

# Information Technology and Marketing: Implications in the educational and labor gap

## Tecnologías de la Información y Marketing: Implicancias en la brecha educativa y laboral

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#### ABSTRACT:

The academic gap between marketing professionals and information technology (IT) is conceptually assessed. Both disciplines have rapidly evolved and created a dependency between them. IT is offering sophisticated tools to "marketers" who have been taken by surprise and a lot of them have fallen into obsolescence. There is a shortage of talent to face this opportunity, thereby generating a crisis that few want to accept and be responsible for. The objective of this article is to entrust each individual with the opportunity to balance this difference with the educational alternatives that have arrived. The Massive Open Online Courses (MOOC) are nowadays an important tool to replace or complement the traditional education and calm the thirst for learning of the marketing professionals.

**Keywords:** Information Technology, marketing professionals, educational alternatives, educational gap

#### RESUMEN:

La brecha académica entre los profesionales de marketing y de tecnología de la información (TI) se evalúa conceptualmente. Ambas disciplinas han evolucionado rápidamente y han creado una dependencia entre ellas. La TI ofrece herramientas sofisticadas a los "mercadólogos" que han sido tomados por sorpresa y muchos de ellos han caído en la obsolescencia. Hay una escasez de talento para enfrentar esta oportunidad, generando una crisis que pocos quieren aceptar y ser responsables. El objetivo de la investigación es confiar a cada individuo la oportunidad de equilibrar este desfase con las alternativas educativas que han arribado. Los Cursos Abiertos Masivos en Línea (MOOC), son hoy en día una herramienta importante para reemplazar o complementar la educación tradicional y calmar así la sed de aprendizaje de los profesionales del marketing.

**Palabras clave:** Tecnología de la Información, profesionales de marketing, alternativas educativas, brecha educativa

## 1. Introduction

Although it is suggested that educational institutions offering workshops, seminars, courses, graduate diplomas, higher education degrees, and postgraduate marketing studies are keeping up with Information Technology (IT) progress and they are appropriately integrating them into their educational plans, the truth is that IT changes faster and it is playing a leading role in the Marketing world. This time gap dramatically reduces the competitiveness of many professionals and hence, the competitiveness of their own companies. There is an asymmetry between IT and Marketing in the occupational, professional, economic, and social environments.

For that reason, the objective of this study is to show alternatives that may help marketing professionals to be updated for the labor market. They may replace or complement the traditional education, meeting with some advantages like the distance, schedule, and cost problems that the students use to have when taking classroom learning.

The present investigation is organized as follows. First it introduces the power of information technology (IT) as a valuable tool for the marketing professionals. Then it shows the importance of the use of big data for marketers. As a result, it develops the relationship between IT and Marketing. The study highlights the talent shortage that exists for the labor demand of updated professionals. Finally, it reveals a solution through real-time learning and presents the conclusions of this investigation.

## 2. Methodology

This is a descriptive study, which identifies two concepts and the gap existing between them. Content analysis using secondary data was conducted to identify the impact on education and labor. Likewise, as a case study, the Peruvian situation is analyzed.

## 3. Literature review

### 3.1. The Power of Information Technology

Marketing professionals are currently going through a professional challenge due to new information technologies (IT). In previous years, the variety of channels for obtaining data and the systems needed to measure, analyze, and convert it into valuable information were unknown. Internet, social networks, mobile devices, etc., produce large amounts of data every day and they are valuable tools for the marketing professional, but only if he/she knows how to obtain, structure, and use that information. With new technologies, many marketing professionals feel they are not ready to use them appropriately in their companies.

According to Stuart (2013), over sixty percent of survey respondents indicated that their marketing teams do not have the necessary talent for the job position in order to analyze and make the most of data. In addition to leaders, who are analytically able to understand the potential of large data and where to apply it, organizations need data scientists capable of extracting an interesting viewpoint from data and technologists capable of building and incorporating new technologies. The demand for high analytical expertise talent far exceeds the supply, consequently, modernization or specialization is currently needed to actually make the most of IT benefits.

