# Curricular Internships:

## Opportunities for Innovation in a Knowledge-based Society

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**Abstract**

In a context where universities are approaching the reality outside the classrooms to produce "useful knowledge", national and international curricular internships are an interesting tool to increase and promote the connection of the learning process with the application to practical cases. In an ideal scenario the benefits are evident for all the interested parties: for the student, as an internship gives a first glance into the professional world; for academia, being exposed to the real world and pushed to adapt the curricula and the teaching methods; and for the host organizations that can access the innovative thoughts developed in the academia. In sum, a curricular internship can activate the circulation of ideas at the core of the knowledge economy we live in, as well as amplify our understanding of how knowledge is produced and how we may tune into this exchange.

### Introduction

The purpose of this work is to provide an initial answer to a problem that we have encountered in our professional experience as coordinators of training internships and instructors of a seminar class for international interns. In the search for contacts and the right matches between students and host organizations, we wondered what was the practical utility of the presence of young students in the workplace, not so much from a pedagogical point of view (and therefore for the student) but as a contribution to "civil society". [1] The ethical responsibility[2] for educational institutions

**1.** We use the term "civil society" in the broader sense of a community of citizens linked by common interests and collective activites towards the better use of shared resources. It includes NGOs, parastatal entities, third sector organizations but also companies interested in the external impact of their private initiatives.

**2.** Forum on Education Abroad (2020).

to contribute value to host cultures (whether they be a location, a school or an organization) is large; yet, it is often preceded by the pedagogical emphasis on value for students at institutional levels.[3]

At the same time, we have been confronted with a series of criticisms that are leveled in the media debate and in scattered conversations that see internships as a further way of exploiting youth work. Free intellectual enquiry, a hallmark of impactful education, mandates careful institutional intervention. In our effort to reconcile these critical components of the curricular internship, the need emerges to deepen the debate and examine this growing phenomenon within the category of analysis and research data at our disposal.

This article is a piece of a larger work in which we are considering curricular internships in the US and in our respective countries (Greece, Italy, and the UK) to offer a comprehensive understanding of practices and global citizenships and how we might foster the latter through curricular design, a careful consideration of stakeholders and how their interactions inform our findings. Although geographical mobility in international education for cultural exchange, internships, and apprenticeships has long been recognized by globalization supporters as a remedy against cultural stereotyping, prejudice, and racism, the discourse of this privileged mobility carries and imposes a series of impactful events,[4] namely the disruption and transformation of the host culture.

To develop these topics, we analyze the implementation of curricular internships in recent years, the number of internships completed, and the type of hosting organizations. Research data from a localized study and from interviews with university administrators, students, academics, and delegates are continuously collected in our everyday work about curricular internships. The interviews aim to capture the perceptions of these privileged actors on the following features: 1) the advantages of adopting community of practice principles among all the players involved, 2) the

**3.** Zemach-Bersin, T., (2007).

**4.** Zemach-Bersin, T., (2007).

main organizational and financial difficulties 3) potential improvements.

The research data presents findings from a community of practice exploring the impact of curricular internships through an action research approach.[5] In this article we will mainly focus on the theoretical debate. The two contributions that we found most relevant to the theme were the Triple (or quadruple)[6] Helix for territorial development and the debate on the fourth mission of the university. Both of these approaches discuss the contribution that the university can make to society in general, without – however – including curricular internships, if not for broad categories. The purpose of this article is, therefore, to investigate the following: 1) whether in theory the curricular internship can fit into the tradition of the triple helix and therefore contribute to create knowledge; 2) what specific characteristics the training internship must have to, theoretically, fulfill this function; 4) policy indications to improve the internships' design and implementation.

As regards the subject of our investigation, we preferred to limit its focus to curricular internships (whether credit bearing or not) that students do as undergraduates (usually in their second, third or fourth year) or when they pursue a Master's Degree. It is believed that these internships still take place in the middle of the training course. Therefore, the following set of beliefs applies: 1) the accompanying role of the academy should still be present, as the trainees return -- with their new experiences -- to the traditional study path; 2) trainees do not have strong recruitment expectations (therefore, they mainly see their internship experience as a

**5.** Using AR, this CoP aimed to offer insight into the evolution of curricular internships. The meetings took place weekly during February 2020 and February 2021 and consisted of 6 members from Higher Education Institutions located in Greece, the UK, the USA and India. The study by Simos, J. will be published in August 2021.

**6.** For a debate on the role of the fourth helix, see. Borkowska K. & Osborne M. (2018). Throughout the text we will continue to mention this tradition, for simplicity, only with its most recurring name, namely that of Triple Helix, based on the classic contribution of economists Henry Etzkowitz and Loet Leydesdorff (1997).

form of training)[7]; 3) internships are usually unpaid, which leads all the parties involved to believe that this kind of relationship should be some kind of educational exchange.

