be an indispensable part of today's organizations with livable IS and policies [34].

## 4. Summary and outlook

In a general way, ISA programs and ISATs may generate a false sense of security, as taking part in ISA programs reduces perceptions of vulnerability, while the intentions for compliant security behavior are not affected [77]. Information and IT security awareness-raising measures and the evaluation of these measures are an indispensable part of today's information and knowledge society [65]. This assumes that—according to the BSI concept [8, 10, 20, 78]—the relevant IS issues must be regularly trained in accordance with institutional requirements and the necessary sensitization created [10]. Moreover, it gives practical hints for the efficient design of ISAT as a planned, cyclical, and organizational approach. In addition, the

BaköV training program [2] gives suggestions for target-group-oriented themes, particularly for the federal administration, which can be adjusted for the federal state and local public administrations.

A lack of understanding of security issues coupled with the pervasive use of computers often makes employees the “critical factor” in the IS equation. However, as Dark points out [79], knowledgeable human beings are better at preventing IS breaches that occur due to negligence or accident as well as those that stem from malicious activity and the anomalous behavior of systems. They can efficiently and effectively respond to incidents by reporting them promptly, quarantining problems, and diagnosing and treating these problems correctly [79]. We see an increase in social engineering (SE), which is an attack on, and manipulation of, people to get hold of sensitive information and protected data from the institution in preparation for attacks that will not be carried out at once but rather later—e.g., advanced persistence threats (APT). Attacks via SE are often multilevel. By the aggressor pretending to have insider knowledge and at the same time appealing to people’s desire to help, he can expand his knowledge in a series of further steps [10:4]. If employees are not adequately sensitized to attacks of this kind, there is a risk that they can be manipulated through skillful communication so that they act inappropriately. This can lead to internal information being passed on via malicious software or even money transferred to alleged business partners. The subsequent worldwide damages can run into the billions [10:4]. Regulations can be more easily complied with, the more informed the employees are about the facts and the better they understand the reasons. ISA is necessary for successful digitization: this requires an organizational strategy, the guarantee of an appropriate IT security level, sufficiently qualified personnel, and a cultural change in the organization, with ongoing, target-group-oriented training for all employees.

However, there is no simple linear cause-and-effect relationship between institutional safeguards and knowledge, attitudes, and real behavior. Despite the increasing interest of researchers in the topic, awareness remains a critical issue in IS [36]. To protect the organizational assets, including user information and systems, the human side of security should also be managed [22, 24], and this plays a significant role in the successful delivery of IS in today’s organizations [25]. Therefore, ISAT and programs must be developed as a user-centered approach. Moreover, a clear set of IS principles needs to be identified and communicated [56]. Learning in IS should be developed by integrating target-oriented, interactive analog/digital GBL scenarios and team-oriented methods as an ongoing process. Depth psychological studies [38, 47] show that emotionalization and motivation should be important factors in creating short-term scenarios in real-life situations using AL and PBL. Our own extensive experience with such learning materials and methods in projects and events suggests that ISA and the knowledge associated with it could be improved in almost all participants and behavioral changes triggered.

We know from our research, experience, and trainings that

- technical security alone is not enough;
- there is still a lack of sensitivity in the business processes of companies and administrations;
- security behavior is necessary for all employees, and not only in the workplace; and

- predefined regulations have to be lived, and this requires a cultural change in the organizations.

Moreover, the author can enrich the current report results of [80] with her own experience and findings for future activities in public administrations as well as in companies:

#### 1. Strategically anchor digitization

Note: No digitization without IS; no IS without continuously increasing ISA and user-centered ISAT.

#### 2. Create organizational units

Introduce ISMS for the institution. Create a position for the IS and introduce security officers.

#### 3. Define responsibilities

Big institutions may consider whether a Chief Digital Officer makes sense nowadays. Undoubtedly, all institutions today need IS officers plus a data protection officer and an emergency officer—and they should think carefully about an awareness officer too.

#### 4. Build up digital literacy

The knowledge assets of an institution and the value of IS are crucial factors in the success of the digital transformation. The use of digital technologies requires new skills from the employees and creates new job profiles. Such new job profiles should include awareness, particularly ISA.

#### 5. Distinguish business processes and models

Businesses should clearly distinguish between the digital strategy for business processes and business models, because the transformation processes have different results to the goal and require different approaches. Public administrations should think about new processes too, combined, however, with IS and ISA.

According to [81], the six major digital trends (mobility, big data, social media, cloud computing, artificial intelligence, and robotics) primarily affect six areas in companies (business models, products and services, customer segments, channels, business processes, and workplaces). The IS challenges will not diminish; attacks will become more diverse. Institutions must make efforts to educate all employees not only in the work environment but also as a means to safeguard their private lives and thus society. Game-based learning (GBL) is especially effective as a means to stimulate motivation and change behavior and should be explicitly used for raising awareness. ISATs should combine GBL plus PBL plus AL in line with real-life situations [51]. Because of complex nonlinear relations between knowledge of IS, attitudes, and the secure behavior of human beings in day-to-day organizational work and in their private lives, further scientific explorations of ISA and ISAT are needed in future. This further research work can be carried out very well at the TUAS Wildau in a research and teaching unit with practical relevance, since here studies for nontechnical public administration have been offered for years, and in winter semester 2018/19 the degree program in administrative computer science will be launched.

## Acknowledgements

I would like to thank my interdisciplinary research and development team for their reliable and creative cooperation in the field of information security awareness. I thank Frauke Fuhrmann, Denis Edich, Ernst-Peter Ehrlich, Kai-Benjamin Leiner, Lars Robin Scholl, and Peter Koppatz for the successful completion of our “SecAware4job” project funded by the Horst Görtz Foundation (HGS). I would like to thank Dr. Horst Görtz and the HGS for financial support of the “SecAware4job” project and for publication of this book chapter. Moreover, I thank our project partner Dietmar Pokoyski and his company known\_sense in Cologne for their cooperation—he is also the sole distribution partner for all of our game-based learning scenarios.

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## References

- [1] Bundesministerium für Wirtschaft und Energie (BMWi)/Federal Ministry of Economics and Energy. International Dimension: EU – Digital Agenda. Bonn; 2014. Available from: <http://www.bmwi.de/Redaktion/EN/Dossier/digitisation.html> [Accessed: 2017-05-29]
- [2] Bundesakademie für öffentliche Verwaltung im Bundesministerium des Innern (BAköV)/Federal Academy of Public Administration in the Federal Ministry of Interior. Manual of IT Security Officer in the Public Administration, version 3.0. Brühl; 2009
- [3] Available from: <https://www.verfassungsschutz.de/de/aktuelles/zur-sache/zs-2017-004-gastbeitrag-handelsblatt-20171127> [Accessed: 2017-12-28]
- [4] Bundesamt für Sicherheit in der Informationstechnik (BSI)/Federal Office for Information Security. 14. Deutscher IT Sicherheitskongress. Knowing risks, accepting challenges, designing solutions. In: Conference Proceedings for the 14th German IT Security Conference, Preface. Bonn, Bad Godesberg; 2015. Available from: [https://www.bsi.bund.de/DE/Service/Aktuell/Veranstaltungen/IT-Sicherheitskongress/14\\_ITSicherheitskongress/14\\_ITSiKongress.html](https://www.bsi.bund.de/DE/Service/Aktuell/Veranstaltungen/IT-Sicherheitskongress/14_ITSicherheitskongress/14_ITSiKongress.html) [Accessed: 2018-01-20]
- [5] Available from: [https://www.bsi.bund.de/DE/Themen/Cyber-Sicherheit/cyber-sicherheit\\_node.html](https://www.bsi.bund.de/DE/Themen/Cyber-Sicherheit/cyber-sicherheit_node.html) [Accessed: 2017-10-28]

- [6] International Organization for Standardization (ISO) Survey, The ISO Survey of Management System Standard Certifications (2006-2015): ISO/IEC 27001—Information Technology—Information Security Management Systems—Requirements, ISO/IEC 27001: 2013/Cor 2:2015. 2015
- [7] PCI Security Standards Council. Security Awareness Program. Special Interest Group, PCI Data Security Standard (PCI DSS), Version 1.0; 2014
- [8] Bundesamt für Sicherheit in der Informationstechnik (BSI)/Federal Office for Information Security. Self-Declaration and IT-Grundschutz Certificate. Bonn; 2016. Available from: [https://www.bsi.bund.de/EN/Topics/ITGrundschutz/ITGrundschutzCertification/OrganisationofCertification/organisationofcertification\\_node.html](https://www.bsi.bund.de/EN/Topics/ITGrundschutz/ITGrundschutzCertification/OrganisationofCertification/organisationofcertification_node.html) [Accessed: 2016-12-01]
- [9] Available from: [https://www.bsi.bund.de/EN/TheBSI/thebsi\\_node.html;sessionId=70E868EBB5E530CDA1AF059A22A5D485.1\\_cid341](https://www.bsi.bund.de/EN/TheBSI/thebsi_node.html;sessionId=70E868EBB5E530CDA1AF059A22A5D485.1_cid341) [Accessed: 2018-01-10]
- [10] Bundesamt für Sicherheit in der Informationstechnik (BSI)/Federal Office for Information Security. ORP.3: Sensibilisierung und Schulung/Sensitization and training. Bonn; 2016. Available from: [https://www.bsi.bund.de/DE/Themen/ITGrundschutz/ITGrundschutzKompendium/bausteine/ORP/ORP\\_3\\_Sensibilisierung\\_und\\_Schulung.html](https://www.bsi.bund.de/DE/Themen/ITGrundschutz/ITGrundschutzKompendium/bausteine/ORP/ORP_3_Sensibilisierung_und_Schulung.html) [Accessed: 2018-01-17]
- [11] Kruger H, Drevin L, Steyn T. Email security awareness: A practical assessment of employee behaviour. In: Fitcher L, Dodge R, editors. Fifth World Conference on Information Security Education. IFIP – International Federation for Information Processing. Vol. 237. Boston, MA: Springer; 2007:33-40
- [12] Aytes K, Terry C. Computer security and risky computing practices: A rational choice perspective. *Journal of Organizational and End User Computing*. 2004;16:22-40
- [13] Scholl M, Fuhrmann F, Scholl LR. Scientific Knowledge of the Human Side of Information Security as a Basis for Sustainable Trainings in Organizational Practices. In: Proceedings of the 51th Hawaii International Conference on System Sciences (HICSS), Big Island, Hawaii; 2018. pp. 2235-2244. Available from: <http://hdl.handle.net/10125/50168> [Accessed: 2018-01-20]
- [14] Verton D. The Hacker Diaries. New York: McGraw-Hill, Inc.; 2002
- [15] Enterprise Strategy Group (ESG). Brief: Cybersecurity Skills Shortage: A State of Emergency. Research Report, IT Spending Intentions Survey; 2016. Available from: <http://www.esg-global.com> [Accessed: 2018-01-20]
- [16] Allianz für Cyber-Sicherheit/Alliance for Cyber Security. Awareness-Umfrage. 2015. Available from: [https://www.allianz-fuer-cybersicherheit.de/ACS/DE/\\_/downloads/awareness-umfrage-2015.pdf?\\_\\_blob=publicationFile&v=5](https://www.allianz-fuer-cybersicherheit.de/ACS/DE/_/downloads/awareness-umfrage-2015.pdf?__blob=publicationFile&v=5) [Accessed: 2016-12-02]
- [17] Digitalverbund Bitkom 9/2017. Quoted and available from: <https://manucarus.wordpress.com> [Accessed: 2018-01-17]
- [18] Ponemon Institute Report 2017. Quoted and available from: <https://manucarus.wordpress.com> [Accessed: 2018-01-20]

- [19] Verizon's Data Breach Investigations Report 2017. Available from: <http://www.verizonenterprise.com/verizon-insights-lab/dbir/2017/> [Accessed: 2017-05-30]
- [20] Bundesamt für Sicherheit in der Informationstechnik (BSI)/Federal Office for Information Security. BSI-Standard 100-1. Information Security Management System. Version 1.5. Bonn; 2008. Available from: [https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/Publications/BSIStandards/standard\\_100-1\\_e\\_pdf.html](https://www.bsi.bund.de/SharedDocs/Downloads/EN/BSI/Publications/BSIStandards/standard_100-1_e_pdf.html) [Accessed: 2018-01-20]
- [21] Singh AN, Picot A, Kranz J, Gupta MP, Ojha A. Information security management (ism) practices: Lessons from select cases from India and Germany. *Global Journal of Flexible Systems Management*. 2013;**14**:225-239
- [22] Kim EB. Recommendations for information security awareness training for college students. *Information Management & Computer Security*. 2014;**22**:115-126
- [23] Shaw RS, Chen CC, Harris AL. The impact of information richness on information security awareness training effectiveness. *Computers & Education*. 2009;**52**:92-100
- [24] Workman M. Gaining access with social engineering: An empirical study of the threat. *Information Systems Security*. 2007;**16**:315-331
- [25] Beyer M, Ahmed S, Doerlemann K, Arnell S, Parkin S, Sasse A, Passingham N. Awareness Is Only the First Step: A Framework for Progressive Engagement of Staff in Cyber Security. Business white paper: Hewlett Packard; 2016
- [26] Hu Q, Dinev T, Hart P, Cooke D. Managing employee compliance with information security policies: The critical role of top management and organizational culture. *Decision Sciences*. 2012;**43**:615-660
- [27] Von Solms SH. The 5 Waves of Information Security: From Kristian Beckman to the Present. In: Rannenbergh K, Varadharajan V, Weber C, editors. SEC 2010, IFIP International Federation for Information Processing AICT 330. 2010;1-8
- [28] Bandura A. Social cognitive theory: An Agentic perspective. *Annual Review of Psychology*. 2001;**52**:1-26
- [29] Chen CC, Medlin BD, Shaw RS. A cross-cultural investigation of situational information security awareness programs. *Information Management & Computer Security*. 2008;**16**:360-376
- [30] Safa N S, von Solms R, Furnell S. Information security policy compliance model in organizations. *Computers & Security*. 2016;**56**:70-82
- [31] Herath T, Rao HR. Encouraging information security behaviors in organizations: Role of penalties, pressures and perceived effectiveness. *Decision Support Systems*. 2009;**47**:154-165
- [32] Pattinson M, Parsons K, Butavicius M, McCormac A, Calic D. Assessing information security attitudes: A comparison of two studies. *Information & Computer Security*. 2016;**24**:228-240
- [33] Winkler I. The Human Exploitation Kill Chain (Video), RSA Conference (2017), USA. 2017. Available from: <https://www.rsaconference.com/events/us17/agenda/sessions/6682-The-Human-Exploitation-Kill-Chain%20RSA> [Accessed: 2017-05-30]

- [34] Scholl M. Raising Information Security Awareness in the Field of Urban and Regional Planning. Submitted to the International Journal of E-Planning Research (IJEPR). 2018 (forthcoming)
- [35] Briggs P, Jeske D, Coventry L. Behaviour Change Interventions for Cybersecurity. Behavior Change Research and Theory. London: AP; 2017:115-136. DOI: 10.1016/B978-0-12-802690-8.00004-9
- [36] Zz Z et al. (review process). Security Kairos: The Art and Science of Raising Awareness and Offering Consumer Advice at Point-of-Sale. 2018 (forthcoming)
- [37] Fogg BJ. A behavior model for persuasive design. 2009. In Proceedings of the 4th International Conference on Persuasive Technology (Persuasive 2009). Article No. 40. DOI: 10.1145/1541948.1541999
- [38] Haucke A, Pokoyski D. Mea culpa - Schuld, Scham und Opferrolle bei Social Engineering. 2018;1:6-8
- [39] Pokoyski D. Security Awareness: Von der Oldschool in die Next Generation – eine Einführung. In: Helisch M, Pokoyski D, editors. Security Awareness. Neue Wege zur erfolgreichen Mitarbeiter-Sensibilisierung. Wiesbaden: Vieweg+Teubner; 2009. pp. 1-8
- [40] Available from: [https://en.wikipedia.org/wiki/Organizational\\_commitment](https://en.wikipedia.org/wiki/Organizational_commitment) [Accessed: 2017-06-10]
- [41] Albrechtsen E. A qualitative study of users' view on information security. Computers & Security. 2007;26:276-289
- [42] DSV-Gruppe; EnBW; <kes>; known\_sense; nextsolutions; Pallas; editors. Entsicherung am Arbeitsplatz – die geheime Logik der IT-Security in Unternehmen. Köln & München; 2006. Available from: [http://known-sense.de/de/Produkte/Security\\_Studien\\_2/](http://known-sense.de/de/Produkte/Security_Studien_2/) [Accessed: 2018-03-06]
- [43] SanNicolas-Rocca T, Schooley B, Spears JL. Designing effective knowledge transfer practices to improve is security awareness and compliance. 47th Hawaii International Conference on System Sciences (HICSS); 2014:3432-3441
- [44] Straub DW, Welke RJ. Coping with systems risk. Security planning models for management decision making. MIS Quarterly. 1998;22:441-469. DOI: 10.2307/249551
- [45] Scholl M, Fuhrmann F, Pokoyski D. Information security awareness 3.0 for job beginners. In: Varajão JE, Cruz-Cunha MM, Martinho R, Rijo R, Bjørn-Andersen N, Turner R, Alves D, editors. Proceedings of the Conference on ENTERprise Information Systems (CENTERIS). 2016. pp. 433-436
- [46] Helisch M, Pokoyski D, editors. Security Awareness. Neue Wege zur erfolgreichen Mitarbeiter-Sensibilisierung. Wiesbaden: Vieweg+Teubner; 2009
- [47] known\_sense, Lanxess, Technische Hochschule Wildau, <kes> (editors). Bluff me if u can – Gefährliche Freundschaften am Arbeitsplatz. Tiefenpsychologische Wirkungsanalyse Social Engineering und seine Abwehr, 2015. Available from: <http://www.knownsense.de/BluffMeIfUCanAuszug.pdf> [Accessed: 2016-03-16]

- [48] Khan B, Alghathbar KS, Nabi SI, Khan MK. Effectiveness of information security awareness methods based on psychological theories. *African Journal of Business Management*. 2011;**5**:10862-10868
- [49] Fuhrmann F, Scholl MC, Edich D, Ehrlich EP, Leiner KB, Scholl LR. Raising awareness for information security in a playful way. In: *Proceedings of the London International Conference on Education (LICE)*. London: Infonomics Society; 2016:190-191
- [50] Fuhrmann F, Scholl MC, Edich D, Koppatz P, Scholl LR, Leiner KB, Ehrlich EP. Informationssicherheitsbewusstsein für den Berufseinstieg. Abschlussbericht Projekt SecAware4job. Aachen: Shaker; 2017. DOI: 10.2370/9783844054668
- [51] Scholl M, Fuhrmann F. Living in a digital world: Improving skills to meet the Challenges of digital transformation through authentic and game-based learning. Keynote at the 21st world multi-conference on Systemics, cybernetics and informatics (WMSCI 2017). *Journal of Systemics, Informatics and Cybernetics*. 2017;**5**:81-86. Available from: [http://www.iiisci.org/journal/CV\\$/sci/pdfs/IP037LL17.pdf](http://www.iiisci.org/journal/CV$/sci/pdfs/IP037LL17.pdf) [Accessed: 2017-12-25]
- [52] Available from: <http://secaware4job.wildau.biz> [Accessed: 2018-01-20]
- [53] Available from: <https://www.comble-project.eu> [Accessed: 2018-01-21]
- [54] Available from: <https://methopedia.eu> [Accessed: 2018-01-21]
- [55] Chen Y, Ramamurthy K, Wen K-W. Information security policy compliance: Stick or carrot approach? *Journal of Management Information Systems*. 2014;**29**:157-188
- [56] Kirlappos I, Beaument A, Sasse MA. "Comply or die" is dead: Long live security-aware principal agents. In: Adams AA, Brenner M, Smith M, editors. *Financial Cryptography and Data Security*. FC 2013, Lecture Notes in Computer Science. Vol. 7862. Heidelberg: Springer; 2013:70-82
- [57] James T, Nottingham Q, Kim BC. Determining the antecedents of digital security practices in the general public dimension. *Information Technology and Management*. 2013;**14**:69-89
- [58] Tsohou A, Karyda M, Kokalakis S, Kiountouzi E. Managing the introduction of information security awareness programmes in organisations. *European Journal of Information Systems*. 2015;**24**:38-58
- [59] KPMG Wirtschaftsprüfungsgesellschaft AG (KPMG). Big Data, große Baustelle. Mit Daten Werte schaffen 2017 – Sonderausgabe für die öffentliche Verwaltung. Available from: <https://home.kpmg.com/de/de/home/themen/2017/09/mit-daten-werte-schaffen-2017--spotlight-oeffentlicher-sektor-.html> [Accessed: 2018-01-20]
- [60] Available from: <https://twz-ev.org/weiterbildungen/it-sicherheitsbeauftragte-i/> [Accessed: 2018-01-21]
- [61] Young R. Growth perspective of information security. *Journal of Information Privacy and Security*. 2014;**5**:51-67
- [62] Exchange of information between the qualification centers of the BAKöV at the TUAS Wildau on January 27, 2017

- [63] Jones BH, Chin AG, Aiken P. Risky business: Students and smartphones. *Tech Trends*. 2014;58:73-83
- [64] McCrohan KF, Engel K, Harvey JW. Influence of awareness and training on cyber security. *Journal of Internet Commerce*. 2010;9:23-41
- [65] Scholl M, Leiner KM, Fuhrmann F. Blind spot: Do you know the effectiveness of your information security awareness-raising program? In: *Proceedings of the 21st World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2017)*; 2017. pp. 58-62. Available from: [http://www.iiisci.org/Journal/CV\\$/sci/pdfs/SA199CD17.pdf](http://www.iiisci.org/Journal/CV$/sci/pdfs/SA199CD17.pdf) [Accessed: 2017-12-26]
- [66] Scholl M, Fuhrmann F, Pokoyski D. The human factor: How can information security awareness be sustainably achieved in E-government? In: Scholl HJ, Glassey O, MFWHA J, editors. *Electronic Government and Electronic Participation. Joint Proceedings of Ongoing Research, PhD Papers, Posters and Workshops of IFIP EGOV and ePart 2016. Innovation and the Public Sector*, 23. Netherlands: IOS Press; 2016:403-404
- [67] Slusky L, Partow-Navid P. Students information security practices and awareness. *Journal of Information Privacy and Security*. 2012;8:3-26
- [68] Tsohou A, Karyda M, Kokalakis S, Kiountouzi E. Analyzing trajectories of information security awareness. *Information Technology & People*. 2012;25:327-352
- [69] Stewart G, Lacey D. Death by a thousand facts: Criticising the technocratic approach to information security awareness. *Information Management & Computer Security*. 2012;20:29-38
- [70] Reeder R, Ion I, Consolvo S. 152 simple steps to stay safe online: Security advice for non-tech-savvy users. In: *Proceedings of the 2017 IEEE Symposium on Security and Privacy (S&P)*. IEEE; 2017. DOI: 10.1109/MSP.2017.265093101
- [71] Caldwell T. Making security awareness training work. *Computer Fraud & Security*. 2016;(6):8-14
- [72] Forget A, Pearman S, Thomas J, Acquisti A, Christin N, Cranor LF, Harbach SEM, Telang R. Do or do not, there is no try: User engagement may not improve security outcomes. In: *Proceedings of the Twelfth Symposium on Usable Privacy and Security (SOUPS 2016)*. USENIX Association; 2016:97-111
- [73] Coles-Kemp L, Hansen RR. Walking the line: The everyday security ties that bind. In: Tryfonas T, editor. *Human Aspects of Information Security, Privacy and Trust*. HAS 2017. *Lecture Notes in Computer Science*. Vol. 10292. Cham: Springer; 2017:464-480. DOI: 10.1007/978-3-319-58460-7\_32
- [74] Fagade T, Tryfonas T. Security by compliance? A study of insider threat implications for Nigerian banks. In: Tryfonas T, editor. *Human Aspects of Information Security, Privacy, and Trust*, HAS 2016, *Lecture Notes in Computer Science*. Vol. 9750. Cham: Springer; 2016:128-139

- [75] Kirlappos I, Parkin S, Sasse MA. Learning from “shadow security”: Why understanding non-compliance provides the basis for effective security. In: Proceedings of the Workshop on Usable Security (USEC); San Diego, CA, USA. 2014
- [76] Van Niekerk JF, von Solms R. Information security culture: A management perspective. *Computers & Security*. 2010;**29**:476-486
- [77] Bauer S, Bernroider EW. The effects of awareness programs on information security in banks: The roles of protection motivation and monitoring. In: Tryfonas T, Askoxylakis I, editors. *Human Aspects of Information Security, Privacy, and Trust*. HAS 2015. Lecture Notes in Computer Science. Vol. 9190. Cham: Springer; 2015:154-164
- [78] Bundesamt für Sicherheit in der Informationstechnik (BSI)/Federal Office for Information Security. ICS Security Compendium, Version 1.23. Bonn; 2013. Available from: [https://www.bsi.bund.de/DE/Themen/Industrie\\_KRITIS/Empfehlungen/ICS/empfehlungen\\_node.html](https://www.bsi.bund.de/DE/Themen/Industrie_KRITIS/Empfehlungen/ICS/empfehlungen_node.html) [Accessed: 2018-01-20]
- [79] Dark MJ. Security education, training and awareness from a human performance technology point of view. In: Whitman ME, Mattord HJ, editors. *Readings and Cases in Management of Information Security*. Mason, OH: Course Technology; 2006:86-104
- [80] Tata Consultancy Services (TCS), Bitkom Research. Deutschland endlich auf dem Sprung? Trendstudie. *TCS\_Bitkom\_Research\_Trendstudie\_Digitalisierung\_2017.pdf*. 2017. Available from: <https://www.bitkom-research.de> [Accessed: 2018-01-20]
- [81] Tata Consultancy Services (TCS). Die zwei Gesichter der Digitalisierung. Deutsche Unternehmen sind gespalten. *Studie-Die-zwei-Gesichter-der-Digitalisierung.pdf*. 2017. Available from: <http://sites.tcs.com/2-Gesichter-der-Digitalisierung/> [Accessed: 2018-01-21]



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# **The Digital Culture within Enterprises and Public Administration: Legal Aspects and Repercussions on the Country's Socioeconomic Fabric**

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.77606>

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## **Abstract**

In line with the international framework, Italy is going through a process of transformation and innovation affecting the services provided to citizens and enterprises; this process aims at administrative simplification through the use of digital technologies.

