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Title: Exploring best practices for employee engagement in a retail company located in Ecuador supported by Machine Learning Algorithms.

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Abstract

The objective of this thesis is to understand how to decrease the turnover rates of a group of independent salespeople, who work for a retail organization located in Ecuador, South America. In order to do so, the author of this document has used Action Research and Machine Learning Algorithms to learn about the organization's engagement levels. As a result, this research document has identified several engagement factors related to employee's capabilities, skills and attitudes, which should be addressed by any organization that is having turnover issues.

1. Introduction

1.1 Purpose statement

The purpose of this document is to understand how to decrease the turnover of independent salespeople and to develop more effective employee engagement practices.

1.2 Context

The organization studied in this document is in the retail industry, located in Ecuador, South America. I am the business owner and general manager of this organization. We sell shoes, clothing, accessories and fashionable goods. To provide some context, we have been in business since the year 2005. Back then, we used to sell goods primarily to wholesale distributors in the country. Nevertheless, competition began to appear, which gave these wholesalers more provider options. Most of these new providers, tried to get into the market by lowering their prices. This was a difficult time for us (people working for my organization and myself), because our margins were getting narrower. Moreover, wholesalers started to ask for longer credit terms, which affected our cash flows. Therefore, our organization had to look for new options in order to remain competitive in the market. After a careful review of the situation, our administrative staff and I realized that the goods sold by our organization, were being sold at the same price to the final consumers by the wholesalers. In other words, wholesaler margins were increasing by buying products at lower prices and selling them at the same. So, we questioned ourselves about our main customers and how much sense it made to continue working in the same way that we used to. We had to find some kind of option where we could skip the wholesalers and somehow reach the final consumers directly. In 2005, the country's inflation rates were getting stabilized at 2.41% after huge spikes that reached 96.09% in 2000 - – Ecuadorian Inflation Consumer Prices Figure 1. This may encourage consumers to purchase goods more often, as their prices would not vary significantly. These conditions are usually favorable for organizations. That is, existence of product demand. However, we were facing fierce competition.
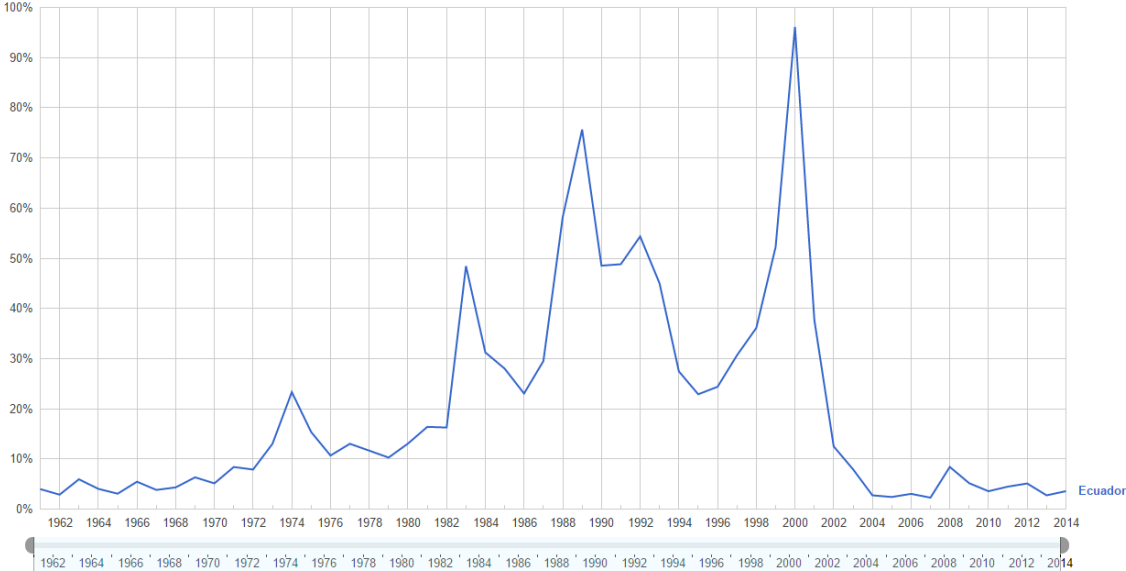

Figure 1 – Ecuadorian Inflation Consumer Prices (World Bank, 2016)

In terms of the political context, Ecuador has had many presidents that have not been able to complete their tenure. Back in 2005, the ex-president Lucio Gutierrez, was trying to reach an agreement with the United States in order to establish a Fair-Trade Agreement (International View Point, 2005). This caused uncertainty in the Ecuadorian population, as the negotiations terms were unclear. On one hand, the United States could start selling their goods in Ecuador, without having to pay additional taxes to enter their products to the country. This could have harmed us, by giving consumers more product options or substitutes. Product prices can be affected in markets that have more providers. Yet, our industry could have benefited by the agreement if American organizations were willing to work with us. In other words, use our existing infrastructure. However, this uncertainty and social class favoritism forced Gutierrez to resign. The Fair-Trade Agreement was not signed and Ecuador continued doing business with the United States as usually. In the global context, more Ecuadorian organizations started to do business with China (Camara Comercio de Guayaquil, 2010). Ecuadorians realized that China had become the world's product factory. Small organizations wanted to purchase goods from China, but some were reluctant to do so, because of distrust. This was seen as an opportunity by other Ecuadorian organizations that opened their offices in China. Their goal was to ensure orders were fulfilled properly (Asiam, 2014). This in turn, brought more Chinese products to Ecuador for providers that needed to sell them fast. Many organizations were competing by lowering their prices and expecting product sales volume to generate enough profit.

Therefore, in 2010 our organization created a new one, which would have its own brand and structure. Some key position and employees were kept between organizations. The main idea was to ship our goods from our distributors located in China to final consumers worldwide. All of this would be done through the internet. So, this new venture was put in place. We had to learn about internet sales and consumer behavior on the internet. This last is a diverse field. In fact, we learned about Neuromarketing and different parts of the brain. For instance, the old brain seeks for individual survival. It is scanning the environment in order to find treats. Also, the mid brain is the part in charge of processing emotions or impulses to purchase a product. Finally, the cortex or new brain processes reading, listening to music, speech, planning as well as analytical thoughts. Nevertheless, the mid and old brain are not under our conscious control (Renvoise & Morin, 2007). In other words, our unconsciousness is faster than our consciousness. Consequently, our marketing strategies on the internet had to put these finding into practice. To illustrate this point, we can refer to the social validation reaction (Forbes, 2015). This refers to imitate what the group has done, because the individual doesn't know what to do on his own. In retail websites, this is done through reviews and rating systems. It is a powerful tool at a non-conscious level. Let's say a new visitor to the website is not sure to purchase a certain product. If the product has some kind of reliable rating system, this can encourage the visitor to purchase a product. Nowadays, this can be done by having product reviews or testimonials not only on the organizations website, but also using YouTube or any other social network. Another strategy that we used had to do with persuading the sense of obligation. This can be understood as someone returning a favor. Those that received the favor tend to somehow feel indebted with the other party. In fact, this is a sense of reciprocity. Therefore, websites apply this by giving something away for free. In our case, all orders include free shipping worldwide, regardless of the purchase amount. We can do this because of the existing mail subsidies in China (Fortune, 2015). This is a key factor in our strategy, as shipping a couple of shoes from China is about $3 USD (including a tracking number). Whereas, doing the same from USA, can cost many times more. Therefore, we could easily share these benefits with our customers and not affect our margins. Although,

costs were low, we learned that the product delivery time varied a lot. Our suppliers in China, offered us to deliver the products in 15 days, but this was far from the truth. Actually, product delivery time ranged from 30 to 60 days, which did affect our initial reputation. Another strategy that we use is to create product scarcity. As our databases are connected to our suppliers, we can show how many products remain available. It was quite surprising to see that some visitors make up their minds and decide to purchase the product, if they see that only a few of them are available. We also learned about the downsides of giving customers too many options to choose from. What usually happens in these situations, is that visitors have to take their time in order to pick an item. This makes product rotation go slower. To address this situation, we only offered certain items during certain days. To summarize, this new division in the organization was an unexplored area with plenty of business opportunities and growth.

When we launched this website, we also realized that there are different kinds of visitors. Some more savvies than others. About ten years ago, internet sales in Ecuador was not a common practice. Most visitors were reluctant to purchase goods online, because they were afraid of being cheated (Pachano, 2013). These visitors preferred to go to a physical store or talk to someone on the phone. Moreover, other visitors were amazed to see our prices, as they are lower than many established stores in the country. They couldn't believe that our products could be sold at those prices. Consequently, we had to put more people to work answering phone calls, which could lead to future sales. We also included video tutorials on the website, because some visitors didn't read the instructions. This helped our organization to increase our sales on a monthly basis. As this business was a new organizational learning experience, we tried as much as possible to understand customer purchase behavior. While analyzing repeating purchases, we realized that a small group of individuals were buying our goods many times during a month. This could hardly be explained as personal consumption. Instead, they were probably reselling our products to someone else. At this point, we realized that our organization was presented a new business opportunity. We could actually work with these customers, who were reselling our products and support them. So, we created the independent salespeople initiative. We sent them an email, asking them if they were interested in becoming part of this initiative. In exchange, we would provide them better discounts. Fortunately, many existing customers did show interest and became independent salespeople (ISP). At that time, our organizations sales levels started to grow even faster. Also, we were able to reach not only customers in Ecuador, but also: Colombia, Peru and Spain. It is quite easy to become an ISP, as the initial investment is under $200 USD. Furthermore, this investment can be used to purchase goods, which can be considered as an ethical practice (Carrigan & Attalla, 2001). However, people that became part of our independent salesperson's initiative, did not have formal sales experience or training. This was more of a part time job or an additional source of income.

As in many organizations, we also started facing turnover with independent salespeople since the year 2012. Its causes and rates are explained later in this document. We personally consider turnover to be huge problem, as excessive turnover can harm us badly and affect our organizational growth. Therefore, this document is focused on getting better understanding of this issue and learning how to predict it. This will allow our organization, as well as others to reduce this problem and try to keep their human talent.

1.3   Organizational turnover

Employees leaving an organization is a serious problem. Not only for the organization itself, but also for these individuals as well as the society. Organizations are directly impacted by the cost of recruiting,

training until the new individual can get up to speed. Also, there are indirect costs. Therefore, managers should be able to understand, analyze and take action to reduce this organizational issue. This is an old problem that has great importance in the organizations future (Bernasek, 2001). Turnover can take place in all industries. For instance, some Chinese organizations have this issue with their sales people and have found some causes, which are linked to emotional exhaustion and the lack of motivation (Rutherford, et al., 2012). In fact, many direct selling African organizations usually have significant turnover rates (Msweli-Mbanga, 2004). Moreover, according to research done in eighty industries, salesperson's turnover is likely to happen when there are perceptions of injustice with these individuals (Roberts, et al., 1999).

Retention management is a permanent task for plenty of organizations. The importance of this problem has been addressed since 1990s and will continue being relevant in forthcoming generations. Moreover, slow economic times can also be complicated to find competent employees (Dell & Hickey, 2002).

Retention is a topic that has become a popular theme in many books and academic articles. It is common to find research or analysis in magazines; such as, Forbes, Fortune or Business Week. Many books explain how organizations compete for talent as well as suggested solutions to keep them (Forbes, 2015). Seminars and workshops are commonly conducted on the topic of turnover and retention (American Association of Advertising Agencies, 2015). Furthermore, concepts of the employer of choice have been increasing. Individuals are seeking to work for the most attractive employers (Universum, 2015). Companies are pushing themselves to become these best companies to work for. There are several rankings from different research firms that are trying to identify these organizations (Levering & Moskowitz, 1993). So, many organizations are trying to include themselves in these magazines. Meanwhile, others are trying to improve their standards to be included.

To become an employer of choice, it involves getting the best human talent from other organizations. While keeping employees motivated, improving performance, developing their skills, keeping them loyal, all in order to keep employee retention levels in acceptable percentages (Fitz-enz, 2000). However, acceptable retention percentages vary from one industry to another. For instance, in the UK the average retention rate is 15% a year (Monster, 2015). Meanwhile, in the USA it is about 30% a year (BLS, 2016). Therefore, acceptable retention rates can be set by those measuring this indicator.

Even though, many managers know about the problems that come with turnover. We can consider the following as being the most harmful for organizations in general. For example, a high financial cost. Employees that leave an organization create a significant impact in their financials due to indirect and direct costs. It is important to put these aspects in numbers, so that managers can understand or visualize the real costs. Also, organization's performance can be inhibited by increasing turnover rates (Dell & Hickey, 2002). New employees take time to learn and adapt to their new jobs. So, organizations can lose their competitiveness by not having individuals with the right critical skills. Additionally, employees that leave an organization sometimes go through litigation processes, which will require more resources from the organization; such as, time and legal advice. This may also happen when employees decide to leave voluntarily. There are also work interruptions and productivity decreases. For instance, employees that quit without notice are likely to leave a productivity gap. In other words, the position is left empty. This not only affects the position that was abandoned, but also other individuals of the same group. This can happen because their workload may increase. Another aspect that is affected by turnover is service quality. Some organizations are permanently trying to provide great service to their internal and external customers. Nevertheless, high turnover rates impacts customer service quality regardless of the position

(Phillips, 2002). There are some industries that are more knowledge specific than others. For instance, software development organizations can be affected by senior developers leaving them. Because, they have detailed knowledge of specific projects. In fact, their knowledge has been accumulated throughout the project. Sometimes, these projects have taken several years to be completed. Similar situations may take place, when there are a few professionals that have specific knowledge, which is vital for their organizations. In these cases, turnover of employees with specialized critical skills, can affect a bigger area and these replacements can take longer to fulfill. Organizations may also lose many business opportunities by not having the right individual to take advantage of it. Future or existing contracts can be affected by the same issue. There is also more administrative work, because of employees leaving an organization, as more time is spent addressing and confronting the problem. Instead, this precious time could be used form more productive activities. Moreover, internal team communication can be affected by not having the communicator member in it. This is critical to keep a productive environment. Turnover also affects team members as they have to cope with increased workloads (University of Missouri, 2015). Finally, high turnover rates affect the organizations image in a negative way. Once this happens, it is complicated to change the organizations image in the job market.

Turnover also has negative impacts on individuals. Specially, if the employee has decided to leave due to problems that should have been addressed in advance. For instance, employees can lose their benefits or in some cases their seniority. In some organizations, benefits are connected to the employees' tenure. Therefore, having to start in a new job would reset their benefits. In some situations, changing jobs can produce additional stress for the individual. Also, individuals that leave a job without an immediate new job are likely to have financial setbacks. These individuals can lose the emotional support network, as their friends remain in their former organization. Sometimes, individuals are forced to relocate due to the lack of options in their current location. Relocation brings in a new cost, which may not be covered by the hiring organization. Rather, they become personal expenses with lots of effort and time consumption (Rothe, et al., 2015). To close, individuals can have career issues, because of their departure, as it might be difficult to explain the reasons to a future organization.

1.4   Underlying causes for retention difficulties

There are many changes in the external and internal environment of organizations. Unfortunately, these changes may not fade away in the future. To illustrate this point, we can refer to economic grow that is correlated to new jobs. For instance, countries that are growing economically, may face more employees leaving their current organizations for better ones. Also, countries that have low unemployment rates may have more turnover as more jobs are vacant (Bolch, 2001). This situation can be more complicated by acknowledging sort supply of special skilled workers. This last involves, engineers, high-tech specialists, doctors or scientists (Schweyer, 2004). Specially, where employment opening has outpaced supply. This may also happen when several organizations are trying to fill in a certain position. In the case of this study, many retailers trying to persuade salespeople to work for them. Another factor is entrepreneurship, as individuals that leave an organization to start up their own; have actually taken their knowledge with them. Sometimes, these new businesses provide the same or better services as their former employers (The Economist, 2001). Furthermore, turnover can be caused by more favorable climates. In these cases, countries that have jobs in cities, where weather conditions are hard to tolerate, may have their employees abandon them to locations with better weather (Nektar, 2015). Nevertheless, this last may

not affect some internet based businesses. Unless salespeople located in cities with harsh weather conditions, decide to purchase goods through the internet and resell them to their own customers, which may require to be visited in person.

There are also internal causes that promote employees to leave an organization. For instance, lack of organizational loyalty. Many studies have shown that loyalty has been decreasing. In some cases, it doesn't exist at all (Capelli, 1999). There used to be a sense of pride to be able to work for the same organization over the years. Also, employees used to appreciate their work and do everything in their hands to remain in it for many years. Nevertheless, studies are continuing showing loyalty to decline, but at the same time, employees would like their organizations to give them the chance to remain in them for extended time periods (Cole, 2000). In some cases, employees are seeking for challenging work. They want to be part of creative, useful and challenging projects. Their jobs become their identity. Many want to use their minds in order to make great contributions. If this cannot be done in their current workplace, they are likely to look for somewhere else. Likewise, employees are getting used to have more work flexibility as well as autonomy. This allows them to control and organize their work. Consequently, this need is being offered by some organizations to bring in new talent. Moreover, some employees are looking for reward systems that recognize their individual performance and contributions. If management does not recognize employee's achievement, this may cause employees to look for an organization that provides better or fair conditions. On the other hand, employees are not only looking for monetary recognition, but also for the work that they have done. Furthermore, there are some organizations that have a set package of benefits. However, not all employees want the same package. In some cases, employees would like to learn more skills. Therefore, these individuals are expecting organizations to invest more in their preparation and development. Sometimes, new skills are not enough. Instead, these individuals are looking for career advancement opportunities within the same organization. This advancement can be done laterally or upwards. Nevertheless, the lack of career growth opportunities can promote turnover. Also, organizational reputation is a strong factor to keep employees within it. Organizations with positive reputation make their employees to be admired. Yet, the opposite is not good for anyone. Competitive salaries are another factor for turnover. Some organizations cannot keep up with the increasing living costs. This affects their employee's purchasing power. Some employees look for work environments that are supportive and caring. If these employees have an unappreciative boss or a conflictive environment, they will probably move on to somewhere else. There are other individuals that appreciate balance between their personal lives and work. Some of them want time for social and family activities (Clark, 2000).

1.5   Measuring turnover

In order to measure turnover, it is important to define it clearly. Some organizations, consider turnover to be terminations and resignations; due to poor work performance. However, there are others that make categories of involuntary or voluntary resignation. Furthermore, there are other cases; such as, disabilities, death or retirement that might not be included in the calculation. In some situations, it might be useful to include: age, sex, regions, personal characteristics or divisions as categories (Ulrich, 1997). In the case of our organization, turnover is defined as employees that have quit their jobs formally or informally. Formal turnover can be understood as employee leaving the organization, but communicating

previously their desire to quit. Meanwhile, informal turnover are those employees that have left the organization without any notice.

Despite turnover being a single indicator, which is measured yearly or monthly. It can be used for benchmark targets. For instance, turnover can be compared within a certain industry. This can help organizations to compare themselves against each other. Nevertheless, this would require industries to show their management information. In many cases, this is unlikely as some organizations do not like to share their data. In the case of Ecuador, there are no legal requirements for private organizations to provide this information to the public. Neither exists any central repositories for this necessity. On the other hand, public Ecuadorian organizations have shown themselves more transparent. These places show lots of administrative information, but not necessarily their turnover rates (Technical Secretary of Transparency, 2015). Another way, for organizations to benchmark their turnover is to compare their current results to those of a previous period. This is useful when there are no industry benchmarks available. Historical results can provide organizations insights to their trends. They can also help managers set new goals for the future.