### 1.1 Creating knowledge through the interaction of universities, industries, and the State; the Triple Helix theory

One of the prominent theories highlighting the virtuous interactions that can arise between the academic world and the "real world" is the Triple Helix approach. According to this theory, the collaboration between the State, universities, and businesses (or, more generally, civil society)[8] can become the triple helix that favors the generation, circulation, and application of knowledge, thus stimulating innovation and territorial competitiveness in a knowledge-based economy[9]. The overlap among the fields of intervention and interest of universities, industries, and the State, would serve as the basis for the promotion of knowledge and innovation: that is, it would be the best way to revolutionize some schemes and to foresee new potential productive structures.[10]

This theoretical approach is particularly interesting as it claims to be

7. This is particularly true in contexts where the integration between the university and the business world is not complete, like in Mediterranean Europe. The situation is different in the US, as described later in this article.

**8.** See note 1 above.

**9.** A Knowledge Based Economy is one where the creation, distribution, sharing and use of knowledge become decisive factors for the successful reach of organizational goals, no matter if private, public, business or community oriented. Given the explosion in available information, the rare resource becomes the ability to select and give meaning to relevant data. Knowledge workers are versatile, autonomous and highly skilled and are able to leverage and build knowledge to produce useful action with very strong and analytical skills in order to come up with integrated solutions that meet increasingly complex and differentiated needs. They are flexible and have a high tolerance for ambiguity. As a consequence, a "new" notion of workplace literacy emerges, making the relationship between employers and employees more horizontal. The countries that thrive are those that encourage their people to develop the skills and competencies they need to become better citizens, workers, managers, entrepreneurs and innovators and that encourage economic actors to combine global and local knowledge to accentuate comparative advantage. For a discussion on the role of Governments in promoting knowledge economy, see Ghirmai T. Kefela, (2010).

**10.** D'Alessandro, L., (2016).

the counterpart to Shumpeter's theory of creative destruction.[11] While the latter in the 40s demonstrated how antiquated economic regimes disappear, the triple helix systems outline how new regimes appear through a process of creative reconstruction in which all institutions can participate.[12]

To fully realize this potential, the three actors involved must be equally responsible for conflict resolution and ready to switch roles when one of the actors is weak or its activities are not maximally consistent with the collective purpose.[13]

This involvement is critical because all three of them are direct custodians of the culture of a society that promotes knowledge, innovation, and entrepreneurship.[14] In addition, the three actors -- who interact on an equal basis -- balance and compensate each other in their (opportunistic) interests, thus creating a useful system for the entire community. Through their repeated interactions, the three actors also learn to acquire each other's point of view[15], thus developing a shared culture[16]. An entrepreneurial mentality would then spread, favoring the development of an approach that is favorable to risk, creativity, innovation, and the drive to excel.[17] Mu-

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**11.** Schumpeter, J., (1942).

**12.** Ranga, M. and Etzkowitz, (2013). "By revealing the 'working of the engine', they provide new insights into the process of knowledge-based development that is often considered opaque and hidden, such insights encouraging initiatives and practices that carry the seeds of innovative developments. [...] The Triple Helix systems can help accelerate the transition from the low-risk, low-gain development model that is currently in place in many regions and countries and is conducive to slow, incremental innovation patterns with low economic returns, to a higher-risk, higher-gain development model that could favor more radical innovations and the accelerated creation of new markets, new growth opportunities, new jobs and new skills.'' p. 257.

**13.** Ranga, M. and Etzkowitz, (2013). For example, in the case of an internship, a company that takes on the training role that should be held by the university.

**14.** Matlay, H. and Mitra, J, (2002).

**15.** Viale, R., Etzkowitz, H., (2007) "Universities develop some business capacities as firms increase their academic capabilities, including the ability to share knowledge with each other" p. 7

**16.** Unfortunately, the authors do not give further definition of "shared culture". We will refer to the definition given by E. Katrini (2010): "Sharing culture relates to social networks that grow informally within a region and have as their goal to co-produce, manage and share resources, time, services, knowledge, information, and support based on solidarity rather than economic profit." p. 425.