*Digitization* is affecting the Public Administration significantly. The unprecedented and large-scale impact of new technologies is resulting in a more effective system and, above all, in a closer distance between Public Administration and users (both citizens and enterprises). The final aim is to facilitate the access to services and the relaunch of the economy.

Italy is at a disadvantage in comparison with other countries.

**Keywords:** digitalization, innovation, industrial revolution, enterprises, public administration

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## **1. Introduction**

A new and exciting challenge humanity is called to face today is the so-called “fourth industrial revolution,” since we are facing a true transformation of the way we live, work, and relate to others.

We are witnessing deep change within several production sectors, characterized by the inception of new enterprise models and by the call into question or the reconsideration of the present production, consumption, transportation, and shipping sectors. Regarding the social context, there is a paradigm shift in place that is affecting the way we work and communicate

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but also the way in which we access information, express ourselves, or spend our free time. Meanwhile, governments and institutions alike are object of reorganization, as well as the educational systems, social services, and the transportation sector. The technological innovations that are useful in order to change practices, production, and consumption systems also offer the opportunity to promote the regeneration and conservation of the environment, avoiding, this way, the hidden costs originating from the outsourcing of such processes.

The changes can be defined as historical if we consider their intensity, reach, and pace. Unlike the previous industrial revolutions, which have taken place at a linear velocity, the present one is happening at a staggering one. This is based on the heterogeneous nature of the world we live in, which is constantly interconnected, and in the fact that the existing technologies create some new and better performing ones.

The transformation has its roots in the digital revolution, and it combines several types of technologies, originating unprecedented paradigm changes both at an individual level and in financial, business, and social terms.

The transformation involves entire systems, countries, enterprises, sectors, and companies in general.

The first industrial revolution has affected the years between about 1760 and 1840 and has introduced the first mechanical production, also favored by the creation of the railway system and by the invention of the steam engine.

The second industrial revolution, started at the end of the nineteenth century and ended at the beginning of the twentieth century, has implemented mass production thanks to the advent of electricity and to the introduction of the assembly line.

The third industrial revolution started at the beginning of the 1970s, and it is often referred to as the “digital revolution” or “information technology revolution,” since it was determined by the development of semiconductors, which were high-level computing devices, of personal computers and by the diffusion of the Internet.

As mentioned earlier, nowadays we are witnessing the beginning of a fourth industrial revolution that, started in the twentieth century, is a direct consequence of the digital one. It is characterized by a more spread usage of the Internet, which can be accessed with growing frequency through mobile devices that keep getting smaller but more powerful and inexpensive, and by the recurring employment of artificial intelligence and of automatic learning tools [1].

The digital technologies based on hardware, software, and network devices do not represent a novelty, but, unlike what used to happen in the third industrial revolution, they stand out for a higher level of integration and sophistication, contributing to the transformation of society and global economies.

In Germany, the expression “Industry 4.1” was introduced for the first time at the Hannover Fair to describe, at global level, how the industrial revolution would change the configuration of the so-called “value chain,” that is, the strategically relevant business activities.

By favoring the creation of “smart factories,” the industrial revolution in place creates a work environment in which the physical and virtual production systems interact in a flexible

fashion, enabling the personalization of the products and the realization of new operational models.

However, it is to be noted that the fourth industrial revolution is not just about the possibility to have available permanently connected “intelligent” systems and devices. Its scope is certainly more ample and it also includes the simultaneous development of many innovations in a wide range of fields [2].

Innovation travels at an unprecedented pace, both in terms of development and in terms of diffusion.

What is amazing is not only the pace of the change but also the efficiency of scale deriving from it. Digitalization means automation, which in turn is translated in higher or otherwise significant efficiencies of scale. Today, it is possible to create value thanks to the employment of a number of workers that is definitely lower compared to 10 or 15 years ago, because digital companies have marginal costs almost amounting to zero. Furthermore, in the digital era, new companies supply and commercialize information; therefore, the stock maintenance expenses, transport, and product duplication expenses are nearly null [3]. Some companies that create breakthrough technologies seem to need very little capital in order to function successfully.

Aside from the diffusion rate and ability, the fourth industrial revolution is unique, considering the growing harmonization and integration of different disciplines and innovations.

## **2. The digital skills level required and the supply system**

Digitalization and its related enabling technologies (Cloud [4], mobile computing, cybersecurity [5], big data [6], social, Internet of Things (IoT) offer great opportunities to companies, but they also demand cultural changes and a deep renovation of the areas of expertise. In this scenario, both private companies and public entities are involved in pinpointing and introducing new digital competences within the organization and to launch training activities for the reskilling of the existing staff members. This demand for new skills involves an adaptation both in the offer system, in terms of expressed skills, and in the training system. As observed by the Osservatorio delle Competenze Digitali 2017 (Digital Skills Monitoring Unit) [7], the needs that generate a demand for new skills within private companies are mostly new and innovative production methods (for 51.1% of companies), offer innovation (46.7%) and employment of new tools and digital channels in customer relations (40%) [8]. Concerning the innovations in production, the paradigm Industry 4.0 entails the introduction, in the plants, of detectors, smart controllers, 3D printers, connected machinery, business intelligence and analytics software, and other digital technologies aiming to make production more efficient, in integrated mode, remote, and in real-time logic. New competences will be needed for the architecture design and for the creation of applications for the development of new products and services within the factory. The new professions will be needed in order to promote and launch in the best way the transformation of the manufacturing industry: the Industry 4.0 concept does not just deal with adopting new technologies, but it involves new *governance* and company organization models, as well as new professional

figures. In public administration entities, the demand for new competences is guided by 360° innovation and digitalization of the administrations, which involves both the services to citizens and the services to enterprises (for 85.7% of the entities) and the internal workflows and processes (64.3%).

All these factors have an impact also in the information and communications technology (ICT) sector, which will in turn have to adjust the competences so as to better support the offer innovation (58.1%), the digital strategies to relate to clients (48.6%), and the multi-channel system (41%). In this context, both technological and soft skills are essential in order to align business strategies and technological evolution to support innovation and improve internal procedures. The technological trends, which impact several levels of the demand for new digital competences, add to the needs pinpointed by companies, public entities, and ICT suppliers. The main technological trend is cloud, indicated by 71.4% of ICT suppliers and by 55.4% of the user companies, whereas big data, Internet of Things, mobile and app economy, and cybersecurity follow [8]. The most critical profiles that are more difficult to find on the market are: for the cloud area: cloud computing strategist, cloud security architect, and cloud computing engineering; for the big data area: big data specialist, big data scientist, big data architect, and big data software engineering. The Internet of Things will keep being one of the main drivers of the digital transformation of companies and it will require professionals with skills in architecture design and development and innovative applications, in managing and monitoring of services (meeting the service level agreement (SLA)/key performance indicator (KPI), internal client support, and system governance requirements), and in issue management and resolution. This is the context in which are emerging the IoT consultant and IoT engineering profiles, which are crucial to designing and implementing new processes and new smart products. They are accompanied by the IoT security software engineer, for systems protection, and the architecture mobile and IoT solutions engineer, for innovative processes management and development of related products. Cybersecurity, as well as other technological paradigms stands across the digital transformation processes, representing an essential element: the progressive and growing digitalization of the companies' internal and external activities in all market sectors is determining, indeed, an increase in cyber threats. In this context, the crucial profiles for companies are the cybersecurity consultant, the cybersecurity architect, and the cybersecurity project manager.

Finally, one key issue is the training of the new figures, which does not always keep pace with the demand. The master's degree programs in emerging digital areas (e.g., big data) in Italy are still very few. One risk is that the gap on the new areas will remain and will be accompanied by an excess in other areas linked to traditional technologies, limiting the digital transformation plans. Digital transformation is quickly changing the features of the skills needed by companies, public administrations, and citizens in order to keep pace with globalization, but the lack of awareness might leave behind many unaware small and medium-sized enterprises (SMEs). Because of this, there is a lack of a "modernized" job market, lack of a training system that is able to keep pace with the skills required, and, finally, a lack of awareness especially in small entrepreneurs regarding the transformations in place and the urgency to acquire all the opportunities they offer rather than being overwhelmed by them.

The main subject is that of digital competences, which are today's strategic asset meant to enable all the potentialities of digital transformation.

From the analysis of the job offers via web, there is one data that stands out: the gap between what companies look for and the professional knowledge of those seeking an occupation.

This is so important that if it keeps running this way, the educational system is bound to only prepare students for unemployment. The job offers related to new and emerging digital professions have grown by 280% from February 2013 to April 2017.

However, regarding job offers that refer to positions that are not strictly technological, as already mentioned, the component related to digital skills is growing, especially in the human resources (HR), accounting, and marketing sector.

The transformations in place are outlining more and more the need to exit the traditional evaluation framework and select "digital" professional figures in order to capture the liquid world of cross-disciplinary skills, among which shines the ability to capture and manage the continuous change: it does not make sense anymore to follow the trend of a "genetic" research of new professions. What is needed is to capture inclinations, versatility, and ability to cooperate, conjugated with unique abilities to "live" the new technology rather than just use them.

In the Italian manufacturing fabric, one of the main criticalities is cultural and linked to small businesses: many companies cannot decode the new needed skills, many others would not have the financial resources to attract them and employ them anyway. However, most importantly, an entrepreneurial awareness of the strategic edge of the digital factor is still missing.

### **3. Advantages and disadvantages of digitalization**

By now, digitalization is the key to competitiveness: it represents an essential leverage in order to increase the ability of enterprises to play a growing role in the international markets and the ways to realize this are many. The use of the new technologies in the management of a company, as a matter of fact, does not just apply to the communication and marketing areas but also to production, sales, business model, learning modalities, customer interaction, market access, and activities.

With digitalization, the production method changes, as well as the way the enterprise trades and communicates. Furthermore, digital technology, aside from simplifying our daily life, has generated new possibilities for development for all those enterprises that are able to keep pace with change and that know how to take advantage of the new opportunities that digital technology offers, resulting in the fact that nowadays more entities decide to evolve so as not to be excluded and so as to have the possibility to emerge in the market.

Digital transformation in general is financially sustainable for the SMEs and entails several advantages such as: saving on turnover, simplification of the access to information, improvement in business processes, and enhancement of competitive advantage. Furthermore, there is a strict connection between digitalization and internationalization: as a matter of fact, from

a research conducted by DOXA on behalf of Google, it appears that enterprises that have used more digital instruments (such as software and the Internet) for their business, at the same time, have seen their export sales volumes soar.

Despite many enterprises in Europe have been rapidly digitalized so as to be more competitive on a global level, the more traditional sectors of production and services such as the construction industry, the agro-food sector, the textile sector, and the iron and steel industry have only marginally benefitted from the opportunities offered by digitalization and are therefore still behind in digital transformation compared to their competitors in other European countries. In order to fill the gap, several European Union (EU) member states have approved strategies to sustain industry digitalization; however, it seems necessary to sustain a more global approach on a European level so as to avoid market fragmentation and to benefit from the digital evolution. Italy, for example, is among the member states that are less digitally developed: infrastructures and competences, indeed, are below the European average, whereas Spain is among the countries in their “catching-up” phase, which, despite remaining below the European Union average, are advancing faster than other member states and are therefore considered as recovering. Delaying the digitalization process of an enterprise means to limit its business tools and not allow it to exploit all the opportunities offered by the new technologies.

Digital transformation is an articulate process which requires management skills, but it is not just an innovative work. This transformation entails cost and process management benefits: more efficiency, more efficacy, as well as a range of definitely better services to offer to customers and suppliers. It is therefore necessary for Italian and Spanish enterprises to convert to this transformation quickly and efficiently, since only through digitalization, it is possible to think about the future of the entrepreneurial fabric.

There are numerous studies that have hypothesized the advantages of the digital industrial revolution and also many that have highlighted the possible disadvantages of it. Among several doubts, though, such as the jobs that could be lost, there are also some encouraging evaluations.

The last study written by the Capgemini Digital Transformation Institute states that the investments in smart factories could generate a 27% increase in production efficiency during the next 5 years, entailing an added value of €500 billion to the global economy. An encouraging factor is that the evaluations are made by enterprises that are active within the manufacturing sector. In addition, according to the survey, most of the enterprises interviewed seem to have understood that rather than losing jobs, the best strategy with the advent of automation is to enhance the skills of their employees, reducing inefficiency. It is not a case that 54% of the interviewed have declared to have inserted their employees in digital training courses, whereas 44% of them are investing in new workforce already trained. In our country, according to a research conducted by Ranstad in 33 countries, two workers over three deem necessary an increase in digital competences, since, according to 70% of the interviewed, to date, Italian companies do not have available the digital skills needed in order to start a digitalization process. After all, more digitalization would guarantee a positive impact on the companies' competitiveness, both in terms of internationalization and in terms of occupation and production. We live in a country with a strong motivation toward digital economy but

that struggles to create the necessary skills to support it: there is a lack of long-term strategies which involve companies and training systems, there is a lack of a general view meant to coordinate the courses of digital transformation, there is a lack of resources to make the public administrations (PA) adaptable to change.

The demand for ICT professions is constantly growing. Every year it increases by 26% on average, with peaks of 90% for new professions linked to digital transformation such as business analyst and big data specialists, just to highlight the evolution toward "data-driven company." The demand for new digital professions increases by 56% in total: cloud specialists, cybersecurity, IoT, service development, service strategy, robotics, cognitive and artificial intelligence. There is definitely more demand in the Northwest (48%).

Regarding the traditional ICT profession, the demand for software analysts is in constant rise (+24% in the last year). Regarding salary, ICT pays: in sector companies, wages in 2016 have increased with peaks of +5.7% for employees and +4.9% for management.

The jobs are there but many positions remain empty. The estimate is that in the 3 years between 2016 and 2018, there could be 85,000 new jobs requiring ICT qualifications within a total occupation rate which could rise by 3.5% per year by 2018 to reach 642,000 units. For these positions, the market requires 62% college graduates and 38% secondary school graduates, but our training system offers too many secondary school graduates (8400 in excess) and too few college graduates in ICT courses (4400 in deficiency). The good news is that the number of enrollments in ICT college courses grows every year, however, the dropout rate is very high (60%), especially in the 3-year information technology degrees.

The competences linked to big data, data science, cybersecurity are slowly making their way in university courses while cloud keeps being neglected. In non-ICT faculties, the digital skills are overlooked and there is no training related to them for about a half of the 4362 existing degree courses. However, the cooperation among schools, universities, enterprises, and associations are increasing, albeit slowly. It is definitely a strategic area that needs to be amplified by overcoming the issues linked to regulatory framework dispersion, to organizational coordination, and to access to incentives. The demand for new digital profiles, from the point of view of enterprises and public administration, has been analyzed by a qualitative panel and has highlighted the growing demand for new profiles linked to processes, products, and strategy innovation in a digital framework. The profiles that are crucial to the ICT chain are: business analyst, project manager, and security analyst. The gap can be filled by reconverting the existing resources through classroom training (which is increasing among young people) and digital learning. External research uses, as preferred channels, the interaction with technical and scientific faculties (47.6%), the personal/professional network (47.6%), and social media (42.9%).

In user companies, the common most important profiles to be found are: information systems manager, ICT security manager, and project manager.

What is critical today is the skill digital rate, that is, the grade of pervasiveness of the digital competences within a single profile requested by the market: according to the analysis of the web vacancies in 2016, in ICT professions, it affects for about 68%, with peaks of 80% for new

business figures related to the IoT, mobile, and cloud area, whereas, in other professions, the incidence is growing and linked to both changes in the areas of automation in processes that are stimulated by Industry 4.0 (63.6%) and in the digital relation with the customer in service and business areas (54.6%).

In total, 85% of the interviewed PAs, instead, need digital skills in order to face the digitalization of services to citizens and enterprises, linked, for example, to SPID, PagoPA, and Fascicolo Sanitario Elettronico (Electronic Health Dossier). Unfortunately, it is difficult to find these skills externally because of the ongoing hiring freeze, and it is also difficult to train existing resources because of the difficulties in diverting them from their core activities.

But if we look at the jobs for the future, the scenario changes. The new professions will be called change manager, agile coach, technology innovation manager, chief digital officer, IT process and tools architect and will be formed by an articulate mix of skills meant to strategically manage the change imposed by the big data, cloud, mobile, social, IoT, and security areas. The new figures will be especially composed by technological, managerial, and soft skills such as leadership, emotional intelligence, creative thought, and change management.

#### 4. Digitalization and innovation in public administration

In line with the international framework, Italy is undergoing a process of transformation and innovation of the services to citizens and enterprises in a view of simplification, also through the use of digital technologies and of cooperation among all operators of the system.

The explosive and transversal effect of the new technologies will lead not only to a more efficient system but most of all to a shortening of the distance between public administration and users (either citizens or enterprises), to ease the access to service and to relaunch the economy, particularly in some strategic productive sectors such as tourism, culture, and agriculture.

In this context, the Italian government is at the forefront to reach the country's digital growth objectives and to accompany public administrations and users in a journey toward modernization and transformation.

The 2014–2020 Strategy for Digital Growth document defines precisely the planning for the transformation of the country. Consistently with this strategy, the Italian government has identified the main objectives, such as to guarantee to citizens and enterprises a secure and protected access to digital services, to centralize the civil registries, to develop the electronic payment systems in Pas, and to have enabling platforms for the provision of digital services to citizens in a *mobile first* framework.

The organizations that have reached the highest degree of digital development have users as their primary interest.

Italy also recognizes that if citizens and enterprises are put first, digital innovation will become a public investment tool with an immediate impact on the improvement of the services already provided as well as the improvement of the quality of life.

The lack of *digital skills* represents one of the main obstacles to digital transformation. Italy is aware that these profiles are crucial and also it is aware of the importance of the diffusion of a *digital mind-set* to the purpose of success in the realization of the digital strategy. One direct expression of such commitment is represented by the reorganization of the Agency for Digital Italy, which will lead to the development and to the implementation of digital skills meant to respond in an efficient way to its mission.

On an international level, the situation that emerges seems to be even more undeveloped on the procurement side, which is spoiled by an excessive level of regulation and the lack of flexibility. The redesign of the Italian procurement model is certainly at the center of a government strategy which implies the simplification of the procedures and the identification of agile solutions that will be able to support all levels of public administrations, like, for example, the *pre-commercial procurement*.

In order to really transform the public sector by taking advantage of digital technologies, the public administrations will have to face a real journey, a “digital journey.”

Governments and administrations find themselves in very different phases of this “journey.” While a small percentage might be considered as going through a “phase of maturation,” governments and administrations, for the most part, are still in the beginning or developing phases of the digital course. What differentiates the leaders of digital technology from the others is a clear strategy for digital technology, as well as a leadership and a culture that are ready to sustain transformation. This should not surprise, as the history of technological progress abounds with examples of companies that have focused on technology without investing in the organizing skills that are needed to guarantee its impact.

Public administrations have shown to be particularly prone to fall in this trap. Particularly, the first attempts to introduce computers in schools have not determined an improvement in performance, since they were not accompanied by essential modifications of the teaching methods that would allow them to be adjusted to the new technology.

The failure to employ corporate resources within public entities is a classic example of unmet expectations due to the incapability to modify processes or to develop change-favoring cultures.

The digital development of an organization is influenced for the most part by its digital strategy. The “lack of a strategy” is the main barrier that prevents organizations in their beginning phase to fully take advantage of the digital trends.

However, it does not seem to be among the five main barriers for entities in a phase of digital development.

As organizations go from the initial phase to the more advanced one, the problem represented by the lack of strategy seems to withdraw and the barriers move toward the portfolio management, financing, and data and systems security management. The organizations that find themselves in a developmental phase have a clear strategy that moves toward a radical transformation. The potential impact of a digital strategy is broadly determined by the purpose and the reach of it. Also, the importance that organizations ascribe to the use of

digital technology in order to improve the innovation degree and the decisional process varies according to the level of digital development reached.

In the same way, the public sector managers expect that the human resources sector adjust to digital solutions and accept them in order to face the challenges linked to personnel management.

The unrestrained changes that stimulate digital transformation question consolidated leadership and governance models. Before digital technology, the new projects could be evaluated through deep analysis, the investment decisions could be based on cost/efficiency ratios, and the final objective of most plans consisted of a fixed target.

In the new digital era, leaders are asked to make decision more rapidly in the face of a constant evolution of the possible scenarios.

In public entities, the whole world of hierarchies and the government structures are often firmer and more marked than in the private sector. Government entities in a phase of digital development are characterized by a culture that favors digital transformation: they promote innovation, favor collaborative work environments, and adopt a positive attitude toward risk propensity. Furthermore, not always innovation and collaboration are the byproduct of digital technology, rather they can be promoted toward management methods that favor digital technology.

Risk propensity is becoming a cultural norm for organizations undergoing a phase of digital development.

Public entities in a phase of digital development are more capable of taking risks, that is, more prone to experiment agile approaches, such as: “make a mistake in a hurry, fix a mistake in a hurry.” They are five times more prepared to modify their attitude toward risks taking compared to entities undergoing an initial transformation phase.

Furthermore, the organizations that are only beginning their transformation allude to “lack of entrepreneurial spirit” and “willingness to take risks” among the most crucial barriers to the exploitation of the digital trends. Innovation and collaboration abound in those organizations undergoing a phase of digital development.

The entities undergoing a phase of digital development find themselves in a better position to benefit from collaboration. Almost all of the entities in this phase (98%) declare that digital technologies and digital skills allow employees to work better together.

Public entities in a phase of digital development face a remarkable change in their innovative and collaborative culture determined by the digital trends: they have a probability to notice an improvement in their innovative and collaborative culture that is three times higher than what entities in their initial phases are likely to experience.

Digital culture is weaker in the defense, energy, and justice sectors. These are sectors that focus on public services that have a crucial importance, characterized by a very low error-tolerance, and in which very small operational faults could have long-term negative consequences. These sectors are less willing to experiment new approaches and are the slowest

when it comes to innovating and collaborating using new digital technologies, which could derive from the fact that they have favored risk-averse cultures, which make it more difficult to pursue innovation and experimentation.

Personnel digital development is weak in some sectors providing professional services, particularly the higher education, health, and social service sectors. These are sectors in which the service provision to the public is assigned to professionals with a proper training, who base their activity on their own judgment and who operate with a certain level of autonomy. These sectors are slower to invest in the personnel skills that are needed in order to implement a digital strategy, maybe because those areas have always given more importance to professional judgment, subject knowledge, and interpersonal skills rather than to organizational, digital, or transformational skills. The user's attention levels are higher in sectors in which the public service is represented by the provision of knowledge to clients/citizens. This is particularly true in the information technology (IT), education, and higher education sectors. The data are not surprising; it is indeed very likely that the requests from these users evolve and change frequently, which makes the ability to put the user's needs first a crucial factor for the entities operating in such sectors.

The main barriers preventing digital transformation are: insufficient financing and too many competing priorities.

Many public entities are already facing difficulties financing basic services to citizens, not to mention investing in digital initiatives, despite digital transformation is largely recognized as a way to reach a substantial cost reduction.

The managers who attempt to stimulate change always face competing priorities; particularly, many struggle to find a balance between transformation and "guarantee a, however, low level of service." Public entities that manage to successfully pursue their objectives tend to have strategies that are realistic and coherent and very well understood business cases.