In the case of the organization of this study, turnover is calculated on a monthly basis. Also, it is separated by relevant departments with subdivisions when necessary. For instance, the sales department is divided in two groups or subdivisions. The first group is composed of general salespeople that work full time and have a base salary. Meanwhile, the second group is composed of independent salespeople (ISP). Moreover, turnover behavior of ISP varies from the general salespeople by having higher turnover rates. Also, there are more independent salespeople than general ones. In fact, about 97% of the sales department people are independent. ISP have more freedom and can work from wherever they like. They do not have a working schedule or formal monthly sales goals. Their income is based on their sales performance, where seasonality may impact their work, among other possible causes mentioned above. Yet, all this freedom brings plenty of responsibility to the ISP. If they do not sell anything a certain month, they won't receive commissions or revenue during that time. Consequently, our organization is interested in improving this turnover issue, which will benefit ISP and the organization as a whole.

The following chart shows the organization's independent salespeople's turnover rate. This indicator is calculated monthly. As we can see, seasonality affects these independent sales people. In general terms, there are external factors that help independent salespeople sell products. For instance, starting in September product demand tends to increase, because many people purchase shoes for their children, when they return to school. This behavior continues until December for Christmas gifts. But during the other months, there are no significant external factors that promote increases in product demand. Therefore, selling becomes more difficult and some independent salespeople start looking for different income options or just quit. Independent salespeople that decide to leave our organization, can affect us negatively as they will not continue to purchase our goods. Thus, our revenues may decrease. Furthermore, these independent salespeople may not recommend our organization to their friends as job opportunity. So, we are interested in learning more about their behavior in order to keep them engaged with our organization.
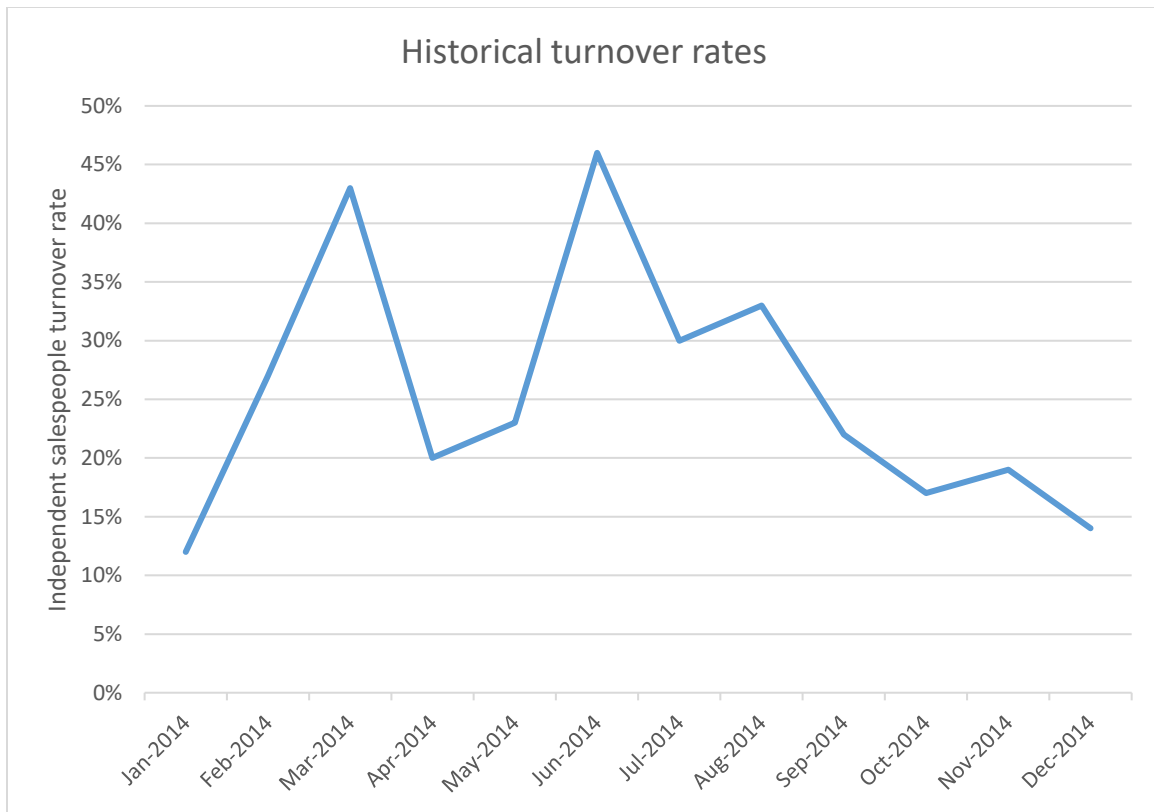
Figure 2 - Historical turnover rates

1.6 Turnover cost

Turnover cost is calculated in several ways by different organizations. For instance, some consider the cost associate to selection, training and recruitment. Nevertheless, there are more costs involved; such as, exit costs. These include severance arrangements and termination expenses. The amounts can increase for involuntary departures. There can be recruiting costs, while trying to attract new candidates. More costs take place when candidates are being selected and completing all stages. Furthermore, there are costs for socialization and orientation (Silva & Toledo, 2009). This process can take many days until the new employee gets adjusted. In some cases, new employees need specialized training to increase their productivity levels. During these training stages, employees get fully compensated, despite not providing their services yet. Also, service is disrupted by turnover, which causes issues of quality and productivity (Tziner & Birati, 1996). Sometimes, external and internal customers can be affected by knowledge expertise loss. Moreover, there are administrative costs; as managers are usually involved in this process. Finally, some positions need temporary replacements that are additional expenses for the organization.

The organization studied in this document, has an average turnover cost of $1.500 USD per independent salesperson (ISP). Although these are independent workers, who are not entitled to receive mandatory

benefits; such as, social security, fixed salaries, paid vacations, etc. due to their independent contracts. Turnover costs are high because of the decrease of productivity. If an ISP decides to quit, it not only affects the individual, but also the organization, as its revenue levels decrease. Therefore, we are interested in improving our turnover rates. This is a win-win situation between the individual, who has other occupations and needs an income source and the organization that provides the products.

1.7   Types of turnover

Organizational turnover can be classified as unavoidable and avoidable. Unavoidable turnover takes place when employees are forced to leave the organization. This can happen when they have to move to a different location. Stay home to raise children or take care of someone. Sometimes, individuals just decide to change careers. Employee pregnancy is another reason why individuals don't return to their work. Nevertheless, the last reasons are all voluntary (Abelson, 1987). On the other hand, there are involuntary reasons for employees to quit their jobs in an unavoidable way. Among them we can mention, death, severe medical disabilities and retirement.

There are also avoidable voluntary turnover reasons; such as, better working conditions. Additionally, better salaries. Sometimes, there are problems with the individual's manager. Others, work efforts are not recognized. These are situations that are under the organizations control (Dalton & Krackhardt, 1981). Therefore, organizations should try to minimize turnover due to these reasons. Unfortunately, not all organizations can address these issues and try to solve them. For instance, better pay is connected to several factors. If the organization is not having enough revenue, it will not be able to improve this aspect. Also, the labor market is connected to employee payment levels. If a salary is under the average labor market pay for that specific job, the individual might switch jobs. However, if the salary is over the average payment, the organization would be losing money. However, other aspects like problems with supervisors can be addressed more easily for organizations. These issues can be solved by talking to those involved in the problem. The lack of work recognition can also be solved easily. Yet, this would depend on the manager's creativity to implement a program, where work recognition is done fairly and permanently. Furthermore, there are involuntary avoidable turnover reasons. For example, dismissals due to poor performance, employees having to resign under pressure and layoffs.

As we can see, turnover should be categorized to gain better understanding of its reasons. Consequently, organizations should have the right tools and criteria to reach this requirement. One option is to create exit surveys, which would help managers to learn about the underlying reasons for employee quitting their jobs. This can also be complemented by an exit interview for additional details (Lefkowitz & Katz, 1969). However, these options are reactive and not proactive. At this point, the employee has decided to leave the organization and all costs mentioned before will soon come. Perhaps, management can focus on being proactive, while coaching or mentoring their employees to avoid a loss.

In the independent salesperson's case, our organization has been working on the avoidable voluntary turnover reasons. Among some of the reasons that were detected for employee turnover are: lack of customer service, financial education and sales skills. It is important to remember the origin of these independent salespeople. Some of them are the organization's previous customers, who were selling products without any training. For instance, there are fulltime students, unemployed people, single

mothers, etc. Very few of them had formal sales training, before becoming part of our organization. This lack of formal sales training, may have affected some of our independent salespeople, by not having the knowledge and skills required to do their jobs. To illustrate this point, I can refer to some of our experiences. Some independents salespeople (ISP) used to make promises that could not be honored; such as, delivering products in a couple of days. When we just started with this business project, our organization was trying to reduce costs by having the goods shipped to the final user from providers overseas. The average delivery time was 30 days or longer. So, the organization begun to increase its local product stock to reduce the delivery time. In fact, ISP can pick up the products the same of the sale and deliver them immediately. Another common problem was the lack of financial education. Sometimes ISP sell their products using informal credit to their customers. This is a significant problem as they can run out of cash if their customers do not pay on time. To address this issue, we have suggested ISP to sell their products using credit cards. Since last year, Ecuadorian banks have been creating more options for people to charge using credit or debit cards. Also, there are no minimum amounts to use this service. The bank requires them to purchase a device that must be connected to their mobile phones (Pacificard, 2015). This strategy has helped some of them. However, there are others that don't like these solutions. Finally, most of them do not have sales skills. Selling is something that can be learned, but it is not for everybody (Hopkins, 2005). In this case, we created a short orientation course, which teaches them: customer listening skills, handling complicated people and value creation. The content of this course is in permanent change, as we include new topic that are relevant for their success.

1.8   Turnover analysis dilemmas

Analysis can be misrepresented, misplaced or even misunderstood. It usually involves a process of models that have many complicated statistical techniques. Moreover, there might not be sufficient details or a proven structure to begin understanding the problem. Some organizations focus their efforts on trying to gain better insights about their employees. This would require examining their needs. Later each need is given a possible solution. Yet, many of these solutions can be inappropriate or just unviable. For instance, detecting managers that are not fair, cannot be resolved by further training (Liao, et al., 2008). Sometimes, there can organizational policies that must be followed and respected. Yet, they can be considered as unfair by some employees. Furthermore, sometimes ideas for solutions can be seen as obvious. Specially, for issues concerned to low payment levels. The obvious solutions would be to increase it. Nevertheless, there are employees that remain loyal to their organizations, despite having low salaries. As we can see, this requires deeper analysis in general. Additionally, several people have different opinions about turnover reasons. Sometimes, only the most experienced employees or those with the highest positions are listened to. Another issue is excessive time to analyze information. This would make the organization too slow to react or implement suggested changes for problems that no longer exist (Tett & Meyer, 1993). Thus far, no analysis would make no sense either, because solutions would be proposed for unidentified problems. The implementation of wrong solutions can affect any organization harshly.

The organization studied in this document, has tried to identify causes for employee turnover. We have been listening to our independent salespeople and tried to address their needs. In some cases, we also realized that established organizational procedures did not make sense. Like having our orders shipped by our suppliers or setting monthly sales goals. This last, is common practice with our general or fulltime salespeople. So, we changed them as much as possible. These solutions have been implemented as

problems have appeared. Nevertheless, we still have turnover issues. It is quite complicated to fully understand people. Also, there are not only internal factors that can lead to turnover, but external ones as well. We are interested in exploring new options to understand our people and take proactive actions in order to avoid future turnover. Moreover, we strongly agree that scholarly research can help us to understand or explore this issue from a different perspective. We would have to put those research suggestions into practice and remain open to new approaches. Also, we would like to implement a framework based on Machine Learning Algorithms, which is consistent with its results. Consistency, is key as we can rely on this tool to take proactive actions. Sometimes, the sum of the parts can help organizations understand a complicated issue and not focus exclusively on a single part (Stott & Drury, 2004). This would imply that the researcher is involved in the problem solution. In our case, I am part of the organization and working with those studied in this document.

1.9   Increasing demand for independent salespeople

During the last years, many Ecuadorian organizations have realized the potential of having independent salespeople (ISP). Nowadays, it is common to see posters on windows inside malls, which invite individuals to become ISP (Movistar, 2015). That is, an increase in employment supply that not necessarily has sufficient demand. Moreover, it is quite common for independent salespeople to work for many organizations. In other words, they sell a variety of products and are not exclusive. Consequently, business that want to remain competitive in the market have to be careful with their brands and practices. There are elements; such as, product quality that is key for ISP to work for you. In other words, they need us to provide them good products. We cannot provide low quality products, as that may upset our customers. It is usually easier to sell a reliable and proven product to customers. Organizations that do not pay attention to quality do not last long (Shi, et al., 2015). Also, brands need to keep their images young for some customer segments. Here their product design comes into place, as a differentiator in competitive markets (Davcik & Sharma, 2015).

Furthermore, the Ecuadorian government has been changing their productive matrix. Now, there are significant preferences for Ecuadorian products. In fact, imported goods have been highly taxed, as well as, set importation limits (El Comercio, 2015). This makes foreign products scarce and more expensive. Nevertheless, there are not many Ecuadorian producers, who could take advantage of the government decision. Additionally, some protected industries that produce textiles or shoes have difficulties. They do not have the machinery or trained individuals to compete with foreign products (Revista Lideres, 2015). Also, their product's models tend to be conservative, which is not appealing to many customer segments. As a result, organizations have problems to keep their independent salespeople, as sometimes they just run out of product stock and are forced to wait until the next fiscal year. Yet, their independent salespeople, might have found a new organization, with better working conditions by that time.

Some organizations have been working on improvements to their image. Although, they are respected by their employees, they are also interested in showing their positive actions to the society. Now, Ecuadorian companies are participating in surveys to be recognized as best places to work. For instance, the organization called "Great Place to Work", evaluates organizations in Human Resources aspects (Great Place to Work, 2015). Meanwhile, others are more ambitious, not only covering Human Resources

aspects, but also Corporate Social Responsibility. Nevertheless, reaching these achievements can be more challenging and restrict the number of participants, due to the lack of resources, preparation or practice. Personally, I think that these organizational recognitions are good for companies. Yet, they require informed or educated customers to appreciate them. Furthermore, these recognitions may allow the organization to charge more for their products; as long as, customers are willing to pay for them. So, this is not applicable for all segments. Sometimes, buyers just want a product with reasonable quality, at the right price for them.

1.10 Machine learning applied to predict turnover

Machine Learning is a field of Artificial Intelligence, which is useful to create predictions. These predictions can be done by using several algorithms that are evaluated based on their accuracy levels (Mohri, et al., 2012). In the case of this document, Machine Learning Algorithms will be used to predict employee turnover. These predictions need historical data as input sources. Moreover, machine learning models require features and labels. Features are variables that present specific characteristics of an object or situation that is going to be classified. Meanwhile, labels are the classification itself. Therefore, surveys will be applied to the independent salespeople (ISP) and their answers will become the features for the model. Then, the labels will be set based on the ISP staying in the organization or not.

Machine Learning algorithms are relevant to this study as they can be used with Action Research to reduce independent salespeople turnover. For instance, Action Research is a framework used to find solutions to complex problems through its continuous cycles of: constructing, planning, taking action and evaluating action (Coghlan & Brannick, 2009). Machine Learning algorithms can be used to support these cycles by going one step further with generated predictions. That is, the organization can take proactive actions to improve the issue. Moreover, these algorithms can make sense of diverse and abundant information. In fact, the more high-quality information available, the more accurate the predictions can be (Witten, et al., 2016). This is needed in the study to make sense of the 52 questions asked to each participant in the survey, which cover different dimensions and subdimensions of employee engagement. Furthermore, Machine Learning algorithms can help the organization to predict which independent salespeople are likely to leave or remain in it. In other words, the organization would be creating a model that can be used permanently for its practice. Also, these models are not static. Instead, they continue learning and improving their accuracy by being feed new information (Chen & Liu, 2017). Therefore, Machine Learning algorithms are an appropriate tool relevant to this study.

1.11 Upcoming organizational challenges

As we have read so far, turnover is a common organizational issue. Therefore, the organization that is studied in this document is interested in finding key factors to keep employees within the organization. In other words, decrease its turnover rates as much as possible. This will be done by studying employee engagement; based on their capabilities, attitudes and job design to reach employee retention. Moreover, the organization is interested in creating turnover predictions, which would allow us to make better

decisions that will not impact our independent sales people. We are interested in creating these predictions by using Machine Learning Algorithms. These algorithms can be used in many industries and tend to increase their prediction accuracy in time (Lim, et al., 2000). Furthermore, we expect to become more proactive with this information.

1.11.1 Ecuador's economic situation

Additionally, Ecuador has fell into recession in Q2-2015. The country's GDP has declined 0.3% compared to the previous quarter. There is also a 0.1% contraction in Q1-2015 (Focus Economics, 2015). One of the reasons for this problem, is the low price of oil. This last represents about 55% of its major exports (The Economist, 2015). Therefore, the Ecuadorian government revenues are being affected and they are cutting spending. It is common for new tariffs and taxes to be created frequently. The Ecuadorian Government support is diminishing, while its opposition movement has strengthened. The country's dollarized economy is not allowing it to devaluate its currency in order to kick-start growth. Loans made to China, have not been fully materialized, which has forced the country to look for additional expensive funding. This in turn has affected the Ecuadorian government's budget (Focus Economics, 2015). Ecuadorian urban public employment distributions reach 79.5% of the type of urban employers (Ecuador en Cifras, 2015). That is, many people in Ecuador work for the government. Consequently, budget cuts will inevitably harm their economic situation. This can happen as their salaries are reduced or fewer public job openings are available (El Universo, 2015). This in turn, may affect private organizations, like the one of this study, because of the reduction of consumer spending. On the other hand, if some individuals lose their jobs with the government, they might consider looking for new employment options. In fact, we may have more individuals interested in becoming independent salespeople. Yet, their target market may expand to other countries.

1.11.2 The need for the organization to continue evolving

Although, Ecuador has been an unstable county in political terms, by having 9 presidents since 1996 (Ecuaworld, 2015) its inhabitants have proven able to overcome bad times. We are aware about the complications that are communicated in several economic forecast for 2016. However, we see this as a new challenge for our people and country. The learnings that will take place during this time, will help us to grow and react better in the future. Furthermore, our organization will have to continue understanding our consumer behavior and getting the right products for our different segments. We can continue taking advantage of established products marketing campaigns; such as, Converse or Nike. Their efforts are spread to all organizations that sell their products. In terms of Marketing, we are benefited by the umbrella strategy (Wood, et al., 2008). Nevertheless, not all of our products are well known or recognized. This is not a problem for segments where customers are young. They tend to be more open to products that are fashionable or popular among their friends. For instance, the Supra brand is not purchased that often by older customers. It seems that people get used to or create emotional attachments with brands in time (McAlexander, et al., 2002). We may consider creating new initiatives to find brand ambassadors, who in turn may persuade their communities to adopt new brands (Goitia, 2014).   Moreover, we may have to learn about managing our social networks in a more efficient way. After all, individuals that have the purchasing power to buy our products are likely to have access to the internet. In fact, we may have to create specific apps for Android and IOS to keep consumer engagement. This last, should bring more

visitors to our websites and increase our revenue levels. However, all of these efforts depend on people, who for us are the most valuable asset in any organization.

