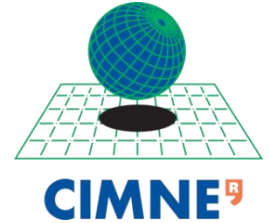




UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH



INDUSTRIAL TRAINING REPORT

Accenture Industry X.0 Internship

Author: Cristina García Albela
Internship External Tutor: Cristina Dai Shang

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Why this internship?

As a mechanical engineer there are thousands of possibilities between one can choose to start his professional life once the degree is finished. This fact is seen as a major advantaged, comparing with other degrees that completely limit their field of application, but from my personal experience this open and great big group of professional attitudes that nowadays an engineer achieve, has always confused me.

Since the degree first-year, we touch different subjects and topics, from the basics as Algebra or Physics to high level specific subjects as Finite Elements, Fluid Mechanics, Industrial Organization or Economy. Depending not only in the subject content, but also in the teacher method and character, we start to choose those topics that catch our attention, closing a beat the circle inside which we want to develop our future professional career. As it is clear in my case, I found my motivation working together with the professors of Fluid Mechanics department, where I discovered Finite Elements, CFD and many other tools that allows me to “represent real life inside a computer”. It was such a good experience that I have decided to make a move to a quite “small” topic, know as Computational Mechanics, starting this Master to continue with my personal training.

Along this academic year, I have discovered that this “small” and relatively new area offer to us such a lot of different opportunities. Looking to my master teachers as well as to most of my classmates, it appears that people use to stay inside academic world, in research and investigation, some of them doing a PhD and keeping connect to the university in one or another way. I really respect and admire them, but if I have had something clear along all my university life is that I would like to work in international companies in which I can apply my knowledge, working in a team where every member contribute their grand of sand to handle projects successfully, seeing how my work turns into something useful and appreciated for the society, developing in this way not only my theoretical knowledge but also my outgoing personality. The problem is that when we finished our studies, we have no idea about how to do it. We are not teaching about how to find a job, how to make and interview or how companies really work. Thus, I have decided to look during several weeks for a big international company to do my internship, sending CV and making calls to have the opportunity of make and interview. I had more difficulties here in Barcelona, to find a company in which my knowledge was directly applied, and even more difficult to find an opportunity in my dreamed work inside a motorsport team company. It was not easy for us, since we offer to the companies limited work-hours that must be combined with our master lesson. So, when I finally achieve the opportunity of work in Accenture, specialist in technological consulting, aware of how important is for my future dreamed jobs to have previous experience in the world market, I took it and star a new chapter in my professional life.

From the beginning, thanks to some collages that work in similar business, I knew that possibly it would not be job of my life, but I will help me to achieve my objectives in the future. Moreover, I have found such a good team to which I'm completely grateful to have worked. So, I consider this new experience as another step to have all the tools and knowledge needed to in the future can fight with possibilities for that job that make me happy.

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1. Work environment

During almost five months I have been part of Accenture Industry X.0 Barcelona team, one of the newest groups of the company, consist of qualifying engineering profiles that this company has create to meet the new necessities of people and market. Industry X.0 goes hand in hand with the rapid, exponential and perpetual change that today's society lives, adapting the present world to the digital transformation in both, things we make and how we make them. Industry X.0 Spain team is still a small workforce that started two years ago. It is growing, looking to cover all the digital industry aspects, from machine and manufacturing knowledge to Internet of Things, Artificial Intelligence, 3D printing, Computer Science or Big Data.

I have work in a team of nine people in which there are different roles, from the Senior Manager, the one in the top here in Barcelona, to Analysts, those that have been less time in the company. This could seem a beat hierarchic or old-fashioned and, in the office, there is an atmosphere in which anyone thinks itself superior, but it is truth that people in the company really appreciate their position, that represents the years as well as the good work done along them. I usually work with consultants (as my tutor) and analysts, since team and senior managers used to do other kinds or work, more like catch new clients, go to meetings and supervise and organize all the task of the team.

Another point that I can highlight is the fact that almost each week we have meetings, talks or demos related with new technologies and its applications. That was interesting, not only because of the new concepts that you learn, but also due to the kind of people that comes to explain it to you usually CEOs of expensing companies or chief engineers. This makes more interesting come to work and allows you to meet people and make contacts with companies that could be an option in he future.