**17.** Matlay, H. and Mitra, J, (2002).

tual boundaries still exist but are permeable to the point of creating hybrid structures.[18]

Within such a context, relationships are not specifically defined, but remain mobile and flexible instead, sharing in an evolutionary confusion of the borders that divide the three institutions. As a consequence, interactions among the partners increase, although they are not linear. Examples of this type of collaboration are: academic involvement in activities outside the university walls, such as partnerships, formal and informal networks with professionals, collaborative research, consultancy, work camps, but also -- from a more commercial point of view -- the establishment of specialized structures (technology transfer offices, science parks and incubators).[19]

To understand if there is an impact on territorial competitiveness, it is necessary to measure the collective effects of the collaboration, not just the individual ones. This would be the core of the matter. The more the collaboration works, the more there would be circulation of knowledge and innovation, for the benefit of all and not just a narrow minority.[20]

It is precisely this attention to the co-responsibility of all the actors involved that has prompted us to dwell more on this academic tradition than on the one that analyzes the third mission of universities. This approach sees universities no longer as an isolated land of knowledge, but as an economic actor with a direct involvement in social and economic progress. Although perfectly consistent with the first, the theory of the third mission focuses mainly on universities, underlining the need for a change in their organizational structure to serve the system. Instead, the

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**18.** Viale, R., Etzkowitz, H., (2007). The relationship should be circular, although authors who qualify as part of this tradition seem to insist on academia's delivery of innovation to business (e.g., Matlay, H. and Mitra, J, (2002), p . 15). On the contrary, we insist on the circular relationship between the three subjects in the production of innovation, bearing in mind, for example, how innovation takes place in small Italian companies where the innovator is not so much the academic world, but the vendor of machines, the newly hired former employee of a competitor or the specialized subcontractor.

**19.** AA.VV., (2012).

**20.** Singer, S., Peterka, S. (2010).

role/responsibility of the other actors is underrepresented. [21]

The fact that consensus is a fundamental prerequisite in the creation of a virtuous exchange is particularly important for the purposes of this research. In open systems, such as the one in which the triple helix moves,[22] progress can only be obtained if a consensus is achieved that unifies the different actors and if each one of them develops a sense of responsibility for the fate of the entire system.[23] Consensus would come when businesses (or, more generally, civil society), universities, and local governments begin to see themselves as part of a single, larger entity. Reaching this dimension can make a difference between an environment with untapped resources or potential that has not yet emerged and one in which opportunities have been used virtuously for both economic and social development. This theory concretely describes a few tools that can help create consensus. The latter can be described as the perilous path that leads to building trust among all the social actors. It mainly refers to a difficult process of regulatory change that takes hold as disputes are resolved and new and old tasks are reinterpreted in a complementary way.[24]

The thesis of this article is that curricular internships can be one of

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**21.** In particular, the university is attributed "the mission of territorial animation", with universities that climb international rankings thanks to the contribution they are able to give, in a global economy, to local economic and social development. See D'Alessandro, L., (2016). The aim of this tradition is to trigger the virtuous circle "in which the academy is transformed from a cultural entity that consumes the surplus of a society into a productive force that generates new resources" Viale, R., Etzkowitz, H., (2007), p. 21.

**22.** This system is open as it is a social system, that is, a system in which different behaviors of different organizational actors coexist, operating through different trajectories and with different initial conditions. See Von Bertalanffy, L. (1968) quoted in Singer, S., Peterka, S. (2010). In other words, there would be less possibility of tracing cause-effect relationships between the initial and final conditions of the system (as is the case in closed systems). The open system also works on the principle of equifinality, since 1) the same goal can be achieved starting from completely different initial conditions and 2) the initial conditions do not determine the potential to achieve the intended aims. This means that the actors of the triple helix enter into continuous mutual relationships with different attitudes, actions and aspirations that contribute (build) or discourage collaboration. Singer, S., Peterka, S. (2010).

**23.** Singer, S., Peterka, S. (2010)

**24.** Viale, R., Etzkowitz, H., (2007) and Ranga, M. and Etzkowitz, (2013). "This is not an easy process, because setting joint agendas often involves changes of vision, crossing organizational silos, thinking beyond the boundaries of a single institutional sphere, harmonizing institutional and individual objectives, resources, cultures, and so on. […] Individual and collective Organizers […] are key to overcoming institutional inertia ". Ranga, M. and Etzkowitz, (2013), p.256

the tools made available for the creation of consensus.

### 1.2 Curricular internships and the potential benefits for the ecosystem

Indeed, curricular internships can be, in our hypothesis, a concrete example of connection between companies, universities, and government institutions.

First, it should be emphasized that internships are not explicitly discussed within the tradition of the triple helix as a method of promoting innovation, even if they are mentioned by some authors in the description of the tools available to the system. Also, internships are not directly part of the discussion on the third mission and the entrepreneurial university.[25] On the contrary, a literature not immediately attributable to these analytical traditions recognizes internships as useful to businesses, universities and students.