Aside from insufficient financing and too many competing priorities, the organizations that are in a developmental phase indicate security as an important barrier. For the entities in their initial transformation phase, the absence of a general strategy—together with a poor understanding of the new tendencies of the digital world—represents a considerable barrier.

The public sector has the need to enhance the digital skills of both the employees appointed with realizing the digital transformation and those in charge of guiding it.

Employing people who have the skills needed or properly train the existing employees may naturally contribute to fill the specific ability gaps. It is essential for the people directly involved in the digital transformation activity to work side by side with the recruiting specialists in order to guarantee that the acquired digital skills be the right ones.

Digital transformation is a phenomenon that goes farther beyond technologic implementation. As a matter of fact, it requires the ability to look at "old" problems and processes with new eyes. To have a digital mentality means to have an approach toward reality that is different from the one that is adopted by most organizations, especially in the public sector. It implies a different way to consider stakeholders, a different way to launch products

and services, and a different way to work. There is no shared definition of what makes a digital mentality, but the organizations that “become” digital tend to have some peculiarities in common: open functionalities, cocreation, special attention to users and clients, and an agile work method. Such peculiarities are not yet rooted in most public administration entities.

The management of the cultural aspect is a challenge for the organizations that face digital transformation. The existing cultural limits often put to test the attempts to integrate the foundations of the digital world (attention to the user, open functionalities, and agile development) within public entities.

Most public organization face cultural issues linked to the migration toward digital culture.

For the provision of digital services, most public entities open source technology in moderation.

Public entities might not even need of an internal development team, but it is essential that they can count on procurement specialists, who must be able to effectively monitor the work carried out by the suppliers. Procurement and commercial strategies must change in a radical way in order to allow digital transformation.

The main changes that public entities want in the procurement process are: agile development, less strict terms and conditions, and a more decentralized model. Any modification of this process should consider such aspects.

The approaches of the public sector to procurement are conceived to guarantee that the public funds be spent efficiently, but the risks of a lack of public investments in the digital era are different than what they were before.

The cause of this is the growing speed of the change itself. Historically, the change was slower; it was based on assumptions that entailed that the work modalities would keep steady. The procurement routine within the whole public sector expected the provision of services at the lowest possible cost according to the set model. This favored the drafting of long-term supply contracts and low unit costs, as well as having as a side effect to freeze the business models to the moment of the process in which the organization invested in the IT sector, chose its suppliers, and defined its processes.

In the digital era, there is nothing less desirable than this. It is an era of unrestraint changes, in which 5-year-old business models are made rapidly obsolete by smartphones, big data, connected detectors, and by the innovations of the near future. The public procurement system must change in order to incentivize innovation and flexibility.

## 5. Digitalization in enterprises

Digitalize an enterprise means to adopt an economic and social thought system that is completely different, that starts from the structure of the company itself. The modification of the enterprise crosses three main structures and they are: business model;

- production; and;
- activity.

To make sure that digitalization proves really effective, it is necessary to involve these three dimensions in a logics and information exchange project between the three areas themselves. Digitalization of business models means sharing information regarding products and services offered by an enterprise. The aim of the digitalization of business models is essentially to increase the company's know-how through data sharing and offering additional services related to the products sold.

The development of machinery that is technologically more efficient and effective, as well as their introduction in enterprises will allow them to grow by 25%, awarding them the possibility to face a rising and constantly evolving demand. Furthermore, the variety of machinery and equipment introduced will give the possibility to meet the needs of both the big enterprises and the smaller companies because of their applicability in both mass and niche production. Finally, the digitalization of the activities implies the development of digital knowledge, which may allow an enterprise to have a greater information flow than the other parties involved in the production chain and, consequently, a better resource management. The interweaving among various sectors contributes to make the enterprise agile and to make it more competitive, since it allows it to better understand the market requests. The activities mentioned above aim to introduce a series of innovations within companies that, in a market that is characterized by the domination of technology, they will not be able to overlook. The Industry 4.0 phenomenon articulates itself in processes that involve all the phases of the activities of the enterprise. The partner occupying the most relevant position in the digital innovation is SAP, a completely new management software that is used to lessen the bureaucratic-administrative load of many company operations, as well as to manage the stock in the best way.

Another aspect that is considered to be very important in the digitalization of enterprises is the positioning, also called searching engine optimization (SEO). The creation of online contents that are interesting and attractive for customers is an essential pathway toward the reciprocal exchange of information and the creation of a collaborative relationship outside the enterprise. The evolution of the Internet, in this respect, is useful to the creation of promotional campaigns, to the improvement of link building, and to practice online marketing activities, that are very useful in order to face an ever-changing and evolving market.

## **6. Digitalization and regulatory framework**

In the past few years, public administrations have had to face a real digital revolution. In the same way, companies need to digitalize their processes. Truthfully, Article 40 of the Digital Administration Code has required public administrations to create their original documents electronically for quite a while. Such evidence has been reclaimed and confirmed by the legislator in 2016. It defined that public administrations create their original documents, including those related to bars, public registries, and lists by means of information technology. The

essential lack of enacting technical specifications, which should have described in detail the process of digitalization including the formats, the descriptions of the processes, and the roles and duties of the responsible professional figures involved, has hindered the change to a PA that would be fully digital in its processes [9–11].

Electronic invoicing started on June 6, 2014 for central entities to continue on to all the others, including local ones, on March 31, 2015. The process continued with the procedures computerization plan through SPID and with other regulatory obligations such as the PagoPA adjustment.

Within this framework, the eIDAS regulation on the identification and fiduciary services came into force on July 1, 2016, and it will impact electronic signature and certified delivery services. With the advent of this new regulation, solutions such as SPID will be enhanced and even the PEC service will have to be modified if it is to have a European role aside from the nationwide one.

Focus on processes is the common denominator for the technical specifications mentioned and for all the digitalization requirements of implementing legislation within the PA: Public administrations and companies alike will need to implement completely digital processes and new responsibilities, which will have to be assigned to well-defined professional figures and will have to account for the digital storage of their own deeds and electronic documents. In this framework, the document management and storage manuals are clearly identifiable as process documentation, whereas the document management manager and the document storage manager are to be considered as process managers.

On the basis of what has been discussed so far, it could be said that a correct digitalization must take into account the following three factors:

1. a deep process review and a correct documentation and identification of the figures involved;
2. a proper use of the various technologies with a profound knowledge of the technical and regulatory implications of their use; and
3. an approach focused on the users in which the PA is to be considered as a unique service providing office implementing in its back end all the internal and external PA services required by the regulations and by the need to digitally interact with citizens.

In order to meet this objective, both public administrations and companies must not look to a technological or application solution; rather they must retain a governance strategy made of competences and training, so as to guarantee a digitalization of the processes that today are managed with analogue tools and methods. It is not possible to think that what is done with paper must be done using digital tools and electronic documents: what needs to be done is a complete redesign and a methodological reconsideration of the processes in the moment they are switched from analogue to digital.

Therefore, the approach methodology toward this digital evolution is important because of the concept itself of document in a silent public administration, since an electronic document

is no longer a digital inversion of an analogue document, but it becomes a completely new digital object made of information, data, records, and integrated information systems.

If we look at the most complete possible document, we realize that much information is outside this container, this file, and often this information is probably very important or it adequately reassumes the whole content and therefore the whole information or practice that is contained within the document. Even if the document is protected by the law, by a regulation (like a document registered by a public administration), there is always a part of information that does not remain within the registered document but hovers in its surrounding: in the information system used, in our documents related to that registered document, probably in a PEC, or on the net or on cloud. This shows an emerging clear problem: all the information to be managed are so many that it is not possible to confine them within only one electronic document, whether it is saved, registered, or managed according to the present regulations.

Any technical specification, standard, and regulation would not be able to confine adequately all the information that should be saved in time, in order to make them recoverable outside the external support and format.

Therefore, digitalizing and dematerializing the processes before the documents, saving the information without thinking about the document anymore, becomes essential.

## 7. Conclusions

The drive toward innovation involves all the most important sectors of the economy, with a forecast of annual average increase of 2.6% for the 3 years between 2017 and 2019. The realization of the big projects of the PA runs low.

In 2016, the digital market in Italy (information technology, telecommunication, and contents) has grown by 1.8%, reaching €66,100 million. In the first quarter of the last year, the growth has had an acceleration, hitting 2.8% compared to the same period the year before, confirming the growth provisions for the 3 years between 2017 and 2019. In a context that confirms a renewed vitality, thanks to the leading role of the most innovative components and the country's general rise in awareness regarding the potentiality of the digital culture, some criticalities persist and they need a solution. The first one concerns the pace of the recovery that, however quite good, is still not enough to address the delay and to involve so many SMEs that animate our productive fabric. The second one concerns the lack of digital specialists, which is likely to have an influence on the companies' investments and on the effect of the innovation encouragement policies.

The Italian digital market is moving again, and it bodes constantly improving growth rates at least until 2019, on the lead of the digital transformation processes in all main sectors. The average yearly growth rates forecasted between 2016 and 2019 are 4.4% every year in the industry sector, 4% in the banking sector, 4.5% in the utility sector, 4.2% in the insurance sector, 3.6% in the transportation sector, and 4.7% in the great distribution. These are very encouraging dynamics that, however, find less ground in the PA sector, in which the digital expense is expected to lower, with a yearly growth rate of a little less than 2%, with the

exception of the health sector, which seems to forecast an average yearly growth rate of 3% circa [8]. As for territory, the polarization toward the northwest, which contributes to 38.3% of the total digital expense, with a growth rate of 2.3% in 2016, is set to rise.

The subject of digital skills has a strategic scope. For the 3 years between 2016 and 2018, it has been forecasted that there will be a need for 85,000 new specialists, 65,000 of which are going to be first employment subjects and more than a half of them are going to have a college degree and will be able to cover needs that will be possible to satisfy only in part. There already are very strong criticalities for the data scientist, business analyst, project manager, and security analyst profiles and for many others that are needed for the digital transformation projects.

Concerning the strategy for the country's digital growth, there are important progresses in place, particularly in the PagoPA system (with 15,601 Pas adhering and 11,332 active) and in the PA's electronic invoicing, that are now widespread, and in the European best practice. There is still a lot to be done in order to accelerate the diffusion of SPID (with growing services but on a base of only 1.5 million digital identities issued) and of the National Population Registry.

Another promising work in progress is the program Industry 4.0, which subsidizes with hyper- and super-amortizations the digital and system components of the new industrial automation and that has already started to considerably affect a market that by the end of 2016 had reached €1831 million(+18.2%).

By 2019, the forecasts announce a progressive enhancement of the overall market growth rate, given the progressive recovery dynamics in place for the telecommunication services (TLC) and for software, solutions, and ICT services.

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## References

- [1] Klaus Schwab, *The fourth industrial revolution*, 2016, by Franco Angeli s.r.l., Milano, p. 20
- [2] Klaus Schwab, *The fourth industrial revolution*, 2016, by Franco Angeli s.r.l., Milano, p. 21

- [3] Klaus Schwab, *The fourth industrial revolution*, 2016, by Franco Angeli s.r.l., Milano, p. 24
- [4] P. Mell, T. Grance, *The NIST Definition of Cloud Computing*. NIST, Special Publication 800-145, September 2011
- [5] G. M. Schneider, J. L. Gersting, *An introduction to computer science*, Italian edition, Apogeo, Milano 2007
- [6] A. De Mauro, M. Greco e M. Grimaldi, A Formal definition of Big Data based on its essential features, in *Library Review*, vol. 65, n° 3, 2016, pp. 122-135
- [7] NetConsulting cube, 2017
- [8] Cfr. La domanda di competenze digitali e il sistema di offerta, in *Il digitale in Italia 2017*, in *Rapporto Assinform Information Technology in Italia*. (The demand for digital competences and the offer system, in *The digital culture in Italy 2017*, in *Assinform Information Technology Report in Italy*)
- [9] DPCM 3/12/2013 For Document Retention (abrogating a previous CNIPA regulation dated 2004)
- [10] DPCM 13/11/2014 On Document Preparation
- [11] DPCM 21/03/2013 which pinpoints typical unique analogue document types for which, for reasons of public law, remains the obligation to preserve the original analogue document



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# **Innovation Challenges in Latin American Administration**

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.74736>

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## **Abstract**

Faced with new challenges, public administration is searching for new levels of responsiveness and efficiency. In most emergent nations, the success of new proposals has been jeopardized by a strong popular distrust in government agencies and actions as well as an era of greater resource scarcity. This chapter deals with some new responses considering the Latin America context. We conducted a documentary survey on public administration responses in Latin America, which allowed to distinguish the possibilities to move toward an ideal of collaborative governance, new public policy values, and public-private partnership, thus reinforcing the arguments about a new logic for thinking about public administration.

**Keywords:** public management reforms, Latin America, post-new public management, collaborative governance, public policy values

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## **1. Introduction**

By examining the trajectory of public administration, one can clearly see the theoretical and rhetorical movements related with the public and collective spheres, as shown in the bibliography about the search for solutions for public organizations' management problems. Each theoretical movement gathers arguments, experiments, research findings, problems and questions of groups of researchers and is limited to specific realities pertaining to the most relevant problems of an era.

This reinforces the need to understand these movements in a context characterized by elements that are also symbolic, a context which is marked by political disputes while assigning a certain identity to public administration.

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The contemporary perspective on the state-of-the-art in public administration reveals not only a recurrence of themes, dilemmas and paradoxes but also a constant search for relevance and new knowledge to solve practical problems. The historical perspective facilitates understanding the validity and relevance of administrative knowledge because, often, only its application can actually delimit its benefits and downsides. Thus, we can see a history of trials, hits, errors and new approach promises.

After the great revolution of new public management (NPM), with its achievements and mis-haps, there have appeared attempts at innovating public management.

The NPM has resumed classical liberalism ideals, particularly the reduction of the state's scope and size and the introduction of market spirit and mechanisms into the government. Thus, public administration should only guide, rather than directly execute services [1]. Citizens should be seen as public service customers and users, rather than mere recipients of the state's action.

Through an intended market-like orientation, the government should play roles that are exclusive to it and unsuitable for execution or control by market mechanisms [2–4].

NPM-associated reforms found enthusiasts [5], severe critics [6], and many analyses of their benefits and negative outcomes [7–9]. Public policies, structures, work processes, and management tools were analyzed, rekindling debates about the limits of administrative theories and practices.

The post-NPM period raised further awareness about the limits of introducing private mechanisms into public management in an effort to recover fundamental values of governmental democracy.

In principle, propositions mimetic of the private sector decreased, whereas those related to the democratic aspects of public service, such as control localization and community participation increased at the bureaucracy level.

Propositions about a new public governance brought about new perspectives on a new role of public management. Initially justified by temporary, isolated reasons, such as addressing economic crises, they gradually revealed their power to become a new reconstruction of public administration more in tune with contemporaneity. Decisions were made toward engaging the civil society and the markets in government while weakening the political aspects of governance [8] in order to find a balance between the interests of all parties involved.

Comparisons between large countries at different stages of development show similar concerns with public management, such as the tendency to view scientific management principles as the axis of their administrative reforms. Today, the concern with government size grows less important in relation to issues such as social performance/care for citizens. Priorities converge to an efficient, transparent, and reliable public management [10]. Despite political differences between countries, there are similar concerns about accountability which are expressed as propositions for restructuring the relationship between public and private and between bureaucracy and citizens [11].

In general, propositions on better public governance based on a more authentic relationship between the state and society and between the public and its administration proliferate. For emerging nations, there is an improvement in these relationships, particularly with regard to reliability, participation, transparency, and ethics in management.

By analyzing today's challenges, we resume the main debates about public administration in Latin America in a context in which time dissolves in the movements and in speed. Movements—and here we mean historical movements—mark time periods, spaces and an ethos (being) for public administration, which is being called on to rethink itself using other logics.

We conducted a documentary survey on public administration responses in Latin America, which allowed to distinguish the possibilities to move toward an ideal of collaborative governance, thus reinforcing the arguments about a new logic for thinking about public administration.

## 2. Public administration responses in Latin America

Considering the particularities of the region, Latin America has been organizing to respond in a more solid and effective way to the challenges public administration is faced with.

One such mechanism was the creation, in 1972, of the Latin American Center for Development Administration (CLAD) as a space for discussion, exchange and the fomenting of state modernization. Recognized as an international organization, it has held congresses since 1996 as part of its functioning.

From the general theme of state reform, thematic tracks are defined for each annual congress. For this chapter, our aim was to analyze the priorities discussed in these meetings over the past 10 years.

As a source of data, we used the 73 coordination reports that summarize the presentations in each thematic area, which are available on the CLAD's website. We processed data using the NVivo software to identify the most used terms for each year as well as the ways in which state reform was actually being discussed. The tool allows showing terms in the context they were used in.

As a result, in the following paragraphs, we present a map of the most used terms during the last 10 years (**Figure 1**).

The terms "public" and "state" were the most cited in the reports during the 10 years studied (2007–2017), followed by "policies," "government," "administration," and so on.

To interpret these terms, we analyzed the cluster chart showing the proximity between the most used terms, as can be seen in **Figure 2**.

Terms used with some proximity indicate a pattern of connection. In the same cluster, "quality," "innovation," "evaluation," and "results" indicate that these issues were discussed in an interconnected way. Other themes formed a cluster linking "reform," "actors," "society," "civil," and "political." "Citizen," "participation," "open" "government," and "transparency" in "information" are also connected in another cluster.

Public	Policies	Public	Reform	Experiences	services	Quality	Institutional
	Government	Administration	Process	Participation	society	Subjects	Model
State	Management	Social	Developm.	International	systems	Local	Transparency
				rights	citizenship	Capacity	Innovation

**Figure 1.** Map of the most frequent words at CLAD congresses (2007–2017).

The clusters suggest certain themes in the responses of governments and public administrations in Latin America. The association of terms also reveals how the subject is treated. For example, public served to qualify “function,” “administration,” “nature,” “management,” “leadership,” “senior management,” and “organizations.”

We also managed to list these terms by year, thus providing a glance at the priority given to themes at each meeting during the period studied (**Table 1**).

Thus, one can see the emergence of themes such as “collaboration”—the most frequent in 2017—and, consequently, of all its correlate terms, which are associated with the involvement of people and institutions, as in collaborative governance.

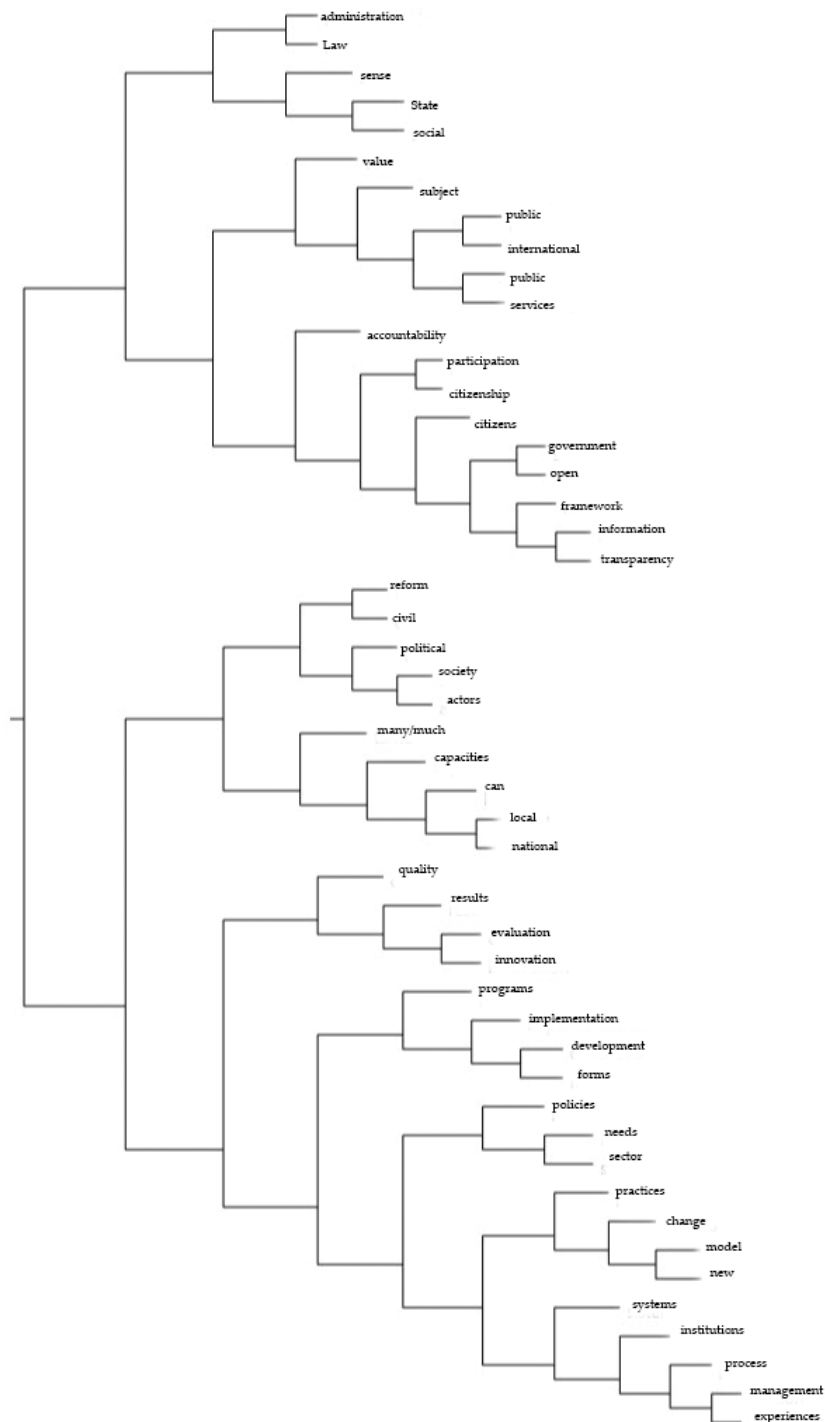
We can also identify the evolution of certain themes, and how priorities are progressively defined. As an illustration of the latter, we can see that “innovation” appears in 2014 and remains; “ethics” appears in 2009 and 2010 to be replaced by “transparency” (2012 and 2013) and “open” “government” (2014). In 2017, the theme of transparency is resumed.

These meetings’ legitimacy provides an integrated view of the trends and responses that are most advocated by Latin American countries. They are quite useful to practical innovation actions and will be explored in the propositions of this study.

## 2.1. The present of the past: the permanence of practices inherited from public administration

By examining the history of the public administration, we can see that the premises of our time remain in many Latin American “public administrations.” The models introduced implicitly carried the belief in modern rationality, which is found in advanced nations, as the basis of policy making and public organization. It is worth noting that the efficiency and quality of the services delivered were less supposed to inspire better service standards than to attract political support. This perspective is still consistent with the orientation of the reforms proposed in the region.

As can be seen in the most frequent words shown in **Table 1**, there are recurrent themes on evaluation, processes, mechanisms, capacities, training, among others, which refer to a modern approach. It was believed—and, in some cases, it still is—that administrative standards



**Figure 2.** Cluster of most used terms in Spanish—CLAD (2007–2017).

Year	Over 100 times	From 51 to 99 times	From 30 to 50 times
2007	Public, state government	Policies, social, management	Development, administration, public, processes, society, international, formation, reform, function
2008	Public, policies	State, management, reform, administration, society, quality, public, political, social	Civil, development, international, processes, government, capacities, experiences, participation, local, personnel, programs, thematic, relation
2009	Public	State, policies, management, public, administration	Government, results, international, reform, ethics, social, society, experiences
2010	Public, government	Policies, state, management, administration	Citizen, ethics, systems, processes, public, reform, participation, social, service, experiences
2011	Public	Policies, government, state, management	Administration, systems, social rights, experiences, evaluation, participation, processes, information, public, mechanisms
2012	Public, state	Administration, right, public, government, policies, reform	Participation, accounts, citizens, management, social, information, international, processes, transparency, general
2013	Public, government, administration, social	State, policies, locations, open, participation, public, process, information, management, rights, development, reform, experience	Society, services, international, citizens, decentralization, model, systems, access, countries, transparency, region, capabilities, spaces, political
2014	Public, state, government, management	Experience, administration, policies, public, processes, social rights, participation	Open, thematic, international, reform, rights, decentralization, services, countries, innovation, development, institutions, local, quality, systems
2015	Public, government, administration	State, policies, public, open, social, management, rights, participation, processes, development, reform, service, citizen, local	International, cities, experiences, thematic, quality, civil, implementation, innovation, decentralization, institutional, countries
2016	Public, policies, administration	Management, government, evaluation, innovation, reform, social, right, process, development	International, system, citizens, experiences, service, participation, design, need, implementation, change, industry, thematic, new, problems, work, practices, countries, tools, matter, model
2017	Public, administration	Development, management, state, policies, goals, sustainable development, social	Evaluation, reform, government, experiences, international, law, institutions, innovation, agenda, transparency, services, implementation, models, citizens, collaboration, processes, society, thematic, value, capacities

Source: NVivo 11 Output, elaborated based on CLAD 2018 area reports.