1.12 Research objective and considerations

The objective of this thesis is to understand how our independent salespeople's turnover rates can be decreased. In order to do so, we are interested in analyzing their organizational engagement levels by using Machine Learning Algorithms. It is important to emphasize that there is no published literature of Ecuadorian retail organizations, which have had issues of employee engagement and are willing to explore best practices with Machine Learning Algorithms. Therefore, this thesis is presenting a new idea to organizations of this country, who may find these solutions viable for their own employees. In other words, this is its contribution to knowledge. The following chapters begin by discussing what is already known about employee engagement and staff turnover in the Literature Review. Then, the Methodology and Methods chapter provide details of the frameworks used the research project. The Findings chapter presents aspects that need to be addressed in organizations that are interested in improving their turnover rates. Reflections on the findings are shared in the next chapter followed by implications for knowledge and practice; as well as, a self-reflection section.

1.13 Chapter summary

This chapter gave an overview of the researchers' organization. The organizational problem was exposed to the reader, showing that turnover is affecting the business and the costs associated with it. Moreover, the research objective and consideration have been presented. In the following chapter, we are going to review the current literature about employee engagement and data mining.

2. Literature review

2.1 Purpose statement

The purpose of this chapter is to understand the topic of employee engagement. This is important to comprehend turnover. Some theories and models are going to be reviewed. Additionally, we are going to review literature relevant to data mining applied to organizational turnover.

2.2 Employee engagement

Organizations have put much interest in employee engagement, because of the belief of a strong connection between it and organizational success (Bates, 2004). Nevertheless, there are reports that show engagement levels decreasing (Richman, 2006). This last creates an engagement gap, which affects business due to productivity lost. Moreover, most research that has been done on employee engagement is based on practitioner journals. Consequently, it is oriented on practice and not theory (Robinson, et al.,

2004). Employee engagement can be referenced with different names like organizational citizenship or commitment behavior. Some authors have defined it as intellectual and emotional commitment (Baumruk, 2004). Meanwhile, other authors refer to it as discretionary employee effort at work (Frank, et al., 2004). The academic literature has more definitions for it; such as, harnessing of organizational members. This can be understood as people, who are employed expressing themselves physically, emotionally and cognitively. On the other hand, personal disengagement is about employees that withdraw and do not show sufficient performance in their jobs (Kahn, 1990). Therefore, engagement refers to being present psychologically when working for an organization.

Engagement can also be considered as psychological presence, which is composed of a couple of elements. The first element is absorption; it refers to employees being engrossed in a role. Meanwhile, attention is about being available in a cognitive way (Rothbard, 2001). On the other hand, researchers that focus their work on burnout, define engagement as a positive antithesis of burnout (Maslach, et al., 2001). Additionally, engagement tends to show employees being energized, efficient and involved. Consequently, if employees are inefficient, exhausted and cynical they are clearly not engaged with the organization (Gonzalez-Roma, et al., 2006). Furthermore, engagement can be understood as individuals being characterized by absorption, dedication and vigor. They are positive and focused on fulfilling work related tasks. In these cases, engagement is not taking place because of monetary rewards. Instead, it happens due to a pervasive and persistent cognitive state.

According to academic literature, engagement is related and at the same time different from other organizational behavior constructs. For instance, engagement is not committed to organizational behavior constructs nor is it a match to either. Rather engagement is a two-way nature, were employees should have business aware aspects (Robinson, et al., 2004). Organizational commitment also varies from engagement, as an individual's attachment to an organization and their attitude. In other words, engagement is not an attitude, but a degree that individuals are absorbed and attentive to their roles. Organizational commitment is about the informal and voluntary behaviors, which can support not only coworkers, but also the organization. Therefore, the focus is on the individual's role, rather than voluntary behavior. Moreover, job involvement is different from engagement as the first is the outcome of cognitive judgements. Engagement is about individuals employing themselves focused on job performance. This requires the usage of behaviors and emotions on top of cognitive aspects (May, et al., 2004). Actually, engagement can be considered as a previous condition for jobs to be done with passion.

2.3   Employee engagement theory and models

There are some psychological conditions related to employees being engaged or not in their organizations, which are safety, meaningfulness and availability (Kahn, 1990). That is, employees tend to be more engaged if organizations can offer them psychological safeness, meaningful work, when they are psychologically available. Empirical studies have found these aspects as significant to engagement (May, et al., 2004). Additionally, aspects like role fitness and job enrichment are positive predictors of meaningful work. Supportive supervisors and rewarding coworkers can help.

Employee burnout literature describes job engagement as a burnout positive antithesis (Maslach, et al., 2001). These authors propose a model composed of aspects; such as, control, recognition, perceived

fairness, social support and values. Job engagement is argued as being linked to sustainable workloads, justice, valued contributions, fairness and rewards. These models show the previous conditions required for engagement. Yet, they do not completely explain the reason individuals respond to these conditions in diverse degrees. There is another theory known as the social exchange one. It claims that obligations are created between reciprocal parties. These relationships can change in time. Trust, mutual commitment and loyalty can take place, while certain rules are exchanged (Cropanzano & Mitchell, 2005). Exchange rules are based on repayment or reciprocity. That is, actions of one party create actions by the other one.

Organizations can be repaid by individuals being engaged. As a matter of fact, employees that are self-engaged can provide better results to the organization. They can bring themselves into work roles and spend more emotional, cognitive and physical resources. This is a very meaningful way for employees to respond to organizations. Moreover, it is more complicated for employees to change their job performance levels, because performance is usually a basis for compensation. Accordingly, employees may decide to exchange their engagement for organizational benefits. Thus, social exchange theory explains why employees decide to be less or more engaged in their work. Employees can feed obligated to repay organizations when resources are given to them. In fact, they can feel a sense of responsibility by bringing themselves more deeply into their role. However, if organizations do not provide resources to these individuals, they may become more disengaged and withdrawn from their work (Kahn, 1990). Also, the amount of physical, cognitive and emotional devoted resources can be decreased for an organization.

2.4   Employee engagement and financial results

The common thinking is that employees that are engaged are willing to offer more. In other words, a workforce can become more productive. However, this requires an investment in the individual's energy in work to get a powerful organizational lever. Furthermore, if employees are engaged the organization should be able to show superior financial results. This last can be considered as the ultimate evidence of failure or success. Several financial indicators can be used to show these results; such as, return on assets, shareholder value and profitability (Schneider, et al., 2009).

Engagement can also be seen in the form of behavior. Therefore, it is important to concentrate in this behavior as it a factor that yields results. Employees can be valid reporters of an organizations state. So, it becomes important to know how they feel inside an organization. Employees that are engaged tend to work and think proactively. In fact, they anticipate opportunities by taking action focused on the organization's objectives. In addition, they think about what is needed for their job and begin to expand their current roles (Bakker & Schaufeli, 2008). That is, engaged employees focus on objectives by not limiting themselves to job descriptions. Furthermore, these employees are permanently expanding their own skills, while remaining consistent with the organization's mission. Personal development is taken on their own in order to increase their contributions. Consequently, self-development is not considered a sacrifice. Instead, it is makes sense among employees and employers. Engaged employees tend to persist no matter the obstacles. This last matters the most when tasks are not easy nor going according to plan. In these cases, trust is needed on both sides. Also, engaged employees are able to adapt to change in environments that are uncertain.

Yet, employee engagement energy does not transform itself into financial results directly. A process enables this transformation to happen. It requires certain conditions as prerequisites. For instance, how employees feel, their current engagement levels and their work environment. Work environments should facilitate employees to be engaged. Engagement needs to be addressed in psychological and behavioral aspects. The psychological one focuses on how employees are feeling based on focus and intensity. Meanwhile, the behavioral one is about how proactive, adaptable and persistent employees are (Xanthopoulou, et al., 2009). Both these aspects create the bases for tangible results like enhanced performance. Moreover, intangible assets can be created; such as, brand image, customer loyalty and intellectual capital. All of these lower the organization's risk profile, due to employees being focused on value creation with their stakeholders and customers.

2.5 Data mining approaches to predict employee turnover

Employee turnover can be involuntary or voluntary, dysfunctional or functional, as well as, unavoidable or avoidable (Chalkiti & Sigala, 2010). Turnover can generate positive results; such as, functional turnover or negative ones like dysfunctional turnover. The first case refers to poor performing employees deciding to quit. Meanwhile, the second case is about good performers leaving their jobs (Sexton, et al., 2005). Unavoidable separations of employees from the organization can happen due to permanent disability, death or retirement. Therefore, proper turnover classification can assist manager to discourage or encourage their different types (Holtom, et al., 2008). Experienced employees separating from an organization can affect its services and productivity levels.

Employee performance influences involuntary and voluntary turnover. The lack of adequate performance levels is connected to involuntary turnover. Moreover, job performance relates to job satisfaction according to the expectancy theory. In other words, high performance should lead to better rewards, as well as, better job satisfaction (Zimmerman, 2008). Furthermore, involuntary turnover can be classified as dismissals and layoffs. Dismissals take place due to poor performance. On the other hand, layoff happen because of cutbacks (Iverson & Pullman, 2000). Nevertheless, organizations should try to reduce both avoidable and voluntary turnover. This last is a decision process associated to image theory. It is common for employees to lack of enough sources to evaluate information (Beach, 1990).

Turnover generates several organizational costs. There are direct costs like management time, temporary staff, selection, recruitment and ad positioning. Indirect costs can also exist, as product or service quality can be affected, pressure is increased on remaining staff and new learning is needed (Ongori, 2007).

Data mining is an approach to understand employee turnover. Voluntary turnover is analyzed based on their characteristics. Personal recruitment concentrates on worker stability, productivity and learning rate. However, unstable employees can tend to be wasteful and detrimental for organizations. Inadequate hiring not only generates money losses, but also affects the current employee's perceptions. Therefore, recruitment must be done carefully in order to avoid adversity and turnover (Cottini, et al., 2011). Being able to predict unstable employees can help organizations save resources. Frequent monitoring is needed to find trends in turnover rates. Additionally, monitoring procedures should be easy to understand and accurate. However, models should be compared based on their tuning parameters.

Data mining is useful in the knowledge discovery process. It has methods and to find data relationships and implicit patterns. The goal is to generate knowledge, which can be used in future decision-making processes. Data mining can analyze anomalies and create predictive models (Linoff & Berry, 2011). Association analysis can also be done with data mining. It finds implicit correlations and frequent patterns. These techniques can be applied to many industries to address a variety of issues. Data mining can be used to create clusters that do not have target features.

Modern information systems can gather plenty of data from different sources. This information can be used in data mining processes. Yet, this data requires specific tools and methods to organize and understand it. This complexity needs approaches that surpass classic analysis (Matignon, 2007). Employee turnover can be better understood by using data mining methods. Once the information has been processed, it is possible to use the SEMMA methodology to compare the best approach. SEMMA is sampling, exploring, modifying, modelling and assessment (SAS Institute, 2004). Data mining information can be stored in databases or plain text files. This last increases the number of information sources. Data can also be extracted from surveys and combined with other sources. That is, data being extracted and transformed.

Employee turnover is an issue that warrants consideration. Data mining can help the organization to find, monitor and predict this situation. However, the organization should take action to decrease this problem. Sometimes, traditional practices only compound the turnover issue. Current research in this field is not certain of seasonal fluctuations being in part responsible of employee turnover. Consequently, specific data mining tools are required to gain this knowledge (Tamizharasi, 2014).

2.6   Chapter summary

In this chapter, we reviewed relevant information regarding employee engagement. Theories and models were discussed based on the findings of several researchers. We also reviewed how employee engagement could affect the financial results of organizations. In addition, data mining was presented as an option to gain insights of complex data. The following chapter focuses on methodology and methods. Here we are going to understand how the research was done for this project.

3.   Methodology and methods

3.1   Purpose statement

In this chapter, I am going to provide an overview of the Action Research's framework and its foundations. In fact, it is the guiding principle of this research project. This is needed to understand the methodology and methods used within this document. Moreover, action research voices are analyzed to show differences between this methodology and traditional approaches. Later, action research cycles are explained based on construction, action planning an evaluation. These cycles took place throughout the

research process. Then, insider action research is explained and shown as the approach used in the study. Research paradigms are explained to show the ontology and epistemology positions taken in the research. Moreover, an explanation is provided to understand the framing process and project selection.

Furthermore, an overview of Machine Learning frameworks are explained. This last is needed to be able to understand the complete methodology used in this document. The content and process section begins explaining how this research project was done. Then the action research cycles details the activities that the participants did. This last, includes how Machine Learning algorithms were applied to the study.

3.2   Action Research Framework

Action research is a process that can be used in organizations to solve complex problems. It is democratic and participatory. This inquiry process is emergent and integrated with organizational knowledge. It brings change and develops self-help, while accumulating to scientific knowledge (Shani, et al., 2007). Action research projects need the organization to clearly identify its goals. These goals, must be shared to improve collaboration. Moreover, there are more factors that can affect the projects outcomes; such as, history, resources, capabilities and readiness to participate. Also, there should be quality in relationships. This is, trust among participants, fairness of influence, shared concern and common language use. There should also be quality in the process of action research. The implementation and inquiry process need dual focus. Finally, the projects outcomes, should have some level of sustainability; in terms of, economic, human, ecological or social aspects. All of these are the product of cycles of action and reflection (Coghlan & Brannick, 2009).

This framework has some characteristics that makes it more participatory in organizations. For instance, action is taken in research; instead about research. This is, research being conducted continuously, while the issue exists. In fact, action research uses a scientific approach to gain understanding of essential organizational problems. This study is done with those involved in the problems. This process requires planning followed by taking action. Then the action outcomes are evaluated, which in turn may lead to new cycles of planning and so on (Baskerville & Wood-Harper, 1996). Additionally, action research is a democratic collaborative partnership. This happens as the individuals that are having issues in an organization, are actually part of the research project including the researcher himself. However, this is not common in traditional research structures, as participants are seen as study objects. Furthermore, action research coexists with action. This allows action to be more effective, because of participants and researchers involvement in the problem. At the same time, action is continuously creating a scientific knowledge body. Consequently, action research is composed of several events to solve a problem. Its cycles gather information and provide feedback to its participants. Information analysis is done with researchers and participants jointly, which later need action planning. In other words, it is a problem solving approach based on scientific methods of experimentation and fact findings. The solutions are not only useful for immediate problems, but also for organizational learning (Susman & Evered, 1978). This also brings unintended and intended contributions for scientific theory and knowledge.

Therefore, the action research framework has been chosen for our organization, as it allows participants and the researcher to work together, while trying to solve complex organizational issues.   We are interested in decreasing turnover in our organization. As this is a complex problem, we value the voluntary

participation of our independent salespeople in this study. Their insights will help us gain better understanding of the situation. Also, we can test solution proposals with them and find out if they are being useful or not.

3.3   Action research foundations

Action research has been founded on several psychological and philosophical foundations. It builds on ideas from collaborative cycles. These cycles go through planning, collecting information, taking action and analyzing their outcomes (Levin, 2003). Action research's main idea is to explore the solution of important organizational or social problems by having researchers and participants involved in the organizational problem. Additionally, practice and theory are combined by studying real life problems. Research is designed by considering the whole and at later stage its components. Constructs are produced that can be used to generalize or begin to make sense of individual parts. This is, the researcher reaches better understanding being an intervener, while trying to change a situation (Argyris, 1993).

Moreover, action research can be denoted in several meanings. For instance, diagnostic research is done through some continuous action process. The researcher presents the collected information to the individuals that can take some kind of action. In this case, the research has been originated based on the researcher's concerns, which may prove useful for the business. Also, action research can be known as a process of collecting information from several individuals that are in a system. Later, these individuals give feedback about the findings and intervene in a continuous way. Another meaning for action research is a social system, where participants collect data that will be analyzed, focusing on facts to take development action (Lippitt, 1979). However, action research has been criticized regarding its development for problem solving. There are alternative proposes; such as, appreciative inquiry to build on what is working, instead of what is not (Cooperrider & Srivastva, 1987).

Furthermore, this methodology can be far reaching and demanding. It is ideal for case studies, because it incorporates researchers taking action (Gummesson, 2000). Also, it focuses on contributing to science as well as solving problems. It is interactive due to the cooperation that exists among its participants. Additionally, it develops holistic understanding. This happens because researchers should have a view broad enough to understand how the whole works. It is useful to distinguish between informal subsystems and formal ones. Complexity tends to increase when there are several causes and effects (Senge, 1990). Therefore, action research is concerned with change. It is relevant to understand, plan and implement change not only in groups, but in communities and organizations. Ethical frameworks should be understood based on specific contexts. This is, the existence of real relationships between client members and the researcher. Besides, action research can include different types of data. There can be qualitative findings from interviews as well as quantitative ones from surveys. This methodology needs pre-understanding and breadth of the organization that will be studied. It unfolds as it is being executed, so it should be done in real time, which would then generate learning history (Kleiner & Roth, 1997).

3.4   Action research voices

This integrative research framework, includes three voices as well as audiences. Traditional approaches to research have commonly focused on third person. This is, research being done, without including the researcher in the study as one involved in the problem. In this case, researchers create reports for these persons. Nevertheless, this approach doesn't tend to include first and second voices, as an authentic third person research. First person research is known as practice and inquiry done by the researcher herself. It fosters an individual approach to the persons own life (Reason & Torbert, 2001). In first person research, researchers inquire in their own basic desires, assumptions and intentions. This can be taken downstream to inquire about their own action in the world and their behavior. Second person research is about relating the researcher's ability to question work; based on, shared concerns and face to face dialogues. It poses a significant challenge to those involved in the project. Finally, third person research is focused on creating inquiring communities. It includes individuals from second person research. As third person is impersonal, it is updated by reported disseminations as well as extrapolations (Coghlan & Brannick, 2009).

Action research can be considered as radical, because of the replacement of existing forms within social organizations. It challenges common science by being action oriented. The generated knowledge is then shared with researched participants and not being exclusively known by policy makers. Its epistemological assumption not only describes a problem, but it seeks to explain and understand it (Reason & Torbert, 2001). Furthermore, the contrasting role between the change agent, who is participating in the project and the observer, who stands aside, examine organizational development images (Evered & Louis, 1981). These moments are later classified in key factors for conceptual frameworks. Moreover, these person voices can be engaged in the future, past and present. Then Action Research can build on past experiences in the present, which are taken into account in the future (Chandler & Torbert, 2003).

3.5   Research cycles

Action Research has three main activities. The first one is planning. It involves finding facts and defining the objective clearly. Planning involves the researcher and organization to have a general plan as well as identified the initial steps. Meanwhile, action refers to taking the initial step. Additionally, fact finding seeks to evaluate the initial step, reviewing what has been learned. This creates a continuous spiral composed by several processes of planning, taking action and fact finding (Lewin, 1946). Therefore, action research cycles can be unfolded by looking for project context understanding. The project's goals can be set based on: external contexts, political, economic and social factors. Besides, there are internal forces that can be driving change; such as, structural and cultural forces. Proper problem identification allows the researcher to understand aspects that are influencing the system. After the project goals have been identified, the organization can define their desired future position. This is needed to set the project boundaries, which give it energy and focus for upcoming tasks. Nevertheless, those involved in the project must be willing to create and keep collaborative relationships.