### 3.2. Big Data Situation

According to Bill Sullivan (cited in Ward, 2014), we've seen the emergence of some companies and the disappearance of others. The figures are shown in cold, hard facts: seventy-percent of companies that made it to Fortune 1000 list about 10 years ago do not exist now. "Today, it is more than a particular moment of inspiration; it is about being able to change the game to the speed of the customer's expectations. Therefore, it is not just "what" defines winners and losers; it is the "how". It is how to make the most of all available big data in the world, and to use that to provide an appropriate personalized experience".

One of the many reasons for this high percentage of companies that do not exist anymore might be attributed to not being focused on the customer and a slow reaction to what he/she wanted, but ten years ago all this technological movement was arising. We now have the tools to know what is needed in real time, but we are just beginning to understand how to capitalize these data. Amazon Web Services (AWS), launched in 2006, created a market that today dominates the hourly computing power leasing and data storage per gigabyte. Many of its first customers were "startup" companies and today its list includes Fortune 500 companies and the US government. All computing is changing the cloud. In the future, few companies will want to own their own data centers.

Despite this evidence, a large sector of society and business are reluctant to accept the dominance of networks as an important part of commercial trade and society. It is true that in countries like for example Peru, social changes do not occur as quickly as in other developing countries, but that gap is decreasing more. Also, if the current government economic forecasts are maintained, we will soon enter into the technology global cycle. From the Marketing side, there are also detractors of the digital world; they cling to theories of marketing founders. However, at this moment it would be an unsustainable intellectual intransigence failing to understand that the online world will not be the commercial panacea for the future of Marketing. The question to be posed is uncomfortable but necessary: if 90%/95% of the time the consumer lives offline and only 5%/10% lives online, which of these "sectors" of Marketing should prevail for any business strategy? Is it the outdated and Paleolithic detractors' proposal?

It is known that people still spend more time doing other activities than surfing online, but what does the consumer value more when making a purchase decision? The billboard the consumer saw on the busy street or the recommendation sent through Twitter which let him see beyond a one way media? What matters are not how much time you devote to a form of advertising, but which are the media that are being naturally integrated in our day to day without being intrusive and still useful. It is known that data analysis in marketing is not new, but is even more important to realize that the nature and volume of data available has increased and changed dramatically in recent years. Most of the data available today is unstructured. We have emails, videos, tweets, Facebook comments, audios, etc. all very different from the traditional data stored in traditional databases. The challenge today is to have the ability to analyze unstructured data and IT can offer powerful computing systems in order to provide useful insights in real time. The more sophisticated firms can be in this process, the bigger the chances of better understanding consumers and thus provide not only fast responses, but also fast solutions to marketing problems and opportunities.

As more detail about consumer behavior becomes available to marketers, the need for judgment and ethical principles will have to guide businesses as they make decisions about how to use the data. Otherwise, brands will lose customer's trust and will infringe privacy issues. We could say that there is a "black box" component which could question the ethics and values of using the information big data can produce. The bottom line is that this new data analysis must help to ethically improve the execution of marketing programs. As a result of the increased need for digital marketing, companies will need professionals in data analysis and computer sciences. Big data is not a fad. It is here to stay and marketers must be well prepared and have technical skills. Universities must build an understanding of data analysis for marketing and IT students. Today there is a shortage of marketing professionals having the talent to leverage big data.

### 3.3. IT- Marketing Relationship

There is no doubt of development parallelism between IT and Marketing. A strong mutual growth and a shared benefit had not been seen before since the beginning of dot-coms and the Internet bubble economy. It is arguable if technologies are evolving to Marketing or if Marketing is the real driving force for the development of technology. However, what is clear is that companies compel to individualize customers' information and to know their motivations, desires, and needs long before they know them, and this is part of Marketing. Indeed, significant statistics of the relation between Marketing and IT are provided in the study of Vásquez (2013), which indicates that marketing, sales, and specialized digital devices are increasingly the "owners" of technology: they own a third of the digital projects and they are led by the marketing department. Another forty-two percent are managed jointly by IT and marketing.