From the student's point of view, which literature primarily focuses on, internships should be able to improve hard and soft skills, help students become a new propulsive workforce, develop relationships with the business community, and introduce them to the practical aspects of what they learn from books.[26] For universities, the main benefit of participating in an internship program is having the opportunity to learn about the key employability skills their students should possess to compete effectively in the job market.[27] Internship programs, then, would help universities to access companies and to be in line with the constant changes taking place in the real world. They would be an opportunity for the teacher who su-

**25.** For example, Matlay, H. and Mitra, J, (2002), p.14, Ranga, M. and Etzkowitz, (2013), p. 245.

**26.** Mgaya K., Mbekomize C., (2014), p.130. Soft skills are defined as "teamwork, relationship building, leadership, human relationships, presentation skills, communication, time management, initiative, enterprise, problem solving and persuasion. Students also improve the use of technologies, the critical ability and the ability to see the big picture." Mgaya K., Mbekomize C., (2014) p. 131-132. Furthermore, other studies show that the academic performance upon returning from an internship experience is generally higher than that of those who have not undertaken the same path. Trainees also get a clearer idea of the world of professions, have more information on which career to pursue, spend less time on job placement, have higher early career wages and higher job satisfaction. See Coco, M . (2000) and Mgaya K., Mbekomize C., (2014).

**27.** Meredith, S., Burkle, M., (2008).

pervises the trainee to identify new areas of research, to manage distant and different conceptual frameworks, and to see both the practical and theoretical implications of their work, in line with the dictates of the third mission.[28] Finally, curricular internships can favor the development of a continuous relationship between academic departments and host organizations, so as to define, improve, and bring innovations in the courses offered to students (i.e., invite experts during lessons, organize practical workshops, etc.).[29] Our findings suggest a further correlation between trans-institutional collaboration for internships and research underlining an added level (or, at least, the potential) of knowledge production through the dynamic exchange between placement providing organizations and the academic institutions.

As our study shows, trainees can be a remarkable opportunity for host companies/organizations. More specifically, trainees can help to achieve the following objectives:

- gain new perspectives and technologies: trainees represent campus emissaries and host organizations can benefit from the knowledge students transfer from their university experiences, using information technology, new ideas and perspectives on how to conduct business;
- attract talent: internship programs are seen as a low-cost and cost-effective means of recruiting potential future employees;
- realize social responsibility by training responsible citizens and future professionals who contribute to the community;
- enhance corporate image by offering internship positions to college students, establishing links with universities, sponsoring certain kinds of university activities or providing guest lecturers;
- define academic paths in line with competitive needs: intern-

**28.** Viale, R., Etzkowitz, H., (2007).

**29.** Meredith, S., Burkle, M., (2008).

ships can be a useful way for companies to be involved in the definition and implementation of academic curricula and programs to prepare a competent workforce.[30]

- Understand the marketability of practice by interacting with student interns (and using them as a means for diversifying staff bodies).
- save on running costs: most students are highly motivated during an internship, work hard, try to impress supervisors, and can be used as low-cost labor to compensate for backlogs. Interns relieve full-time employees of routine tasks, resulting in cost savings for the organization by not having to pay for overtime or use temporary employees.[31]

In the case of international training internships, for civil society there is the benefit of socializing with a different culture and the potential insertion -- through networking -- in international production and distribution networks. For academia, international internships can help to build connections with other universities, to compare the theories studied in different cultural contexts and to understand which factors are fundamental in preparing students in view of an international career. For the students, international internships promote intercultural sensitivity, enhance the ability to work in a more challenging environment, and stimulate curiosity for the big picture (cultural, historical or geographical factors) by understanding how an organization operates.

Interestingly these findings suggest that for the host organizations participating in our study, it is the intercultural exchange that plays a piv-

**30.** Mgaya K. and Mbekomize C., (2014) tested some of these categories in a survey of 150 organizations that hosted interns in Botswana. It emerged that most of the organizations adhered to an internship program for corporate social responsibility and to reduce management costs.

**31.** In our view, this is the least desirable outcome of an internship. Also, in our experience, the time and dedication needed to follow an intern often overcomes the cost savings in terms of free work done by the intern.

otal role in offering organizational opportunities for development.[32]This exchange typically comes in the form of dialogue between individuals of different cultural backgrounds. In the global internship context specifically, collaborations and working relationships are also enhanced in terms of this diversity. According to several organizations, intercultural interaction directly impacted team outcomes, organizational communication and raised cultural awareness, ultimately informing and updating organizational culture in terms of inclusivity.[33]

We therefore believe it is possible to consider training internships as one of the tools available to an ecosystem for the creation and sharing of knowledge and innovation.[34] Internships can induce a virtuous circuit that calls: 1) universities to urgently define learning tools and methods that are consistent with the ongoing change process; 2) companies to include in their products and services the technological and organizational changes suggested by the academia (thanks to the trainees) and 3) the government body (or the offices in charge of the universities) to make the regulatory side ever more coherent and selective in order to favor this circular movement. Furthermore, curricular internships help to strengthen the link between the place where knowledge is produced and its possible use; this is another fundamental element through which the triple helix can promote local competitiveness.