Contemporary organizational development is moving away from notions of objective diagnosis. In fact, connotations where, data must have been collected in a structured way, before taking any action (Schein, 1996). The assumption underlying this method is the existence of a complex system or one that cannot be understood easily. Also, it must be diagnosed through interventions in order to transform or improve. Nevertheless, this assumption is being replaced by the idea of organizations being constructed socially. This is, organizations built by individuals, whose interactions cause permanent change. In other words, there is no such thing as a single truth. There is not a correct way to organize people who work for an organization (Campbell, 2000). Consequently, this requires the action research cycle to be reframed as a conversational process among stakeholders. They help the project by identifying the problems. This is the working theme for action to be planned and later taken. Furthermore, the articulation of the theoretical and practical foundation is reached through conversational approaches. These sessions are articulated to show how events led to rationale and evidence based on shared meaning.

Planning action takes place after exploring the project's purpose and context. This construction must be consistent with the problem. Later on, plans are executed with collaborative interventions. Action evaluation is generated from unintended and intended outcomes. They are evaluated by reviewing the original construct fitting. Then new feeds are generated for the next cycle. As a matter of fact, several research cycles can be taking place at the same time. Their duration can vary based on the projects complexity. These cycles can be described as an Apollonian approach, when they are systematic, rational or linear (Heron, 1996). This approach allows participants to reflect on previous cycles to plan future ones. Yet, cycles can be Dionysian when there are expressive, imaginative or even have tacit approaches to reflection integration (Heron, 1996). In this case, participants try to understand the outcomes of their last session imaginatively.

Action research projects usually have two cycles being executed in parallel. The first cycle involves: construction, action planning, taking action and evaluation. This is known as the main or core cycle. Nevertheless, the second one is the cycle of reflection of the first cycle (Zubber-Skerritt & Fletcher, 2007). This would imply that the project participants and researchers are engaging in core action research by evaluating their outcomes and learning at the same time. This inquiry in the action research steps are key to develop actionable knowledge. In fact, reflecting on the reflection creates the learning procedure of action research cycles. In other words, it makes this framework appropriate for solving everyday issues through meta-learning (Argyris, 2003).

Reflection can take three forms. Content takes place when reflection is focused on the problems as well as what is assumed to be happening. Process reflection brings procedures and strategies into the exercise. Finally, premise reflection is done by critiquing primary perspectives and assumptions. These three forms of reflection are then critical for action research, because they allow participants to have a holistic project understanding (Mezirow, 1991). For instance, content is the project construction, planning and evaluation. Meanwhile, the process is undertaking the constructing and planning steps. This also includes how actions are implemented, followed and evaluated. Premise reflection takes place by inquiring the non-conscious, unstated underlying conventions that control behavior and attitudes (Schein, 2008).

3.6   Insider action research

First person practice, requires the researcher's values, ways of thinking, behavior, beliefs and assumptions to be her main inquiry tools. These tools allow the researcher to be aware of how she is experiencing action and inquiry (Reason & Torbert, 2001). This can also be known as downstream and upstream inquiry (Marshall, 1999). Self-reflection needs enacting inquiry in a different way for each individual. So, each individual crafts their own practice by attending to outer and inner attention arcs (Marshall, 2001). As a matter of fact, there are cycles of reflection and action that are receptive. Therefore, learning would be grounded in reflection and inquiry processes (Schon, 1983). Being able to know in action is implicit, which opens results that fall in the limits of what was learned and treated as common. Sometimes, reflection in action takes place when the researcher is taking action. While questions are asked about the activities that are happening. This produces results and further action adjustments. During this project, I am going to be an insider action researcher. In other words, I will be holding my current work position; as well as, my action research role.

3.7   The importance of skills for second person research

The main skills that keep action research working are relational ones. As a matter of fact, researchers must be able to engage with more participants. This needs the ability to create relationships, listening skills, and have different ways to reach collaborative inquiring. Moreover, second person skills examines the researcher's dispositions (Rogers, 1958). Helping dispositions require trust to be built. This allows the individual to feel positive emotions with the group they are working with. Freedom is experienced by seeing things from different perspectives. Furthermore, there are different inquiry types according to Schein's typology. The first one, involves engagement with others to inquire. This is also known as, pure inquiry prompts. It focuses on elicitation of what is going on in the research project. Here the researcher listens and remains being neutral (Schein, 1999). Meanwhile, the second kind of inquiry or diagnostic, manages how the content has been explored or analyzed. It focuses on reasoning, action and emotional processes. Finally, confrontational inquiry is when others perspective is challenged by new ideas presented by the researcher (Schein, 2009). These ideas can be about content and process.

Therefore, Schein's typology topology can be reframed based on the general empirical one. It is important to work with more group members, while paying attention to insights and new experiences. Judgments must be focused on the insights being suitable for the evidences as well as action taken (Melchin & Picard, 2008). Observing research individuals and future dialogues is needed to get more experiences. It also tests judgments and insights by using diagnostic inquiries. Then decisions are made that will generate more action. That is, dialogues create meaning, which is tested or uncovered by planned action in order to be reviewed.

Insider researchers are part of the problem. They do not act as external consultants or facilitators. Yet, they promote action and emergent information. In fact, it provides a better view of what should be changed. This requires the researcher to combine inquiry and advocacy. Then inferences, opinions as well

as points of view are available to be critiqued and tested (Ross, 1994). Furthermore, inference is illustrated through observable information, which makes the reasoning process public for the learning service. In other words, framing is done by defining a clear research purpose. Support is then explicit in the research objective, it asserts a perception, option and feeling to take action. Illustrating shares parts of the real story guided by concrete advocacy. Finally, inquiring happens by questioning research participants their perspectives and understanding (Fisher, et al., 2000). There can be more ways to help research individuals to enhance their reasoning. They can ask themselves what is preventing them to reach a certain goal. Also, try to find evidence sources that have influenced them to reach a conclusion.

3.8   Research paradigms

Ontology is the basis of research philosophical positions. It has researchers that believe in realism. This is a customary position, which concentrates on the world being external and concrete. Also, science can continue progressing, while observations correspond directly to the situation being researched. Realism can also be understood as a single truth.   Then, positions of internal realism were proposed, understanding that single realities exist. Yet, evidence could be gathered indirectly of the phenomenon (Putnam, 1987). Internal realism does not support the idea of absolute scientific laws. A following stage, known as relativism suggests that people create scientific laws. Therefore, there are several sources of truth. Their facts may vary based on the observer's point of view (Latour & Woolgar, 1979). There is also another position named nominalism. It suggests names and labels to be important event experiences. Thus, social life is unspecified and paradoxical. Its reality is created based on individuals discourse and language (Cunliffe, 2001). In other words, there is no truth and people just try to determine their own individual understanding of the phenomenon.

Epistemology is connected to the researcher's ontology. It focuses on the best ways to inquire the world's nature. There are a couple of contrasting points of view in it. On one hand is positivism, it assumes social worlds to exist externally. Consequently, it properties must be measured with methods that are objective. It is not possible for researchers to use their intuition or be subjective (Comte, 1853). The positivist philosophy assumes that research observers are independent from the phenomenon. Also, research should be done based on objective criteria to identify causal explanations. Moreover, hypothesis is used to identify the truth through quantitative data. Problems should be reduced into simple elements in order to create generalizations. On the other hand is social constructionism, it considers really to be constructed socially by individuals (Berger & Luckman, 1966). This is, individuals sharing experiences among each other through language. Therefore, researchers that follow this philosophical position, should not concentrate on measuring patterns. Instead, understand different meanings created by individual experiences. Social constructionism requires the researcher to be part of the phenomenon. Explanations are focused on gaining the issues' general understanding. Research progress is reached by induced ideas. Also, generalization happen through theoretical abstractions.

There are scientific philosophical principles that relate to ontology and epistemology, based on theory knowledge underpinnings. This allows us to make sense of science as well as different explanation forms. As mentioned before, ontology or the world's nature and epistemology the knowledge basis can be evaluated on relativistic or realistic perspectives. Therefore, researcher's perspectives contribute to how they do research. This also legitimates their theories or knowledge based on validations, building, or creations (Peter & Olsen, 1983). It is possible to view a neutral theory language from an objective view.

Meanwhile, a subjective one doesn't allow the option of this kind of language. Also, ontology based on an objectivistic view considers natural reality to be independent, before cognition exists (Johnson & Duberley, 2000). Several ontological and epistemological points of view promote reflexivity. Although, this last is not new in social sciences, it has been considered more important recently.

In fact, reflexivity has been used in social science in order to seek understanding of relationships between objects being researched and researchers. The researcher has to think about the conditions, while she is doing research. It investigates how cultural, political and theoretical contexts interact with the research object (Alvesson & Skoldberg, 2000). Reflexivity can be done in a systematic way to analyze the researcher's methodological as well as theoretical presuppositions. It assists to keep awareness about important individuals understanding.

Moreover, epistemic reflexivity is about the process for challenging and analyzing the system, based on the researcher's beliefs (Finlay & Gough, 2008). On the other hand, methodological reflexivity has to do with reviewing behavioral impacts after the research has been done. Consequently, this needs a process to be followed and protocols to be properly recognized. The main paradigm or approach to organizational studies for management has been hypothetical-deductive and positivism. They are defined mainly by their views based on existing external realities. The principal objective of positivism science is to create knowledge that is generalizable. Also, these findings can be logically validated for reliability and measurement consistency. The phenomenological, postmodern, constructivist or also known as the hermeneutic tradition, considers there is no single reality. This is, the researcher being part of the process itself. These concerns are about objective and subjective ontological assumptions based on the world's nature. In other words, it follows a relativist epistemology and ontology. Moreover, hyper reflexivity is adopted by postmodernists and concentrates on practice deconstruction. So, hermeneutic inquiring is about developing idiographic knowledge. There can be no measurements without any previous changes. This needs insider's perspectives, which generate rich and valid data.

Pragmatic action is incorporated with critical realism. This approach is based on subjectivist epistemology. It focuses on epistemic reflexivity as it shows interests through reflexivity. Yet, reflexivity is social and not neutral. If it is used to generate change, it would need guiding democratic principles. Its knowledge is connected to economic, social and political states. It is about visualizing what should be and is created through consciousness raising processes (Reason & Bradbury, 2008). The empirical model, where the research is reasonable, attentive, smart and responsible are the main components for inquiry approaches. So, human living constitutes of mediated meaning. Individuals learn to create their own representations by providing meaning to information. That is, meaning going above experience, as individuals tend to affirm as well as understand it. Hence, behavior, assumptions and values are inquired for embedded constructed meaning. Framing and purpose emerge by working actively with problems (Marshall & Reason, 2007). Researchers get to understand the world as they enact in: plans, intentions, actions and results (Reason & Torbert, 2001). This is done intentionality and later reviewed as first person practice. Then with others to achieve second person practice. Finally, third person practice is influenced by a larger audience.

3.9   Framing

Framing is a heuristic procedure that helps researchers to identify issue solution elements. However, the problems initial identification or framing, is likely to be reviewed or reframed. This creates new referencing frames that are trying to solve the issue effectively (Creswell & Clark, 2011).

It is a difficult procedure to frame a problem. Management should be involved in this process in order to back up the action research project (Bartunek, et al., 2000). There can be several issues composing a problem. Also, they may not be apparent for the researcher. Others, can be completely obvious or unnoticed. Consequently, human perception is needed to make a contribution for the complete process. As there can be many problems, it is important to embed them as related (Berkhard & Harris, 1987). Then, this allows the research participants to focus on a specific research issue among several options, considering their resources and time.

Importance is put into finding the problems that are most relevant to organizational members. There can be projects that are very hard to address and require prompt organizational change. Sometimes, these problems are easy to find, but have deeper organizational roots. In these cases, research participants may not be willing to execute the project. Proper identification of these issues, may force participants to begin inquiring their fundamental assumptions.

Researchers that are also insiders are involved in the whole research process. It may happen, that the first questions do not fit the issue. This would require the researcher to test new ones and make sure inquiring remains active. Inquiring teams can be diverse to embrace different points of view. Furthermore, change is likely to bring debates, arguments and discussions. This generates new useful information through public examination and scrutiny. However, no matter what problem is selected, participants tend to focus on their own reality. Therefore, it is essential to be able to enter a different one through dialogue. In other words, be willing to learn new themes and concepts. It is understanding why other members have constructed those causal relationships (Dutton & Narayanan, 1983). All organizational problems have their own context. So, finding them not only creates different points of view, but also understanding the organization in a deeper way. In fact, all problems can be embedded in a certain behavior that can be addressed for negotiation (Dutton & Ottensmeyer, 1987). Problem identification can be fluid considering the complexity of defining boundaries. Dynamic based on repetitive revisions of its core subject. They can be emergent, considering that problems just appear without any warnings. So, interpretation is an unfolding process that uses participant judgments and their insights.

Broad categories can be generated from deriving meaning to frames problems. Several interpretations about the issue should not be put aside. Being able to capture these interpretations can provide richer and deeper images of the problem. Additionally, this may provide solutions for the long term. Reducing ambiguity, when the project has just started can be harmful for it. Ignoring different problem interpretations or attaching them to one domain, can make the issue more complicated (Krim, 1988). Yet, this can be seen as a rational process for the researcher. Moreover, the analysis stage does need rationality, but it may not solve the problem. However, researcher that are attached to a certain dominant interpretation, should be willing to test new arising ones. Consequently, dominance must be understood. In other words, dominance could be reflecting a collective mind or simply a certain group's one. Also, dominant interpretations can lead to more commitment for problem resolution (Friedman & Rogers, 2008). Issues have to be framed and categorized based on explicit and implicit assumptions (Dutton & Narayanan, 1983). Explicit assumptions are helpful to gain shared understanding of the problem. Also, causal relationships give problems context based on their realities.

3.10 Project selection

Once several problems have been identified, the researcher is confronted to choose those that need attention. The final selection can be chosen based on sufficient reflection considering organizational and personal views. Project selection can be determined by the degree of learning or personal growth that it can generate. The levels of organizational knowledge of the topic. The opportunities to increase the participants profile, within the organization. The equilibrium between organizational and personal gain. Time constraints or other resources limits. As a matter of fact, these projects need management attention, resources allocated, shared participants interest as well as legitimacy (Bjorkman & Sundgren, 2005). Furthermore, insider research projects, can have more acceptability by finding complex organizational problems. An inside position can be used to diffuse results.

Insider research proposals, can be created by addressing the following areas. Context being broad or covering the national or global levels. Local focused on specific disciplines inside the organization. For action research projects, social contexts are of extreme importance. This requires the researcher to be able to describe her own community or organization. It may contain organizational details, historical information, issues and expected outcomes. Also, it should mention the kind of action needed for the project to be executed. Its rational, desired future and those involved in the project have to be mentioned. The researching section can describe the inquiring action focus as well as its contribution to knowledge. Rigor and quality have to be assured throughout the process. Additionally, it is essential to mention how role duality and understanding are going to take place. Sometimes, certain organizational research proposals should be ethically evaluated by upper management. Moreover, action research should be explained explicitly as being different from traditional methods to its participants (Zuber-Skerritt & Fletcher, 2002). For instance, in traditional methodologies, what is known is its beginnings to find the unknown. Meanwhile, action research starts with the unknown and looks for the unknown.

After the project has started, it is common to move from initial problem definitions to deeper and broader ones. This happens as the issues' context is being understood. System pressures will be identified or specific contexts that are affecting the situation. Moreover, key groups as well as individuals are likely to appear in time. They are important members as they can allow change to take place. Going through several action cycles followed by reflection will allow the emergence of new constraints. At the same time, researchers have to work on creating and maintaining relationships. This is, negotiating roles, encouraging involvement levels, building rapport and contracting. In previous relationships exist, it may be challenging to reach role duality. So, initial framing must be reflected upon and analyzed to see if it fits the framing or not. Then action is required to evaluate this situation. Likewise, initial test selections, can be adapted based on selection processes.

3.11 Machine Learning Framework

This framework is being used with the Action Research one as a way to predict employee turnover. Machine learning creates predictions based on historical data. Moreover, new data that can be generated from surveys or other sources can be included in the historical data to allow the algorithms to continue learning. Machine learning algorithms can help researchers to classify information. More precisely, these classifications are generated based on predictive formulations (Witten, et al., 2011). The objective is to

create an estimation of the mappings between features and labels using training data. This is called a decision rule, which can help individuals classify future cases or estimates using features. Both future and training data are identical and independently distributed. Samples are originated from the same unidentified statistical distribution (Cherkassky & Mulier, 2007).

Classification methods use plenty of training information in order to estimate a class decision boundary an indicator. In the framework of statistical learning theory (SLT), methods that implement risk minimization usually need: a structured specification for the approximating functions, empirical risk minimization for the current structure and a prediction risk estimation for bounds. However, classification minimization may lead to combinatorial optimization, because of the indicator discontinuous function nature (Vapnik & Vapnik, 1998).

Consequently, practical methods can use a loss function, which may approximate classification errors. This would allow continuous optimization techniques to be used. Furthermore, estimation of prediction risk can be complex because of the difficulty to estimate VC dimensions used in nonlinear approximation functions (Friedman, 1990). Nevertheless, the conceptual framework requires a flexible set of functions to solve classification problems by implementing nonlinear decision boundaries.

Statistical learning theory formulation, considers finite training data to estimate binary outputs. Its inductive principle creates generalizations based on the estimate's nested structure. Each element within it gives elements a certain order base on their complexity. In other words, larger samples with small values of empirical risk are likely to have true risk. So, for finite training cases, there should be an ideal element structure that provides minimum risk predictions. This can be reached by keeping confidence levels static, while minimizing empirical risk. Also, keeping the empirical risk static, while minimizing confidence intervals (Cherkassky & Mulier, 1997).

Classification based on tree methods, continuously fragment input spaces to create disjoint regions, which in turn will construct decision boundaries. These areas are then chosen based on optimization techniques. In each step, the process chooses the area that gives the best class separation based on a cost function. This cost function is chosen based on it compatibility with the optimization technique. As a result, it reflects empirical classification risk. This splitting action can be visualized as a binary tree. Many tree based methodologies create a large tree, which is then pruned its nodes as specified in the pruning criteria (Breiman, et al., 1984). Empirical research evidence recommends pruning and growing strategies to be done together, as they tend to reach best classification accuracy levels. The pruning criteria is commonly the misclassification empirical percentage attuned by heuristic penalties. The penalties strength is set by cross validation. Consequently, the resulting classifier can be visualized as a binary tree. Each of its nodes are the tree's decisions with its class label. New input classification can be done by starting at the first node or root then descending through its structure.

Another approach to information classification is Support Vector Machines or SVM. They embody the main principles of statistical learning. The development of these algorithms is different from the other learning algorithms as the principles and concepts of VC theory that are used meanwhile the algorithm is constructed (Shao, et al., 2000). For SVM algorithms, learning problems are solved directly; instead of via estimation density. Also, they use concepts of margin losses, which is an approach to complexity control, as well as, finite sample estimation robustness. The usage of this margin based loss, allows the complexity to be independently controlled based on dimensionality input space. However, SVM is not a perfect solution for all cases. Its application to classification problems needs plenty of common sense, while

structuring the problem. Moreover, SVM creates new learning opportunities for finite sparse data. Furthermore, the margin concept could be used in non-inductive inferences that can result into optimization formulations (Vapnik, 2013).