Nowadays in innovative companies, Marketing departments spend more on IT than any other department. The projects are managed along with IT but they are driven by the Marketing department's needs. This close relationship, with leading technologists or team work, requires a different skill. Clarity and accuracy has decreased between marketing and information technology (IT) during the era of digital marketing. For this reason, both areas of management should have a good communication.

The emergence of big data represents a high percentage of the technological marketing budget. However, marketing and IT departments do not necessarily concur with big data strategies. According to a study carried out by Accenture, "forty percent of marketing executives believe that IT does not understand the urgent importance of integrating new data types to compete better in the market" (CIO Perú, 2014). On the other hand, the IT area also complains that the marketing department constantly changes its priorities and needs. Clearly, there is an element of misunderstanding of each other's main concerns, and difficulty in putting in place a common roadmap.

Despite all the above, it is critical for marketing and IT departments to speak the same language in order to analyze big data effectively. Marketing is driving the car, but IT has the necessary gasoline. Additionally, IT obtains and analyzes the data, while the marketing department knows how to use the data to make decisions in the company. In fact, companies have a myriad of data that could allow changing the marketing department, but transforming data into knowledge is difficult. Customer's data and predictive analytics are needed in order to meet the client's needs, or even to be able to do cross selling. The big problem is that many companies place technology before the problem that is intended to be solved. Marketing managers need to focus on the questions that need answering and the decisions they want to make by using big data analysis. Otherwise, the IT department only adds and stores available data. They can get massive data of customers. However, not all the information is necessarily useful to the marketing department, the idea is to concentrate only on quality information that can be transformed into sales. IT must become a technology consultant that helps to meet the needs of the marketing department. Maybe IT can even anticipate the needs of the marketing department, so it must be committed to the marketing area in order to understand what they are trying to do to generate revenue, reduce costs, and improve the customer satisfaction.

For its part, the marketing department should clarify to IT how "big data" helps to better understand the customer and his behavior. IT is in the game of holding on to information and protecting it, while marketing wants everyone to have access to information. IT needs to understand the business context and the importance of identifying opportunities so as to make quick changes of strategy, as a result of the timely analysis of data. At the end of the day, marketing and IT departments must share the success. It is clear that any achievement of the marketing area would not have been possible without the help of IT.

For them to be effective, both managers should meet regularly to understand the requirements of marketing analysis and to suggest practical solutions. Both departments should make sure that customer needs come first. According to Yates (cited in Saran, 2011), Chief Marketing Officers (CMOs) must be masters of technology and Chief Information Officers (CIOs) need to understand the customer. Nevertheless, marketing and IT are not going to agree at all times. As in any relationship, any dispute should end in a well-informed negotiation. For example, the marketing manager must share with the IT manager the business cost for delayed data. To sum up, both managers must speak the same language and follow the same path. This requires the application of computing, mathematics, and models that can be understood, for example, if the competition is having some influence on our customers or on how customers perceive a new product. Innovation in the business must be built on a solid partnership, with shared goals and metrics, a common business language, and deep collaboration, as stated by Yates (cited in Saran, 2011).

On the other hand, the consequences of not understanding how to use these new tools and sources of information can have a negative impact on the company's growth. The customer's orientation, as the center of everything and its role in the current digital environment, becomes more valuable for companies that have realized that staying close to them will keep them alive. It is not only to understand how the new system works, but to understand how the symbiosis between the company and the brand is developed under this new environment and how both can be benefited if the company acts as quickly as IT tools, in order to meet their demands in a timely manner.

### 3.4. Talent shortage

The lack of educational coincidence between IT and Marketing primarily affects the latter professionals because they are in the middle of the interaction between brands and society. However, the rest of professionals are also suffering the effects of a social and economic behavior which

is heading towards technological globalization. Few graduates of different disciplines are keeping pace with the digital and behavioral evolution of society and it is increasingly evident that talent is scarce worldwide. According to ManpowerGroup (2013), educational methods are not the only cause of the employment gap. Changing demographics is the simplest answer and it is definitely a critical factor. Stationary salaries, supply and demand, public policy failure in education systems, and the complete unavailability of changing the way a company is structured are also contributing factors to the worldwide shortage of talent.