**Table 1.** Most frequent words in clad reports—by year.

could actually enhance public management efficiency and, therefore, solve social and economic problems, and, most of all, break with the political influence of traditional political groups.

It is worth mentioning important political and social achievements under the name of “participation,” “citizenship,” “rights,” “actors.” However, in most countries, the reality reflects the domination of traditional oligarchies. Effectiveness and efficiency gains remain as speech in support of the preferential groups in power. Therefore, despite the achievements mentioned, state modernization remains under strong influence of traditional practices.

## **2.2. The present of the present: shared experiences**

In fact, the experience of recent times has been less useful for achieving greater effectiveness in public administration than for introducing new groups into the “clan” system. It also revealed administrative modernity as a supplier of more efficient tools for traditional power groups to ensure their own permanence. Knowledge, new models, and administrative practices proved insufficient to substantially change the state-society relationship. This argument is illustrated in the way more substantive issues are so much less frequent than the exchange of experiences related to management and administration mechanisms in the public sphere.

In most Latin American nations, because of its fragile foundations in society, the state becomes an easy prey to traditional groups tied to their own interests. In a way, political-administrative institutions float above the society. Formally, the laws and rules of democracy have progressed in most countries in the region. But the political system still suffers from the poor education of a significant part of the population, which results in subservience to populist, self-interested movements.

Thus, advanced propositions of change fail to reach deep enough into the power relations manifested in the political sphere, besides lacking space in the agenda of discussions.

## **2.3. The present of the future: projections and hopes based on trends**

In developing countries, modernizing political forces do not come to power by a voluntary retraction on the side of preferential groups. New spaces, rules, and political structures are required to distribute power resources and ensure the representation of new, emerging social groups. Thus, concerns emerge about the following question: which modern, post-managerial administration propositions could actually contribute to improve state-society ties?

Effective modernization must come in ways that can redistribute power resources and change the communication channels between the public and its administration in order to contribute to the sustainability of effective management.

We can project, based on the themes most frequently mentioned at last year’s CLAD Congress, that the agenda is focused on sustainability, development, achievement of goals, social inclusion, necessity of evaluation, collaboration, value creation and capacity building, transparency, and international perspectives.

Each proposition contributes to modernization, and each has successful cases. However, democratic learning, even at the level of public management, was deemed an important foundation for progress. Thus, recent, widely diffused ideas about collaborative governance were given a greater weight. However, adjustments are required on their implementation in the Latin American context.

Collaborative governance propositions advocate participation because they assume interests to be convergent. Indeed, in more advanced countries, state-society relations are already founded on democratic principles and practices. Exercising democracy in public governance means an extension of an already established practice for the administrative sphere.

In emerging countries, social exclusion, the dominance of preferential groups and the illegitimacy (and perception thereof) of electoral processes give the decision-making process political characteristics—which are highly conflictive and divergence-centered, therefore commonly portrayed as irreconcilable.

In this context, participatory processes are usually portrayed as useful not only for political decision-making, but also for the democratic education of the individuals involved.

The results of our survey show a heavy presence of participatory themes, such as citizen participation and open government. In fact, they are attractive subjects as they represent a compensation for participatory constraints in the larger democratic context.

Participation as a governance tool dates to decades ago, including in the private sector, with European legislation that dealt with different forms of co-management. Initially, they valued participation on the assumption of divergent and conflicting interests, which established alliances by engaging actors previously considered as marginalized social groups. Therefore, in the Latin American context, the term participatory appears more often than the term collaborative.

#### **2.4. Timeless reflections: transitions or reiterations?**

Some of the Latin American responses in public administration during the period analyzed seem to appear repeatedly, while others point to the possibility of developing propositions from another perspective.

Reiterations are probably necessary to explore propositions' possibilities, achievements and failures. However, they express a problem that still lacks a consolidated solution. Among those, the issues of transparency (and derivations thereof, such as corruption, ethics, responsibility), participation and decentralization still find space in the public agenda of Latin American countries.

Public administration's inefficiency and unresponsiveness have led to dangerously high levels of distrust in the public sector's institutional capacity. The government faces distrust in its administrative and legal apparatuses, viewed as distant, inaccessible, inefficient and disinterested in community well-being.

Currently, in many countries, dubious/proven corrupt actions seem to reveal the need to strengthen ethical and moral standards in administrative decisions and actions. Ethics appears in all propositions as an essential mechanism for restoring trust in the public sphere. Greater attention to the personal integrity of public administrators and the strengthening of laws to deal with the lack of ethics are advocated.

In the contemporary context, characterized by strong ambiguities, there is a complexity of rules, traditions and interactive practices capable of restricting, obscuring and disguising

people's moral and ethical conceptions. Thus, there are limits to the proposition of bills on integrity. On the one hand, even for people defined as honest, temptations can cause slips; on the other hand, laws and rules do not inhibit illegality, and their meaning is less about building good (an ideal state) than avoiding evils.

Therefore, propositions of administrative tools and new managerial practices emerge as facilitators of ethical actions. Among such propositions, participation and transparency stand out.

On the other hand, collaborative governance emerges as a possibility to change mindsets and is further strengthened by the current, timely context of re-institutionalization in Latin American governance.

As a forum for debating public administration policies and practices, collaborative governance has been proposed in recent years as a public- and private-sector governance strategy in which both parties work toward the provision of public goods [12].

From the perspective of collaborative governance, there is always a fundamental concern with balancing the power of both participants/actors and authority structures. Here, the distribution of opinion and decision-making power among participants of different hierarchical levels stands out. Among the benefits of collaborative processes, it is worth highlighting an increase in the following: decision legitimacy; ability to respond to complex situations; and effectiveness and flexibility [13].

On the other hand, this transition is not carried out at once as it requires a change in the way of understanding what role each actor should play. Rethinking roles and responsibilities implies a new culture of relations between government, businesses and civil society [14], each of these autonomously exercising its rights and fulfilling its duties.

Although it is true that engaging a great number of actors produces more alternatives and results for public policy, such results are moderated by the personal/organizational interests of these actors [15], who could confront collective interests and needs.

Collaborative governance also encompasses dimensions that are sometimes neglected, such as the various institutional jurisdictions of public policies and the multiplicity of interpretations found in the process, as well as the engagement of socio-productive networks in the decision-making process [16].

The natural complexity of adopting this new stance in public management requires some additional efforts, as identified in the following sections.

## **2.5. Guidelines for collaborative governance**

Perhaps the most critical aspect to building collaborative governance is the balance between the various forces operating in public management [17]. It is also worth remembering that individual values are often prioritized to the detriment of collective ones [15], and reversing this ethical stance demands an additional effort from managers. Some authors believe that managers have an important role in this context, as there is the belief that intentionally using collaborative strategies can circumvent structural barriers and optimally reduce institutional obstacles [18].

Moreover, it is necessary to promote the balancing and distribution of the power of participants/actors and authority structures, with an emphasis on the opinion and decision-making abilities of the different hierarchical levels and actors. Involving more representatives can not only benefit the ability to respond more effectively to complex situations, but also reinforce the legitimacy of public decisions [13].

Promoting an ethical-political culture with a collective focus could facilitate this integration between actors. In this respect, awareness should be raised about the personal/institutional interests of the represented, as well as the possibility of moderation by a great number of actors and more alternatives and results for public policy [15]. Diversity should be seen as a benefit and a learning opportunity in this context [19].

In addition, although the subject of participation and citizenship is widely discussed, it is still important to reinforce the debates and practices of public administration with an effective partnership in the making of public and regulatory policies [12, 20]. Recent research fuels this proposition, recognizing collaborative networks' difficulties regarding establishment and interaction. In highly collaborative environments, one can see more concentrated interactions and more constant communication, including a balance of forces, which turns out to be different in noncollaborative environments. This result shows the complexity of collaborative governance in political networks, where a balance must be sought between aspects such as agreements, time and institutional boundaries [21].

The aim of considering the multiplicity of interpretations and different institutional jurisdictions of public policies and socio-productive networks is to help improve decision-making processes [16]. The search for innovation in public management also requires managers to know the relevant legal framework and to be able to solve the contradictions between the different regulatory frameworks in effect [22]. The dialog between policy, management, and regulation should be permanent.

Finally, the adoption of steering committees can help the interactions between partners by addressing unanticipated contingencies and mitigating incipient ones when there is a strong need for coordinated adaptation [23].

### 3. Final considerations

This chapter focuses on the challenges of moving toward a collaborative governance management model in the context of a developing nation. The framework of our analysis consists of two dimensions. The first examines the past trajectory of public administration, using a metaphor of time. The second involves a documentary survey on the most discussed subjects at the CLAD (Latin American Center for Development Administration) Congresses on State Reform in the last 10 years.

In order to face the complexities of today's scenario, governments have invested in a new strategy that promotes co-participation, co-responsibility, and collaboration, as well as a new culture of relations between the business community, civil society organizations and public institutions. Collaborative governance has emerged as a dimension of probable effectiveness for public management.

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## References

- [1] Osborne D, Gaebler T. Reinventando o Governo: Como o espírito empreendedor está transformando o setor público. 6th ed. MH Comunicação: Brasília; 1995. 436 p. ISBN: 9788585660017
- [2] Osborne S. The (new) public governance: A suitable case for treatment? In: Osborne S, editor. The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance. London: Routledge, 2010. pp. 1-16. ISBN: 9780415494632
- [3] Denhardt JV, Denhardt RB. The New Public Service: Serving not Steering. New York: M.E. Sharpe; 2007. 240 p. ISBN: 978-0-7656-1998-3
- [4] Kettl DF. The Global Public Management Revolution: A Report on the Transformation of Governance. Washington DC: The Brookings Institution Press; 2005. 96 p. ISBN: 0815749171
- [5] Hughes OE. Public Management and Administration: An Introduction. 3rd ed. Basingstoke: Palgrave Macmillan; 2003. 336 p. ISBN: 0-333-96188-9
- [6] Flynn N. Public Sector Management. 6th ed. London: Sage; 2012. 296 p. ISBN (Pb): 978-0-85702-874-7
- [7] Pollit C, Bouckaert G. Public Management Reform: A Comparative Analysis. Oxford: Oxford University Press; 2004. 360 p. ISBN: 9780199268498
- [8] Peters BG. Meta-governance and public management. In: Osborne S. (Ed.) The New Public Governance? Emerging Perspectives on the Theory and Practice of Public Governance. London: Routledge; 2010. pp. 36-51. ISBN: 9780415494632
- [9] Christensen T, Lægreid P. Transcending New Public Management: The Transformation of Public Sector Reforms. Hampshire: Ashgate; 2007. 288 p. ISBN (Pb): 978-0-754-67117-6
- [10] Zhang M. Crossing the river by touching stones: A comparative study of administrative reforms in China and the United States. Public Administration Review. 2009;69(S1, special number):S82-S87. DOI: 10.1111/j.1540-6210.2009.02093.x
- [11] Zhao Y, Peters BG. The State of the State: Comparing governance in China and the United States. Public Administration Review. 2009;69(S1, special number):122-128. DOI: 10.1111/j.1540-6210.2009.02099.x

- [12] Ansell C, Gash A. Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory*. 2007;**18**:543-571. DOI: 10.1093/jopart/mum032:10.1093/jopart/mum032
- [13] Purdy JM. A framework for assessing power in collaborative governance processes. *Public Administration Review*. 2012;**72**:409-447. DOI: 10.1111/j.1540-6210.2011.02525.x
- [14] Abony G, Van Slyke DM. Governing on the edges: Globalization of production and the challenge to public administration in the twenty-first century. *Public Administration Review*. 2010;**70**:33-45. DOI: 10.1111/j.1540-6210.2010.02244.x
- [15] Siddiki SN, Carboni JL, Koski C, Sadiq AA. How policy rules shape the structure and performance of collaborative governance arrangements. *Public Administration Review*. 2015;**75**:536-547. DOI: 10.1111/puar.12352
- [16] Conteh C. Strategic inter organizational cooperation in complex environments. *Public Management Review*. 2013;**15**:501-521. DOI: 10.1080/14719037.2012.674424
- [17] Gazley B. Good governance practices in professional associations for public employees: Evidence of a public service ethos? *Public Administration Review*. 2014;**74**:736-747. DOI: 10.1111/puar.12264
- [18] Scott TA, Thomas CW. Unpacking the collaborative toolbox: Why and when do public managers choose collaborative governance strategies? *The Policy Studies Journal*. 2017;**45**:191-214. DOI: 10.1111/psj.12162
- [19] Siddiki SN, Kim J, Leach WD. Diversity, trust, and social learning in collaborative governance. *Public Administration Review*. 2017;**77**:863-874. DOI: 10.1111/puar.12800
- [20] Kim Y, Darnall N. Business as a collaborative partner: Understanding firms' sociopolitical support for policy formation. *Public Administration Review*. 2016;**76**:326-337. DOI: 10.1111/puar.12463
- [21] Ulibarri N, Scott TA. Linking network structure to collaborative governance. *Journal of Public Administration Research and Theory*. 2017;**27**:163-181. DOI: 10.1093/jopart/muw041
- [22] Amsler LB. Collaborative governance: Integrating management, politics, and law. *Public Administration Review*. 2016;**76**:700-711. DOI: 10.1111/puar.12605
- [23] Reuer J, Devarakonda SV. Mechanisms of hybrid governance: Administrative committees in non-equity alliances. *Academy of Management Journal*. 2016;**59**:510-533. DOI: 10.5465/amj.2012.0098

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# **Overview of Marine Stock Enhancement, Restocking and Sea Ranching in Ghana**

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.79454>

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## **Abstract**

Fish stocks in Ghanaian waters are on the decline. There is therefore the need to rebuild the stocks through marine stock enhancement and restocking. Stock enhancement and restocking are the guarantee routes to revive the stock declining menace of the country. Other benefits will include sustainable employment, increase fishers income, reduce poverty, ensures food security and promote national development. Species to be used for restocking is a major problem since the biology of the existing species is poorly understood. There are certain factors that must be taken into considerations if stock enhancement and restock programmes are to be successful, namely existing fisheries management schemes, socio-economic factors, institutional capacity and aquaculture development. The potential for Ghana to create sustainable, supplemental livelihoods through restocking or stock enhancement appears promising.

**Keywords:** Ghana, fish stock, marine resources, fisheries, poverty, sustainability, fisheries management

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## **1. Introduction**

Fish is an important source of animal protein, omega 3 fatty acids, vitamins (A, B12, D and E), calcium, iodine, iron, selenium and zinc that are often lacking or under-represented in most human diets [1]. Fish is estimated to represent approximately 60% of average animal protein intake in Ghanaian diet with an average per-capita fish consumption estimated to be 25 kg in 2014 [2]. The domestic fish supply in Ghana is from the marine, inland, aquaculture and

imports. Marine accounts for the highest percentage of the production, 70%; 19% for inland and 11% for aquaculture of total fish production in 2016 [3].

Ghana's coast is in the southern part of Gulf of Guinea, spanning an area of 238,500 km<sup>2</sup> with a total narrow continental shelf area of about 24,300 km<sup>2</sup>. The country has an Exclusive Economic Zone (EEZ) of 200 nautical miles (nm), covering an area of 228,509 km<sup>2</sup>, a territorial sea of 12 (nm) and a contiguous zone of 24 nm. The coastline is 550 km which stretches from Half Assini in the West to Aflao in the East [4, 5].

The Ghanaian fishery sector is important because it generates over US\$1 billion in revenue each year and accounts for at least 4.5% of national gross domestic product (GDP) [6]. The sector also provides employment for an estimated 210,000 people work directly in Ghana's fisheries sector, and the sector employs, directly or indirectly, 2.2 million people or 20% of the population [6]. It also generates income, cheap protein source and supports livelihood.

However, with the exception of the tuna fleet, catch per unit of effort (CPUE) of all fleets has been decreasing. The national statistics indicate a decline from 314,867.57 mt (2013) to 289,147.23 mt in (2014) [2] due to the unsustainable fishing practices such as fishing with small mesh sized nets, light, chemicals, pollution of the sea, etc. This necessitates the need to revive the fish stock and restore the derived benefits through better fisheries management practice such as stock enhancement, restocking and sea ranching, among others.

The fisheries in Ghana is near collapse. This has resulted in food insecurity, poverty, malnutrition and slow economic growth. Stock enhancement is a common practice in the developed world. However, in Ghana, the Government is not motivated to undertake stock enhancement programmes. The regulations, institution, infrastructure and technology are weak for stock enhancement and restocking programmes. The species to be selected for enhancement, management goals and objectives, assessing stocking effects, dealing with consumers' acceptability as well as economic and social considerations need to be considered.

Restocking Ghanaian fisheries will boost fish production, revenue from fisheries, food security, sustain livelihoods of millions of dependents and bring economic benefits to the country.

## 2. The state of fisheries in Ghana

Ghana has three main fishing units, namely artisanal, semi industrial and industrial. The artisanal fishing sector which comprises of about 9,951 small canoes lands about 70% of the total annual fish landings (254,000 metric tons) in Ghana. Its main catch composition includes mackerels, sardines and anchovies. The semi industrial which consists of trawlers and purse seiners mostly lands about 6,000 metric tons of fish with sardines and mackerels as its targeted fishes. On the other hand, industrial fishing sector made up of tuna purse seiners, tuna bait and trawl fleet harvest approximately 83,500 metric tons of fishes. Key fish species harvested by these industrial vessels include groupers, cuttlefish, snappers, yellowfin tuna, bigeye tuna and skipjack tuna [3]. Marine capture fisheries supply about 328,541 metric tons of fish annually (**Table 1**), despite the annual consumption of about 950,000 metric tons by Ghanaians.

Year/Fleet	2009	2010	2011	2012	2013	2014	2015	2016
Artisanal	226,755	198,152	196,200	213,451.8	202,601.5	179,686.3	187,401.23	221,355.56
Inshore	6140	12,048	9399	9574	10,482.33	7254.91	11,899.64	12,131.52
Industrial	20,837	19,673	19,597	19,763.3	19,406.50	31,562.43	31,560.45	24,780.37
Tuna	66,470	77,876	80,823.0	90,000	82,899.03	76,844	62,521.27	70,274.03
Total	326,109	319,331	306,194	333,697.4	314,867.57	295,361	312,535.2	328,541.48

Source: [3].

**Table 1.** Marine fish production from 2009 to 2016 (mt).

To bridge the supply and demand gap, Ghana currently imports over 50% of its fish, valued at \$135 million worth largely due to reduction in the fish stock, particularly marine fishes [2]. Other notable issues blighting the contribution of marine capture fisheries in Ghana include increased fishing capacity, inadequate regulations and weak enforcement of existing regulations, low level of protection of marine biodiversity and inadequate information on fisheries biology and stocks [2] as well as climate change.

### 3. Importance of the fishery resource in national development

The fisheries sector plays a significant role in the socio-economic development of Ghana. The benefits derive from fisheries as a country is highly significant to the economy. It is evident from key economic indicators such as employment, livelihood support, poverty reduction and food security, particularly in rural fishing communities leading to rural development and the country at large.

#### 3.1. Food security and protection against malnutrition

Fish serves as an important source of cheap but quality animal protein, omega 3, fatty acids, vitamins (A, B12, D and E), calcium, iodine, iron, selenium and zinc that are often lacking or under-represented in most human diet [1, 7]. It is consumed in all regions of Ghana, by both the poor and the rich, and in both rural and urban communities. Fish contributes 60% of annual protein intake of Ghanaians [8].

#### 3.2. Revenue for the country

The fisheries sector accounts for about 4.5% of the GDP and 12% of the agricultural gross domestic product (AGDP). The marine fisheries sector is estimated to generate approximately US \$1 billion in total revenue each year [4, 6].

#### 3.3. Employment

Over 135,000 fishers are directly employed in Ghana's marine capture fisheries and about 2.6 million people rely on them, including spouses, children, close relatives as well as canoe

carvers, input suppliers and office workers for industrial fishing fleets. Fish workers engaged in processing and distribution alone are estimated to be around 500,000 individuals. Artisanal marine fishers alone number about 120,000 workers. The sector has employed approximately about 10% of country's labour force [4].

The sector's gender balance is worthy of mention. While men are involved in fishing the actual fishing process, women are engaged in postharvest activities such as fish processing, storage and distribution.

### 3.4. Poverty reduction

The sector also supports the livelihoods of 10% of Ghana's population of about 29 million people [9]. Over 2 million Ghanaians are dependent on the fisheries sector for their livelihoods including some 135,000 fishers in the marine sector alone, of which 124,000 (or 92%) are artisanal fishers [10, 11].

### 3.5. Foreign exchange

Fishery and finfish products are Ghana's most important non-traditional export commodities, accounting for over 50% of revenue from non-traditional export. About 90% of tuna landings are exported mainly to EU countries [12]. Tuna sales alone account for 14% of non-traditional exports (NTEs) from Ghana and are the single largest contributor after horticulture. Fish exports from Ghana are made up of high value tuna (whole, loins and canned), frozen fish (mostly demersal species), shrimps, lobsters, cuttlefish and dried and smoked fish [12].

## 4. The current state of fish stocks

The Ghanaian marine is highly diverse with different valuable fish species ranging from small pelagics such as Round sardinella (*Sardinella aurita*), Flat sardinella (*Sardinella maderensis*), Chub-mackerel (*Scomber japonicus*), Anchovy (*Engraulis encrasicolus*) and African moonfish (*Selene dorsalis*) to large pelagics species including Flying gurnard (*Dactylopterus volitans*), Monrovia doctorfish (*Acanthurus monroviae*), Triggerfish (*Balistes capricus* and *Balistes punctatus*), Red snapper (*Lutjanus fulgens*), Red mullet (*Pseudupeneus prayensis*), Octopus (*Octopus vulgaris*), shrimps (*Penaeus monodon*), Cassavafish (*Pseudolithus brachygnathus*), Grouper (*Epinephelus goreensis*), Dentex (*Dentex angolensis*) etc. [13].

Other economically valuable fish species that occur in Ghanaian waters are the bigeye tuna (*Thunnus obesus*), Yellowfin tuna (*Thunnus albacares*) and skipjack (*Katsuwonus pelamis*). Tuna is of major commercial importance in Ghana as a result of its export revenues and sustainability, which has been estimated at 100,000 tonnes annually by the Fisheries Commission. The two tuna species of utmost importance in Ghana's EEZ are skipjack (*Katsuwonus pelamis*) and yellowfin (*Thunnus albacares*). Fish are highly exploited especially during the upwelling seasons.

Of these exploited pelagics, the most commercially important in Ghana's coastal fisheries are the anchovies and sardinellas, namely round sardinella (*Sardinella aurita*) and flat sardinella (*S. maderensis*) which occur in the entire sea [13].

## 5. The need for stock enhancement (prospective species)

Production from marine fisheries has been declining since 2000, from almost 457,000 to 328,000 tonnes in 2016 [3, 13]. In order to sustain the per-capita annual consumption of fish (estimated at around 25 kg), imports have increased substantially in the most recent years, reaching USD 373 million in 2013. As a result, the seafood trade balance moved from a USD 33 million surplus in 1997 to a USD 319 million deficit in 2013 [13].

Sizable catches occur only for a period of 3 months (usually July–September) because of seasonal fluctuations in abundance of small pelagic fish species (especially sardinellas); implying that monthly incomes from fishing can be minimal during the rest of the year.

Currently, Ghana's marine stocks are overexploited by the industrial fleet, leading to decline of harvests from marine fisheries. This precipitous decline of Ghana fish stocks has had dire implications for coastal livelihoods which go beyond economic challenges. Locals at the coast use indigenous methods to harvest which is no or less economic intensive during fish abundant seasons.

It is estimated that the fisheries, mostly artisanal, employ over 12,000 fishing vessels, with 70% motorized [3, 13]. This has resulted to increased fishing pressure and high CPUE. The Catch data collated by the Ministry of Fisheries and Aquaculture Development (MoFAD) (2014) indicate a drastic decline of stocks. Recently, the ministry has recorded no catch data of some species indicating full exploited of such species.

It was reported that the total landings of small pelagic (anchovies, sardinellas, mackerels and horse mackerel) have decreased from 277,000 metric tonnes in 1996 to about 92,000 metric tonnes in 2011 [4].

The Ministry is seeking for sustainable ways to restore depleted stocks and increase production to help meet the country's fish deficit, hence the Fisheries and Aquaculture Development Plan has been developed. The potential benefits of this plan include:

- Source as additional catch for commercial and recreational fishermen.
- Rebuild spawning stock biomass for the promotion or acceleration of recovery.
- Ensure the survival of stocks threatened by extinction.
- Mitigate losses due to anthropogenic effects.