Support Vector Machine have been used widely since 1990. There are many academic papers of this subject published about statistics, machine learning, processing signals, and so on (Schölkopf & Somola, 2002). Among its formulations is the SVM-Plus (SVM+), which requires training data to be in a known structure. This can be used for binary classification problems. Its training information are several groups or labels put together (Vapnik, 2006). In these cases, training information can be split in many groups. The objective is to reach an inductive decision rule. Moreover, its group's slack variables are likely to correlate. Hence, SVM+ creates ways to incorporate these findings into optimization problems.

Furthermore, classification can be done by using Bayesian interpretations. They are often used to specify statistical inference based on a priori knowledge. Then this knowledge is combined with existing data with the Bayes theorem (Zimmerman, 1996). The objective of the prior probability is to convert our system's knowledge before data is known. This is also known as prior probability distributions. Afterwards, the Bayes formula gives the rule that will be used to update prior probabilities once the data is known. This last is known as Bayesian inductive principle or inference (Zedeh, 1965). Also, the uncertainty view is pertinent, while the observer is capable to recognize unambiguous occurrences.

Bayesian networks or Naïve Bayes networks have acyclic graphs based on one parent. In other words, one unobserved node with many observed nodes or children. Furthermore, this classifier assumes independence among nodes (Good, 1950). Accordingly, its independence model is used for estimations (Nillson, 1965). As a product operation is used in the Bayes algorithm, it is predisposed to being overly impacted by cero probabilities. Nevertheless, this can be evaded by using the m-estimate or Laplace estimator. This can be done by adding a unit or one to the numerators. Also, by adding the number to the denominator of the added ones (Cestnik, 1990). Therefore, the assumption of independence among nodes tends to be incorrect, which makes Bayes classifiers less accurate. Yet, large-scale comparisons of state-of-the-art classifiers with Naïve Bayes for induction in decision trees, standard benchmarks, instance based learning have proven Naïve Bayes to be superior (Domingos & Pazzani, 1997).

All classifiers have limitations and strengths. Thus, it is suggested to integrate two or more in order to solve problems. The goal is to complement the weaknesses of one algorithm with the strengths of another (Kalousis & Gama, 2002). If researchers are interested in reaching classification accuracy, they cannot use a single algorithm for all problems. Although there are obvious advantages, these methods have some weaknesses. The first one is increased storage for each classifier used in the problem. The second weakness is the need of increased computation to classify all component classifiers. These two weaknesses can be addressed by having a virtual server with enough resources for the project. Finally, the last weakness is reduced comprehensibility for unprepared users (Wall, et al., 2003). This weakness can be addressed by having a researcher well prepared and able to communicate clearly the study's finding.

Machine Learning algorithms are the appropriate strategy for this organizational issue, as they can be used with the Action Research framework to support it. That is, the algorithms can create accurate independent-salesperson-turnover predictions. This is needed by the organization to gain better understanding of the problem. Also, these predictions can be used as valuable inputs for new Action Research cycles. Specially, in the planning stages the organization can create simulations by using a pre-trained Machine Learning model to predict their outcomes. This is in turn, can help the organization to

take proactive actions to reduce turnover, which will be evaluated in the final stage of the Action Research cycle. Furthermore, independent salespeople behavior can vary in time. This would affect a static model, but not a Machine Learning one that is being feed new information continuously (Chen & Liu, 2017). In other words, the organization would be able to keep and improve their model's prediction accuracy as time goes by.

3.12 Research design

3.12.1 Content and process

This study has been executed by using the Action Research and Machine Learning methodologies. The problem has been framed with the projects participants by taking into account their concerns. This was done by creating issue categories, which were later analyzed with participants in order to find repetitive issues and group them together. Therefore, the projects goal has been established with the organization members in a collaborative way. In other words, I was able to get our independent salespeople voluntary participation by letting them know about the project's benefits. On one hand, our independent salespeople would feel more engaged and remain working for our organization. This would give them better work conditions, stability and more opportunities to increase their income. On the other hand, our organization would benefit by increasing its global revenue.

Also, the project has been given sufficient resources to fulfill it. Independent salespeople and management have been involved in this process joined by trust. Trust has been built by being honest with them and looking for win-win situations. The independent salespeople and I have decided to use Action Research because of its collaborative nature. Consequently, its epistemological assumption not only describes a situation, but also tries to explain, understand and change it (Reason & Torbert, 2001). Moreover, this methodology requires researchers to go through a cyclical process of: planning, taking action, evaluating the action taken and leading to additional planning (Coghlan & Brannick, 2009).

3.13 Cycles of action and reflection

3.13.1 Planning action

The first step in the action research cycle is planning. This involved the researcher finding facts as well as setting clear goals with the projects participants. We are interested in improving our turnover rates. In other words, keeping as many independent salespeople with our organization as possible. These rates tend to vary in certain months during the year. In general terms, our independent salespeople tend to work with us when product demand is abundant. However, this is not the only factor that affects turnover. As mentioned previously, there have been an increase in the number of organizations that hire independent salespeople. So, this has pushed organizations to provide better work conditions to their

people, as a retention strategy. Our initial step, was to gather relevant organizational turnover information in order to gain better understanding of the issue. Then, we spoke to some of our independent salespeople to find out how they were feeling and if they were interested in collaborating with us to improve the situation. Fortunately, they showed themselves willing to participate and shared many aspects that we have not thought about. These aspects were initially discussed with a group of 30 voluntary independent salespeople. Participant's age ranges from 20 to 46 years old. There was no gender majority. The objective was to gain better understanding of the problem from their perspective. During this discussion, we asked them to be honest and respect others ideas by not interrupting themselves. Some participants had difficulties to make their points clear. So, we had to ask them more questions in order to reach the root cause. Later, these key points were written down and shared with participants. We asked them to review them the next day in order to reflect upon them. They had to ask themselves, if the key points were relevant or affected them in any way. The following week, we would meet again and see if those key points were useful or not. In my case, being the internal researcher, I looked for employee engagement academic literature. These findings would be shared with the independent salespeople during our meetings to provide initial challenges to the group's thoughts. After some of these sessions, we were able to create a collaborative survey, which would be later applied to a bigger group of independent salespeople.

The objective of this study is to gain better understanding of employee engagement, supported by Machine Learning Algorithms, in order to decrease employee turnover. Therefore, the survey was created focused on employee engagement, which is measured in three dimensions: attitudes, job design and capabilities (Macey & Schneider, 2008). Each of these dimensions are measured in the survey with relevant questions that should be answered using a Likert scale from (1 strongly disagree) to (5 strongly agree). These questions are available in English or Spanish. Data normalization was not required as the online survey form was programmed to validate proper participant information input. Table 1 shows the questions used in the survey.

Ordinal	Question	Dimension	Area (sub dimension)
1	This job requieres applicants to take a formal test in order to be hired.	Attitudes	High-Performance HR Practice Perceptions
2	This job requieres applicants to go through structured interviews in order to be hired.	Attitudes	High-Performance HR Practice Perceptions
3	My work collegues are involved in participation processes.	Attitudes	High-Performance HR Practice Perceptions
4	My organization has a fair complaint process for their employees.	Attitudes	High-Performance HR Practice Perceptions
5	My job provides me opportunities to earn bonuses based on performance.	Attitudes	High-Performance HR Practice Perceptions
6	My job is evaluated through formal means.	Attitudes	High-Performance HR Practice Perceptions
7	My organization communicates formally its objectives.	Attitudes	High-Performance HR Practice Perceptions
8	My work suggestions are taken into account by my organization.	Attitudes	High-Performance HR Practice Perceptions
9	Performance is an indicator that motivates pay raises.	Attitudes	High-Performance HR Practice Perceptions
10	Organizational promotions are based on performance.	Attitudes	High-Performance HR Practice Perceptions
11	My organization only hires the best individuals for this job.	Attitudes	High-Performance HR Practice Perceptions
12	I am willing to push myself at work in order to make my organization sucessful.	Attitudes	Affective Commitment
13	I feel proud to work for my organization.	Attitudes	Affective Commitment
14	I would refer a close friend to become part of my organization.	Attitudes	Affective Commitment
15	I feel satisfied to work at my organization.	Attitudes	Affective Commitment
16	I give constructive suggestions that can improve my organization's effectiveness.	Attitudes	Organizational Citizenship Behavior
17	I express my opinion in an honest way, despite disagreements with my colleagues.	Attitudes	Organizational Citizenship Behavior
18	I communicate activities proactively, which may affect other collegues.	Attitudes	Organizational Citizenship Behavior
19	I motivate others to do their work in a new effective way.	Attitudes	Organizational Citizenship Behavior
20	I share my knowledge with my collegues.	Attitudes	Organizational Citizenship Behavior
21	I would turn down an organization that offers me a better pay to stay with my organization.	Attitudes	Intention to Remain with the Organization
22	I want to make a career at my organization.	Attitudes	Intention to Remain with the Organization
23	I am going to remain in this organization for at least one year.	Attitudes	Intention to Remain with the Organization
24	I am satisfied with my income.	Capabilities	Pay satisfaction
25	My organization trains me to do my job in a better way.	Capabilities	Training
26	I can grow as a professional in my organization.	Capabilities	Development
27	I feel satisfied with my supervisor.	Capabilities	Supervisor satisfaction
28	I am afraid of losing my job.	Capabilities	Job insecurity
29	This job allows me to organize my working schedule to fit my needs.	Job design	Autonomy
30	I have autonomy regarding decision making.	Job design	Autonomy
31	I feel free in terms of how to do my work.	Job design	Autonomy
32	This jobs requieres me to do different tasks.	Job design	Autonomy
33	This job is very important for my organization.	Job design	Autonomy
34	This job is designed to let me complete an entire piece of work.	Job design	Autonomy
35	The job gives me feedback regarding my performance.	Job design	Autonomy
36	The job forces me to work on one activity at a time.	Job design	Knowledge
37	This job requires me to think about my activities carefully.	Job design	Knowledge
38	This job requieres me to solve complex problems.	Job design	Knowledge
39	This job needs individuals with many skills.	Job design	Knowledge
40	This job needs very specialized knowledge.	Job design	Knowledge
41	I can get to know many people.	Job design	Social Characteristics
42	My job's supervisor cares about my welfare.	Job design	Social Characteristics
43	My collegues are friendly.	Job design	Social Characteristics
44	My activities have to be completed before others can do their own activities.	Job design	Social Characteristics
45	My activities cannot be completed unless others complete their own.	Job design	Social Characteristics
46	This job needs me to spend plenty of time with individuals outside my organization.	Job design	Social Characteristics
47	I receive plenty of information regarding my performance from my collegues.	Job design	Social Characteristics
48	My organization provides adequate working conditions.	Job design	Work Context
49	This job requieres plenty of physical effort.	Job design	Work Context
50	My work place is noisy.	Job design	Work Context
51	This job has a minimum risk of accidents.	Job design	Work Context
52	This job requieres me to use complex technology.	Job design	Work Context

Table 1 - Survey questions linked to their Employee Engagement Dimension and Area (sub dimension)

3.13.2 Taking action

Once the survey was ready, it was submitted and given Ethical Approval of behalf of the University of Liverpool. Then, data was sent and collected from 243 independent salespeople (ISP), who participated voluntarily in this study. These individuals gave the researcher their consent to collect and analyze their information before participating. The surveys were sent to them through email and filled in electronically.

Once the surveys were answered, the information was stored in an encrypted database. Moreover, respondents' sensitive personal information was automatically anonymized.

3.13.2.1 Data Analysis

3.13.2.1.1 Training data

The first step to create Machine Learning Algorithm Predictions is to put together their training data. This is required to create factual cases (features) and outcomes (labels), which will be used by several algorithms to predict future outcomes of a new set of features (Bell, 2014). In this study's case, the same survey was sent to two groups of participants. The first group are active independent sales people (ISP) up to June 2015. There were 226 participant replies from this group.

3.13.2.1.2 Testing data

The purpose of testing data is to find out how accurate different algorithm predictions are. As this study is interested in finding out how to decrease independent salesperson's turnover, the researcher used Supervised Machine Learning Algorithms. This would allow us to predict if the ISP is going to remain in the organization or not. This study did not use Unsupervised Machine Learning Algorithms as we already have data features and labels. Features are the participant's survey replies. Meanwhile, the algorithm's labels or outcomes were obtained by finding out if the participants were still active or working for our organization in August 2015.

To test the algorithms, the 226 participant replies were split in two parts. The first part will be used to train the model. It has 60% of cases with their features and labels. Then the remaining part or 40% of the cases, can be used as known predictions. A known prediction is a case that has: features, a label and a predicted label. In this case, we are only using their features to predict labels. Later these predicted labels are compared to the preexisting labels, to find out how accurate the predictions are. In other words, from the 226 participant replies, 60% of them or 137 were used to train the model, while 40% of them or 89 cases were predicted to evaluate the prediction's accuracy.

The testing data was processed by the software package Scikit Learn for Python (Scikit-Learn, 2015). Moreover, we used three different algorithms as there is no perfect one for all cases (Pedregosa, et al., 2011). However, the results of the testing data can inform the researcher about the most suitable algorithm for the actual study. The results of the testing data stage are in Table 2:

	Supervised Machine Learning Algorithms					
	Naïve Bayes		SVM		Decision Trees	
Prediction	N	%	N	%	N	%
Correct	49	55%	82	92%	75	84%
Incorrect	40	45%	7	8%	14	16%
Total	**89**	**100%**	**89**	**100%**	**89**	**100%**

Table 2 - Testing data algorithms and their accuracy percentage

Table 2, shows that the SVM or Support Vector Machine algorithm has the highest prediction accuracy levels (92%). These results were followed by the Decision Trees algorithms (84% accurate). Furthermore, the least accurate algorithms for this data was the Naïve Bayes algorithms (55% accurate). So, researchers should pay more attention to those results generated by the most accurate algorithms (Quinlan, 2014). In this case, we can rely more on the SVM predictions for future cases.

3.13.2.1.3 Predicting data

The prediction stage uses a new set of features (not the ones used in the training data) to create predictions. These features do not have labels, as the factual outcomes have not taken place yet. In this study's case, we had a second group of ISP that took the same survey as the first one. These participants are new ISP that started working for our organization in July 2015. This second group does not have the same members of the first one. There were 17 participant replies from the second group.

The participant replies from the second group, were processed by the algorithms to generate turnover predictions. Later these predictions were matched, with the actual turnover outcomes in September 2015. In other words, there were 226 cases used for the training data of this model and 17 new cases were predicted. Table 3 shows the prediction accuracy results:

	Supervised Machine Learning Algorithms					
	Naïve Bayes		SVM		Decision Trees	
Prediction	N	%	N	%	N	%
Correct	14	82%	15	88%	14	82%
Incorrect	3	18%	2	12%	3	18%
Total	**17**	**100%**	**17**	**100%**	**17**	**100%**

Table 3 - Predicting data algorithms and their accuracy percentage

Table 3, shows that the Support Vector Machine algorithms are still the most accurate ones (88%). This reinforces the findings and creates reliability, considering the results of the testing data stage. Furthermore, these algorithms predictions accuracy levels are followed by the Naïve Bayes and Decision Trees algorithms (both being 82% accurate).

If this model was used in the future, the predicted cases would become part of the training data. As a matter of fact, the algorithms keep updating themselves or learning based on existing and new labeled cases. Nevertheless, this would require the researcher to go through the Machine Learning framework again. In other words, making sure the training data has features and labels. Then, testing the data to identify the most accurate algorithm. Finally, running predictions on new features that have not been label yet.

3.13.3 Evaluating action

The original constructing was created properly, as we measured employee engagement aspects that are relevant to employee turnover. These aspects were identified collaboratively among the research project participants and the researcher himself. This could happen after having cycles of reflection as mentioned previously. In other words, the outcomes are intended. Moreover, these results can be used as feeds for the next cycle after new reflections have taken place. Project participants were given access to these results, who confirmed these interpretations. This was done to have multiple individuals evaluate these aspects, which provides action research rigor.

Machine learning algorithms have informed the action learning process by creating accurate predictions of independent salespeople turn over. In other words, we were able to find and measure variables that are relevant to our organization. If these variables were not relevant to us, we would not have been able to reach turnover predictions with the accuracy levels described above.

Moreover, these survey results have helped us to identify areas that need to be improved in order to reduce independent salespeople turnover. The replies have shown that all ISP do not need to go through structured interviews in order to be hired. This can be a problem as new applicants can have false expectations of this job, which may later end up in these individuals leaving the organization. So, we worked with our HR, Sales Department and some ISP to create a mandatory interview structure. The application of this interview has help us to identify applicants, who do not have the needed skills or competencies for this job. However, if an applicant is not currently suitable for the job, we do let them know and offer them relevant training. Another aspect that we found in the survey's answers has to do with ISP not being able to grow in our organization. To address this situation, we have implemented a mandatory orientation session for new independent salespeople. This is needed as we do offer career plans for ISP, who are interested in becoming fulltime sales staff. Therefore, these individuals have opportunities to grow with us. We realized that one of the problems that is becoming evident with these survey answers, is that our organization is not being effective in its communication. Additionally, there are certain activities that were optional that need to become mandatory ones; such as, interviews and orientation programs. These actions were put into place immediately and their need has been agreed upon our project's participants. On the other hand, survey answers showed us areas where we are doing well. In these cases, we have tried to reinforce them. For example, they consider that their job gives them opportunities to earn more based on their performance. This has been reinforced by creating special bonuses, which are given to them throughout the year. In other words, they would be earning their usual commissions and they can qualify to get an additional bonus. Initially, we were considering to have a single bonus in December based on their year's sales. Nevertheless, our ISP suggested us to divide it in order to have permanent motivational goals, which could be paid faster and not wait that long. The following sections show more details of the survey results.

3.14 Challenges

I am the business owner, researcher as well as manager in this study. Fortunately, I have been able to adopt many positions throughout it. As mentioned before, I consider employee trust to be an essential part of this accomplishment. On a personal level, I am open to dialog and change when needed. So, employees being honest and collaborative is common in my organization.

At first, it was complicated to question my own practice. Sometimes, my basic assumptions of my independent salespeople were biased (DeLyser, 2001). However, by being an insider researcher I had to keep myself in that position remaining open and flexible (Breen, 2007). Something similar happened with my research participants, when we were in cycles of reflection. They started to understand how the organization works as a whole and the interconnections among departments. Some of them became more understanding with others after seeing different positions stress levels and demands. Therefore, disagreements and conflict tend to decrease after some sessions.

Finally, I have seen that people are willing to participate in studies as long as there is an incentive for them. In the case of my organization, we are interested in learning how to decrease employee turnover. So, by understanding our employees we are able to provide better work conditions to them. This in turn, can increase their sales levels, which is a strong incentive for salespeople. Also, I have seen that people continue participating in processes that not only gather facts, but also take action. This last is fundamental for change to take place.