About the office itself, Accenture is a good example of the new work-spaces idea. One only open space per floor, with several glass walls meeting rooms, all of them with screens, laptop connections and walls in which one can write, make schemes during a meeting and reflect the main ideas. Space to hall a call, coffee room and places to have a small break before going to work again. All the team is placed in two big tables, with no obstacles between them, which make it easy to have good communication and work better together. During my internship, I have been sitting together with them, as I have been involved in different projects helping all the team groups, it was such a good experience to me to be able to talk in any moment with any of them without moving from my workstation. Moreover, as usually a project involves people from other departments, this office makes it easy work closely with all of them, just going to their table or booking a meeting room together.

In general, the atmosphere in my floor is good. We are together teams of Industry, mainly engineers, Analytics that are more related with financial and Digital, related to computer science, programming and software developing. It I true that at the beginning, being used to study in libraries where silence is the principal characteristic or alone at home, it was quite difficult to be focus in my own work, hearing all the colleges conversations at the same time. It is like all of them have develop the ability to just pay attention to their own voice and conversation, but they assured me that at the beginning it is always complicate to get used to it.

In summery the atmosphere of Accenture Barcelona is new, fresh, mainly young and international. With open spaces, technology everywhere and people that work together day by day.

2. My work in Accenture

Inside any team, each member has more experience or prefers to work in a kind of project. There are projects that involve more technology, computer science or programming whereas others deal with the work that comes before a new app is created or a new technology starts to run in a factory or plant. Another important part of the work, to which we are not training in the university is how to sell your idea to a client, how to create a value proposition or how to generate the needed content to send a client a project or idea.

Along my internship, I have work inside all the projects the team is working in. From make presentations and power point documents, to create content and code to new apps, I have developed quite different roles in several different projects.

2.1 1st WEEK - ACCENTURE TRAINING

Any person that starts at Accenture, independently of its initial role, must do and pass a group of online courses that make up the initial training. They go from security in the web, since we work with sensitive and confidential information, to how to use the different tools that the company offers to its staff. Inside a company like Accenture all the computers are configured for the owner and you need permissions for anything you want to modify on it, for send emails outside the “circle of trust” or for download some software you could need, so at the end it is needed to have an idea to how deal with all this internal procedures and how to deal with them.

During my first week, I had passed all these courses starting to get in touch with the way of working and the different tools that I have access to.

2.2 INTERNAL PROJECT - APPLIED INTELLIGENCE & INDUSTRY X.0

In this business, it is not only a question of have the best workforce, you have to be able to sell it to any company that could be a client. It is important to have all your information well structured, from the staff training and experience to all the company background inside the different industry categories. One should be ready to respond quickly with general but well-selected information, to catch potential costumers and achieve as many agreements as possible.

One of my first tasks was to elaborate a document that could be shared with all those potential clients. In this way, I can achieve a general idea of my team, of what they have done and what they could do, what kind of project have been developed until the moment and to where they want to go. It is important to recognise the key words, the capabilities, and the way to structure offers, ideas, workforce to achieve a clear, attractive presentation.

In this way, I make an idea for myself about what kind of projects and possibilities I could have if in the future I decide to work in this business, as well as what pieces and professional profiles this new way of working, always hand in hand to technologies and innovation needs.

2.3 ENEL - CONNECTED WORKER

This project deals with one of the newest concepts that is gaining importance inside industrial companies, the “connected worker”. The digital revolution is transforming the industrial workplace, using smart devices and intelligent sensors, companies can digitally connect with workers on-site, providing them with timely, rich media to assist them in their work. Accenture “connected worker”

wants to provide an array of support for the industrial workers, from supported task execution, the integration of virtual assistants and AI to provide detailed advice on demand. Moreover, the companies can, through these new technologies, closely monitor workforce safety and support workers to diagnose and easier repair faulty equipment in real time.

The aim of this project is to introduce the connected worker in Enel, a multinational energy company and one of the leading integrated electricity and gas operators. Accenture connected worker looks to meet the company main needs: unexpected specific risks, bad identification of the incidents in the site, lack of user-friendly tools or inadequate systems to transmit multimedia info in real time. Accenture solutions will give new values as safety, better service, lower cost, O&M efficiency increase, or the reduction of time dedicated to unproductive activates, among other things.

Enel work in 34 countries, being the project intended to Spain and Italy power plants, starting with a pilot programme in Besos power plant (Cataluña) to later extended it to 27 power plants along the two countries. The idea was to design, programme and built an app that makes workers life easier after recognising the needs, transform them in a platform in which the communications, the individual and general task, and the main information were easy to reach and operate. From create an alert of a leak, indicating the exact point in the plant map or introduce notes with important information to control the power generated or the weather in the plant when a worker must work outside. To make this possible, a team has been created inside Accenture, mixing people from different fields: computer scientist, programmers, engineers, SAP specialist.... In this way all the points are covered.