In the case of international curricular internships, then, these would also allow to go beyond the single region to aim – as the reference authors

**32.** One explanation may be the fact that the interns placed in these organizations came from English speaking countries and universities (contrary to the organizational dominant language of Greek and Italian).

**33.** This study by J. Simos (titled "Insight into the evolution of curricular internships") is slated to be published in the December issue of the MDPI journal.

**34.** By innovation we mean, following the debate on the subject, the ability to successfully transform an idea or knowledge into new products, processes, services or organizational forms. The innovations on which an intern can act are: the use of new technologies; new relationships or new ways of managing the relationship with customers / suppliers; new information or new ways of managing information; improved products and managerial methods; evolving or revolutionizing organizational forms; improved market penetration or presentation of the product / service. See Matlay, H. and Mitra, J, (2002).

of the triple helix tradition prescribe – at a multi-regional collaboration. The latter is a key factor in creating a 'critical mass' of human and financial resources for broader spectrum projects. It would then be a kind of innovation finally released from national dynamics and much more in line with the dynamics of regionalization and globalization of the knowledge economy.[35]

However, we have seen that one of the prerequisites for the triple helix mechanism to work is that there be a basic consensus and trust between the players involved. The research, as expressly recognized by the founders of this tradition, has not yet clearly outlined what the mechanisms for creating consensus may be. One of the hypotheses of this work is that internships can become one of those ways in which -- in contexts where the interaction between the three actors is not yet consolidated -- trust and consensus are created through a progressive experimentation of relationships that can lead to long-lasting relationships. That is, they would be useful, for the reasons previously identified, to start a gradual change of vision, sharing and harmonization of organizational objectives. Internships can be a tool to break organizational inertia; thanks to subsequent interactions, they can build trust between the key players in economic development, thus serving as harbingers of new and more important cooperation projects for the creation of knowledge and innovation. But is all this possible in any condition, or is there a need for specific application features for this tool to perform its full potential?

### 1.3 The conditions to succeed

Discussing the need for consensus, Ranga and Etzkowitz, (2013) argue that "this result can be accelerated by top-down and bottom-up initiatives that not only need a supportive environment but also specific policy measures that know how to integrate innovation and entrepreneurship with the broader socio-economic context, and especially with research,

**35.** Ranga, M. and Etzkowitz, (2013).

education, the labor market and development policies."[36]

Indeed, the functions described cannot be carried out in any context and the three actors involved (universities, students, and civil society) should put in place specific practices to realize the advantages promised by the theory. This is also true considering that most research on the subject has been carried out in the Anglo-Saxon context, in industrialized countries with a large industrial base and where there is a significant public/private investment on training/work alternation.[37] Our localized study includes findings emerging from our experiences constructing the landscape for internships in two localized contexts with little to no formal investment in the curricular internship, thus establishing our roles as dynamic in this evolution.

In the United States, for example, there is a long tradition of academic promotion of the interaction between theory and practice. As a consequence, internships are a very widespread reality and companies are directly active in the research and promotion of internships.[38] The public is not very involved, and the universities (private or almost private) have developed an efficient and well-established support system (with dedicated, experienced staff) that is based on continuous relationships with the various partners. The company generally plays an active role in trainee research, often being the promoter of collaboration with the universities. Consequently, a real competition has developed among companies in search of the best talents, who can potentially be the best hires of tomorrow. This competition begins earlier and earlier, reaching

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**36.** Ranga, M. e Etzkowitz, (2013), p. 256.

**37.** Furthermore, the tradition of the triple helix is mainly based on an evolutionary approach, in which the Anglo-Saxon model represents, as always, the reference model.

**38.** NACE reports that, from the mid-1980s to the mid-2000s, the ranks of graduates who participated in at least one internship rose from 10 percent to 80 percent. At the same time, those who manage to get their first full-time job thanks to an internship have risen from 5 to 30 percent; see Coco, M. (2000). As per international internships, "over 260,000 American students studied abroad in 2007/2008, representing an increase of four times the number of study abroad students in 1987/1988" and "When including students who did not receive credit for these experiences (ndr. Abroad internships) in the equation, it has been estimated that the number is closer to 50,000 Americans participating in international internships annually" Malerich J., (2009), pp. 3-4.

up to the first year of university.[39]

Notwithstanding that, our years of teaching and working with US universities, the interviews, and a search of the media coverage on the topic all show that there have been many criticisms[40], up to the point of defining these experiences as "internships to nowhere". In addition to that, it is often underlined that there are no national guidelines regulating this tool, in terms of number of working hours/acquired credits, kind of host organizations, direct link between educational needs and tasks at work. This makes the system highly variable and does not clarify the expectations that students may have with respect to the proportion of hours worked / training credits attributed. For international internships, the regulatory system is even more vague, and many complain about the difficulties to measure the results and the advantages for the students, the companies, and the universities, except for a general higher awareness of the intercultural environments.