## 6. The way forward and benefits

Consequently, declines in fish stocks within Ghana's marine ecosystem will have serious implications on the health and socio-economic of consumers as well as the economy of the nation which jointly depends on contribution of fisheries to the national GDP (4.5%). Reduced nutrition particularly in dependent households, increased levels of poverty and loss of jobs for direct and indirect dependents are some of the consequences likely

to emanate from the current situation – declining fish stocks in Ghana [14]. Collectively, the presence of these consequences limits Ghana's ability to achieve some of the sustainable development goals, particularly SDGs 1, 2 and 14. However, to prevent or minimize the impacts precipitating from declining marine fish species in Ghana, the Ministry of Fisheries and Aquaculture Development (MoFAD) has put in place many measures including increased interest in aquaculture, (the National Committee on Aquaculture has been formed), equipping monitoring, control and surveillance (MCS) section of the Fisheries Scientific and Survey Division with necessary equipment and the establishment of co-management to enhance voluntary compliance to fisheries regulations in Ghana. Nonetheless, the notion of stock enhancement, though, a management tool in fisheries management has not been given the needed attention in the context of Ghanaian fisheries regardless of its success stories in other fishing countries (such as Japan, Australia and USA). For instance, stock enhancement helped to revived Hokkaido Scallop fishery in Japan [15], improved the stocking programmes in Black bream fishery in Australia [16] as well as supported the Coho salmon fishery in Japan [17], which was lost to habitat degradation. Significantly, stock enhancement helps to optimize harvests by overcoming recruitment overfishing to augment the natural supply of juveniles. Though, there are no clear objectives centred on stock enhancement in the MoFAD Management Plan (2015–2019), objectives 2 and 4, which categorically states that *(i) to ensure that fish stocks within the marine waters of Ghana are exploited within biologically acceptable levels and (ii) to protect marine habitats and biodiversity* provide an opportunity for the application of stock enhancement in Ghana using certain key fish species based on best scientific information available. Nonetheless, for the objectives of stock enhancement to be achieved, certain areas need to be strengthened, for instance, fish stock assessment and modeling, institutional framework, adaptive management, 'clear cut' fishery management perspective and involvement of stakeholders in planning and execution.

Stock enhancement when practiced in Ghana particularly within the marine capture fisheries, which has exhibited gradual decline over the years, will not only ensure that enough fish stock exist for both current and future generations but maintain or increase its contribution to the national economy. Furthermore, the contribution of marine capture fisheries to youth employment will be maintained for decades. However, there is the need to cautiously preserve existing stock while aiming at restoring and increasing the harvest level of these stocks using cultured fishes.

## **7. Some critical considerations for marine stock enhancement and restocking in Ghana**

### **7.1. Existing fisheries management approach**

The lack of consideration of economic incentives affecting fishermen has resulted in the failure of many fisheries management systems worldwide. There is the need to recognize both the biological and economic realities of fisheries management.

## **7.2. The socio-economic and institutional aspects of stock enhancement and restocking**

In other parts of the world, successful stock enhancement and sea ranching programmes are often run by cooperatives and the private sector [18, 19] therefore, involvement of NGOs and other private sector fishery business will go a long way to ensure the revival of the fish stock through sea ranching. This programme can raise awareness of the importance of fishery management among stakeholders, resulting in increased willingness to accept fishing effort controls [20].

## **7.3. Aquaculture consideration**

A promising synergy between capture fisheries and aquaculture is the opportunity to apply hatchery technology to restore and augment some coastal fisheries through the release of cultured juveniles [20]. The aquaculture sector in Ghana is developing which currently contribute to 11% to total fish production [3]. The sector needs to consider mariculture activities, which will be beneficial to stock enhancement and restocking programme in the country.

## **8. Conclusion**

Fish stocks in Ghanaian waters are declining. There is therefore the need to urgently rebuild the stocks through marine stock enhancement and restocking. This will ensure sustainable livelihood, increase fisherman's income, reduce poverty, ensures food security and promote national development. Species to be used for restocking is a major problem since the biology of the existing species is poorly understood.

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## **References**

- [1] Asiedu B, Nunoo FKE, Iddrisu S. Prospects and sustainability of aquaculture development in Ghana, West Africa. *Cogent Food and Agriculture*. 2017;3:1349531

- [2] Ministry of Fisheries and Aquaculture Development (MoFAD). Annual Report. Accra. 2015. pp. 70
- [3] Ministry of Fisheries and Aquaculture Development (MoFAD). Annual Report. Accra. 2017. pp. 78
- [4] Ministry of Fisheries and Aquaculture Development (MoFAD). (2014). Fisheries management plan of Ghana; a National Policy for the Management of the Marine Fisheries Sector 2015-2019. MoFAD Accra
- [5] Samey B. Literature Review On Sardinella Value Chain. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and SNV Netherlands Development Organization. GH2014\_SCI007\_SNV. 2015
- [6] World Bank. Revitalizing the Ghanaian Fisheries Sector for Wealth and Sustainability, Scoping Study. 2009
- [7] Kawarazuka N, Bene C. The potential role of small fish species in improving micronutrient deficiencies in developing countries: Building evidence. Public Health Nutrition. 2011;**14**(11):1927-1938
- [8] Asiedu B, Failler P, Beyens Y. Enhancing aquaculture development: Mapping the tilapia aquaculture value chain in Ghana. Reviews in Aquaculture. 2016;**8**(4):394-402
- [9] GSS. Ghana Population Projection Census 2018. Accra: GSS; 2018
- [10] Tetteh AS. Women Activities in the Ghanaian Fisheries; The Role of Social Capital. International Fisheries Management [M.S. thesis]. University of Tromso. 2007
- [11] Asiedu B. An Investigation of Fish Catch and Poverty Levels for Enhanced Management of Small-scale Fisheries of Ghana. PhD Thesis, University of Ghana. 2012. pp 203
- [12] Failler P, Asiedu B, Beyens Y. Value chain analysis of the fishery sector in Ghana with focus on quality, environmental, social, sustainable, food safety, organic requirements and its compliance in infrastructure. United Nations Industrial Development Organization Trade Capacity Building for Ghana Project. Contract No. 3000018889. Report number: US/GHA/06/005. 2014. pp. 108. DOI: 10.13140/RG.2.1.2421.5201
- [13] FAO. Fishery and Aquaculture Country Profiles: Republic of Ghana. Rome: FAO; 2018. Available from: <http://www.fao.org/fishery/facp/GHA/en> [Accessed: 21-02-2018]
- [14] Asiedu B, Nunoo FKE, Ofori-Danson PK, Sarpong DB, Sumaila UR. Poverty measurements in small-scale fisheries of Ghana: A step towards poverty eradication. Current Research Journal of Social Sciences. 2013;**5**(3):75-90
- [15] Uki N. Stock enhancement of the Japanese scallop *Patinopecten yessoensis* in Hokkaido. Fisheries Research. 2006;**80**:62-66
- [16] Dibden CJ, Jenkins G, Sarre GA, Lenanton RCJ, Ayvazian SG. The evaluation of a recreational fishing stock enhancement trial of black bream (*Acanthopagrus butcheri*) in the Swan River, Western Australia. Fisheries Research Report No. 124. 2000. pp. 26

- [17] Kitada S. Japanese chum salmon stock enhancement: Current perspective and future challenges. *Fisheries Science*. 2014;**80**:237-249
- [18] Arbuckle M. Scallop stock enhancement in New Zealand: Lessons from applying an integrated approach. [www.searanching.org/program/documents/Arbuckle.pdf](http://www.searanching.org/program/documents/Arbuckle.pdf) 2006
- [19] Cooper J, Hill J. Enhancement of paua stocks in New Zealand. [www.searanching.org/program/documents/Cooper 000.pdf](http://www.searanching.org/program/documents/Cooper%20000.pdf) (abstract) 2006
- [20] Bell DJ, Leber MK, Blankenship LH, Loneragan RN, Masuda RA. New era for restocking, stock enhancement and sea ranching of coastal fisheries resources. *Reviews in Fisheries Science*. 2008;**16**(1-3):1-9. DOI: 10.1080/10641260701776951



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# **The Protection of Competition between National Law and EU Law: The Main Features in Public Contracts**

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Ida D'Ambrosio

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.76411>

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## **Abstract**

This article provides a general analysis of competition law and then focuses on competition-related issues within public contracts. First and foremost, the article tries to highlight the economic grounds that led to the introduction of laws to protect competition, as a functional tool for production efficiency. After a critical analysis of national and EU regulations on competition, the article analyses the relation between competition and public contracts, by making a distinction between a “micro” and a “macro” view of competition. The article aims at highlighting the main features of the code of public contracts, focusing also on the relation between two different principles: the protection of EU competition, on the one side, and the power of member states to determine their internal organisation, on the other side. The article also aims at understanding to what extent can the European Union protect free competition without affecting the organisational freedom of its member states.

**Keywords:** competition, antitrust, competition law, public contracts, antitrust legislation

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## **1. Introduction**

In a wide sense, competition indicates a market situation with wide freedom of access to entrepreneurial businesses, with the possibility of free choice for buyers (in particular, consumers) and, in general, the possibility for each to exploit the best opportunities available on the market, or to propose new opportunities, without impositions on the part of the state or restrictions imposed by coalitions of enterprises. Competition is protected by a series of provisions, generically defined as antitrust provisions, which discipline relations between entrepreneurs and which allow the regular execution of competitive relationships.

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In economy, competition is the condition in which several companies compete on the same market, understood as the ideal meeting place between demand and offer, producing the same goods or services (offer) which satisfy a number of buyers (demand). In competition no operator can influence the trend of negotiations by his own decisions.

To be able to speak of competition, it is necessary to verify the following requisites [1]:

- Large numbers of operators, both sellers and buyers.
- Freedom of entry or absence of barriers. If this requisite is not met, one must speak of imperfect competition.
- Product similarity. If this requisite is not met, one must speak of monopolistic competition.
- Perfect market information and transparency.
- Simultaneity of contracting, subsequent to a negotiating phase which allows all operators to obtain the necessary information.

There are different types, or degrees, of competition. One particular form is perfect competition: this refers to an ideal market condition in which the competition between the enterprises leads to a decrease in the purchase price which is equivalent to the marginal cost.

In perfect competition, every operator considers the price as a datum that cannot be modified. The market reaches a position of equilibrium when the transactions take place at the price that makes the quantity demanded and that offered equal, i.e. the equilibrium price [2]. The features of the equilibrium price are:

- *Singleness*: all the units of the product are sold at the same price.
- *Existence*: the equilibrium price must also be significant from the economic viewpoint; if the price did not cover the costs and allow for significant revenues, the merchandise would not even be produced.
- *Stability*: if spontaneously reached by negotiations, the price is stable; otherwise, the price is unstable, when the producers do not succeed in swiftly adjusting the offer, so that the price is destined to swing up and down forever.

Perfect competition is deemed as reached in an economic system if the demand and the offer are particularly elastic, so that the price of a product or service tends to be close to the marginal cost.

However, it has been the topic of in-depth debate, and today it is considered purely utopian, whereas an imperfect competition seems concretely achievable (so-called reasonable competition), in which the price decreases towards the marginal cost but without reaching it.

The concept of competition was developed by the critics of mercantilism as of the second half of the eighteenth century, as a natural result of the fundamental freedom of the individual, in contrast to a state-controlled economy in which the state determines what and how much is produced.

Various advocates of classic economy maintained that the market could autonomously regulate itself [3].

Others stated that competition can alone regulate the mechanisms of the economy and, furthermore, that the individual, pursuing his individual interest, also benefited the society as a whole [4].

According to the economists of the neoclassical school, the main advantages for the economy resulting from competition can be summed up in two main aims: the maximum increase of the quality/price ratio of the goods and services (through the optimisation of the production factors) and the elimination (through competition) of the competitors that are unable to achieve the first aim.

Always, according to the neoclassic theory, competition eliminates profit that has not been earned, thus ensuring an important factor of social justice.

The above-illustrated theories were the subject of strong criticism and denial already towards the end of the eighteenth century, when it was shown that the theory of pure competition would be valid only in static situations and therefore could not be applied in practice in the analysis of real economies, which are dynamic by definition [5].

The Marxian interpretation of competition is radically different. According to this theory, perfect competition regards only the relationship of force between capitalists and does not eliminate the exploitation of the workers [6].

## **2. The community antitrust legislation**

The term antitrust identifies that complex of legal provisions that regulate and favour free competition in the market. Antitrust legislation therefore has the purpose of preventing companies from adopting strategies that allow them to assume anticompetitive positions or to stipulate collusive agreements to the prejudice of the consumer. However, these same provisions are also a policy tool and, therefore, subject to the opinions and choices of policy in general. Antitrust is an institution with deep roots in history and in society [7].

The purpose of antitrust legislation is to sustain a free market economy, where every enterprise takes its own decisions independently of its competitors, in order to guarantee strong competition which leads to a more efficient distribution of goods and services, lower prices of the same and their higher quality and maximum innovation. Competition therefore plays a role of primary importance since it encourages the various operators on the market to obtain the maximum result possible and to then select those that are most efficient.

The main modern legislations are the result of the affirmation of economic liberalism which has produced two effects: on the one hand, the suppression of state-imposed restrictions on the economy, and on the other hand, the ban on enterprises to abuse dominant positions to the prejudice of competitors and consumers.

The first modern antitrust law was the Sherman Act, passed in the United States in 1890, for the purpose of prohibiting cartel conduct and attempts to monopolise the market [8]. In 1914 the

Clayton Act [9] was added to that first body of rules, to regulate the phenomena of corporate concentrations, followed by the Federal Trade Commission Act which punishes conduct that is generically defined as “unfair” and which is applied in parallel to the Sherman Act. The difference between the Sherman Act and the Federal Trade Commission Act is of nature and of purpose: the criminal nature of the antitrust bans enshrined in the former, and the consequent punitive nature of the antitrust control carried out in application of these rules, compared to a form of administrative control over behaviour and antitrust action that favours the corrective-restorative aspect.

This American experience paved the way for Europe to create provisions to protect market competition, although the first provisions were adopted several decades later than in the United States, only after the end of the Second World War. Only then were the conditions ripe for the creation of the European Single Market, overcoming the political visions of the diverse countries based, above all, on interventionism and protectionism [10].

In Europe, a single system of antitrust control was adopted only in 1957, with the introduction into the Treaty of Rome of specific provisions to protect competition, focusing on the discipline of restrictive agreements, the abuse of dominating positions and state aid. In 1989, with a specific regulation [11], a specific set of rules was introduced for the antitrust control of concentration operations.

The noncompetition discipline is an essential element of European integration inasmuch as it must allow companies to compete at par conditions on the markets of all the member states, ensure the competitiveness of their products and services at the global level and, at the same time, protect the European consumers in the best way. The provisions on competition are contained in Arts. 101 and 102 of the Treaty on the Functioning of the European Union [12], which regard national provisions on corporate activities.

The competition policy is divided into two main aspects: on the one side, it provides for controlling companies' behaviour regarding agreements and concentrations, and on the other side, it provides for limiting state aid to national producers. The implementation of the EU policy on competition is the responsibility of the European Commission, with control jurisdiction reserved to the European Court of Justice. The member states are obliged to harmonise national legislation to the EU legislation.

In 1957 most of the member states had a competition policy, but the methods and intensity of the control differed greatly from one country to another. The creation of a standardised economic area could not be limited to the coexistence of the various national practices, but the differences between national legislations were too deep to be replaced by a uniform community legislation. National and community competition policies had to coexist.

A general principle of community policy on this issue is the ban on agreements between companies that have the purpose or the effect of preventing, limiting or distorting competition within the common market and can prejudice trade between the member states. Agreements on the prices of goods produced and placed on the market, agreements on the regions and areas where the products will be sold or distributed and agreements on the quantities to be produced are expressly banned.

The Treaty bans the abuse of dominant positions on the common market (or on a substantial portion of the same) on the part of one or more companies where this can be prejudicial to trade between the member states. It therefore only sanctions the exploitation of a dominant position after the fact and does not allow the institutions of the union to control the concentration process.

On the control of state aid, the Treaty states, without allowing for exceptions, that state aid which distorts competition is incompatible with a common market. Political realism has prevented the use against the countries of the rigid wording adopted against companies, admitting that aid can be considered compatible (always providing that it does not alter the conditions of trade in a manner contrary to the common interest) if it is destined to facilitate the development of certain activities or certain economic regions, if it is to promote the execution of important projects of common European interest and, lastly, in the case of other categories of aid, if it is determined by a council decision.

To eliminate the distortions of competition, the Treaty regulates the selective measures of aid in favour of companies and specifies the general measures in favour of the economy that can turn out to cause distortion of competition. In the Treaty there is no distinction between private and public companies, and several community directives discipline the transparency of the public funds destined to the latter. The EU interventions aim to protect the competitive functioning of the market on the basis of a general principle of a liberalist type, while the determination of what is concretely admissible is based on extensive pragmatism.

### **3. Protection of competition under Italian law**

Under Italian law an organic discipline on competition was adopted with considerable delay compared to the other industrialised countries: Germany, the United Kingdom and France adopted the first laws on this issue towards the end of the 1940s, whereas the rules on competition within the European Community, as mentioned above, were already contained in the Treaty of Paris in 1952 and the Treaty of Rome in 1957.

The reasons for this delay are due to the fact that Italy, for a long time, pursued an economic model based on the idea that the state had to play a fundamental role in the direction and protection of the corporate system, with an outlook towards national economic development, in which companies, on the one hand, accepted the limitations to the freedom of economic independence, in exchange for a system that protected the results acquired by the companies existing in the market.

This model is present in the Civil Code of 1942, and it was also confirmed in the Constitution of 1948 in Art. 41, which recognises and guarantees the right to economic initiative, ruling, in the first paragraph, that "Private economic initiative is free". The Constitutional Court, until 1990, seconded this view, refusing to pronounce judgements of a liberalist tendency, except in certain important exceptions such as the pharmaceutical industry and the telecommunications field.

With the promulgation of Law No. 287 of 10 October 1990, better known as the Antitrust Law, a radical change of direction was implemented, under the influence of the ideology of

the free market, which dominates at the global level, and also according to the choices of the then European Community, more liberalist than initially. The Italian law swiftly approached the principles of free trade at the level of the legislation introduced. In this sense, the sudden introduction of the antitrust law occurred, but above all the principle of the protection of competition was introduced into the constitution in 2001 as well as the law to promote the competitive market in which parliament must approve every year.

However, if we consider the actual development of the legislation, we have to notice a much more uncertain process of development: the wealth of case law of the Constitutional Court has applied the principle of the protection of competition but restored the authority of the state instead of the regions, therefore, with purposes other than the original purposes of Art. 41.

The fact is that the principle of competition itself contains much ambiguity, because the model of market and of economy that is pursued would require many more clarifications and much more in-depth examination which both the letter of the law and the case law of the Constitutional Court are far from having achieved.

The real driving force that led Italy to adopt the provisions to protect competition was the creation of the European Single Market [13]. This gradually led to the introduction of new laws aimed at changing the role of the state, from manager to regulator. This change in state action represents what had already occurred at the European level, when the various countries tried to influence the market mechanisms, sometimes even substituting them and imposing the rules of the game. The regulator state, instead, according to what happened in the United States, played the *super partes* role of a severe regulator, supervisor and guarantor of trade relations. In both cases, the aim pursued was that of increasing the national economies, but in the first case, there were no great results inasmuch as the focus was more on the efficiency of the market rather than on operations to the advantage of competition.

Finally, with Law No. 287/1990 [14], Italian legislation also implemented the principles of community law, aimed at guaranteeing free competition which would allow for the creation of a European Single Market, avoiding possible abuse on the part of the operators. This definitively marked the change from a pro-intervention policy to a policy in favour of free competition. Thus, with this law, a constitutional value was protected, namely, the public interest/social usefulness contemplated by Art. 41 of the Constitution, which affirms the freedom of private economic initiative, consistent with the European context of which free competition, and the rules of its correct implementation perhaps represent the oldest and most solid pillar [15].

Right from its first article, Law No. 287/90 imposes the implementation of Art. 41 of the Constitution, thus affirming the right to a competitive market as a constitutionally protected right. A necessary consequence of this situation is the fact that public law now disciplines competition, for the first time in an objective sense, with a clear-cut reversal of the provisions of the civil code which, with regard to (unfair) competition, have the purpose of protecting the economic interests of the single entrepreneurs that may be harmed by competitors. The protection of competition (and of the market understood as a *unicum*) structured so that it imposes rules on the companies on the market of reference (geographic or substantial) has a determining influence on the behaviour and choices of those who buy the goods or services produced by the companies.

The main aims of the antitrust law, in addition to that of guaranteeing companies the freedom to operate on the market, include that of protecting consumers, favouring an improvement in product quality and innovation without excessive price increases. A specification must be made regarding the concept of company, which with this law takes on a wider meaning than that which can be drawn from the civil code, since company means any entity that practises an economic activity, regardless of its legal status and its method of financing itself [16].

For the civil code, however, the company can be defined as an economic activity aimed at the production or the exchange of goods and services that the entrepreneur practises by means of a complex of assets organised according to that activity (company). In addition, Law No. 287/90 also rules that public companies or prevalently state-owned companies must be subject to the aforesaid discipline, according to Article 8. The European Court of Justice has also expressed its opinion on this point, affirming that the antitrust law must be excluded only when the activity practised by a public power falls within its institutional duties, thus not representing a corporate business [17].

For that matter, the second paragraph states that companies that operate as monopolies on the market or which manage services of general economic interest are also excluded from the application of the law. With regard to the comparison between Italian law and community law, Italian law, on the basis of paragraph 1 of Art. 1, seems to impose two restrictions. The first restriction is that of the "single barrier", regarding the scope of application of national provisions which apply only if the fact does not fall within the scope of community law [18].

Therefore, national law is not applicable in the case of anticompetition effects that occur on the Italian market which are subject to community law because they involve the sphere of the single market. The second restriction regards the interpretation of the provisions, in which interpretation, as stated in paragraph 4 of Art. 1 of Law No. 287/90, "is based on the principles of the European Community law on competition" [19].

The Italian antitrust law has almost entirely adopted the European law. The cases of relevance for national law are those described in the European law on competition (except for state aid, disciplined only at the community level), and their rules substantially coincide, consequent to the precepts themselves which are mainly identical to the corresponding European provisions and to the special interpretative rule established by Art. 1, par. 4 of Law No. 287/1990, according to which national law must be interpreted and applied in conformity to the European laws in force.

The relevant cases are restrictive agreements, abuse of a dominant position and corporate concentrations.

The illegal agreements are agreements, agreed practices or decisions of associations of companies that have the purpose or the effect of preventing, limiting or falsifying competition on the national market. The unlawfulness of an agreement can be excluded when it fulfils all the conditions listed under Art. 4 of Law No. 287/1990. Unlawful agreements are to all effects null and void.

The ban on the abuse of a dominant position, however, aims to punish anticompetitive behaviour adopted by a company or companies with significant power on the market (abuse of an individual dominant position, in the first case, and abuse of a collective dominant position,

in the second case). The behaviour aimed at obtaining supra-competitive profits or other benefits that cannot be obtained in a competitive situation (exploitation abuse) or at preventing the entry or the survival on the market of rival operators (impediment abuse) is abuse.

Concentrations of companies, however, are not in themselves banned, but they are subjected to a prior antitrust control procedure which can result in the companies being banned from carrying out the operation reported when it is found that this can create or reinforce a dominant position on the market.

The responsibility for supervising the application of the antimonopoly legislation in Italy is attributed to Independent Administrative Authority, the antitrust authority that guarantees competition and the market (Italian abbreviation: AGCM). The functions that the said authority performs and the powers that it exercises differ according to whether the operations in question are to form concentrations, to enter into agreements or to abuse a dominant position. In the first case, the authority subjects the reported operation to a prior control which can conclude in the full and unconditioned authorisation of the said operation, a conditioned authorisation subject to compliance with certain prescriptions imposed by the authority or a ban on the execution of the operation. In the second case, instead, the authority, finding an infringement of the antitrust rules, orders the company to cease the prejudicial behaviour, possibly also prescribing specific types of behaviour or structural measures necessary to restore the competitive functioning of the market, and, in the more serious cases, it issues administrative sanctions.

The antitrust authority must also ensure the local application of the European antitrust provisions. In this case, specific rules govern the coordination between the national authority and the commission.

The national authority's power is not exclusive, however, inasmuch as the courts also have power in the case of lawsuits for nullity, claims for compensation for damages and petitions for urgent court orders in the case of anticompetition agreements, in compliance with Arts. 101-102 TFUE [20]. The maintenance of this "double track" of jurisdiction is justified by the fact that the antitrust authority and the ordinary courts must protect different interests and therefore their work must be considered separate and autonomous. As has been stated, "the public enforcement entrusted to the antitrust authority pursues, in the interests of society as a whole, the protection of competition as a constitutionally protected form of market, whereas the need to protect the interests of private subjects prejudiced by the anticompetition behaviour of companies is achieved by the adoption of the provisions set out in Art. 33 of Law 287/90 by the ordinary courts" [21].