In this project, we work with three main tools: the app itself, JIRA platform and HANA SAP platform. JIRA is the place where the communication between all the members of the team are established (Spain and Italy members), where the tasks are published as well as the progress or the corrections and it is use as data base for all the information of the involved power plants. On the other hand, HANA (a platform that comes from Accenture and SAP collaboration) is the place where all that information is introduced shaped like code, to be able to use it inside the app. Using the appropriate code patterns, information from staff names and ID to geographical positions are dumped into the data base.

About my work, first I had to understand the app's logic to later be able to work inside it. To do it, I worked trying to find "BUGS", how they call the app mistakes due to programmers' errors. Using JIRA we checked what the programmers have done and test it, giving them background about the results and validating the new updates. It is important to check that all the updates and testing is done working with secondary codes, not the main one, that just can be modified once the update is validated. To do this, we work just with Besos power plant, being the next step to extend it to the others. Once the app structure was almost ready and after a "class" of how to work with HANA, I started to create the codes to introduce the information inside the platform for all the plants. In that way, the workers themselves could start using it and find mistakes or suggest updates that can improve the performance of the new tool.

It was very interesting to learn to code in this kind of platforms. Being used to work with Matlab or C++, this kind of codes follow a different logic and one error is not as easy to solve, would mean remove all the work done and start from the beginning again. It has been such a good experience to introduce myself in these code environments, widely-used in any technological company and that could mean a strong point in my favour in the future, during my job searching.

2.4 SEAT

One of the main partners of Accenture Barcelona is SEAT. As it is known, SEAT base is established in Martorell (Cataluña) and it makes deals with Accenture to run different kinds of projects, advertising and marketing, financial services, improve customers' experience or develop industrial improvements in plants among other things.

I have the opportunity to work mainly in two projects. Remark the fact that in this project the relationship between the client and Accenture is close, what means that they "can" ask you anything at any time and be more intense than other clients with the schedule, the constant small modifications in the projects or new approaches that means big changes in our work.

SEAT - eMii

My first project with SEAT was to create, together with the design department, the web to launch one of the new SEAT 100% electric cars, the eMii model. I work together with my tutor defining the web functionalities and supervising how they are reflecting in the design.

This small, smart and thought for the city car, is the last SEAT electric car launch before the company start to sell its last electrical disclosure, a 4x4 model, totally electric that will be the strong bet of the SEAT to compete in the market with the other potential brands. The importance of this projects remains in the fact that the information obtained from the web, like client's opinions and reviews, how they surf in the web or how they use or not use the tools, will be used to define and launch the project to sell the big model, the one that will be electric flagship of the company.

SEAT - CUPRA

CUPRA is the high standing brand of SEAT. New and focus to catch the eye of those that love cars and driving, CUPRA decided to follow the market tendency of pass from just sell cars to offers services and experiences to its clients. Its first movement to start "CUPRA world" will be to sell accessories, for the car as for the clients themselves through a new Aftersales Webshop.

In this project, I was involved in the work make after the web was designed and not before it. The idea was to define the web flows as well as all the functionalities that users could find using the web, so that the programmers were able to develop the web easier and correctly. This involves constant changes in the initial design each time we find that something that could be improved and redefined, trying to reach a more attractive web, that not cause headache to users.

Both these projects involve me to work in such a different way to I'm used to. As engineers, we have such a schematic view that in this case was very useful but not enough. We had to be more imaginative, think about all the possibilities and realise about the impact that change the word "GO" for "NEXT" can make from the point of view of sales and pleasure of the clients. We made more brainstorming, more talks and more comparatives, we check the potential competitors' webs, that nowadays are succeeding in the automation market (as Tesla) to compare and obtain in our project the best results. It was a different project, but very interesting for me, as I had no idea before of how the process to launch a new web was and how many workforce and time is needed to do it.

2.5 IDNEO PARTNERSHIP - NEW PRODUCTS AND SERVICES

This year Accenture has signed a partnership with IDNEO, a Spanish global company in strategic design and an engineering that helps its clients to transform their business through the technology.

The aim of this union is to join the strongest points of each company to offer to potential clients a complete service that move its business to the new technological world, solving each of its necessities through the resources and new ways to do things. Together we have industry knowledge with proven succeed cases (in auto, life science, energy, transport...), business vision to ensure a correct definition and implementation, capacities to lead digital transformation ideation, design, development, industrialization and operation of services through the existing and future technologies that enable the creation of services and the capabilities needed to execute projects (cloud, digital and analytic platforms, computer vision...).