3.15 Chapter summary

In this chapter, I provided an overview of the Action Research's framework. As mentioned before, it guides the research project. The project's ontology and epistemology positions were explained. Then, the Machine Learning framework was present and shown how it connects with the projects problem. Later, I explained in how this study was structure and how data was collected. Additionally, I show how the Action Research cycles took place, as well as how the Machine Learning algorithms performed. I also explained how algorithm selection and preference was done. The following chapter focuses on the research's findings.

4. Findings

4.1 Purpose statement

The purpose of this chapter is to gain understanding of the results of the survey applied to the Independent Salespeople. We begin by analyzing the survey results. Then we will focus on employee motivation and strategies to reduce turnover.

4.2 Analysis

The survey's data and outcomes can be analyzed from several perspectives, besides Machine Learning Algorithms. Descriptive statistics can be used to create data summaries. This in turn, presents information

in a manageable way (Weiss & Weiss, 2012). For instance, descriptive statistics can be used to locate the employee's engagement dimension questions that are having low scores. Therefore, we can focus on the top twelve answers that have the lowest means in Table 4Table 4 - Top twelve answers with the lowest means. The following analysis was done by the researcher and the project participants. Furthermore, our interpretations were challenged or disconfirmed not only by ourselves, but also reviewing grounded scholarly theory. This was done in order to reduce possible bias; as well as, increase research rigor (Coghlan & Brannick, 2009).

The first lowest mean, refers to most independent salespeople not being afraid of losing their jobs (mean 1.16). This happens because of the nature of their job. That is, being independent salespeople does not imply that the organization has to provide them job security (Puffer, 1987).

The next lowest mean, is about the need to use complex technology in their job. It is good to see that the mean of this question in low, because having to use complex technology, without proper training can lead to employee turnover (Rebore, 2014). In fact, our independent salespeople are proficient in Microsoft Excel, email applications as well as social networks. In other words, they do not need to use complex software packages to do their job, which would be a source of demotivation due to the difficulty to learn them.

Considering job design in the area of social characteristics, it is also good to see that they feel that their activities do not have to be completed before others can do their own ones. This allows independent salespeople to have time autonomy for their activities (Tyagi, 1985). In the following question, we focus on the employee's attitudes dimension; specifically in the area of high performance HR perceptions (Kehoe & Wright, 2013). The question refers to applicants having to go through structured interviews in order to be hired. Here we have answers that vary from 1 to 5. This might be happening, because some months ago we started to interview our independent salesperson's applicants. We think that providing them more information and having a conversation with them can help them make an informed decision. Also, structured interviews can help organizations filter best candidates (Wilson, et al., 2005).

The next question measures employee attitudes in the area of organizational citizenship behavior. We consider that it is important to share best practices among independent salespeople. We have seen that some of them do share their ideas and are not selfish. This is also reflected in the following question by sharing knowledge. New independent salespeople, who have no previous sales experience can benefit the most by putting into practice proven strategies (Podsakoff, et al., 2000). Nevertheless, these new independent salespeople can also share new insights and renew our practice.

The next one is about job design in the knowledge area. Salespeople in general need to have some skills. For instance, they have to be able to talk to others. Moreover, persuasion and being able to build relationships is useful for the job (Webster, 1968). Also, these individuals need to have basic computer and internet skills.

Furthermore, participants feel that sometimes they have to solve complex problems, but it doesn't seem to be overwhelming. This balance can be good for organizations, as some employees need complex

problems to be motivated, while others do not (Amabile & Kramer, 2012). Something similar is shared about physical effort. This job also lets individuals to work on as many activities as they like at the same time. So, this would be suitable for different working styles.

The next question is about employee capabilities in the area of development. Although, the position is independent, we do provide opportunities to become part of the organization as a fulltime salesperson. Employee motivation can be stimulated by showing organizational career opportunities (Hall, 2002). Yet, this has to be agreed upon the independent salesperson and the organization. Sometimes, people prefer to continue with the freedom of being independent.

Finally, the last question falls into the employee attitudes in the area of high performance HR practices. It is about the organization hiring the best individuals for the job. The survey answers show responses from 1 to 5 for this question. Some employees can be motivated if they are working with competent people. Also, this is seen as a continuous learning opportunity for them (Stidger, 1980). Yet, we cannot close our doors completely for new applicants, because of the current turnover rates.

As mentioned above, the previous analysis was done in first voice. That is, thinking about my own assumptions and intentions. The following lines were generated from our participant reflections. First of all, the Machine Learning predictions did surprise us. We weren't sure about what accuracy levels to expect. Participants hoped that these algorithms could predict correctly at least 50% of the outcomes. Fortunately, the predictions surpassed our expectations. Therefore, we are interested in continuing using them for future action research cycles. Regarding the statistical descriptive outcomes of the top twelve lowest means, the group had some different assumptions. To illustrate this point, we can refer to the question that asks about the usage of complex technology. Here different age groups had different ideas. Participants up to 30 years old, would show themselves as being more likely to adopt new technology and they tried new popular software. Meanwhile, those that are older than 40 years, would sometimes struggle with it. Nevertheless, they agreed that the most common ones needed for doing their work are Facebook and their email. Moreover, participants emphasized on the need of technology skills during the interviews. Also, these topics should be updated frequently in the independent salesperson's induction courses.

We also talked about the joy of sharing knowledge. It was surprising to see how identified and thankful some individuals are with the organization. They believe that teamwork is fundamental to keep learning. Some tried to encourage those that were reluctant to help others. The group got interested in creating their own recognition awards. They said that sometimes they have complicated customers that can generate complex issues. However, they realized that this unavoidable if they decide to continue doing business with them. Sometimes, it is just better to look for new customers. They shared their thoughts about sales overpromising as a common mistake in salespeople. It doesn't matter if they have just started working in the field or not. Sales overpromising doesn't tend to bring in customers purchasing products again. Being able to grow in the organization is attractive to a few independent salespeople. Yet, it is not a common goal. For instance, some students are more interested in pursuing their careers in an organization that can offer them a job in their studies field.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
I am afraid of losing my job.	243	1	2	1.16	.368
This job requieres me to use complex technology.	243	1	5	1.41	.632
My activities have to be completed before others can do their own activities.	243	1	3	1.69	.727
This job requieres applicants to go through structured interviews in order to be hired.	243	1	5	2.07	1.541
I motivate others to do their work in a new effective way.	243	1	5	2.51	1.401
I share my knowledge with my collegues.	243	1	5	2.53	1.461
This job needs individuals with many skills.	243	1	5	2.55	1.472
This job requieres me to solve complex problems.	243	1	5	2.60	1.455
This job requieres plenty of physical effort.	243	1	5	2.63	1.481
The job forces me to work on one activity at a time.	243	1	5	2.67	1.477
I can grow as a professional in my organization.	243	1	5	2.69	1.455
My organization only hires the best individuals for this job.	243	1	5	2.70	1.447

Table 4 - Top twelve answers with the lowest means

A similar analysis can be done by focusing on the top twelve questions with the highest means from Table 5. These outcomes were generated from our group and not a single individual. There was complete agreement among participants by considering that the job provided them earning based on performance. After all, this is the truth of many sales positions. The more they sell, the more they earn. Also, they were happy that our organization does not have monthly sales goals that must be reached to claim their commissions. It seems that other organizations provide higher commissions, but they have to reach certain monthly amounts. If these amounts are not reached, commissions are not paid. Moreover, this job is appreciated as it allows individuals to organize their own time. This is also applicable to how they decide to do their activities. The following question is about job design in the area of social characteristics. It refers to individuals having to spend time outside their organization. The thoughts shared among

participants were diverse. This was highly connected to their sales strategies. For instance, some of them are used to sell their products online. Most of these individuals don't get to see or know their customers. They just place ads on the internet and process these orders. Others, had different strategies like going to visit their customers and get an order onsite. Nevertheless, the job can be done in both styles, which makes our independent salespeople feel comfortable. The next question is about themselves being able to do their work before others do their own. In the past, this was an issue for our salespeople as we didn't have sufficient inventory. Back then, we tried to keep our costs as low as possible by having our suppliers, who are located in China ship the goods to the final consumer. This did not work as expected. So, we decided to have our own local inventory for these means. It is good to see that the organization has improved in this aspect.

The next question is about job design in the work context area. It has to do with the job having minimum risk of accidents. According to our independent salespersons' answers, we can see that they feel secure with no risks. Moreover, they also have autonomy to make their own decisions. Additionally, their performance is connected to their income. We also asked our independent salespeople that are doing well at their sales to become part of our full time staff. This can be considered as an optional promotion. Finally, they perceive that our organization does train them to do their work in a better way.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
My job provides me opportunities to earn bonuses based on performance.	243	4	5	4.98	.156
This job allows me to organize my working schedule to fit my needs.	243	3	5	4.30	.730
I feel free in terms of how to do my work.	243	3	5	4.28	.741
This job needs me to spend plenty of time with individuals outside my organization.	243	3	5	4.23	.742
My activities cannot be completed unless others complete their own.	243	1	5	4.23	.783
I can get to know many people.	243	2	5	4.23	.729
This job has a minimum risk of accidents.	243	1	5	4.21	.790
I have autonomy regarding decision making.	243	1	5	4.15	.840
This job is designed to let me complete an entire piece of work.	243	1	5	4.14	.889
Performance is an indicator that motivates pay raises.	243	3	5	4.06	.593
Organizational promotions are based on performance.	243	3	5	4.05	.540
My organization trains me to do my job in a better way.	243	1	5	3.92	.837

Table 5 - Top twelve answers with the highest means

These survey results can help our participants to identify areas that can be improved within the organization. Then management can use this information to create action plans for future organizational improvement. After these action plans have been executed, participants or independent salespeople can take the survey again, which should show progresses in those weak areas.

Additionally, turnover behavior should change as well. This should be the result of continuous research cycles followed by participant's reflection and action. Furthermore, multiple data sources are reached by

having a diversity of participants, whose information is analyzed by several algorithms (Mathison, 1988). Nevertheless, this diversity is aggregated continuously to the training data, which should help managers to confirm or contradict their interpretations. Moreover, employee engagement can be better measured by adding more variables, which might increase the prediction's accuracy (Breiman, 2001). These variables can be independent salespeople's suggestions. In fact, some of the questions used in the survey are their suggestions; based on, facts that make them feel engaged with our organization.

To illustrate this point, our independent salespeople shared with us the importance of autonomy. This not only refers to how their work is done, but also how they manage their time. We were told that setting organizational deadlines or goals are not the best option for them. In other words, they manage their responsibilities on their own. They set their own goals and make their own decisions. Nevertheless, this does not mean that they want to be alienated from the organization. In fact, they need plenty of social support to keep them motivated. This behavior is different from our fulltime salesperson's staff. So, we learned that we cannot generalize our assumptions, even by thinking that two salespeople groups are the same.

Moreover, some independent salespeople were confident about feeling motivated. Yet, they wished they could earn more income. Some individuals did not connect motivation to income. They thought motivation is just the willingness to work. Yet, academic research proved this perception to be limited, as this aspect relates to employee capabilities (Koy, 2001). In other words, satisfaction with current income is important for individuals to remain motivated. Income is not the only source of motivation, but one that is important or significant from many others.

4.3   Employee Motivation

4.3.1   Why is motivation an important concern for organizations?

Motivation is an important component that can encourage employees to increase their productivity. Consequently, managers should spend more time in this aspect to gain better understanding of it. Employees may understand their objectives as well as their importance. However, they should be motivated to reach them. Individuals can be trained to increase their productivity, but these initiatives may fail due to unmotivated or uninterested staff (McGregor, 1985). Employee motivation varies from one individual to another where factors; such as, high salaries, working conditions as well as promotions become important elements to reach this goal (Islam & Zaki, 2008).

Getting to understand what motivates people is a common concern in organizations. Many historical influential thinkers; such as Sigmund Freud, Aristotle and Abraham Maslow have tried to make sense of this topic as well as shared with us why people behave in the way they do (Maslow, 1943). Nevertheless, these ideas are being challenged by modern approaches in the field like biology, evolutionary psychology and neuroscience, which have helped us to understand how the human brain works. Some researchers argue that people tend to be guided by emotional drives or needs. As they are the product of evolutionary common human heritage (Berridge, 2004).

4.3.2 Main principles of motivation

According to literature, motivation can be understood by individual drives. These drives consider the need to acquire or get scare goods, which may include intangible ones like social status. This is important as individuals feel delighted when this drive is fulfilled. On the other hand, they may feel discontent when it is not. This occurrence is applicable not only to housing, money and food, but also to entertainment and travel. Likewise, events that lead to improvements in social status, promotions, a better work place or becoming a board member (Wong, et al., 2008). This drive tends to be relative due to the individual comparing himself to what others have done. It may also be insatiable, because individuals want more. Therefore, this can help us understand why employees are concerned of others compensation and not only their own.

Moreover, the need to bond or create meaningful connections with groups. The absence of satisfying this drive may make the individual feel lonely and negative. In organizations this drive provides a huge boost for employee motivation. Specially, when employees feel proud of being part of the company as well as for their morale loss when they feel betrayed by their organization (Dutton, 2003). This also explains, why employees can have a hard time while breaking out of their functional departments. Individuals tend to become attached to their nearest cohorts. Nevertheless, it is true that employee's ability to create attachments with bigger groups may sometimes lead to individuals carrying more about their company rather than their former group.

Furthermore, employees usually want to learn more about their organization and how their contributions affect the whole. Employees tend to feel frustrated when activities don't make sense. However, the feeling can be changed to invigorating by challenging the word and finding new answers. In organizations, this drive can be understood as the need to make meaningful contributions. Employees tend to be motivated by challenging jobs, which can lead to further learning and growth. Consequently, monotonous or dead end jobs demoralize employees. Talented individuals that are feeling trapped in a meaningless job, would then be willing to find new challenges somewhere else (Hackman & Lawler, 1971).

Finally, the drive to protect ourselves against threats as well as being fair. This drive originates from the basic fight of fight response, which is collective among animals. In humans, this is manifested not only as defensive behaviors, but also as a quest that seeks to reach institutional justice. It must have predefined intentions and goals, which in turn would allow employees to express their opinions and ideas (Lindner, 1998). Fulfillment of this drive, results in the individual feeling confident or secure. In contrast, not fulfilling this drive leads to resentment, fear and negative emotions. Through this, we can understand why individuals are resistant to change. For instance, one day an individual is told that he is indispensable and a high performer and the next that the organization has changed its structure, which forces them to let him go. Nevertheless, these situations are tempting for organizations that are seeking for talented human capital.

These four drives are independent. Neither, can they be put in order nor substituted. Consequently, managers cannot pay their employees a lot and expect this to bring continuous enthusiasm. Specially, if the organizations lack of proper employee bonding, feeling defenseless or having to do meaningless work. In other words, tight teams that are underpaid won't work either. Organizations may find individuals to work in these circumstances, considering that employees may need the money or lack of options (Jackofsky, 1984). However, these organizations are not likely to get the best out of these individuals. Additionally, these individuals may leave their organization, because of a better job offer.

4.3.3 Organizational factors

Sometimes organizations do not have complete control regarding to their employee motivation or fulfillment of their emotional determinations (Lindner, 1998). Employees have recognized that plenty of organizational factors, which may not be under their supervisor's control are likely to persuade their motivation (Kohli, 1985). However, they become discriminating when judging their supervisor's capability to keep employees motivated. So, managers have control on how organizational processes are executed.

Organizations that are interested in remaining competitive in current markets, should be willing to pay more attention to their Human Capital in order to make decisions that will not harm their employees. This might be challenging due to different employee: positions, behaviors and motivations that are complex to understand. However, organizations now have more sources to collect information and plenty of it is already stored in their corporate computer systems. This data can provide valuable insights based on what employees do as well as their operations (Levenson, 2014).

4.3.4 Motivation principles

Motivation principles have an extensive history. While we are likely to mark the start of it based on the industrial age, managers or leaders of different times have unquestionably been able to understand how important motivation is. Also, they have experimented it in several ways. In the industrial age, businesses were thought as machines that could produce services and goods. So, people were just another part of the machinery. Scientific management was known as coordinated, specific tasks that must lead to efficiency (Herzberg, 2003). Employees were presumed to have no judgment at all. This method was supported by a certain nature of industrial workers. Moreover, employers considered most of their employees to be untrustworthy and lazy. Therefore, the way to motivate them could be done through better payment or threatening to dismiss them (McGregor, 1985). Managers that embrace this motivation theory, believe in the stick and the carrot or fear and greed (Hill, 1992). Furthermore, this approach shows specific jobs and strong employee control (Taylor, 1997).

In the 1960s, employers began to realize that productivity was benefited by paying attention to employees and not treating them as machines (Adair, 1984). So, production was no longer a simple function of a scientific design, but it could be influenced by communication, social norms, and involving employees in debates regarding decision making. So, performance was then linked to satisfaction and this last to sense of participation and belonging (Lawler & Porter, 1967).

It has been said that human nature views tend to support participative management styles. This can be accomplished by providing employees more discretion to act, think and contribute to organizational plans (Kim, 2002). Managers that act on a position of authority, do not necessarily get their employees to do things in a better way. Telling individuals what to do doesn't generate motivation (Marquardt, 2007). Rather, managers can invite their staff to play more significant roles and explain the reason of a certain action.

4.3.5 The role of reward in motivation

Employee motivation can be affected by rewards, which can be extrinsic and intrinsic (Ryan & Deci, 2000). Extrinsic rewards are tangible or external. For instance, promotions, sales prizes, pay hikes and bonuses. Meanwhile, intrinsic rewards generate unquantifiable satisfaction; such as, self-personal control, sense of accomplishment as well as their work being appreciated (Hall, 2002). Both of these rewards create value behavior.

Nevertheless, many organizational reward structures only consider extrinsic rewards like money. Bigger financial rewards, do not necessarily promote employees to work better. In fact, when these motivators are used their effects tend to be short-lived (Herzberg, 2003). This could help us understand why just a few practitioners and academics consider perks and pay as commitment makers (Garvin & Klein, 1993).

Pay is important to keep good employees working for a certain organization in a competitive market. Therefore, money might be a motivator (Rynes, et al., 2004). However, it can promote undesired behaviors. For instance, encouraging employees to avoid acting in an ethical way in order to earn additional income.

4.3.6   Incentive systems

Another approach to increase employee motivation is to use incentive systems. These systems are bonuses that are paid to employees if certain conditions are met (Fehrenbacher, 2013). They can be used as rewards and are demanded in competitive markets. These systems get better results if they generate alignment between employee's values and desired performance (Kreps, 1997). Still, achieving alignment is complicated or sometimes impossible.   This is so, as a couple of elements have to be aligned: what people appreciate and performance. These elements are not always clear and difficult to measure. To illustrate this point, we can reflect on a bonus given to salespeople. If this bonus is too low, it is not motivating. Yet, if it is too high, the organization might not be able to pay it. Therefore, it is hard to find the correct number. Furthermore, the right number might not be considered as fair by all individuals.

So, performance measurement can have some pitfalls. For instance, the uncontrollability issue. Many performance measures; such as, profits or sales revenues are the result of controllable and uncontrollable factors (Dijk, et al., 2001). In other words, most performance indicators have different levels of uncontrollability. Also, some tasks can be measured easily, while others are not. This can generate alignment concerns. Finally, many outcomes are generated by an interconnected group of people, where individual contributions can be hard to isolate. This creates an interdependency issue.