The global economic crisis of 2008 completely changed the occupational, economic, political and social environments. Project investments stopped due to the uncertainty generated by this situation, but investment in technological development never stopped. This is perhaps one of the causes of occupational imbalance and the current education gap.

Furthermore, educational institutions should be aware of what happens to their graduates, not only in Marketing but in different disciplines. Maybe educational institutions want to protect their prestige, one of the pillars for maintaining their image, and this does not let them accept part of the responsibility for the shortage of talent that exists worldwide. Universities and institutes must recognize their leading role in the knowledge era and structure a flexible training plan that goes in parallel to what is now required and what will be required by the employer in the future. According to a survey of employers, students and educators carried out by Mourshed, Farrell and Barton (2012), only one of these three groups believe that young people today are adequately prepared for the job market. Only 42% of employers agree that this is correct, while 45% of young people think they are properly prepared. The only positive thing is that there is some alignment between the perceptions of employers and their young collaborators. However, the responsible people for training the future workforce worldwide have a completely different perspective. Almost three-fourths of educational institutions consider that their graduates are qualified for a job. This mismatch of perceptions has a high price for both young people and employers, who must rely on a talented workforce in order to stay ahead of the competition (ManpowerGroup, 2013). In the same way, professors overestimate students' training, which difficult their rapid interconnection in the labor market. Educational institutions are in debt to society which continues to count on them to educate the future men and women.

At the speed that knowledge is generated, new skills are added to the workforce professional profiles leaving millions of people behind. While students are trained for 3-5 years, new specific Marketing and Technology job profiles are emerging at the same time, such as: Social Networks manager, User Experience designers, Big Data architects, Cloud Service specialists, Digital Marketing specialists, etc., jobs that, according to Murphy (2014), did not exist in 2008 and now they are important occupations for the competitiveness of several companies. Weiner (2014) stated that there are four million jobs available in the United States, according to the Labor Department. This figure is the highest in the last five years and, what is so interesting about this is that there are over 20 million unemployed or underemployed people in this country, that are marginally attached to the workforce and desperately looking for a job, and yet the number of available jobs continues to climb. Why? Because there is a growing gap between the skills added to the workforce and the opportunities that exist today. We have to start training people for future jobs and not for the jobs that once were.

Meanwhile, professionals continue graduating from traditional careers with skills that were once useful, but nowadays they need to be complemented with technical and analytical skills in order to meet the needs of companies that survived the latest economic crises. Companies have learned that constant innovation and close relationship with the client kept them into the competition. It is essential to understand that innovation is not only physical or systematic, but also professional.

### **3.5. The Peruvian Reality: Unsatisfied Demand and Excess Supply**

Many marketing professionals in Peru fail to see beyond what their mentors can see and what their employers may require, so they have not enhanced their IT skills. This is leaving unfilled jobs within the companies or job positions with high staff turnover because employers can't find the skills they look for in today's marketer. This can be evidenced with the data presented in the Belaunde and Fosca (2013) study: "In Peru, there is a demand of 21,450 communications professionals and an offer of 17,750; there is an unmet gap of 3,700 professionals". How can it be explained that there is no such number of applicants to fill these positions? Perhaps this demand is due to the technological increase experienced in recent years. The same study indicated that the high level of demand could be explained by the increased use of digital technologies by companies in order to improve their relationship with the public, as well as by the importance that social networks have gained. This would similarly explain why most of the demand is concentrated in Lima, the city where the business cluster is located (Belaunde and Fosca, 2013).

On the other hand, studies carried out by public and private organizations have considered Marketing as one of the 10 most demanded professional careers in Peru, according to Trabajando.com (2015). Even in the "Study Orientation Guide 2014" developed by the Secretaría Nacional de la Juventud (2014), Marketing is included on the list of professional careers with more future work prospects, and, as suggested by this public organization, this career shall be prioritized by students in the 25 regions of Peru. Similarly, IT is within the most required skills in 2015.