The idea is focusing on transforming companies from just sell products to offer services, and to those that already offer services to offer the option of “connected services” to its clients, obtaining in both case an increase on their revenues after a quite big investment, that previously would be validated through pilot test.

To start running together, the first point was to find what of the new things that has been done in the global market recently could be implemented here in Spain. This involves an exercise of research through the competitors’ lasts launches and technological gambblings that make easier people life. A large variety of options appears, most of them just available in the EEUU thanks to Amazon, that is betting hard on the connected product, offering services of self-supply or automatic-supply to its clients under Amazon Prime or specific subscriptions, thanks to its partnerships with connected containers, coffee machines, printers or even fridges. Another good example of this kind of change is HP, that launched a service of auto-replenishment under subscription to solve one of the most common problem in any home, run out of ink when you urgently need it. This could seem quite easy, but the many things are behind every small innovation. Starting from the sensors structure, deciding which type and how many are needed and its costs, it could result that the idea is physically impossible. Once the sensors part is defined, where they are going to send the information? Here enters the part of Data Capture and processing, being enough with the already developed platforms or having to design new structures that will match better with the project. Moreover, typically this data is used to make clients preferences analysis and adapt advertisements or offers to them, thus analytics force is needed too. Finally, to be able to start and adapt these kinds of services in Spain, where usually the companies have less workforce and facilities, it is essential define some minimums needed to start running the project.

It takes longer to define what of the new technologies, from intelligent fridges to containers that ask for your dogs’ food automatically, could be introducing in Spain commerce with our last resources. Once a good number of cases where selected, it was the moment to adapt the idea to our possible clients, mainly to those that already have done some project with Accenture, being easier to sell them the idea. These are the firsts steps to a project with high ambitions, that looks not only new ways to create revenues, but also create a strong ally with IDNEO and catch new clients, becoming Accenture the header company in the change to the new technological word.

2.6 DIGITAL WOKRFORCE - CONNECTED WORKER IN INDUSTRY

Along my two last weeks, I was involved in a new project call “Digital Workforce Iberia”. The aim is to start running a team inside Accenture that would manage all the projects related with the connected worker inside industry, one of the most relevant changes that the digital era is introducing in the sector.

We start exploring which technologies will be the ones with which we go to our clients to sell them the idea, choosing different options that will be suitable for all the necessities and budgets. From

Artificial Intelligence with 3D or 2D virtual glasses to mobile or table apps, that will make workforce daily job easier and safer. At the same time to better assess our potential clients, we develop surveys with specify questions, around the digital knowledge and implementation in the company to have all the needed information and guess with the individual propose.

This was a slow and sometimes a bit exasperating process as we completely depend on external people responses. It is quite difficult to achieve that all the clients pay attention to you when you want, with the result that your timetables and your limit dates must change more than once. The idea was to run this project in September, so I have not a lot of time to work on it, but it was quite interesting to be in the process of start a project from scratch, working closer to the managers and being able to ask them all my doubts.

3. Final comments

I have passed five months inside Accenture Industry X.0 Barcelona Team, doing an internship trying to discover what this kind of business offers to us, the new generations of engineers. It has been a pleasure to work in such a good team, where everyone helps me and treat me as colleague, trying to show the best of their work but at the same time the bad points that exists, and usually we don't know, and they don't tell you when you apply to a job or pass an interview.

It is true, that this kind of technological consultancy companies must work hard to be able to introduce more profiles like mine, but they are working hard to transform the idea that other companies have about them and the services traditionally they provide. They want to make a huge expansion in the technological sector, moving from consultancy to those that really develop the projects, expanded its team with other kinds of profiles.

In general, this internship has fulfilled my expectative, giving my more information of what kind of job I will find when I finish my master next year. The good points were not only the different projects in which I worked, it was the people, each of them with a different background that listen to what do you think you want in the future and give you some advices. Be day by day in a real work environment, where timelines meaning lose profits, where if a meet is at 16h you can't pretend to be there at 16.30h, the feel of having pressure and know that the incorrect movement or decision from you can signifies lose a big client and the confidence of the others. Moreover the opportunity to develop my social skills, learn how to deal with people and move them to where you want, all this things are what I really want to obtain from my industrial placement.

I really appreciate the opportunity that Accenture gave to me and recommend others in my same situation to do the same. To try new things outside the student world and work hard to be able to combine both, that sometimes is no easy with the university schedules, because this gave you an extra formation in real life, that I think we can't learn anywhere else.