Similar criticisms can be raised in other socio-economic contexts, like Mediterranean Europe,[41] where the two authors of this article are from. Here, in addition to a lack of national (or European) regulations, most internships are mainly managed administratively. In particular, it is revealed that there are no guidelines on the correspondence of hours / type of training internship and on the characteristics of the host organizations. Furthermore, a *posteriori* evaluation of the results of the experience

**39.** Cummings, R. & Tataman W. S., (2007). The authors underlined that this can be defined as a free enterprise system or an employer-driven model. Conversely the student driven model is a model where students are given the opportunity of picking an internship employer among many employers, with a much higher involvement of the University by setting guidelines on student and employer expectations.

**40.** For example, Perlin R., (2012) for USA Today. Perlin is also the author of *Intern Nation: How to Earn Nothing and Learn Little in the Brave New Economy*.

**41.** As per Italy, there is no official data on curricular internships, as universities are not obliged to communicate curricular internships carried out by their students to public bodies. The only information available on a national basis is that provided by the Almalaurea inter-university consortium to which 91% of Italian universities belong. Before a recent reform to promote curricular internships (2000), the students who carried out internships recognized by their course of study did not exceed 20%. In 2006 they were 43.7%, while starting from 2010, this share has grown continuously to stabilize on values close to 57%. Almalaurea (2017).

is not a rule. As for companies, they do not see or perceive the role of the university in what young people can do, also because they do not have direct relationships with the university tutor either during the definition of the role, throughout the internship, or at its conclusion. The training project that the company tutor must present at the beginning of the experience and the final report are mostly regarded as bureaucratic documents. For companies, trainees (even if graduates) are "juniors"; as such, they can only learn.[42]

Indeed, South European companies and institutions have an organizational culture that is different from that prevailing in the Anglo-Saxon context. A medium-small structure, limited propensity for innovation, the scarce habit of considering universities as a place where innovation can be created, and the idea (typical of small companies) that entrepreneurship cannot be a learned behavior are all factors that limit the ability of the company to make the most of the internship experience. Furthermore, an organizational culture much more based on the transmission of knowledge in a practical, tacit,[43] experiential, informal and idiosyncratic rather than codified way[44] would make our context less close to that in which the theory of the triple helix was developed (that is, the Anglo-Saxon one).

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**42.** The only positive exception, both in the assessments of companies and of academic and administrative staff, are the curricular internships carried out as part of the degree thesis. During these experiences, companies seem to derive much more from the student and there are stories of fruitful interaction between the professors and the host organizations, which then turned into ongoing relationships. The reasons for the greater success of these experiences are listed the older age of the trainees, their greater theoretical knowledge, but above all the presence of a university professor who guides the student throughout his/her experience toward the production of a final paper, which is often presented to the host institution.

**43.** By tacit knowledge we mean uncoded knowledge, i.e. not contained in texts or manuals, not managed through structured communication flows; a knowledge that exists in the heads of individuals, which arises from work experience and which – as such – is connected to the ability to understand the contexts of action, intuitions, and sensations that can hardly be understood by those who do not share this experience.

**44.** Which is typical – according to Viale, R., Etzkowitz, H., (2007) – of the first part of the industrial revolution. Knowledge was therefore less easy to protect. On the contrary, in the third industrial revolution, knowledge became mainly codified, theoretical, formal and communicable.

### 1.4 Best practices

Based on experiences in different cultural contexts and having had the possibility to observe successful curricular internship programs, in the following paragraphs we will introduce some practices that should be put in place to realize the benefits prescribed by theory. These practices, according to the authors, should be more and more institutionalized to make the most of curricular internships and their international versions.

A good internship program begins a few months before the actual internship takes place, with a series of mandatory meetings that help students prepare their CV, search for companies, make appointments for interviews, and agree on reimbursements or payment. Undergraduate university students (both juniors and seniors, coming from different universities and disciplines) are put in contact with qualified companies. The latter are selected based on the previous experiences of other trainees and on consistency between the educational objectives of each student and the roles to be covered. Students are interviewed from selected companies and matches are created based on student and business rankings, business needs and student skills. The onus to match students to organization falls to the program provider. Our study confirms that a thorough process combined with active consideration and contact with placement opportunities can offer a fruitful experience for each stakeholder.

In addition, students who join the program must take a seminar class that helps them integrate their internship experience and academic background. During the course, the student participates in small group discussions with other trainees and has to present a small research at the end of the course to describe the results of the specific project to interested colleagues and community members. Finally, students must submit a report comparing their expectations and opinions before starting the internship with their actual experience. In addition, students participate in mid-term interviews first and then focus groups at the end of the internship, in order to have the opportunity to articulate and identify their goals, challenges, perspectives, and opportunities for growth. In this way students reflect on the internship and make sense of their experience. This

is particularly true of international curricular internships, where there is the need to introduce the students to a different cultural environment.