According to Cruz (2015), in conformity with Forbes magazine, companies in the US and Europe will seek primarily to recruit staff with skills related to the Internet industry. When performing a ranking of the most popular jobs in both markets this year, the Product Manager was identified as the top leader in a company or organization. It is expected that experts in programming, e-commerce, and online marketing may also migrate to these markets easily.

With all this demand for marketing professionals and people with Internet skills in different countries, it seems that the profession would be the best paid in the market, but this is far from the truth. Computrabajo, one of the most used job search engines in Peru, reported an average of 12,800 Marketing/Sales jobs, from which 82% are below a monthly salary of PEN 1,500 (USD 480). Underemployment and trades that do not correspond to the job seeker's career, where they do not to apply or practice what they learned, is one of the causes of obsolescence and little progress in their skills.

In a way, this shows that in Peru, the lack of training on new technologies is generating also an employment gap. Companies, in some way, are leaving the job position vacant or in the hands of professionals who are not contributing to competitiveness due to their lack of technological expertise. For that reason, to update in complementary specialization studies, a solution presented in the next section, is a good way to begin to reduce the mentioned job gaps.

### **3.6. Real-time Learning and Implementation**

Marketing graduates have to take into account that information doubles every two years, according to EMC (2011), and also that half of what they learned in their first year of study became obsolete in their third year (Fisch, 2007). An update of what they have learned and an adjustment to reality of what is and will be useful when graduating should be considered. In this regard, a survey carried out by Mercadeando S.A. (2014) revealed that almost half of the active marketing professionals have college or technical studies, but only 15 out of 100 have post-graduate degrees and/or specializations. This would show a relatively wide sector for further academic development of this discipline.

Nowadays, to deepen a discipline involves more than enrolling in a traditional method of learning. There are different ways of updating knowledge, from self-learning and individual non structured research each one performs to learn about a subject, to the Massive Open Online Courses (MOOCs), which are a new academic movement that is revolutionizing the traditional learning system and, somehow, it is synchronizing learning and application times.

MOOCs could become the most important tool to, in some cases, replace or complement traditional education. They solve the problem of going to a place (distance), setting a schedule (time) and, most of all, it is affordable. It's like taking classes within the world's largest and updated library and when you want to answer any questions, you just open a new window and have the answer in real time, and according to the level that you need. Concerning this, The Economist (2014) mentioned: "Whereas online courses can quickly adjust their content and delivery mechanisms, universities are up against serious cost and efficiency problems [...]". We then find a new educational method with more flexible reactions, which is faster when executing changes, and it can keep track of technological development because of its low cost of implementation. It is definitely an option to enhance skills up to desired degree and when you need them.



## 4. Conclusions

Undoubtedly, information technologies are part of our social, professional, labor and economic environments. It is a milestone in the history that is accelerating the way we interact with companies and with ourselves. The Marketing profession gathers knowledge of human sciences such as anthropology, psychology and sociology, and now it is also increasingly immersed in technology which is a necessary tool to better understand human behavior, to enter into the day-to-day life, and to understand consumers’ needs at the right time. Both are developed almost in parallel, but very few privileged professionals are making the most of this relationship and many others are falling behind. Meanwhile, graduated professionals continue to cling to educational methods that, for centuries, were the most recommended way to success.

Marketing and IT have nowadays a dependency between them because of the important tools that may be used by the professionals to keep updated. Both of its departments shall work together to manage and analyze big data in a better way. The need of digital marketing requires also technical skills, which in the case of Peru, there is still a lack of marketing professionals with that kind of specialization studies.

The companies, the government, and especially educational institutions shall solve the scarce talent and labor gap problems that the rapidly evolving technologies are causing. MOOCs are a rational and responsiveness halo to stabilize the global crisis of talent shortage and, luckily, some universities committed to society with a humanistic history are taking the risk of including this revolutionary form of education in their educational methods. It must be noted that MOOCs are a form of structured self-learning that depends on each person’s individual efforts and their thirst for learning. In the future, this thirst is the only way capable of synchronizing the evolution of technologies with Marketing and other professional sectors.

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