The last issues are sources of unavoidable struggle, whenever organizations create incentive initiatives. Some employees may complain about incentives being unfair; as rewards may not be connected to important efforts (Hall, 2002). While others may complain about rewards being inequitable. Performance evaluation is subjective in its nature. It defies fairness and precision. Managers should be able to develop their employee careers and skills. However, it is very hard to measure this precisely (Bititci, et al., 2012). Also, managers have to coordinate their tasks with other departments. How could this be measured? Therefore, it is complicated to be fair with every employee. In other words, very important tasks are complicated to measure. Though these difficulties should not stop managers to implement incentive systems.

Managers may encourage employee motivation by demonstrating trust. There are plenty of strategies to show trust. For instance, some managers remove former employee controls. Others may ask for their employees to create a schedule or plan. These new activities put the individual in charge of tasks that are generally done by their supervisors (Whitener, 1998). Nevertheless, the individual must be aware of the responsibilities and support provided previously.

Tasks that consider individuals to be an extension of a mechanized procedure, tend to be demotivating as they are not allowed to make judgments, think or take action. This can be avoided by giving employees tasks, which require units to be completed. Moreover, team based approaches to tasks provide collective

responsibility for these individuals to plan their activities, as well as dealing among others to reach their goals. So, these responsibilities should be put in their job designs (Butler & Waldroop, 1999). Job design, should then look for individual life interests. For example, salespeople that have shown interest in marketing research may be considered for doing this task within the organization. Consequently, effective job design can only be accomplished if managers ask the right questions and listen carefully to their employee´s interest.

Employees are capable of reaching goals that exceed their manager's expectations. This happens when they are given complicated tasks or unusual challenges. Additionally, these challenges give them the opportunity to reach better performance levels (Tamkin, et al., 2010).

Motivation can also be encouraged by asking employees to become experts, in an area that they have shown interest, which should provide value to the company. Each department within an organization requires experts in different subjects (Schank, et al., 1999). Just by having individuals with specialized knowledge in relevant areas for the organization can be very valuable. Therefore, individual motivation can be reached by giving these employees a leave to further improve their expertise. In fact, this instils the individual's greater pride as well as work recognition.

4.3.7   Fear as a (de)motivator

Some organizations have used fear as a way to encourage employees to be productive. However, the continuous use of this strategy can generate demotivation. This also discourages behaviors required by organizations to succeed and learn (Abu-Jarour, 2014). A working environment that is fearful is produced by managers that bully, threaten, fire or punish employees that have made mistakes. Consequently, fear promotes extreme levels of caution as well as individuals to be self-protected. Creativity, collaboration and different ways to address problems are not common in these situations (Edmondson, 2004). The lack of psychological safety, should not put aside the lack of consequences, due to poor performance. So, accountability remains at all times.

Managers should be careful to keep their employee's self-respect and dignity (McGregor, 1957). This is required as motivation, cannot be given to individuals whose supervisors have already stripped of their dignity. This can be hard to understand by some managers as they inadvertently tend to humiliate their employees (Shukla, 2015). Furthermore, employee's motivation can be affected by the presence of individuals who show interest in doing the minimum. This puts a damper on the group's creativity and enthusiasm. Even worse, some managers tend to decrease performance standards to accommodate low standards (Bethune, 1998). In these cases, management should do the opposite. If these employees cannot cope with high performance standards, managers can do some coaching, put these individuals in more suitable areas or dismiss them.

Employees usually feel motivated, when they fell that they own their solutions (Pierce, et al., 1991). They feel that they are in control of the decisions as well as the information used for doing their tasks. This implies that managers have given their employees sufficient responsibilities to shape their jobs (Oughton, et al., 2002).   Also, employees feel that their voice is being heard no matter the size of the organization (Buckingham & Coffman, 1999). Additionally, motivation can be reached by having formal recruiting procedures, which allow the organization to hire the best candidates. An important aspect in hiring employees, has to do with looking for self-motivated individuals. These individuals tend to be: goal-oriented, optimistic, ambitious as well as confident. In fact, these individuals need little supervision.

Managers can point them wherever the organization would like to go. However, management should make sure that these employees have all the resources needed for doing the job. Rewards and periodic praise should be given when the job is done.

Additionally, motivation can be self-generated, when managers have earned their employees respect. In other words, organizations that provide: good salaries, friendly policies in order to be healthy workplaces can be affected by poor management (Gagne & Deci, 2005). Therefore, management should have high standards not only for himself, but also for the team.

Employee engagement is also connected to other factors; such as the job design. This last refers to methods, contents as well as relationships that satisfy organizational and technological needs based on individual's personal and social requirements (Lawler, 1969). These factors can be measured by using a work design questionnaire (Morgeson & Humphrey, 2006). This last acknowledges the connection between the broader environment and the job. Moreover, job characteristics can be grouped together in three major categories: contextual, motivational and social.

In the motivational characteristics, we can subdivide them into task characteristics. These have to do with the job itself, how it is accomplished as well as the nature of the tasks for a certain job. For instance, autonomy is the main topic in job design approaches (Campion, 1989). It is primarily seen as the amount of independence and freedom an employee has to carry out his work. In fact, this topic is interrelated to decision making, work scheduling and working methods.

Furthermore, autonomy connects to task variety or how an employee can be part of different processes in an organization. It is common for employees to feel more engaged if they have several activities to do (Sims, et al., 1976). Also, tasks need to be significant or influence the lives of others. Jobs that involve complete tasks or an entire product, tend to be more interesting than those that end up generating little parts (Oldham, et al., 1986). Additionally, employees need to receive feedback from the job they are performing. This feedback should be clear and direct based on the task execution effectiveness.

Another aspect to consider in work design has to do with knowledge characteristics. This studies the skill, knowledge as well as the abilities needs that are required to do a certain job. Some jobs are more complex than others. The more complicated ones require individuals that have high-levels of mental skills, which can be positively stimulating for some individuals. However, if these tasks are given to others that do not have to correct preparation to address these issues; might conclude generating the opposite effect and demotivating the employee (Hackman & Oldman, 1975).

Some jobs need individuals that can process huge amounts of information and focus on solving problems. These jobs would then benefit by having active cognitive individuals in these positions. Idea innovation and seeing issues from a new perspective are valuable competencies in organizations (Grote, 2011). Also, work design considers social characteristics; such as, social support. This reflects on how a job gives the individual the chance to get assistance and advice of his coworkers (Sims, et al., 1976). Social support is mainly required in jobs that do not have motivational characteristics or those that are repetitive and stressful.

Interdependence is used as the individual's jobs are connected to the jobs of other. Many organizations require one individual to fully complete his job, which would become another's individuals work flow income (Kiggundu, 1981). There are contextual characteristics that influence employee engagement like

ergonomics. This last refers to the appropriate movement or posture required by an individual to do his job. In other words, certain jobs require more physical demands; such as, endurance, strength or specific job activity aspects. There are also jobs that do not provide secure work conditions that might be dangerous, noisy or temperature related aspects that cannot be suitable for all individuals (Stone & Gueutal, 1985).

It is important to have employees feeling motivated as this can lead organizations to be successful (Pfeffer & Veiga, 1999). Motivation can be understood from several motives. However, this matter is critical as change is influencing job markets and workplace structures (Locke & Latham, 2002). Therefore, it is crucial to determine the factors that are likely to increase employee's capabilities.

4.4   Machine learning

Machine learning is a study field in artificial intelligence, which allows developers to create software that is able to learn from previously existing data. This process is called training. Moreover, these systems can become more accurate in their predictions through further training (Hey, 2010). There are several algorithms that can be used for different problems. However, there are a couple of learning types, which are unsupervised and supervised learning.

Supervised learning can be used when there is labeled data. In other words, there are identified outcomes of previous cases (Kotsiantis, 2007). To illustrate this point, I can refer to a doctor in a hospital that is letting a patient go home. Before the doctor lets this person leave, the system can go through its training data in order to identify the chances of this decision being a mistake or not. The systems training data has several patient indicators as well as the decision outcome. This would allow the doctor to reevaluate his decision in time. Nevertheless, this type of learning can be affected by the bias variance dilemma (German, et al., 1992). This refers to different performance outcomes based on the training sets. Therefore, models that have high biases comprise restricted learning sets. On the other hand, models with high variance tend to learn with difficulty due to noisy training data. In fact, there are tradeoffs among these models. Consequently, it is challenging to find a settling point as well as being able to identify the most suitable model for the prediction.

Unsupervised learning can be used to allow the program to find a hidden pattern. In these situations, answers are not a yes or no. These algorithms only look for patterns (Barlow, 1989). For instance, unsupervised learning can be used for data mining or creating data clusters.

In machine learning, results are likely to vary because of changes in the data itself or different requirements. So, machine learning should not be considered a single write solution. These algorithms need human intuition to be written. Machines require humans to get started and then they will build on that initial information.

4.4.1   Uses of machine learning

Machine learning is currently used in many situations that can improve their user's experience. Some applications are focused on learning about the user's behavior. This requires the person to use the application for some time in order to create relevant training data. Later on the software will be able to make predictions. There are diverse applications, as these algorithms can also be used to detect spam or recognize voice (Pedregosa, et al., 2011). Moreover, machine learning can be used in stock trading, where these systems can make sense of large amounts of information. The outcome of this analysis would be a

suggestion or prediction to sell or buy a stock at a certain price (Choudhry & Garg, 2008). In this case, the training data would have historical data of closing and opening prices, bought and sold volumes, etc.

Robotics is another field where these algorithms are being used. They can give robots instructions on how to adapt to a situation. Then robots gain the needed skills to grasp or place an object as well as improve their locomotion skills (Guizzo, 2011). Additionally, machine learning is being used in the advertising industry, where relevant information is shown to website visitors. Another application is showing users movies that they may like to watch based on their previous movie ratings (Bell & Koren, 2007). This is also being applied in the music industry (Kreitz & Niemela, 2010).

Data is being collected from several devices on a daily basis. This information can be shared among devices or applications, which in turn provides more insights regarding to people´s behavior or their emotions (Gubbi, et al., 2013). For instance, machine learning can be used to automatically set the right temperature at home considering many factors; such as, external temperature, month, season, personal preference, etc. Furthermore, different machines can have appropriate sensors for gathering data. These sensors can vary from accelerometers on cellphones to emotional states in custom made websites.

These algorithms need to be programmed before being used. There are several computer languages that can do this task. For instance, Python is an easy to read and learn language. It has many libraries that are already developed for machine learning like Scikit-learn, Pybrain or PyML (Scikit-Learn, 2015). Another language is R, which is an open source package that includes statistical programming (R, 2015). This language is more complicated to learn, but it has many visualization tools. Moreover, Mathlab is another option for creating these applications (MathWorks, 2015). It is commonly used by the academia and similar to R in its visualization. Scala is a new language that is based on Java. This platform tends to have better performance due to its multiple threading capabilities (Scala, 2015). Large data sets can consider using Clojure, because of its concurrency design (Clojure, 2015). Also, large data sets can consider using the open source package Mahout. This last is part of Apache and is very scalable. It can work on the cluster side or node side (Mahout, 2015). It can integrate with Hadoop for extensive scale processing. Mahout is capable of executing: Naïve Bayes Classifications, Recommendation Engines, K Means, Regression Classifications and Decision Trees.

As mentioned before, machine learning algorithms need historic data to create predictions or classify information. Therefore, the data must be relevant to the challenge trying to be explored by the researcher. Data exists in different sizes and shapes. Sometimes, the information is available in spreadsheets, XML, JSON or in several databases. Nevertheless, best learning experiences are likely to take place by exploring and combining the data. In fact, machine learning initial outputs can be improved through experimenting. In other words, a certain algorithm can be useful for some situations, but not as precise for others.

Machine learning projects begin with a question. However, these algorithms should not be confused with Big Data, which can answer certain questions by having sufficient data. Consequently, the initial step for these projects is to make sure there is a clear definition of their objectives. This is needed due to the information preprocessing that each specific question requires (Witten, et al., 2011). Some research questions may not have the required historic data for these algorithm's execution. In these cases, researchers may have to create a structure for gathering this information, which can then be processed.

The implementation of machine learning solutions also requires planning, where the information is coming from. If the data sources already exist, they would need to reviewed and cleaned. During this stage, the researcher should reflect on what methodology to use as well as the outcomes. Later on, the solution can be developed and store releases with a version number. This is useful for going back to versions that were more appropriate than the last one. The following stage is focused on testing the algorithms. This can be done by using random data of the historic set. Skipping this stage and going into production directly, without proper testing is likely to produce unwanted results. The testing stage, can help researchers to spot issues relating to information loading, processing or being able to generate meaningful results. Initial reports can be generated after going through the testing stage (Witten, et al., 1999). These documents can help the researcher, make sense if the original research question was properly designed or if the research angle should be modified. Finally, the reviewed algorithm and data sources can be placed into production or real use.

Organizations that use machine learning solutions have data scientists in the teams. These individuals have several skills; such as, data processing, programming, mathematics, statistics, analytic thinking as well as data visualization. Consequently, these many skills may not be available in a single individual, which may require the organization to work with a team in these projects (Davenport & Patil, 2012). For instance, mathematics is needed for projects that need regressions and basic descriptive statistics. Although, each project may vary from the previous one. Which in turn, would need a group of individuals that are continuously updating their existing skills.

Information storage capacity is an important aspect in machine learning projects. There are several options for storing information. Some organizations may decide to use their existing infrastructure or move their data to the cloud. Cloud storage refers to uploading the organizations databases to the internet on a rented hosting service (Kotsiantis, et al., 2007). There are different kind of hosting services, which can suit several organizational requirements. To illustrate this point, we can refer to Google Cloud Computing. This hosting option, gives users plenty of flexibility to create virtual machines or servers. Moreover, these virtual servers can start with a basic package for analyzing small amounts of information (Google, 2015). Nevertheless, these virtual machines can use more of the cluster´s resources as needed. Therefore, the organization doesn't need to be purchasing additional hardware or get rid of obsolete infrastructure. Additionally, organizations can reduce the number of technical employees that are needed for supporting local operations. However, despite these advantages some organizations prefer to remain with their current information technology setup (Grossman, 2009). Some of them are concerned about security and privacy issues that may arise by using the cloud (Subashini & Kavitha, 2011). Others, are price sensitive as dedicated cloud storage prices can be expensive (Durkee, 2010). Specially, if virtual servers are setup with too many resources that won't be needed by the project's demand.

As machine learning projects require historic information, gathered from previous user interactions. It is suggested, to let users know that their information is being stored and will later be used for a stated purpose (Daniel, 2014). Users can then decide if they would allow this to happen or opt out. There are several kinds of people. Some are willing to share information with the world or just their friends. Meanwhile, others may not feel comfortable by sharing their personal data. Consequently, organizations can handle this issue by making data anonymous. This would require the researcher to remove information; such as, names and email address. Another approach to anonymize data, is to encrypt sensitive data (Chow, et al., 2009). For instance, researchers can use MD5SUM to make generic encryptions. Furthermore, individual records identifications can be replaced by date concatenations and

so on. However, the usage of data encryption may not allow the organization to gain further insights of a specific case.

Another important aspect of machine learning is making sure data is clean. It is common for projects to combine information from many sources. In other words, data may not be standardized (Han & Kamber, 2006). For instance, decimal numbers can be separated by periods or commas. Dates can follow a day, month and year structure or change their order. The same happens with date separator and months being entered as numbers or words. Additionally, names can be entered in capitals, lower case or mixed. Countries can use codes, real names or no longer exist. All of these issues may arise, which require data to be reviewed before being used in training data sets.

Information sharing though several nodes or data sources can be improved by using common standards. For instance, many commercial spreadsheets can export their files to open source standards like CSV or comma separated values. Another format is JSON, which is best when data has row identifiers or primary keys (JSON, 2015). This format was created as an alternative to traditional format like XML. Moreover, JSON is a format that is being used by several application programming interfaces or APIs. It allows machines to communicate among each other by sending responses to requesting interfaces. This information is read by parsers, which in turn create objects to allow researchers interpret data. XML is another format that has been widely used for sharing information. It can be read easily by computers and people. Nevertheless, XML can become difficult to handle when data structures include many sublevels (Munzert, et al., 2015). In these cases, it is better to use JSON due to its native capabilities to order relational data.

One of the supervised machine learning algorithms is decision trees. It can be used to generate models to predict an objective or label based on a training data set. Decision trees can be used in many applications. For example, financial organizations may use them to predict a stock price. Marketing departments can use them to identity a certain customer type or predict whether a person may purchase a product. Medical organizations may use them to predict heart attack likeliness. Video games can use them to identify movement. The main benefit of using decision trees is the easiness to read them. Moreover, these algorithms can handle categorized or numerical information. Yet, they can create complex models, which may lead to over-fitting data (Sarkar, et al., 2012). This impacts performance and would require more processing time or additional infrastructure to handle the work load. Sometimes the model features or variables have to be trimmed down.

Decision trees can be processed by using different mathematical approaches. The ID3 or Iterative Dichotomiser 3 can calculate entropies for each attribute in the data set. So, this can be split in subsets considering the entropy's value. Once a node is created the algorithm goes through each of the remaining features. Therefore, ID3 is capable of using an information gain methodology, which measures entropies difference after and before a split (Rutkowski, et al., 2013). This can help the algorithm locate the root node. On the other hand, there is the C4.5 approach, which is appropriate for classifications. It can also be used with continuous attributes, as it calculates the split threshold point (Subramani & Balasubramaniam, 2012).

Another algorithm used in supervised learning is the Bayesian Network. It is also known as probabilistic directed models, Belief network, Bayesian Models or Bayes networks. Prediction can be made by using a set of parameters or variables. These features are interconnected, so resulting values are influenced and affect the output probability of the network nodes. Bayesian networks combine graph and probability

theories (Bishop, 2006). They are very convenient for managing complexity. Furthermore, Bayesian Networks are likely to be found where uncertainty is present. For instance, weather forecasting and financial markets. Also, predictions can be made with data that is not complete.

Bayesian Networks are composed by graph nodes. In fact, a node is anything researchers would like to group together. So, nodes can be: actors, proteins, films, etc. Models can have as many nodes as needed. Nevertheless, there must be a connection among nodes, which is named an edge. Nodes can then be organized and queried by using several software applications; such as, Spark, Neo4J or Giraph. Information can also be explored by using Conceptual Graphs as they support relationships between nodes. Probability is another component of Bayesian Networks. This measures the likeliness of an event to happen using a scale between 1 and 0 (Bishop, 2006). An output of 1 indicates complete certainty that an action will take place and 0 is the opposite.

Artificial neural networks are another approach to do Machine Learning. They are modeled considering animal brains. The network is created with outputs and inputs. In terms of biology, neurons are cells that are able to process and transmit electrical signals or chemicals. A neuron is linked to others in order to create a complex network. In other words, it is similar to graph theory structures with edges and nodes. Human neural networks are huge and complex. The links or connections can be measured in billions. Each neuron has a dendrite or input as well as an axon or output. Therefore, outputs link inputs of several neurons to develop a network. Neuron activation takes place due to electrochemical signals, which are sent throughout the axom (Dayhoff & DeLeo, 2001). This makes the cell body be able to identify the signal's weight or thresholds that have passed. Then the action continues through the output alongside its dendrite.