Students must also evaluate the entire path, from the selection process (preparing for the interview, the interview, the classification of the company, the whole experience), to the transition from the training path to the internship position (which will be shared with future interns), and the learning experience during actual work. This process allows students to assess their abilities and, at the same time, evaluate the changes that can be made in the internship project for future students.[45] At this stage, students will also have to declare if they have been offered a full-time position after graduation.[46] Likewise, companies too have to do their own evaluation, evaluating whether or not the students met their expectations,[47] as well as the effectiveness of the internship program, the selection and interview process, and the academic role in the implementation of the process itself.[48]

Also, our localized study presents insights into how this potentially mutually beneficial experience can be recognized as such and gain greater investment of time and consideration by hosting internship organizations. Several characteristics emerge in our identification of placement providers who are willing to collaborate in establishing robust outlines to

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**45.** Cummings, R.& Tataman W. S., (2007)

**46.** The authors reported that in the internship program of spring 2007, 71% of the interns stated that they received an offer of full-time employment form their internship employers and were leaning toward accepting the position. Cummings, R.& Tataman W. S., (2007)

**47.** The employers, too, assess the students and are asked if the student interns have met or exceeded their expectations (following eight criteria: Accounting Knowledge/Technical Skills, Computer Knowledge/Technical Skills, Oral Communication Skills, Written Communication Skills, Ability To Work Well With Others, Dependability, Organizational Skills, General Business Knowledge). It is interesting to note that the results of the employers' evaluations for spring 2007 stated that interns exceeded employer expectations in all categories except written communication skills. This is taken as a clear indication of what to improve in the university career. Cummings, R.& Tataman W. S., (2007).

**48.** To this end, the employer is asked to comment on the following sentences: the Career Services Office is organized and helpful in scheduling Students for interviews; students are well-prepared for the interviews; the on-campus interview process met your needs; the matching process is an efficient method for placement of interns; the communication with the Internship Director is sufficient to meet our needs. See Cummings, R. & Tataman W. S., (2007). A particularly interesting case is the Interns for Indiana program, a government project openly aimed at promoting regional economic development by supporting companies that are in their early stages of development.

encourage an enhanced, vivid work experience for interns:

Enhancing institutional relationships through collaboration: In most cases, organizations willing to develop actionable memorandums of collaboration and to refer to these in practice during an internship placement had already realized the benefits of a long term association with our educational organization. This included collective research projects, access to archives and library resources and – in some cases – an exchange of classes[49].

English speaking, international companies or NGOs tended to embrace intern development with greater ease. However, they offered less support during the introductory period in comparison to family type organizations that ultimately entailed a greater involvement for interns.[50]

## Conclusions

In a society increasingly worried by the trend towards deregulation – in the presence of increasingly all-encompassing competitive strategies, which eat up the individual –[51] the possibility of carrying out an internship is a very controversial issue. Some observers fear that the university's involvement with organizations and businesses could shift researchers' interests and priorities towards more practical and applicative issues, in favor of commercial projects and at the expense of the long-term benefits of basic science. The linear Mertonian model of science-technology-innovation, in which science is independent and separated from its practical purpose, would be called into question with dangerous consequences on

**49.** An exchange of lectures can be a simple way of keeping this exchange dynamic. Also, it can serve as a significant contribution from the host organizations.

**50.** These differences can be attributed to the specific workplace cultures and their dominant practices; for instance, a multinational fast pace and developmental route embedded within practice compared to a welcoming smaller family business that may include a familial, more supportive environment for individuals.

**51.** "These Silicon Valley leaders propose a society in which personal freedoms are near absolute and government regulations wither away, where bold entrepreneurs amass billions of dollars from their innovations and the rest of us struggle in a hypercompetitive market without unions, government regulations, or social welfare programs to protect us." See Financial Times 1.

the production capacity of a universal science.[52] The third mission would distance the university from educational objectives with uncertain and undesirable outcomes, serving the market and unbridled neoliberalism, thus creating a "McUniversity".[53] In this type of approach, curricular internships would be nothing more than a further example of the transformation of knowledge into "marketable products": free workforce for businesses that eat profits.

Etzkowitz and Leydesdorff (founding fathers of the triple helix approach) instead believe that the best interaction model among university-business-governmental bodies would be the original format of science before its institutionalization in the 19th century. In that model relations are spontaneous and not regulated / bound by the state.[54] In it, the scientist is not separated from society and science serves collective interests. The Mertonian model, therefore, would be an unnatural construct, which was justified by the need to give autonomy to science when the latter was still a fragile institution and had to protect itself from political intrusiveness.[55] Today, however, we are witnessing a return to the natural interaction between the three actors involved with incubators, laboratories, internships, and university patents becoming an integral part of the pedagogical modalities not only to improve the employability of students

**52.** "The theoretical resistances are linked not only to the always fascinating echo of the idealist heritage, but also to the concern, only partially ideological, of subservience to the market". See D'Alessandro, L., (2016), p. 85.