#### **4. The tools for the promotion and protection of competition in public contracts**

Competition has a direct impact on the law on public contracts and contributes to defining the field of application. This holds true for both the objective and the subjective spheres of the rules.

With regard to the first aspect, importance is taken on by the procedure of exemption from the application of the European provisions on public contracts relative to special sectors, aimed at ascertaining whether the activity "is directly exposed to competition on the freely accessible markets" [22].

The special sectors are those of electricity, gas, water, transport, ports and airports and the postal system, in which elements of natural monopoly are present (infrastructures that are, in antitrust jargon, essential facilities). For this reason they are not subject to European sector discipline, usually administered by independent authorities and regulations, aimed at creating the legal conditions to open the sector to competition [23].

The model is based on the idea that if one of the sectors is subjected to the same competitive pressure of nonregulated markets, this eliminates the risk of the operators' purchasing policy being distorted by noneconomic factors. Therefore, the special rules that oblige contract-awarding bodies to respect the several times mentioned European principles of *par condicio* and of transparency and publicity become superfluous [24].

The exemption procedure is in the hands of the European Commission and involves an assessment between the market of the activity in question, of the geographic market of reference and of the full implementation and application of the sector legislation of the union. The criteria to assess the competition of the market are laid down by the provisions of the Treaty on the Functioning of the European Union, and they include "the features of the products or services in question, the existence of alternative products or services that can substitute the former on the demand or the offer side, the prices and the effective or potential existence of the products or services in question" [25].

An exemption request must be made by a single member state (but also, if allowed by national legislation, by the single contract-awarding body), and it must contain information on all the pertinent circumstances, including the state of implementation of the sector European legislation, in order to demonstrate that access to the market "is free in fact and in law" [26]. In the procedure, an assessment may be obtained from the independent supervisory authority.

To sum up, the market analysis tools typical of antitrust law influence, according to the results of the assessment which not by chance is in the hands of the European Commission appointed to apply the antitrust laws, the field of application of European law on public contracts. The sector of activity, to which an exemption provision is applied on the result of the above-described procedure, always remains, as is also the case for the deregulated markets, subject to "the application of the legislation on competition" [27].

A similar important justification holds firm to also delimit the subjective profile of European law on public contracts, which is to say the European notion of a public law body, already present in the Public Contract Code and also in the packet of the European directives [28].

As it is known, the public law bodies are included among the "contract-awarding administrations", i.e. the public administrations in the strict sense (countries, territorial bodies, noneconomic bodies, etc.) to which the stricter publicity rules are applied because there is a greater risk of the purchasing policy being conditioned by noneconomic reasons [29].

The public law body is identified on the basis of three parameters: it must have legal personality, whether it is public or private; it must be subject to a dominating influence on the part of a public administration; and it must have been established to satisfy needs of general interests of a non-industrial and non-commercial nature, i.e. as a rule it produces public goods or public services according to a non-market logic.

Above all, this last parameter has given rise to interpretative uncertainties and varying case law interpretations, sometimes more extensive and sometimes more restrictive [30].

As clarified by Directive 2014/24/EU, it must be maintained, on the basis of the case law of the European Court of Justice, that a subject is not a public law body if “it operates under normal market conditions, it aims to make a profit and it sustains the losses that may result from the practice of its business” [31]. If these elements exist, it is licit to suppose that the subject has been created to satisfy needs of general interest that are, in fact, of an industrial and commercial nature.

Also, in this case, it is essential to verify the factual and legal context in which the subject operates. The fact that the economic operator operates in a fully competitive context is a highly relevant element albeit not decisive in itself [32].

In fact, for the economic operator to be encouraged to make purchases aimed at selecting the competitor that offers the best conditions, it is first necessary to ascertain whether it is exposed to an effective competitive pressure, i.e. whether it is an operator “on the market”. In addition it is necessary to assess whether the risk of losses deriving from bad management falls entirely on the company or if the losses are perhaps neutralised by lists and items charged to society as a whole. If this second condition is not met, the operator “on the market” cannot be considered “of the market”, i.e. motivated by the same incentives as those of all the other operators.

In any case, the analysis of the market according to the techniques precisely of antitrust law is an essential tool to establish whether an economic operator can be qualified as a public law body and as such held to respect the rules imposed by European and national legislation on public contracts.

The contractual activity of a public administration, like a market operator, has many specialised features compared to the discipline normally applicable to agreements between private subjects. Some public contractual events can represent a danger for the need to protect competition and the equal competitive opportunities of the various private subjects interested in being contractual counterparties to a public administration.

There are two topics strictly connected to the administration’s role on the market. The first topic regards the fact that acting publicly—inspired by logics of protecting the public interest—conditions the institutes and discipline of common law applicable to contracts between private subjects. The second topic regards the risk of possible alterations in the competitive balance of the market by mechanisms that allow for avoiding procedures of public evidence.

For the coexistence of the various interests that a public administration meets in its service to society as a whole, the fundamental concept of public interest must be redefined. The concept must include the principle of the protection of competition as well as all those guarantees for private subjects introduced by national and community law, which could seem an obstacle and a limitation to the effective pursuit of the specific purpose precisely of an administration that acts as a market operator. In fact, if the public interest is considered in terms of interest for the whole society, it is simpler and more correct to consider as functional to the overall

efficiency of the administrative activity also the pro-competition laws underlying the selection of the public administration's economic counterparties and the introduction of rules that prevent the contract-awarding bodies from unilaterally avoiding the contractual restrictions and the responsibilities that bear on every market operator, by exploiting authoritative powers that take on the semblance of intolerable privileges if used to alter the balance of equal relations imposed by private law.

European and national law on public contracts [33] answers, among other things, the need to ensure transparency and equal conditions among the operators of the markets of reference. Both the bidders in tender procedures and the economic operators of the connected markets have the right [34] to pretend that the administration acts in a manner to ensure transparency and equal conditions and, therefore, the said operators are entitled to impugn the deeds of a call for tenders that does not respect that right [35].

The rules of public evidence thus take on a pro-competitive function. Consequently, the implementation provisions of these rules, when they do not achieve the said purposes, simultaneously breach the rules themselves and the principles of free competition.

From another aspect, it must be noted that a call for tenders and the following procedure delimit a specific market within the wider market of reference, and that in one case as in the other, the bordering markets up- and downstream are involved, in which free competition in relation to the purchase of goods and services instrumental to the performance, being goods and services inferred in the tender procedure, must also be safeguarded. Consequently, if the deeds that discipline the tender procedure (calls for tenders, specifications, regulations, etc.) require the bidders to equip themselves, for the contractual activity, with machines or apparatuses that have certain features for the purpose of admission to the bidding or to be awarded a higher score, the principle of the equality of the bidders is prejudiced and, at the same time, competitive parity among the companies that produce the goods with which they must equip themselves.

Consequently, the prejudiced companies will be entitled to request protection also from the administrative courts [36].

The said principle is also based on the freedom of economic activity sanctioned by Art. 41 of the Constitution and on the connected freedoms of establishment and of the circulation of goods and of services, legalised by the TFUE, which must be respected by the member states, which, as it is known, must "adopt every general or specific measure to ensure compliance with the obligations of the Treaty or consequent to deeds of the Union's institutions", while they must "abstain from any measure which risks prejudicing the achievement of the Union's objectives" [37].

The protection of competition must now be considered the main task of the countries [38].

As it is known, these freedoms depend on the principles and rules, both European and national, aimed at creating and maintaining a free and openly competitive market [39], which must be respected, also and above all, by the nations [40], which, therefore, must conform their action, including that concerning the purchase of goods and services supplied by private companies.

It is now confirmed not only that the Public Contract Code also aims at reaching the objectives of protecting and promoting competition [41] but also at guaranteeing that competition represents the primary aim of the law on the awarding of public contracts [42]. Consequently, the contract-awarding body must also play a primary role in regulating and guaranteeing the market: the law on public contracts, over time and especially since the early 1990s, not only bans public administrations from abusing their dominant position, which, for obvious reasons, they occupy on the public contract market in general and in those “created” by the single-award procedures, in particular, but also requires that they exercise their functions and powers in a manner that ensures, first and foremost, competition “for the market” [43].

Article 101 and following of the TFUE in fact generate individual subjective legal situations worthy of protection against all legal subjects, which can be claimed not only for their nature of fundamental rights but also under Art. 33 of Law No. 287/1990, which entrusts to the Code of Administrative Procedure the discipline of legal protection in the case of the breach of the provisions of the said law, in parallel to civil lawsuit for nullity and for compensation pursuant to Art. 33, par. 2, cited above.

This is also confirmed by Art. 21-*bis* of Law No. 287/1990 which, in recognising the anti-trust authority’s right to sue, offers not only a case of extraordinary and exclusive legitimisation but also a power to act which, until now, was allowed only to private subjects prejudiced by a public authority’s actions which breached the rules imposed to safeguard competition and the market [44]. The question of the nature of the interest that the anti-trust authority holds can perhaps be solved starting from the consideration that said authority’s right to sue, based on the public interest in repressing conduct which harms the principles which protect competition and the market, presumes that, normally, such a right is held by companies which suffer subjective prejudice due to the administration’s anticompetition conduct, inasmuch as operating on markets influenced by the effects of such conduct.

The joint expenditure procedures, aimed at limiting corruption, are essential to guarantee the transparent, impartial and economic management of public funds, to the benefit of society as a whole and to the benefit of the quality and efficiency of the public administrations. The public evidence procedures represent the main tool to ensure the correct execution of free competition between the market operators that offer the public administrations labour, services and supplies.

The New Public Contract Code expressly contemplates, under Art. 30, that “The assignment and execution of contracts for works, labour, services, supplies and concessions guarantees the quality of the performance and respects the principles of economy, efficiency, timeliness and correctness. In awarding contracts and concessions, the awarding bodies must also respect the principles of free competition, non-discrimination, transparency, proportionality and of publicity. The awarding bodies cannot speciously limit competition in any manner in order to unduly favour or prejudice certain economic operators nor, in the procedure for awarding concessions, may they speciously influence the estimate of the value of certain works, supplies or services. The criteria for participating in tender procedures must not be such as to exclude the micro small and medium companies”.

The Public Contract Code also provides for many pro-competition institutions aimed at guaranteeing competition. These include the framework agreement, the electronic tender, the competitive procedure with negotiation, the competitive dialogue and the partnership for innovation.

Public administrations can influence the competitive functioning of the markets when they choose from among the various methods of assigning the service, work or supply and downstream of that choice, when preparing the call for tenders and/or the pre-information notices and the tender specifications, by reporting suspect cases and by collaborating with the contract-awarding bodies and the antitrust authority. The methods that the public administrations can use to efficiently satisfy their needs are the public evidence procedure or direct assignment, also known as in-house provision, within the strict limits established by community and national legal theory and case law.

The effects on competition of the organisation solution chosen by a public administration to efficiently satisfy its aims differ according to the “choice” adopted. In fact, in the case of the in-house provision of a service, competition is entirely excluded, whereas in the case of the assignment of the service to a company which is partly privately owned, the market rules, and therefore the tender procedure rules, must be respected.

The calls for tenders and the specifications must therefore be conceived in a manner such as to create the “pre-conditions” so that the comparison between the participating companies is based on criteria of non-discrimination, proportionality and transparency, as well as on the principle of the widest possible participation.

The New Code No. 50 of 2016, under Art. 51, expressly contemplates that the contract-awarding bodies, to favour access on the part of micro, small and medium enterprises, may divide the contract into lots according to function or performance. The value of the lots must be sufficient to guarantee the effective possibility of participation on the part of the micro, small and medium enterprises. In fact, the contract-awarding bodies are forbidden to break down the work into lots solely to avoid the application of the provisions of the Code or to award the contract by the specious aggregation of contracts. The awarding bodies must also explain why a contract is not divided into lots. In spite of this provision, the specious division of the contract into several lots on the part of an administration may occur. This mechanism may be to avoid the tender procedure obligations. According to the antitrust authority, for an effective comparison between the companies, the number of lots must be less than the number of bidders.

Above all, although the pro-competition purpose of temporary groupings of enterprises is well known, the antitrust authority has found that this tool Above all, although the pro-competition purpose of temporary groupings of enterprises is well known, the Antitrust Authority has found that this tool “must always be checked as to whether it is suitable in practice, since it can easily lead to a decrease in the degree of competition, if it allows subjects, which could participate independently, to make a joint bid with their own rivals, thus speciously decreasing the effective extension of the competition”. Case law of the administrative courts has also pointed out the risks of a substantial distortion of the institute of the temporary association [45].

Also, in identifying one of the two criteria for the award, i.e. the lowest price and the economically most advantageous offer, it is necessary to guarantee (in addition to respect for the principles of transparency, non-discrimination and equal treatment) an assessment of the offers in a situation of effective competition.

## 5. Conclusions

The law on public contracts has undergone a significant metamorphosis with the introduction of the principle and rules of free competition, sanctioned by the EC Treaty and by community law introduced into Italian law, most recently, with the Public Contract Code.

The “public evidence” procedures for the awarding of work, service and supply contracts no longer protect only the public, financial and administrative interests of the awarding bodies and do not only exclusively answer the principle of legality, but are aimed at guaranteeing the free circulation of goods and services on the domestic market and free competition at the European level.

The guarantee of a free market ensures the satisfaction of the public interest on both the financial and the administrative fronts, because effective competition limits prices and favours quality, since it can reward not only the less demanding contracting party but also the “fair” contracting party.

At the same time, the guarantee of a free market better satisfies the expectations and rights of the companies which, in the absence of effective competition, would risk suffering discrimination.

The logic of free competition at the European level requires the countries to have, as far as possible, the same laws to this regard. The said discipline in the Italian legal system is entrusted to the state in its capacity as legislator, to which the “protection of competition” is exclusively entrusted. This means that national law plays a very important role with regard to the essential legal features of public contracts.

Furthermore, the logic of competition brings with it an increase in the tools for guarantee available to the companies interested in the free market. This is the context of the Code, and in the light of this context, it must be interpreted and implemented.

In administrative law cases, public evidence procedures reinforce the remedies against discrimination, to the prejudice of the companies that are “new entries”, exercised by the contract-awarding bodies. The Public Contract Code places additional obligations on the contract-awarding bodies in order to ensure authentic equality of treatment also in new negotiating procedures, such as competitive dialogue. The authority’s role is consolidated in sector supervision, which monitors, among other things, the correctness of the competitive procedures by means of a wide range of powers. Therefore, free competition reinforces the principle of legality.

At the same time, the antitrust remedies in favour of companies excluded or prejudice by the illegal behaviour of competitors are reinforced: there are an increasing number of cases in which the antitrust authority punishes restrictive agreements entered into by competitors in the execution of public tender procedures for the awarding of contracts.

In short, the logic of competition and the European free market has a dual value in the case of tender contracts: it more effectively contrasts the excesses of the powers of both national and local public bodies which operate as contract-awarding bodies and of the powers of the entrepreneurs that continue to stand in opposition.

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## References

- [1] *Le Garzantine: Economia*. Garzanti Editore. 2011. p. 316
- [2] See [1]. *Le Garzantine: Economia*. Garzanti Editore. 2011. p. 316
- [3] To this regard Adam Smith in *The Wealth of Nations* wrote: "Pure competition means remuneration for those who supply the best goods at the lowest price. It offers an immediate and natural reward that a crowd of rivals struggle to obtain, and it is more effective than a distant punishment that each one can hope to avoid"
- [4] According to a maxim of Jeremy Bentham, "Generally no one knows your interests better than you know them yourselves, and no one is willing to pursue them with equal ardour and constancy"
- [5] The most profound criticisms were developed above all by Joseph Schumpeter and John Maynard Keynes. They doubted that perfect competition could be achieved in practice, even sustaining, instead, that it was an infeasible and purely utopian ideal
- [6] See [1]. *Le Garzantine: Economia*, Garzanti Editore. 2011. p. 316
- [7] Silva F. Regole dell'efficienza e politica Antitrust. LIUC Papers No. 48 Series. Economica e Impresa. 1997. p. 2
- [8] It is the oldest antitrust law of the United States, and it represents the first action of the US government to limit the monopolies and the cartels
- [9] The Clayton Act introduced a greater control of concentration operations, introducing a ban on mergers by the purchase of assets or shares. The discriminating element of the Clayton Act consists of the greater rigidity of the criterion of legality of the "rule of reason" compared to the criterion of the Sherman Act, which refers to an assessment of the probable effect of any agreement or practice deemed as being restrictive to competition
- [10] In 1951 the important Treaty of Paris was signed, establishing the first community organisation, the European Coal and Steel Community (ECSC), with the aim of introducing the free circulation of coal and steel and of guaranteeing free access to the production sources. This agreement paved the way for the drafting, a few years later, in 1957, of the Treaty of Rome which established the European Economic Community (EEC). The important abolition of custom duties was expected to favour trade between the member

states and the creation of the European Single Market based on free competition among enterprises. Then, the EURATOM was signed, also in Rome, which established the European Atomic Energy Community (EAEC), with the aim of creating a community energy policy. The provisions of the Treaty of Rome were implemented by Regulation No. 17 of 21 February 1962, successively revised and updated with EC Regulation No. 1/2003. This latter attributed greater responsibilities and freedom for implementation to the member states and to the companies themselves, eliminating in particular the exclusive competence of the commission in the application of the exemptions. In this way the national authorities and courts can directly apply the antitrust legislation

- [11] Regulation 4064/1989/EEC was then substituted by Regulation 139/2004/EEC
- [12] Arts. 101 and 102 of the Treaty on the Functioning of the European Union correspond to Arts. 81-89 of the prior version of the Treaty
- [13] The European Single Market is a simple idea but is extremely difficult to put into practice. It is based on four fundamental freedoms: the free movement of people and of goods, the free performance of services, the freedom of establishment and the free circulation of capital [...]. The European Single Market is a combination of two concepts, the absence of barriers and competition: the absence of barriers concerns the four freedoms of movement, and competition only on national markets serves little if they are isolated considering the market on a continental scale and just as the opposite also serves little, i.e. the lack of barriers if there were not also competitive conditions. See M. Monti, *Mercato Unico Europeo, Regolamentazione e concorrenza, Atti del Convegno Internazionale...*, Rome. 1995. p. 1
- [14] Law No. 287, "Provisions for the protection of competition and of the market", after having been approved by the senate on 27 September 1990, was published in the Official Journal of the European Union on 13 October, entering immediately into force
- [15] Giacomini G. *La Legge 10.10.90 No. 287 and the new Art. 21-bis introduced by Decree Law No.138/2011*. 2013. Available from: <http://www.contegiacomini.net>
- [16] Mellone C. *Il procedimento amministrativo davanti all'Autorità garante della concorrenza e del mercato*. 2001. Available from: <http://www.diritto.it>
- [17] Rangone N. *Principi comunitari e disciplina interna della concorrenza: l'abuso della posizione dominante in un'analisi per casi in Riv. it. dir. pubbl. com.* Milan, 1995. pp. 1305 and foll
- [18] Pappalardo A. *Il sistema sino ad oggi: rapporti tra legge No.287/1990 e diritto comunitario; diretta applicazione degli articoli 81 e 82, Adeguare l'ordinamento italiano al regolamento (CE) No. 1/2003: quali scelte normative per la modernizzazione dell'antitrust – Deeds of the Assonime Convention at the Supreme Court of Cassation*. 2003
- [19] See Art.1, paragraph 4, Law No. 287/90
- [20] Mangini V, Olivieri G. *Diritto antitrust*. Giappichelli, Turin. 2012. p. 136
- [21] Auteri P, Floridia G, Mangini V, Olivieri G, Ricolfi M, Spada P. *Diritto industriale. Proprietà intellettuale e concorrenza*, Giappichelli, Turin. 2012. p. 524

- [22] Art. 34 of Directive 25/2014/EU
- [23] Articles 8-14 of the Directive of Annex III contain the list of the sector directives that the member. States are held to implement
- [24] In the special sectors, unlike the ordinary sectors, the awarding bodies are often companies that do not use public resources to manage their activities. However, they are the holders of special and exclusive rights which give them a market power over the contractors, which must be mitigated by the publicly evident procedures at least as long as power is not neutralised by the existence of real competition also in implementation of the sector European directives aimed at liberalising the markets: see on this point S. Cadeddu-S. Fienga, *Contratti pubblici di lavori, servizi e forniture nei settori speciali*, in M. Clarich (edited by, *op. cit.*, p. 1004 commenting on Art. 219 of the Code. See also A. Lalli, *op. cit.*, p. 405 according to which the existence of an unacceptable level of competition in these sectors becomes “an autonomous and sufficient condition for the application of the legislation on tender contracts”
- [25] In Art. 34, par. 2, with regard to the geographic market of reference, it is “the territory in which the companies concerned are involved in the offer and in the demand of products and services in which the competitive conditions are sufficiently similar” (par. 3)
- [26] Par. 3, paragraph 2, of the cited directive
- [27] Art. 34, par. 1 and recital 44
- [28] Art. 2, par. 1 (No. 4) of Directive 2014/24/EU
- [29] Art. 3, par. 25, of the Code. See G. Greco, *Ente pubblico, impresa pubblica, organismo di diritto pubblico*, in *Riv. It. Dir. Pubbl. Com.*, 2000, pp. 839 and foll.; M.A. Sandulli, *Organismi e imprese pubbliche*, Milan, 2004; R. Caranta, *Organismo di diritto pubblico e impresa pubblica*, in *Foro amm. – consiglio di Stato*, 2005, pp. 1347 and foll. For the origin of notion which adopts the French distinction between *établissements publics à caractère industriel e commercial* and *établissements publics à caractère administratif*, M. Libertini, *Organismo di diritto pubblico, rischio d'impresa e concorrenza: una relazione ancora incerta*, in *Contr. e Impr.*, 2008, pp. 1201 and foll. also for an in-depth examination of the *ratio* of the application of the law on public contracts
- [30] With regard to the state of case law, see M. Libertini, *Diritto della concorrenza*, *op. cit.*, pp. 548 and foll. also for the thesis according to which the restrictive notion is more preferable since only when an economic operator is not exposed to effective competition and/or the business risk do the above-mentioned agency problems that exist which justify the imposition of the public evidence procedures
- [31] See recital No. 10
- [32] See EC Court of Justice, 10 May 2001, cases C-223 and 260/99, *Agorà vs. Excelsior*, 42; 10 November 1998, case C360/96, *BFI Holding BV*, 48-49
- [33] Thus, also the very recent Legislative Decree No. 50/2016. Art. 2 of Lgs. Decree No. 50/2016 states, in fact, that the responsibility exercised by the state in implementing

Directives 2014/23/EU, 2014/24/EU and 2014/25/EU must be, first and foremost, with regard to competition

- [34] Art. 4 and 101 and foll. TFUE and Art. 41 and 117, par. 1, of the Constitution
- [35] On the other hand, in the New Public Contract Code, as in the previous version, the interest (or, if you prefer, the value) of competition expressly comes up in many provisions (see, for example, Art. 23, parts 13, 30, 42, 54, 58, 63, 66, 67 and 68)
- [36] This legitimate entitlement is punctually confirmed in Art. 68 of Lgs. Decree No. 50/2016, and specifically where in the wake of what is already contemplated by Art. 68 of Lgs. Decree No. 163/2006, it rules that “The technical specifications must allow equal access on the part of the economic operators to the award procedure and must not directly or indirectly involve unjustified obstacles to the opening of public contracts to competition” (par. 4). In addition to that, “Unless justified by the purpose of the contract, the technical specifications cannot mention a manufacturer or a determined provenance or a specific procedure featuring products or services supplied by a specific economic operator, nor may they refer to a trademark, a patent or a specific type, origin or production which would have the effect of favouring certain companies or certain products. Such mentions or references are allowed, however, in exceptional cases if a sufficiently precise and intelligible description of the purpose of the contract is not possible with the application of paragraph 5. In such a case the mention or reference must be accompanied by the expression “or equivalent”. And, it must be added that the provision applies for all the more reason, when the reference, indication, etc. is not explicit but inferred or encrypted by a reference
- [37] See Art. 4 TFUE and Art. 117, par. 1, of the Constitution
- [38] Libertini M. *Diritto della concorrenza dell’Unione Europea*, Milan, 2014, pp. 511 and foll
- [39] See Artt. 101 and foll. TFUE
- [40] See, for example, Art. 106 TFUE
- [41] See EC Court of Justice, 12 December 2002, C-470/99, *Universale-Bau*
- [42] Sandulli M.A. in *Tratt. sui contratti pubblici dir.* by M.A. Sandulli, R. De Nictolis, R. Garofoli, I, 2008, spec. 8 and foll; see also the Court of Auditors, legal div. Lombardy, 17.7.2006, No. 447, according to which “the main aim of the public evidence law of Community derivation is to favour competition”. This assumption was precisely and unequivocally expressed in the judgement of the Constitutional Court No. 401/2007 (in *Giur. cost.*, 2007, 4447 and foll., with notes by L. CASSETTI AND C. LOMBARDI), which recognised the protection of competition as the underlying *ratio* of Lgs. Decree No. 163/2006
- [43] See [42], M.A. Sandulli
- [44] See Lazio TAR. (Regional Administrative Court), Rome, div. III, 15.3.2013, No. 2720
- [45] Council of State, judgment 8 March 2006, No. 1267

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# **Crowdfunding and Civic Crowdfunding: Theoretical Features and Future Prospects**

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Nadia Oliva

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.74739>

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## **Abstract**

The aim of this work is to carefully analyze crowdfunding, an innovative financial tool based on fundraising activities intended for “crowds” of people, also meant as an antidote to the global financial crisis. After an introduction to crowdfunding, its origins and evolution, the document pinpoints the specificities of the various models. Special attention will be then reserved to civic crowdfunding, which engages the citizens in financing or co-financing public works meant to improve and preserve the territory, or to support social and cultural activities. This study focuses on critical and successful factors of the crowdfunding campaigns to then propose a research schedule meant to implement the future of this emerging tool.

**Keywords:** crowdfunding, civic crowdfunding, fundraising, crowds, equity-based crowdfunding

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## **1. Historical origin and evolution of crowdfunding**

The difficult crisis that has hit the financial markets has pushed the sector players to find new financing tools, since the banks could support neither long-established companies nor emerging start-ups any longer. This deep recession has created a solid ground for alternative forms of financing, such as crowdfunding, which stems from it. The word crowdfunding originates from the English “crowd” (mass or multitude of people) and “funding,” meaning financing and literally means to be financed from a multitude of people. Alessandro Brunello defines financing in: “Il manuale del crowdfunding” (the Crowdfunding manual) as “a process of cooperation between several people who decide to hand out their money, generally small sums, to finance the effort, the projects and the visions of other private citizens, but also entities

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and/or organizations" [1]. With this financial tool, funds can be raised by a virtual community through online fundraising meant to support projects proposed by a group of people or organizations. "Crowdfunding originates from Crowdsourcing, a system of outsourcing the solution to a given problem to an online community: the feasibility of the prospected hypothesis is then evaluated by the entire group for the purpose of selecting the one that better fits that particular case. All the participants to the problem solving activity may receive several forms of reward: from money to mere intellectual satisfaction" [2].

Crowdfunding is characterized by Internet platforms able to gather people beyond any geographical barrier, for the ideas that are proposed and for the emotional and spontaneous participation of the crowdfunders. Other features to be ascribed to this phenomenon are definitely "pliancy, referring to the fields of application that are various and heterogeneous (arts, culture, science, journalism, politics, philanthropic, business...), as well as the centrality of the information technology tool for what concerns the fundraising operations" [3]. It is called civic crowdfunding when the field of application extends to financing, with small or large capitals, public or social and cultural works, or environmental impact projects benefitting the citizens.

Crowdfunding has its roots in the 700 Ireland, when Jonathan Swift, the author of "Gulliver's travels," established, in Dublin, the Irish Loan Funds, which granted microcredit to poor farmer families with the commitment to pay back on a weekly basis without interest. The applicant had to bring in two people who would serve as guarantors that, in case of lateness, would provide payment of the loan.

The first ever example of collective financing, in this case civic financing, was in 1884 when the French Government gave the Statue of Liberty to the United States of America to celebrate the centennial of the Declaration of Independence in 1776 [4]. In 1885, the American Commission entrusted with the building of the base needed to hold the statue, finished the funds, which blocked the completion of the work, and consequently the possibility to erect the statue. The situation changed thanks to the intervention of Joseph Pulitzer, who, through his newspaper "The New York World," announced the intention to collect \$100,000 that would be needed to complete the base. As a reward, he offered a mention to whoever would donate funds, no matter the amount. In just 5 months, the sum collected amounted to \$102,000, raised by more than 100,000 people, most of whom had donated less than one dollar [5].

The success of the fundraising was determined by the fact that Pulitzer was able to hinge on the "sense of belonging of the citizens and on the recognition of the moral value of the donations" [6], having considered the mention of their name on the pages of his newspaper as a reward for the fundraisers.

In 1976, Muhammad Yunus, an economist from Bangladesh, the winner of the Nobel Prize in Economic Science, established the Grameen Bank, the "first bank of the poor" which granted micro-loans to poor people without asking for guarantees. Therefore, the present fundraising originates from the concept of microfinancing and has become common at the beginning of the 1990s as an evolution of microcredit [6]. With the coming of the Internet in 1991, the early online fundraising campaigns began and they were mostly meant for charity purposes, like those started by the platform JustGiving 2000 [7].

In 2005, Kiva [8], the first microloan platform for entrepreneurs from developing countries, which presently raises over 165 million dollars with an excellent 98.83% repayment rate [9], was launched.

In 2006, Michael Sullivan invented Fundavlog, an attempt, later failed, to create an incubator for events linked to videoblogs [10] and, for the first time in a post, he used the term “crowdfunding” to define this specific financing modality. The word spread rapidly worldwide thanks to the American platforms Kickstarter and Indiegogo, which finance new projects while granting a reward that is not financial, but rather of material or experiential type.

The development and diffusion of social web media has determined a higher visibility of these platforms and has enriched them with new applications. From the United States, the phenomenon has spread worldwide and has arrived in Italy, amid some difficulties, thanks to the “culture of sharing” that has made it so that an activity that used to be hidden and limited to a restricted number of followers could emerge.

The first Italian portal is “Produzioni dal basso” which dates back to 2005. The crowdfunding phenomenon has reached a strong popularity [11] only in 2013.

The Italian regulatory framework is a new limiting factor to the development of the phenomenon; therefore, Piattelli wonders whether the regulation be an avant-garde or a missed occasion [6]. The implementation of the Italian regulatory system fits in a trend that, from 2012 on, has seen the legislator become more oriented toward start-ups and to support small- and medium-sized businesses. Essential to this purpose is L.D. 179/2012 *Decreto crescita bis* (*Decree for growth bis*) carrying “further urgent measures for the growth of the country” that has taken on the significance of a real systematic policy which has identified, in the support of innovative business people a new approach toward the Industrial policy, pinpointing the specific recipients of the regulation related to Crowdfunding [12]. Subsequently, with L.D. 3/2015 *Decreto crescita 3.0*, the range of beneficiaries was extended to start-ups and to innovative small- and medium-sized businesses.

In Europe, a harmonic regulation on crowdfunding equity (the most common type) is still missing, and this represents an obstacle to its development [13].

In 2013, the European Crowdfunding Network (ECN), a professional association that tries to facilitate the political debate on a European level and to make the public aware of bottom-up funding, was established. The first European research on the matter is the Framework for European Crowdfunding. The deficiency of a regulatory framework has been later analyzed by the European Commission that, in 2013, promoted a public consultation with the aim of understanding the correct lines of action for the development of this form of financing. An expert forum was held in 2014: the European Crowdfunding Stakeholders Forum, to promote transparency and define best practice.

Within the member states, the absence of specific national regulations (except that for Italy) refers to any controversies arising to ordinary justice according to the “warning documents” published in order to protect the investors. The United States, instead, together with Italy, have intervened to positively discipline the spreading phenomenon of crowdfunding [14]. Indeed, in 2012, Obama signed the “Jumpstart our business Startups Act (Jobs Act)” that aims to regulate the conduct of the web platforms to which all subjects but financial intermediaries

and publicly traded companies have access to. The aim of the Jobs Act is to encourage financing of small entrepreneurs, which is essential to the relaunch of American economy.

## 2. The main crowdfunding business models

*Crowdfunding* is a flexible and modifiable financial tool, suitable for the realization of any entrepreneurial project of artistic, ludic, cultural, sport-related, scientific, and environmental type. There are several types of *Crowdfunding* divided by the scope or in relation to the reward provided for the financiers. Massolution [15] pinpoints four main models:

- Donation-based is the base model because it allows to make donations to entities and no-profit organizations to support social causes or charity activities without obtaining any tangible rewards, if only a moral one.
- Reward-based, which consists in fundraising via Internet in exchange for a compensating equivalent toward the financier who supports a project, receiving in exchange a material good of a value determined according to the amount of the donation [13]. The prizes have a symbolic value and may consist of a recognition, a promotional object realized with the collected money, an autograph, and so on. The reward-based crowdfunding model is particularly appreciated by entrepreneurs and start-ups, since it allows companies to start with orders that are already in the budget and with a guaranteed cash flow, as well as to stimulate the curiosity of consumers regarding their products or innovative services before their launch on the market [16]. This model is used mostly to finance creative and artistic projects and it is at the base of the American platform Kickstarter. The reward-based model is often characterized by the philosophies of “all or nothing” and “take it all”: in the first case, if the prearranged fundraising target is not reached, the funds will get back to the crowdfunder or will be invested in other projects; in the second case, all the contributions collected within 90 days will be credited to the crowdfunder, even if the campaign objective is not reached. The take-it-all model is suitable for projects that need a minimum sum to be started and that can be realized even without reaching the goal, or as an integration to other financing modalities.
- Lending-based is a system for lending money, through Internet platforms, to consumers or businesses in exchange for interests and capital reimbursement. The financier may directly lend the money to any applicant through the platform (classic model) or via an intermediary who will absorb the overdue risks and will manage any fundraising action (fully brokered model). The loans granted via lending provide an interest rate that is lower than banks’ interest rate. This model shows three subspecies: micro-lending, which consists of financial support, granted via an intermediary, in favor of subjects with financial difficulties who cannot rely on bank loans; P2P (peer to peer) which does not consider the presence of an intermediary and the funds are paid directly to the recipient; P2B (person to business) in which the savers lend money without a bank intermediary to small- to medium-sized enterprises or start-ups.
- Equity-based crowdfunding is continuously evolving and represents the most recent form of crowdfunding. It is a financial tool for start-ups and innovative small- to medium-sized

companies that offers company shares to the crowdfunders in exchange for money. This model is used to favor the growth of small companies provided with little financial possibilities that are new to the financial market. In order to face the complexity of the equity procedures, the platforms have introduced two solutions: club and holding. According to the first, the equity web offer is not directed toward the public, but just toward the investors that are members of a closed investment club; the holding, also called cooperative, entails the creation of an investment society with the aim of collecting funds and of serving as an intermediary between the financier and the beneficiary company. Italy, with art. 30 L.D. 179/2012, has been one of the first countries to introduce a consistent regulation on equity crowdfunding deemed to be avant-garde at a European level.

The companies can orientate themselves in the choice of the type of crowdfunding more suitable for them based on the type of activity they carry out, on their life cycle, on their financial needs, and so on as summarized in **Table 1**.

	Equity crowdfunding	Rewards crowdfunding	Peer-to-peer loans
Pre-trading		v	
Pre-profit	v	v	
Profitable and growing company	v		V
Long-established company growing steadily	v		V
Stable long-established company	v		V
Launch of new products/services/brands	v	v	V
Acquisitions			V
Expansion in new territories	v	v	V
Investment in new structures			V
Refinancing needs	v		V
Capital restructuring needs	v		V

Source: European Commission, *Il Crowdfunding. Cosa è. Una guida per le piccole e medie imprese*, 2015.

**Table 1.** Guide to the choice.

### 3. Civic crowdfunding

Alessio Barollo and Daniela Castrataro during the “Torino Crowdfunding” convention defined civic crowdfunding as “collective funding of public works and projects – outside the budget of the interested entity or administration - collected by citizens, organizations and private companies sometimes in match funding with the administrations themselves” [17].

The decrease in public funding, due to the difficult economic crisis, has favored the inception of civic economy, a new economics model based on the social responsibility of the citizens

who take part in the development and production of “common property and infrastructure which neither the Government nor the market economy alone were able to realize” [18]. This civic economy expresses itself in the participation of the citizens to the construction of public infrastructures, to the environment requalification, and to the protection of the artistic and cultural heritage.

The tool that allows such participation is civic crowdfunding, which allows the citizens to operate in person for the public thing.

We define this “shared government” [19] in which the citizens, pushed by an emotional value toward their territory, become players and promoters of their own well-being in a contest of absolute transparency.

This way, the crowd, an indistinct group of people that are potential investors, becomes peer, a community of supporters and co-creators who share the same values and take interest in the realization of the project. The possibility to obtain some sort of reward adds up to this last feature of civic crowdfunding, just as it happened with the initiative launched by the platform do-it-yourself (DIY) crowdfunding “I Make Rotterdam.” All the citizens who participated to the realization of a footbridge to connect an isolated part of the city had the possibility to write a message or a mention on the wooden planks of the bridge or to just place on them their name and signature.

The civic, innovative, and creative projects are realized via web, and this, despite connecting users without any geographical barrier, hinges especially on the sense of belonging toward the territory. In order to protect this close relationship between citizens and territory, we are seeing a new variation of crowdfunding that goes by the name of do-it-yourself (DIY).

DIY or independent crowdfunding expects the crowdfunder (creator of the project) to use personal websites and platform, rather than public ones. There are several advantages to DIY:

- personally chosen projects with peculiar objectives which do not have a limited due date but that can last long. Indeed, the proposers create, together with the supporters, a cooperative path with a community of fans that is linked to the project. This relational network can serve as the base for future online collaborations;
- campaigns that do not get lost between many; and
- cost reduction due to the public platform which gets a percentage of the sum collected.

The only element to take into consideration in a DIY campaign is that the creator must own a good media exposure so as to be able to spread the project’s objective and to increase the number of crowdfunders.

Civic crowdfunding is expanding because the citizens are linked to their territorial community, their schools, the Church, the parks, and they positively share its growth and improvement.

Despite civic crowdfunding in Italy being less common compared to other European Countries and the United States, there have been five successful cases.

The most impressive one is the reconstruction of Città della Scienza (City of Science) in Naples, which was destroyed by a terrible arson, and for which DeRev collected Euro 1,463,867 through fundraising with the involvement of 2584 investors and most of all through a massive participation of the citizens.

The gathering of Euro 339,743 by the platform Ginger was also very important, to restore the San Luca Portico in Bologna. The operation was successful thanks to the involvement of 7111 investors, and it was the demonstration that the collaboration and the participation of the citizens can improve not only the quality of life but also give honor to the city. The third case involves the Palazzo Madama Museum in Turin, which was the first Museum in Italy to enjoy the potential of crowdfunding to the benefit of arts and culture. Indeed, the Italian website dedicated to the fundraising activity, by using the reward-based model, managed to collect 96,203.90 euro and to buy a porcelain tea set dating back to 1730 and belonging to the Turin's family Taparelli d'Azeglio. The tea set was for sale in London up until March 31, 2013, for the price of 66,000 pounds. The main feature of this winning campaign was a valid communication strategy based on four questions: What makes this initiative unique? What value is it trying to promote? What value does it have in common with the museum's mission? What is the target?

The fourth place is occupied by "Adopt a Majolica for the House Museum Stanze al Genio" set up in Palazzo Torre Pirajno in Palermo. The 12,000 euro fundraising target was broadly exceeded, and the museum continued the crowdfunding campaign beyond Indiegogo, continuing to receive contributions from all over the world to save the Sicilian Majolica.

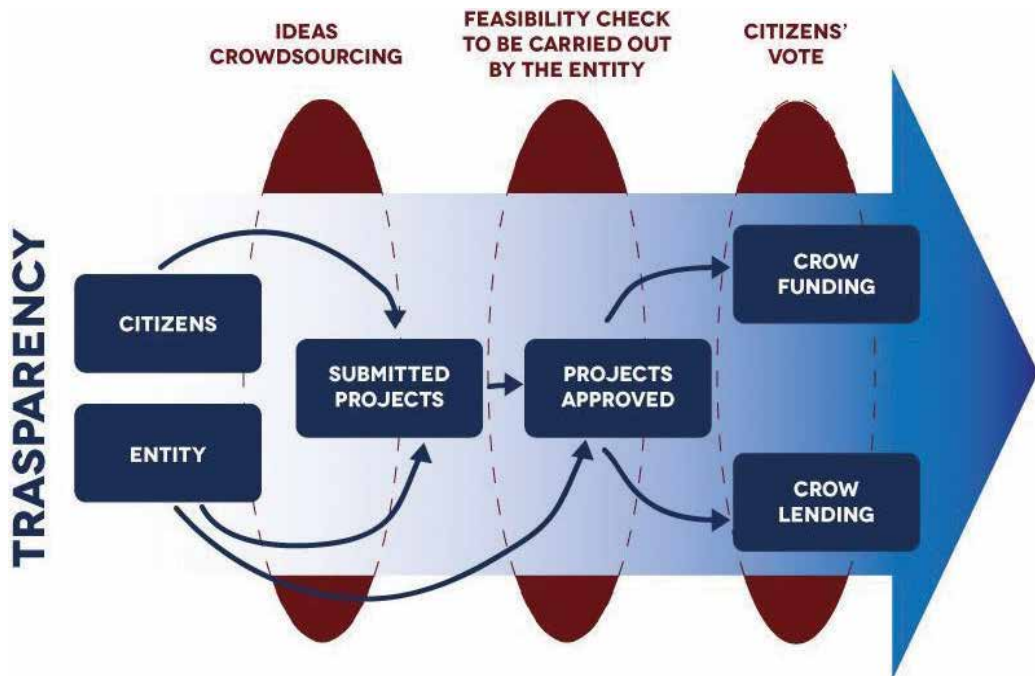
Last but not the least, since this top five list may change at any time, the creation of a new way to run after school programs is in Salluzzo (CN). The project was created for children who, thanks to the commitment of volunteers, teachers, and educators, every afternoon get together to study and to learn how to have fun through sports. The citizenry, the schools, the Council, and several associations have participated in the fundraising that has collected 12,378 euro through the support of 123 sponsors.

These crowdfunding campaigns have simplified funds access by putting into place a democratization of the process of funding culture that makes the projects sustainable without having to turn to traditional forms of funding.

What emerges from these excellent examples is that when local administrations or institutions have limited funds, if the citizens share a project of high social or cultural value, they actively participate in civic crowdfunding actions, improving their territory and the quality of life of its inhabitants.

Barollo and Castrataro have proposed, for Italy, an integrated crowdsourcing, crowdvalidating, and crowdfunding platform based on a few important steps that integrate the decisions of the administrators with the indications offered by the crowdfunders to increase the feedback within the local communities and to highlight the positivity of the project.

The cases of civic crowdfunding abroad are many and increasing. The Tous Mécènes DIY campaign initiated in 2010 by the Louvre Museum in Paris to acquire a wonderful painting ("The



Source: Barollo A, Castrataro D., *Il crowdfunding civico: una proposta*, 2013 [www.issuu.com](http://www.issuu.com).

three Graces" by Canach) is very famous. The Louvre created a webpage where it was possible to donate: all the donors were rewarded, according to the amount donated, with a private visit to the museum or with an invitation to a special evening event. The project was a success and it raised the 1,200,000 euro that were needed to acquire the painting. This campaign is the first experiment of a fundraising model that has given the museum the possibility to organize more campaigns to gather funds to restore the "Nike" of Samothrace and to acquire two statues of public figures to complete the sculpture group already hosted at the Museum. A very important initiative has taken place in the United Kingdom in 2013 for the whole region. Indeed, from August 12 to 15, London and other English cities were transformed into an open air gallery, thanks to an idea from Art Fund and Tate Gallery, which had 22,000 posters affixed reproducing 10 British masterpieces that could be voted by anyone, thanks to a Facebook page. The funds raised in a few weeks amounted to 35,000 pounds. The citizens participated actively, choosing the works to affix, and admired their beauty in the streets of their city.

#### 4. The main crowdfunding platforms

A platform is a virtual place acting as an intermediary for the gathering of funds. Among some of the world famous ones, the American "Kickstarter" stands out for the number of projects completed. Its mission is to find new ways to finance initiatives linked to the world of arts, music, and technology. The strength of this platform stands in its notoriety, and in the

segment of people, it is able to involve, as well as the fact that it focuses on creative projects. The use that can be done on this platform is the classic crowdfunding one: a subject publishes his/her idea on the website and only upon the operator's approval the idea becomes a page and is turned into a project. Anyone who signs up may become a supporter of one or more projects by promising to fund them with a minimum amount of 1\$. It is possible to change the sum amount (pledge) at any time before the completion of the project, and the money is collected by Kickstarter only if the project reaches the goal set. According to the value of the "pledge," in case the project is successful, the donors will have access to specific prizes. In 2015, Kickstarters arrived in Italy since the Ceo Yancey Strickler, co-founder of the platform, declared that "Italian ideas are appreciated all over the world."

The most famous platform in Italy is Starteed, established in 2011 and launched in September 2012 from an idea by Claudio Bedino and Valerio Fissore. It offers a complete service to whoever has an idea, integrating the crowdfunding campaign with the final sale phase. The gather of funds for projects and ideas integrates with co-creation. This is a formula, then, which mixes both crowdfunding and crowdsourcing. It is essentially a reward-based platform whose originality revolves around the figure of the influencer, who may share the initiative on social networks, convince its Facebook or Twitter friends to donate something, give advice and suggestions on how to improve and/or develop the idea, and answer to surveys related to the product.

It is evident that the success of any platform is based on a few essential elements, such as the use of a charming yet clear and understandable graphic design. The projects must be divided into categories with an immediate and accessible view. Transparency is another element that grants success to the proposed projects and increases the number of sponsors who participate in the project with interest and passion.

## 5. Success factors and criticalities of crowdfunding

Crowdfunding is spreading more and more as an alternative and complementary financial instrument; therefore, it has been deemed necessary to perform a SWOT [20] analysis in order to pinpoint its strengths, its weaknesses, its opportunities, and threats.

The success factors in fundraising operations are linked to the viral nature of the net that, breaking down all geographical barriers and using real-time information, becomes a driver of projects that have a social, environmental, artistic, and cultural impact and that have a developmental effect on new enterprises. Crowdfunding turns citizen from users to actors, who actively participate in the improvement of their territory, by cooperating financially with local institutions. Therefore, it affirms itself as an entity in full evolution, confirming the positive growth trends.

The opportunities lie in offering the citizens the possibility to exchange ideas and opinions both online and offline and to promote projects according to the principle of democracy and meritocracy. Transparency, at the base of every financial campaign, can be seen as an example of accountability and best practice, whereas the products obtained constitute a marketing and engagement tool.

For sure, an element of weakness lies in the originality of a method that is still not known well and that is based on the web, toward which persists a certain mistrust (digital divide), while at the same time it requires a good level of digitalization and knowledge of the English language. Furthermore, the high number of existing platforms with several products can disperse visibility.

The threats are due mostly to the incomplete broadband connection on the territory and to the lack of a homogeneous regulation for all the member states. This last aspect is very important because, especially for equity crowdfunding, which entails a reward in company shares in exchange for financial contributions to start-ups, it persuades savers to make illiquid investments which can lead to capital loss. This adds up to the obligation to pay a percentage on the budget to be granted to the promoting platform. Lastly, it is important to evaluate disclosure, that is, the display on the web of the product, which can be stolen or plagiarized by competitors.

Ultimately, it is evident that crowdfunding is a truly valid financial strategy, since it is able to promote the economic recovery, but it is not free of weaknesses and threats that undermine any new tool entering the market.

## 6. Final considerations and future prospects

Crowdfunding is undoubtedly spreading and it has become an object of attention for the European Union. This exponential growth is due to the interesting and important social, economic, and cultural implications that involve a lot of people and it is therefore defined as an anthropologic phenomenon. Indeed, investors target a high and undifferentiated number of crowdfunders that, via the web, multiplies while breaking down any possible geographical boundary, spreading the idea of a project that must necessarily be good and captivating so widely. This is a clear example of restoration of meritocracy, since the product can fascinate the virtual community and push it to sponsor it only if it convinces them because of its positivity. Troisi has recognized a possible solution to the financial crisis in crowdfunding that has caused an impasse in the ordinary mechanisms of bank intermediation, which lead to a reduction of the credit offer and therefore a widespread lack of liquidity [21].

Small- and medium-sized businesses and start-ups, which have had their traditional financial channel closed, both for the difficult economic crisis and for the intrinsic risks linked to their activity, can find a valid solution in bottom-up funding.

This phenomenon is constantly developing and it requires a continuous study in order to satisfy the questions that it continuously poses, considering that it is not an alternative funding phenomenon, but a marketing and engagement leverage. The donation and lending models have reached their highest expression, and the equity and reward ones are evolving both as implementation and as regulation.

This new-generation marketing technique must be analyzed in relation to the relational and collective dimensions and to the choice of the most valid model to support the new entrepreneurs.

The scenarios can open with an empirical survey about the most valid platforms and the reasons behind the success or failure of some of the campaigns they promote.