**53.** Hayes, Wynyard (2002) cited in Riviezzo, A. and Napolitano, M. R, (2015).

**54.** Model 2 "consists of separate institutional spheres with defined boundaries that interact in a very detailed way" Etzkowitz, H., Leydesdorff, L. (2000), p. 111.

**55.** Merton, according to the authors, wrote in 1942 when there was a need to protect "pure science" from the corruption of the Nazi doctrine of the racial base of science and the Lysenko attack via genetics in the Soviet Union. Etzkowitz, H., Leydesdorff, L. (2000), p. 116. The article also underlines how the university cannot be compared in its ability to produce knowledge and innovation to any other institution and in its leadership in knowledge. A consultancy firm, for example, "brings together widely dispersed personnel for individual projects and then disperses them again after a project is carried out by satisfying a specific client's problem. Organizations like these lack the organizational ability to pursue cumulative research (...). The unique comparative advantage of the university is that it combines the continuity and memory of previous research with new people and new ideas, through the passage of generations of students ". P. 118.

but also to promote economic and social development.[56]

So, some would hold, today there are no dangers to protect science from. But is this true? What about the exploitation we are witnessing? In our opinion, and on the basis of the readings made and the interviews carried out, the possibility of doing a training internship (both well-regulated and accompanied) represents a potential solution to this ideological controversy, provided that it is adequately constructed. The hypothesis of this work is that the benefits for the three players involved can only occur when internships are followed by a well-identified training path and when there is a strong connection with the academy upstream and downstream of the experience. On the contrary, internships would contribute to the competitiveness of companies in a limited way and would not contribute at all to that of the territory when used as a replacement for other paid workforce and when there is no deep connection with the university system. Even considering the best experiences of the US model, the internship cannot be considered a pure administrative matter. There is a need for the active involvement of teachers and specialized skills.

That is, the importance of a well-done training project is felt, in which attention is focused on expectations, on the real availability of time, on motivations, on training needs, on work ambitions, on the life path that one wants to take. This leads us to understand the context, the sector, the project, and professional imagination in a lasting, personal, intimate (not occasional) relationship between teacher and trainee, in a personal space shared with the university tutor, where one can establish a reflec-

**56.** The scientist will become like the goddess Kali, specialized in different aspects and with arms in the theoretical and practical to solve problems. See Viale, R., Etzkowitz, H., (2005). According to this prediction, experiential learning will increasingly become part of academic methods.

tive space that lasts before, during and after the internship experience.[57]

The same attention, however, should be reserved for accompanying host companies, especially considering that in cultural contexts not immediately related to the Anglo-Saxon model, production fabric does not have a long-term vision or management strategies close to those identified by the tradition of the triple helix. From the selection to the construction of the role to be covered by the student in the company (also based on previous experiences and an ex-post evaluation), a database should be built where to collect data on the reliability of the structure in terms of local positive impact, effectiveness, quality of the projects carried out, and congruence with the students' training needs. Companies should consider the trainee not as a junior worker, but as a link with the university system. Universities, in turn, should see internships as an important opportunity to better serve pedagogical and research objectives. Furthermore, those who define development policies should establish guidelines and train skills capable of guiding both partners during the design, implementation, and final evaluation of internships.[58]

This article, therefore, aims to demonstrate how training internships can turn out to be an expensive and complex path. Only under certain conditions and with a different investment approach (and greater awareness) on the part of universities and companies can they become excellent opportunities for the benefit of all.

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**57.** For a description of the importance of the training project and the "responsibility of university teaching" in its formulation, see Lozupone, L., (2011). "The certification of skills takes place through the internship report. (...) In most cases, as in the educational sciences class, it becomes an integral part of the thesis work. The report is not simply a logbook in which the student tells how the experience went, what he/she did, how he/she felt. In the internship report, the student must demonstrate knowledge of the structure, its organization, vision and mission, on which legal provisions it is based, which funding does it benefit from, must then explain the training project, its conditions, in what consisted, how it took place: this reflection on experience constitutes junction with the theory: it is not enough for the student to try to clarify the theoretical presuppositions of his action, looking for the appropriate bibliography: what you want is a passage from indeterminacy to specificity, to the use of appropriate concepts to express what has been done, avoiding easy stereotypes and clichés ". Lozupone, E., (2011). According to this author, independent internships should be reserved for students with a Master's Degree.

**58.** AA.VV., (2012).

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