From a close examination, it emerges that there is a need for a new regulatory framework to slim down financial operations and make them more transparent, and it should be uniform and easily understandable for public investors in all member states. Indeed, crowdfunding must be seen as an added value, a feature of accountability, because it is becoming more and more necessary to conjugate two worlds that are normally antithetical and dominant such as ethics and finance, which coexist in this widespread practice of modern economy. To this purpose, it would be useful to research and organize a mechanism offering crowdfunder a clear and precise evaluation of the hidden risks they might incur when they support a project to which they often adhere moved by an emotional choice without a calculated consideration. The strong potential of crowdfunding must not be ruined by any gray areas; in fact, they must be taken advantage of by using them as a relaunch driving force for the financial and business economy of our countries.

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## References

- [1] Brunello A. *Il Manuale del Crowdfunding*. Edizioni LSWR: Ovvero come realizzare le tue idee grazie ai nuovi strumenti di finanziamento on line; 2014
- [2] Fregonara E. *Il crowdfunding: un nuovo strumento di finanziamento per le start-up innovative "Orizzonti del Diritto Commerciale"*. Roma; 2014
- [3] Aldo L. "La folla e l'impresa: prime riflessioni", "L'impresa e il diritto commerciale: innovazione, creazione di valore, salvaguardia del valore nella crisi", V Annual meeting of the Italian Association of the University Professors of Commercial Law "Orizzonti del Diritto Commerciale". Roma; 2014
- [4] Harris J. *A Statue for America: The First 100 Years of the Statue of Liberty*. New York: Four Winds Press; 1985
- [5] Calveri C, Esposito R. *Crowdfunding World 2013: Report, analisi e trend*, n.d.; 2013. p. 24
- [6] Yunus M. *Un mondo senza povertà* Milano. Universale Economia Feltrinelli; 2010
- [7] [www.justgiving.com](http://www.justgiving.com)

- [8] [www.kiva.org](http://www.kiva.org)
- [9] AA.VV. Crowdfuture, The future of Crowdfunding; 2013 in [www.crowdfuture.net](http://www.crowdfuture.net)
- [10] Castrataro D. A social history of crowdfunding. 11 December 2011 in [www.socialmedia-week.org](http://www.socialmedia-week.org)
- [11] Castrataro D, e Pais I. Analisi delle piattaforme italiane di crowdfunding, Italian Crowdfunding Network; 2013
- [12] The National Foundation of Accountants. Il crowdfunding: Quadro normativo, aspetti operativi e opportunità. Document dated July 31, 2015. p. 9
- [13] Piattelli U. Il crowdfunding in Italia. Una regolamentazione all'avanguardia o un'occasione mancata? Torino: Giappichelli; 2013
- [14] Alvisi P. Equity Crowdfunding: Uno sguardo comparativistico. In: Rivista Diritto Bancario. Vol. 10. 2014 in [www.diritto bancario.it](http://www.diritto bancario.it)
- [15] Massolution Report. Crowdfunding Industry Report- Market Trends, Composition and Crowdfunding Platforms; 2015
- [16] De Luca R. Il crowdfunding: quadro normativo, aspetti operativi e opportunità, Document dated July 31, 2015 in <http://www.fondazione nazionale commercialisti.it>
- [17] Barollo A. Is an architect and an expert in civic crowdfunding. Castrataro D. is co-founder and director of Twintangibles
- [18] Calveri C, Esposito R. Crowdfunding World 2013. Report, analisi e trend; 2013 p.18. [www.derev.com](http://www.derev.com)
- [19] Barollo A, Castrataro D. Il crowdfunding civico: una proposta; 2013. [www.issuu.com](http://www.issuu.com)
- [20] S.W.O.T. is an acronym for: strenghts, weaknesses, opportunities and threats
- [21] Troisi A. Crowdfunding e mercato creditizio: profili regolamentari. Contratto e impresa, f.2. 2014;**30**:519-534

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# **The Involvement of the Taxpayer in the Public Administration Decision**

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Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.74866>

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## **Abstract**

The relationship between taxpayers and Tax Authority and the involvement of the taxpayer in the public administration decision is a very important area of investigation in Italian tax law. This relationship is based on equity and cooperation in good faith, which stems from constitutional principles, such as the principle of sound administration (Art. 97 Italian Constitution), fairness and solidarity (Art. 3 Italian Constitution). Therefore, Tax Authority must exercise his control and assessment powers in compliance with such principles. The fundamental expression of the involvement of the taxpayer in the public administration decision is the “right to be heard”, intended as anticipation of the future activities of the administration. Precisely, it is a phase of research, acquisition and assessment of the evidence and of any other information which may facilitate a better reconstruction of the application of the tax (“presupposto”). In these terms, the “right to be heard” is an implementing tool for taxpayer’s right of defense and for best practice in the public administration. Therefore, it should be mandatory, always and in any case, in accordance with art. 3 and art. 97 of Italian Constitution, and with European law. However, this assumption is not found to be peaceful.

**Keywords:** tax law, right to be heard, involvement of the taxpayer, tax authority decision

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## **1. Introduction**

The relationship between taxpayers and Tax Authority and the involvement of the taxpayer in the public administration decision is a very important area of investigation in Italian tax law [1].

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This relationship is based on equity and cooperation in good faith, which stems from constitutional principles, such as the principle of sound administration (Art. 97 Italian Constitution), fairness and solidarity (Art. 3 Italian Constitution).

Therefore, Tax Authority must exercise his control and assessment powers in compliance with such principles.

The fundamental expression of the involvement of the taxpayer in the public administration decision is the “right to be heard”, intended as anticipation of the future activities of the administration. Precisely, it is a phase of research, acquisition and assessment of the evidence and of any other information which may facilitate a better reconstruction of the application of the tax (“presupposto”). In these terms, the “right to be heard” is an implementing tool for taxpayer’s right of defense and for best practice in the public administration. Therefore, it should be mandatory, always and in any case, in accordance with art. 3 and art. 97 of Italian Constitution, and with European law.

However, as will be seen, this assumption is not found to be peaceful in national and European laws and in the interpretation of domestic and supranational jurisprudence. Therefore, it is necessary to reflect on the appropriate instruments to make it a fundamental principle at the base of the relationship between taxpayer and tax administration.

## **2. The involvement of the taxpayer in the tax authority decision in Italian tax law**

The duty to file the tax return is central and represents the most important expression of cooperation with the Tax Authority, since it allows to know the condition for the application of the tax (“presupposto”) and the relevant sources of income, and also to calculate the taxable income.

Furthermore, art. 32 D.P.R. of 29 September 1973, No. 600, identifies Tax Authorities’ investigative and assessment powers: therefore, taxpayers’ duties may be identified “in negative”.

Firstly, Tax Authority may invite taxpayers to provide data and information, as well as to produce documents useful to assess the taxable income and issue a tax assessment notice.

Tax Authority may also require to the taxpayers subject to accounting duties, to provide the profit and loss account and other accounting records. Moreover, Tax Authority may send specific questionnaires aimed at collecting detailed data and information relevant to the tax assessment, and they have full access to all bank information regarding taxpayer’s transactions. Such questionnaires should be filled in, signed by the taxpayers and returned to the Tax Authority. In addition, art. 32 D.P.R. of 29 September 1973, No. 600, lays down a general prohibition for the taxpayer to produce during tax litigation all the documents required (but not exhibited) during the tax assessment phase.

Tax Authority has also the right to request information to third parties, who are, therefore, subject to a general duty of co-operation.

Another example of the duty of cooperation between taxpayers and Tax Authority is the “*audi et alteram partem*” mechanism [2], provided by art. 38 D.P.R. of 29 September 1973, No. 600, in line with the right to defense, in the synthetic assessment (so-called “*expenditure assessment system*”) [3], and by art. 10-bis Law of 27 July 2000, No. 212 (entitled rights and safeguards of taxpayers subject to tax audits), that regulates tax avoidance and abuse of law [4].

As well as, with respect to tax audits, Art. 12, para. 2, Law of 27 July 2000, No. 212 provides that taxpayers have always the right to be informed about the reasons justifying the tax audit, the object and the transactions analyzed, as well as the right to be assisted by a professional advisor – who shall represent and assist the taxpayer in tax litigation against ITAs – and all other rights and duties enjoyed by the audited taxpayer. Moreover, according to art. 12, para. 7, Law of 27 July 2000, No. 212, the audited taxpayer has the right to provide written comments within 60 days after the delivery of the tax audit report [5].

The tax system provides also some “indirect” or “improper” sanctions, which, in presence of behaviors not corresponding to the requirements of collaboration and good faith, prevent or reduce the taxpayer’s right to defense both in the administrative phase and in the one before the Tax Court [6].

Furthermore, in the Italian tax system there are various kinds of advance ruling, with different procedures, but all of them have in common the specific aim to give taxpayers the possibility to request (and obtain) a decision from the Tax Authority concerning the correct application and interpretation of certain tax rules applicable to a concrete situation.

Advance ruling procedures are, essentially, instruments aiming to give the taxpayer the right to know in advance Tax Authority approach in case of objective uncertainty: consequently, those instruments allow the taxpayer to behave in line with such approach.

The protection of the taxpayer’s legitimate expectations at the end of the advance ruling procedure is the basic reason that motivates the effects on these mechanisms on administrative tax penalties [7].

In the direction of the cooperation between taxpayers and Tax Authority moves also the agreement on the notice of assessment (so called “*accertamento con adesione*”), that allows the taxpayer to reduce its tax liability, avoiding to engage a tax litigation before the Court: this procedure, which may be started by the Tax Office or by the taxpayer, allows the parties to reach an agreement that re-determine the taxpayer’s tax liability [8].

However, the measures described above do not seem to be sufficient in order to ensure the involvement of the taxpayer in the tax authority decision, mostly because such involvement is not fully available for taxpayers in every procedure.

In fact, for the taxpayer’s full participation in the tax authority decision, to the taxpayer should always be acknowledged the “right to be heard”, on which we will discuss in detail below.

### 3. The “right to be heard” in tax proceedings in Italian Supreme Court case law

The Italian Supreme Court (ISC) has enhanced the “right to be heard”, since the decision 29 July 2013, n. 18184, Joint Sections [9].

With the decision n. 19667 and n. 19668 of 18 September 2014, the ISC reiterated the existence of the “right to be heard” even if tax laws have not at provided this right, as occurred in the case of the registration of a mortgage according to art. 77 D.P.R. n. 602 of 1973 to guarantee tax credits.

A further step forward in the definition of the problem came from the ordinance of ISC n. 527 of 14 January 2015, concerning the checks carried out at the office of the tax authority.

However, precisely with regard to the checks carried out at office of the tax authority, the subsequent sentence of ISC, Joint Sections, 9 December 2015, n. 24823, has changed its orientation.

The ISC, which reaches conclusions diametrically opposed to the previous decision n. 19667/2014, after a long excursus of the previous jurisprudence of the same Court, affirms that the guarantees provided by the art. 12, paragraph 7, of the law n. 212/2000 operate only in the presence of tax audits carried out where the taxpayer takes its activity and not in other cases. This is because there is a number of legislative provisions that prescribe the “right to be heard” in different times, but there is not an express legislative provision that provide in general the obligation of the “right to be heard” in every tax procedure.

The Court’s thesis is not to be shared. This is because the widespread presence of norms that provide the “right to be heard” leads us to believe, where we proceed with an interpretation oriented by the art. 3 and 97 of the Constitution, that exists a general principle and that the plurality of provisions is linked to the need to provide different methods of contradictory procedure in relation to the specific tax assessment method adopted [10].

Furthermore, cannot be shared the Supreme Court’s argument that the “right to be heard,” which derives from the European legal system, is applicable only in the case of an investigation concerning the taxes harmonized.

In fact, the tax assessment notice, which concludes the proceeding, is normally based on facts that regard at the same time a tax claim both as VAT (harmonized tax) and as IRPEF (or IRES) and IRAP (taxes not harmonized). In the case of non-compliance with the principle of the “right to be heard”, in presence of the same facts, would be issued in the same tax assessment procedure a partial, rather than total, judgment of the act.

Furthermore, cannot be shared the Supreme Court’s argument that the “right to be heard,” if not provided by law, is allowed only if, in accordance with the jurisprudence of the Court of Justice, it is shown that, in the absence of such irregularities, the tax procedure could be concluded with a different result [11].

This last statement raises a lot of perplexity, considering that the outcome of a dispute, according to the principle of legal certainty, cannot be entrusted to an assessment, inevitably

uncertain, about the outcome that the judgment would have had in the presence of a contradictory procedure which in reality did not take place.

#### **4. The “right to be heard” in tax proceedings as a general principle of European law**

The supremacy of European law (EU), through the European Court of Justice (ECJ), has influenced the exercise of national tax sovereignty within the European Union [12].

The supremacy of EU law is the key to understanding how taxation has evolved within the European Union from a purely national to a supranational dimension [13].

The impact of ECJ case law on Italian taxation reveals a fairly extreme picture of the critical issues that arise in such a context.

The impact of ECJ case law on administrative tax practice within the framework of tax auditing and collection procedures involves aspects that can also be relevant from the perspective of ensuring the protection of human rights [14].

From the perspective of ECJ case law, the principles of proportionality and suitability may be invoked to prevent unreasonable inspections, or the payment of guarantees that would not be needed to protect the interest of the tax authorities (based on the line of reasoning developed by the ECJ in *de Lasteyrie* (C-9/02) 11 March 2004).

Likewise, the ECJ regards the *auditatur et altera pars* principle as a general principle of EU law, which gives taxpayers the “right to be heard” before a tax measure affects their personal sphere (Case C-349/07, *Sopropé* (18 December 2008, Para. 36).

Similarly, following ECJ case law, the duty of cooperation on the part of tax authorities should require them to reopen a final administrative tax act based on misinterpretation of (or a conflict with) EU law when this is allowed under national procedural law and the person directly affected has, in a timely manner, filed a complaint against such an act (Case C-453/00, *Kühne & Heitz* (13 January 2004, Para. 28).

In this direction we can also consider the case law of ECJ 12 February 2015 (C-662/13) and the case law 3 July 2014 (C-129/13 and C-130/13) *Kamino International Logistics BV and Datema Hellmann Worldwide Logistics BV*.

However, the jurisprudence cited above added a provision which could give rise to ambiguity, stating that the national court, having the obligation to ensure the full effectiveness of Union law, in assessing the consequences of an infringement of the right of the defense, in particular “the right to be heard”, can consider that such infringement leads to the annulment of the final decision taken at the end of the administrative procedure only if, in the absence of such irregularity, that procedure could have led to a different result.

In this way the Court has opened to an interpretation that diminishes the same value of contradictory procedure, evaluating it on the proof that the result of the administrative procedure would have been different.

However, even the European treaties provide the “right to be heard” [15].

In particular, art. 6 of the Treaty on the Functioning of the European Union undoubtedly guarantees substantial rights of the person. And so also art. 6 of the European Convention on Human Rights, which until now has found peaceful application in the protection of domicile and correspondence and in the application of sanctions, although not yet in the matter of taxes.

In the same way art. 41 of the European Charter of Fundamental Rights, which has the same legal value as the European treaties, establishes the right to good administration.

## **5. The “right to be heard” in tax exchange of information proceedings**

Exchange of information is a fundamental tool for cooperation between national financial administrations. In recent years, we have witnessed a significant evolution of the discipline of the phenomenon in the European and international level, which has led to an increasingly evident need for mutual support between administrations in order to fight tax avoidance. International organizations have set many goals aimed to fighting cross-border tax avoidance, including the implementation of internationally recognized cooperation, understood as an obligation of collaboration between the administrations.

In European legislation, the main source of exchange of information is contained in Directive 2014/107/EU (which has put an end to bank secrecy for tax purposes throughout the Union, is also of particular relevance, requiring Member States to automatically exchange a wide range of information on incomes and holdings abroad), than modified by Directive 2015/2376 and Directive 2016/881/EU on the mandatory automatic exchange of information in the tax field. Among the sources of international law, the main rule is art. 26 of the OECD Model Convention against Double Taxation. The need for states to get information more rapidly and automatically has led the European and international institutions to the elaboration of additional tools for data exchange. However, in the face of a strong development of regulatory instruments for implementation of the exchange of information, particular attention should be paid to the profile of the protection of the rights of the taxpayer, currently debated in the European case-law and without specific discipline in the international and community sources. It is clear that the taxpayer has a particular interest in the correct acquisition of news and data and the confidentiality of the information exchanged [16].

The absence of a specific discipline in the international and European sources which guarantees the protection of the taxpayer when exchanging information can lead to a number of issues: just thinking to the case of a state which violates the limits set for the exchange of information by disclosing a secret commercial or professional.

In fact, it is not foreseen that the taxpayer will be informed of the request for information made on his behalf by the financial administration of another state. Consequently, its right to

oppose to that transfer of information it is not recognized and even the opportunity to expose its reasons in the course of investigation.

The protection of the taxpayer in the exchange of information is therefore subject to rules of national law on the exercise of the instructing powers by the financial administration.

The subject may therefore oppose the procedure by maintaining that it is illegitimate only if one of the countries involved in the exchange established precise provisions on this. In some jurisdictions, like in the Italian one, the protection of the rights of the taxpayer appears subordinate to the appeal of the subject against an act emanated to him. In case the inquiry concerns information requested by another administration, the lack of administrative or judicial tools available for the taxpayer seems to make it impossible for any action to protect the injury of his rights.

On 22 October 2013, the Court of Justice of the European Union (ECJ) issued an important judgment in the case of *Sabou v. The Czech Republic* (Case C-276/12) concerning the application of the right of defense in the context of tax information exchange procedures. This was the first decision where the ECJ addresses the protection of the taxpayer's right of defense in the framework of international mutual assistance procedures in tax matters. In this regard, the ECJ adopted a twofold approach, considering both the provisions of the former Directive (the previous one n. 77/799/EEC) and the fundamental "right to be heard".

So, the problem is the fact that tax authorities are not bound to confer on taxpayers the "right to be heard" during the information-gathering stage, which includes both actions undertaken in the requesting state and those carried out by the requested Member State.

Therefore, it could be said that the right of defense, considered a general principle of EU law and also laid down in art. 41 of the Charter of Fundamental Rights of the European Union (EU Charter), does not oblige the requested state to inform the taxpayer about the existence of a request for information concerning him, the data-gathering process or the transmission of the information to the requesting state.

Notwithstanding this, the ECJ established a kind of twofold "balancing mechanism" from the point of view of the taxpayer's rights of defense: firstly, the "right to be heard" (as a general principle of EU law) should be granted before any decision is adopted at the end of the administrative proceedings by the tax authorities of the requesting Member State and, secondly, the affected taxpayer should be able to challenge, in accordance with its domestic rules and procedures, the accuracy and probative value of the information provided by the requested state in the context of tax proceedings within the requesting Member State where such information is used.

The *Sabou* decision shows that the fundamental right of defense of taxpayers affected by an exchange-of-information procedure in the requesting state (usually the country of the taxpayer's residence) is linked to the administrative and/or judicial proceedings implemented by the tax authorities of the requested state in order to gather the information. However, and despite such "interconnection", it must be clear that the rights of the taxpayer affected by the request for information in the requested state are independent of those which can be conceded by the requesting state.

A step forward compared to the Sabou decision was obtained with the decision 16 May 2017, *Berlioz* (C-682/15), in which ECJ established that the taxpayer can legitimately access, at least in part, the file of the exchange information, without any opposition to the protection of diplomatic relations between States.

## 6. Conclusion

In order to ensure an efficacious involvement of the taxpayer in the tax authority decision as alternative to the tax litigation, so as to bring the relationship between taxpayers and Tax Authority on equity and cooperation in good faith, it is necessary that the “right to be heard” become a mechanism fully available for taxpayers in every procedure.

Also because such principles, it should be noted, stem from constitutional principles, such as the principle of sound administration (Art. 97 Italian Constitution), fairness and solidarity (Arts. 3 Italian Constitution).

In general terms, it can be said that contradictory procedure or the participation of private individuals in the formation of acts of the public administration is a juridically protected instrument; has acquired, that is, the dignity of a guaranteed legal “good” in favor of the citizen [11].

So, the “right to be heard” is a fundamental right of all participants in an administrative procedure, and they can make use of this right throughout the entire procedure, making allegations and submitting documents; this right is formalized in the hearing that must take place immediately before the administration makes a decision [17].

The “right to be heard” must always be possible, so as not to create unequal treatment between harmonized and non-harmonized taxes and allow the respect to the constitutional principles.

As well as, in tax exchange of information proceedings, it should be implemented specific “participation rights” to safeguard the legitimate interests of taxpayers affected by cross-border requests of information in different administrative or judicial proceedings. Those “participation rights” should include the notification of the request for information to the taxpayer; the “right to be heard” before transmitting the information to the requesting state, and the right to challenge the decision of the requested state concerning the transmission of the information gathered.

It is therefore necessary to state that the recipient of a tax claim, whether harmonized or not, interests or penalties, has the right to be informed before the proceedings are completed by issuing the act in which the tax claim is expressed. The right of the recipient to be informed before being harmed is undeniable [11].

There is a general principle according to which the recipient of a tax claim has the right to contradictory procedure, that is to express his point of view in contrast with that of the Financial Administration before the final act is issued.

It can be concluded by stating that the recognition of obligations for the public financial administration, corresponding to as many rights for the recipient of the tax claim, and assisted, in the event of non-compliance, from the penalty of the abolition of its provisions, far from favoring tax evasion, is a stimulus to the observance of fiscal obligations in a state of legality and collaboration.

## Disclaimer

Michele Mauro is Author of paragraphs n. 5 and n. 6. Claudia Fava is Author of paragraphs n. 1 and n. 2. Alessandra Kostner is Author of paragraphs n. 3 and n. 4.

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## References

- [1] Salvini L. La partecipazione del privato all'accertamento (nelle imposte sui redditi e nell'iva). Padova: Cedam; 1990
- [2] Ragucci G. Il contraddittorio nei procedimenti tributari. Torino: Giappichelli; 2009
- [3] Basilavecchia M. Metodi di accertamento e capacità contributiva. In: Rassegna tributaria. Vol. 5. Milano: Wolters Kluwer Italia S.r.l.; 2012. 1107 p
- [4] Cipollina S. voce Abuso del diritto o elusione fiscale. In: Digesto delle discipline privatistiche sezione commerciale, aggiornamento. Torino: Utet giuridica; 2017. pp. 1-15
- [5] Tundo F. Procedimento tributario e difesa del contribuente. Padova: Cedam; 2013
- [6] Del Federico L. Sanzioni proprie e sanzioni improprie. In: Giovannini A, editor. Trattato di Diritto sanzionatorio tributario, tomo II. Milano: Giuffrè editore; 2016. pp. 1317-1342
- [7] Pistolesi F. Gli interpelli tributari. Milano: Giuffrè editore; 2007
- [8] Marello E. L'accertamento con adesione. Torino: Giappichelli; 2001
- [9] Tesauro F. In tema di invalidità dei provvedimenti impositivi e di avviso di accertamento notificati ante tempus. In: Rassegna tributaria. Vol. 5. Milano: Wolters Kluwer Italia S.r.l.; 2013. 1144 p

- [10] Sammartino S. Il diritto al contraddittorio endoprocedimentale. In: *Rassegna Tributaria*. Vol. 4. Milano: Wolters Kluwer Italia S.r.l.; 2016. 986 p
- [11] Giovannini A. Il contraddittorio endoprocedimentale. In: *Rassegna Tributaria*. Vol. 1. Milano: Wolters Kluwer Italia S.r.l.; 2017. 11 p
- [12] Gallo F. L'applicazione d'ufficio del diritto comunitario da parte del giudice nazionale nel processo tributario e nel giudizio di cassazione. In: *Rivista di diritto internazionale privato e processuale*. Vol. 2. Padova: Cedam; 2003. 435 p
- [13] Pistone P, Baker P. General Report. The Practical Protection of Taxpayers' Fundamental Rights. Vol. 100B. Rotterdam: IFA Cahiers; 2015
- [14] Del Federico L. Tutela del contribuente ed integrazione giuridica europea. Milano: Giuffrè editore; 2010
- [15] Amatucci F. Il rafforzamento dei principi comuni europei e l'unicità del sistema fiscale nazionale. In: *Rivista trimestrale di diritto tributario*. Vol. 1. Torino: Giappichelli; 2013. 17 p
- [16] Selicato P. Scambio di informazioni, contraddittorio e Statuto del contribuente. In: *Rassegna Tributaria*. Vol. 2. Milano: Wolters Kluwer Italia S.r.l.; 2012. 321 p
- [17] Pierro M. Il dovere di informazione dell'amministrazione finanziaria. Torino: Giappichelli; 2013



*Edited by Ubaldo Comite*

The public sector plays an important role for both regulation and in the delivery of services directly or indirectly. In this context, it is important to consider transformation, change, and innovation, which are the elements on which the main determinants that influence public management and the administration of economic, social, and political systems are based. This book describes the nature of the problem, its multidimensionality, and the need for original approaches, through the contribution of scholars belonging to different disciplines. This book contains nine chapters in a single section (Public Management and Administration), which, through the different approaches to the subject by the authors, help to explain the issues of the public sector.

Published in London, UK

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