These networks tend to be fast to process information. In fact, they are used in real time or close to real time applications. Organizations tend to use them for credit applications in order to find out if applicants are bad credit factors. Also, they can be used in data centers to balance server loads, network equipment usage, operating temperatures and so on. This allows huge datacenters to efficiently monitor and cool their equipment (Google, 2014). More applications can be seen in robotics, where sensor pattern recognition is needed in vast amounts of data. Medical monitoring can also be benefited by using artificial neural networks, because of the need of permanent variable value changes. Once the variable reaches a threshold, it can send alarms to the hospitals staff.

Understanding of these networks, imply that the researcher is not sure about the links among outputs and inputs nodes. If these relationships were clear, it would be better to use another algorithm. The elementary part of a neural network is a perceptron. It receives an incoming signal and later sends it to another function. Perceptrons manage numbers when a numeric vector is sent to the input. Then it is sent to a calculating process known as an activation function. Nodes can manage unlimited numbers of inputs and then weight their entire sums. Additionally, the perceptron weight can be any value. When this value is zero, it doesn't affect the incoming node value. Similarly, incoming data can be negative or positive values. The output key is generated from the weighted sum in contrast to its threshold. Furthermore, activation functions are enabled after the input was sent to a neuron. This result defines if the value should be sent to the axon or output to the following neuron (Khashei & Bijari, 2011). However, there are multilayer perceptrons that can be used when single layer perceptrons are not sufficient. This kind of perceptron have many layers that separate their output and input nodes. Multilayer perceptrons can be

understood as back propagation. It calculates required gradients then maps them to accurate inputs and outputs.

One important aspect to consider, before using neural networks is that they can only be used with numbers. This may require information to be normalized previously by converting text into numbers. For instance, genders could be coded like males being 0 and females 1. Creating numeric codes can be challenging in dataset that have extensive usage of text. Sometimes researchers may have to choose the most relevant information from the datasets to do their projects. The lack of proper variable filters may lead to the dimensionality curse (Runge, et al., 2012). This happens when new variables make the training data increase to reach insights. Despite neural networks being resistant to noisy information, it is best to remove potential outliers to avoid interference.

Association rules is common algorithm in Machine Learning. It can be used for webpage data mining or points-of-sale. This method is good at examining transactions, because of the data connections that can be found, which in turn may lead to correlated results (Li, et al., 2001). The retail industry tends to use this algorithm, as they can find out what products, a buyer might be interested in purchasing. This can be done by examining what products have already been purchased by a buyer, as well as other buyers that are similar to the individual being studied. Yet, these algorithms can be used for predicting website user's behavior as they can track information and learn from it. Moreover, bioinformatics also uses this algorithm to learn about gene and protein sequences. They can also find associations in mutated genomes or DNA.

Support Vector Machines is another algorithm that classifies information into groups to be inspected at a later point. It is suitable for small datasets with few variables. It also requires training information to be executed. This algorithm can create linear classifications. It is similar to neural networks as the minimum errors and sigmoid functions are the same. Support vector machines is able to use two or three dimensional plots for every variable in it (Tian, et al., 2012). These algorithms are commonly used for hand writing patterns recognition as well as images recognition. Health institutions use this algorithm for protein libraries. However, support vector machines mathematical functions can be difficult to understand. It takes the perceptron concept further in order to maximize it geometric margins.

Machine learning algorithms can also be used for creating clusters, which can later create segments. This is known as unsupervised learning methods. In these cases, there is no previous training data. The objective of these algorithms is to find data structure (Aggarwal & Zhai, 2012). For instance, social networks can consider using clusters to define community users. Once this is done, they can target certain clusters with relevant content. Furthermore, retail organizations use clustering to make sense of surveys that have plenty of variables. In other words, clusters can be created based on location, population or purchasing habits. This allows these organizations to create products that are suitable for the cluster. Moreover, law enforcement agencies can use clusters to create crime predictions. Also, as hardware devices or sensors are collecting data, clusters can be found based on the researcher's interest. The education sector can be benefited by using these algorithms, as online learning information is stored in their servers. They can use this information to identify different kinds of students and create course work that suits their learning style.

Some of the clustering algorithms are based on centroid models. For example, the K-Means algorithm can create groups by knowing how many clusters are required. All clusters will have a centroid or a point where the object's distance is calculated. In fact, clusters are created by a continuous procedure that looks

for objects that are closer to a particular centroid. As this is done automatically by the computer, it is named unsupervised learning. The process ends when the algorithm cannot set the object to another centroid (Jain, 2010). These algorithms must be initialized prior to their use. This can be done by creating random partitions or implementing the Forgy method to spread sufficient randomness. Later the observations are assigned to be updated by the algorithm. K-Means uses the Euclidean distance measurement approach. So, the squares sum can be obtained by squaring the Euclidean distance to every centroid. In other words, the smallest distance value would be set to the cluster being analyzed.

Nevertheless, K-Means algorithms can present some difficulties. Specially, by determining an appropriate number of clusters. As this is not done automatically, researchers that are interested in using this algorithm have to predefine this number. This can be done by using the rule of thumb or root squaring the number of objects. Another approach is to calculate the data set variance and plot them to a cluster. Cross validations are also applicable by partitioning the data set. This needs the data to be summed and averaged. Then the Silhouette method can validate if objects are in a cluster by calculating the similitude of one object compared to another in the same cluster (Pena, et al., 1999).

Machine learning, not only uses historic information for its algorithms, but also real time data. Real time data processing in common in the financial sector to help them decide which trade should be placed. These decisions have to be done in very short periods of time. Results that take more than 15 seconds to be processed are considered as old information. However, other applications can batch up their processes and execute them every number of hours (Bekkerman, et al., 2011). Additionally, new real time applications can use in memory processing. This approach is best when no SQL-based intelligence systems are needed. Also, real time data tends to require plenty of storage space, which will come at a cost. Real time data allows applications to have real time analysis. For instance, devices that store individual's location can show relevant information; such as, traffic, weather as well as breaking news.

Sentiment analysis can be done by using real time data. In these situations, the algorithms can get connected to social networks as input sources. This type of analysis examines words by identifying if they are negative or positive. The algorithm can become more accurate if sentences are longer. It iterates strings and for every word it looks in negative or positive lexicons. After the sentences has been parsed it returns a score that is used to assess the whole sentence (Sharma & Dey, 2012). Yet, this algorithm requires words to be written correctly. Slang and misspellings may affect its accuracy, as these words may not be included in the lexicon. The same happens when sarcasm is used in the sentence.

Information can also be processed for Machine Learning in batches. This is approach is the opposite of real time data. It is done after the data has been extracted and transformed. There are many software packages that can process batch data (Mönch, et al., 2006). Among the most common software solutions are: Hadoop, Sqoop and Mahout. Hadoop is an open source software package that can process machine learning data in a single node or cluster (Hadoop, 2015). Meanwhile, Sqoop is appropriate for extracting information from traditional databases (Sqoop, 2015). Besides, Mahout has algorithms for creating collaborative clusters that later will be classified and filtered (Mahout, 2015). Still, all of these applications require their projects to be planned and prepared. There is no such thing, as throwing in data and having results being presented automatically. Hadoop requires information to be converted previously into the HDFS file system. Then the information is stored in MapReduce, which makes it easily movable from node to another. Nevertheless, Hadoop may become unstable due to its NameNode being a single failure point.

If this last fails, the complete cluster will stop operating. Consequently, data would not be processed. This issue can be addressed by having a cold spare computer that has HDFS metadata snapshots.

Another cluster computing framework is Apache Spark. It differs from Hadoop by not having to use MapReduce, which makes Spark faster to process information. Jobs can be programmed in Scala, Python or Java through its application programming interface. Apache Spark supports algorithms for unsupervised and supervised learning; such as, Decision Trees, Support Vector Machine, Linear Least Squares, K-Means and Naïve Bayes (Spark, 2015). Yet, this requires Spark to have the Breeze software dependencies systems installed. Researchers can additionally create Machine Learning projects in the R software language. R can be more useful than Apache Spark, when researchers are required to plot data or perform statistics on processed data (R, 2015). Moreover, sentiment analysis can be done in R by parsing data, which would be later compared to negative and positive lexicons. This would require the researcher to use the Apriori Association algorithm that can be setup in a single line. Therefore, less lines of code are needed to create a software application. R can be called from other programming languages like Java. In these cases, it can share its statistical capabilities with external programs to reach deeper findings.

There are many Machine Learning algorithms that can be used for different purposes. Researchers have to clearly identify the projects desired outcome in advance. Despite the variety of supervised algorithms, their prediction accuracy can vary on different projects. Therefore, the training data should be tested in them all. This would allow the researcher to find the most suitable algorithm for this specific situation. As each algorithm is composed by different mathematical models, their processing time can also vary. Organizations that have their transactional information in the megas or gigas ranges can opt to use their own infrastructure. Meanwhile, bigger storing requirements would also need more processing power to get model predictions or clusters in reasonable timeframes. Yet, hardware is not enough to get results as these projects need some individuals to be involved. These teams can be composed by managers that provide the questions that need to be answered. Operational individuals that can provide insights on where to locate this data. They can also share real insights, regarding to the organizations every day operations. The Information Technology staff is also required as they manage the organizations databases. These individuals can also provide a list of sources where information is kept. Some organizations have a new position named the Data Scientist. This last refers to individuals that have a variety of skills in areas that range from Mathematics to Computer Science. Moreover, organizations have plenty of undiscovered data sources like sensors and social networks. All of these sources are collecting plenty of valuable insights on a daily basis. Corporate intranets, corporate email servers, corporate customer relationship managers and virtual training websites can be used as sources for a wide spread of analysis. Nevertheless, organizations have to decide on how this information can be used. Some organizations may argue that their information belongs to the organization. No matter, if it is stored in an employee's computer, email message or cellphone. Others may decide to anonymize their employee's identity in the data. Some, may let their employees know in advance, that their interactions with the organizations systems are being stored. This would also imply that employees would know what the organization is going to do with this data. This decision can also be affected by specific legal terms, which may vary from one country to another. However, Machine Learning algorithms provide organizations new tools to make sense of their data. This sense making process can be applied in many areas or organizational departments. Data predictions can be done in the Marketing Department regarding to understanding their customers purchasing behavior. Also, the Human Resources Department can use these tools to begin understanding

their employee's behavior; considering continuous organizational changing conditions. Production departments can create new demand-predicting-models, which can take into account many variables. Actually, Machine Learning algorithms can be applied to any industry or organization as long as previous training data exists for supervised predictions. If this requirement doesn't exist, then it can be generated by starting to store relevant data.

4.5   Chapter summary

In this chapter, we were able to analyze the survey results. We went through the best and worst results. The organization studied in this document was presented several strategies, which seek to improve the issue. Machine Learning was presented as a viable option to understand or make sense of organizational turnover. Actually, it has been used to find patterns in complex data and create accurate predictions. The following chapter presents some general reflections.

5.   Reflection on the findings

5.1   Purpose statement

This chapter shows some general reflections. Furthermore, it explores aspects that are linked to employee engagement. Best practices are reviewed, which can lead to reduce organizational turnover.

5.2   Reflections

After doing the research process with the research participants, we have been able to reflect on its outcomes. There are aspects that worked well like using Machine Learning Algorithms to predict employee turnover. We are satisfied with its initial results and looking forward to keep using them as an organizational measurement system. However, we realized that employee engagement is also connected to other factors. For instance, organizational image is a key element for employees to remain working for an organization. Also, recruitment, selection and making sure employees are job fit can be useful for the same objective. We were able to better understand why orientation programs are needed and how to create them. In fact, all of these factors promote employee's job satisfaction. We also realized about giving employees the right training and tools in order to do their work. That is, workplace design, which also considers employee safety aspects. We reflected on how organizational culture can help employees to gain better understanding of the company's personality. Actually, it influences certain behavior among employees. The following sections have further reflections of these aspects.

5.3   Organizational image

The organization's image is more than that perceived by the public. Actually, it can be a clear indicator of an organizations existence in the future (Marziliano, 1998). The organizations image can assist it to

transmit its success, personality as well as it culture. It differentiates the organization to another. Great organization images keep their messages consistent, regardless of the medium. Image can help individuals to gain better understanding of what the organization is like. It can also show what the organization would like to be (Shoemaker & Lantos, 2000).

Applicants to new organizations are seeking to be associated with organizations that have a positive image. Therefore, corporate image is not only reflected on its employees, but also itself. Organizations that have a positive image, benefit from it by having their employees feeling proud about it. Actually, employees sense that their work contributes and creates this image. Nevertheless, a tainted organizational image, can generate turnover. In other words, employees can show themselves unwilling to be part of a corporation that is not seen favorably (Dolliver, 2002).

Organizational image is incorporated into media and advertisements. For instance, Apple Computers has an apple in order to create its image. Celebrities are commonly used to create an organization's image. Furthermore, some organizations use everyday individuals to create their images. Automobile makers tend to use images that transmit fun and excitement. These colors, symbols, celebrities and characteristics become part of the organization's image. Preferably, employees can relate themselves to these images or create an identity connection. If positive experiences take place, they can persuade the employee to remain in their jobs, because of organizational membership.

Strong organizational images have identified their components clearly. So, paying attention to all components can improve their images. There are seven components that together form an organization's image. The first is simplicity. It refers to focusing on one idea, which can be presented in several ways. The second is uniqueness. This one is about developing an organizational theme in order to become different from competitors. The third is appropriateness. It focuses on showing the organizations qualities. The forth is continuity. It ensures consistency between how the organization is viewed and its messages. The fifth is relevance. It addresses the organizations audiences. The sixth is foresight. It focuses on reaching a target audience before any undesirable attitudes or perceptions are formed. Finally, the seventh is credibility. It concentrates on making sure reality matches its claims (Shoemaker & Lantos, 2000). Corporations can see improvements in their retention levels by addressing these components. In fact, employees feel validated through positive organizational image, tend to keep within it.

Organizations that have a positive image are more likely to thrive in the market. This can happen due to their financial performance brought from their supporting public. So, great market performance would be the objective of retention strategies. If the organization cannot perform strongly in the market, it won't need employees at all. That is, the end of the organization. However, a marketplace strong performance cannot only focus on the financials, but also keeping their employees in their organizations.

Moreover, employees require their organizations to perform at their best in the market to promote their positive future. Strong market performance implies that the organization can pay back its employees. Employees that feel being part of successful organizations are more willing to remain in it (Luthans, 2002). Market performance can be measured differently depending on the nature of the organization. To illustrate this point, public held organizations have clear financial indicators. They show their profits, losses, stock prices, etc. Their market performance becomes stronger because of higher profits. On the other hand, there are privately held organizations. Their market performance criterion is different as they do not have to show their financial indicators. In these organizations, market performance can be established by seeing expansions. New services, products or locations can reflect this last. Furthermore,

internal employees can be aware of budget increases, which result into hiring more staff. There can also be profit sharing as well as bonus structures for all employees. Meanwhile, public sector organizations have different indicators. These organizations do not commonly have profits. They tend to be judged by their image. In other words, individual's perception set their success. Some of these organizations seek for customer satisfaction to gain market performance as well as public support.

Considering the organization studied in this document, we have realized that organizational image is an area that can be improved in our company. Some of our independent salespeople sell our goods, without referring to our organization. For instance, they have their own customers, who buy Converse shoes or any other product, but they do not identify themselves as independent salespeople of our organization. Nevertheless, if they would do so, they could benefit from the organizations market perception, which focuses on selling goods at the lowest price. In other words, customers who are looking a product, without having to pay premium amounts, could choose us. Moreover, this would enforce our company's uniqueness and appropriateness. As this message is communicated more frequently, there would be continuity and relevance for certain markets. This in turn, creates organizational image foresight to build the right perceptions and credibility.

5.4   Recruitment

Seeking and being able to find human talent is an ongoing process for many organizations. Keeping talented individuals motivated and productive is a common organizational objective. It is a critical individual need to be recruited by the correct corporation. This is, applicants require to be hired by an organization, which they feel as attractive. When people are looking for a job, they research organizations for many motives. For instance, the organization can be close to their homes. Sometimes, their friends are working for an organization. Some individuals can feel attracted by benefits and payments offered by the organization. Some might be willing to join due to career advancement opportunities.

Organizations need to identify effective recruiting strategies that can suit their needs. Common solutions include: referrals, newspaper advertisements, open houses, university job fairs, online applications, etc. Internal referrals can be an effective way to attract and keep employees. Some of these programs give bonuses or gifts to employees. The amount of the bonus can vary based on how long the new employee remains in the organization or her performance (Frederick, 2002). Moreover, open house recruitment can take place when employers sponsor a meeting for the public. This can be useful for attracting applicants that have different experience and education. It can reach the most desirable applicants, who might be unreachable or those undecided to join an organization. New applicants are given the chance to speak to the organization's employees and learn about their culture. Furthermore, it allows the future employer to evaluate the applicant in a calm setting. As these activities take place in the organization's facilities, the applicant can get to see the area, where she might work. Job fairs are similar to open houses. The main difference is that they take place in a location that is not the organization. This happens because of the organizations infrastructure size constraints. Sometimes it is more convenient to rent a convention center to have enough capacity for all guests (Hensdill, 2000). Recruiters are another option to find employees. Candidates that come from this last source, have usually gone through plenty of screening processes. Recruiters interview many applicants and later send them to the organization for further selection. Online

advertising and newspapers, are common ways to find employees. Organizations that have structured application forms in their websites, can have a private database of applications. Nevertheless, these records can become obsolete in time, as applicant's education, experience and desired position are likely to change (Nicholson, 2000).

This is another area that can be improved in our organization. We currently use internal referrals as a source to find new independent salespeople. However, the organization does not pay any referral bonuses at this time. We are considering to pay this bonus, based on the new independent salesperson revenues levels in their first three months. That is, a percentage of their sales, would become the referral bonus.

5.5   Selection and interviewing

During this stage applicants and employment decision makers speak about the job in question. This can be done informally or formally depending on the organization's culture. There can be many interviews before selecting a new employee. Interviews are a tool used to find the applicant who is the best fit for the company. They must be impartial and fair for all applicants. This allow the person to feel valued and treated as a professional, despite of the interviews outcomes. Fairness refers to having a standardized selection criterion, procedure and outcome decision. All of these steps should be supported on factual data. Organizations can also consider applicant's skills, talents and education. Also, the selection process needs to have a natural time frame. This is, employees have to be selected in reasonable time frames. If organizations take too long in their selection process, applicants might lose interest in being hired. Yet, those that are turned down can become part of the organization's talent pool for future openings.

Realistic job previews are another strategy used to clarify opportunities between the employee and the organization. This can reduce turnover cost, as it states expectations from new employees. It allows individuals to address immediate concerns about a specific job. Being able to clarify expectations is an employee retention strategy, which is inexpensive and effective. This lets applicants that are not the best option for the position to withdraw on their own. This in turn decreases employee turnover. Realistic job previews can be used in one-on-one and group interviews. It is useful to identify the fit between job necessities and applicant characteristics. This technique requires the interviewer to ask questions focused on the skills, abilities and job characteristics. This information determines the applicant's self-assurance, openness, demeanor as well as her responses to complicated questions. Throughout this process, the employer is able to preview the applicant to the organization and the job in order to set realistic expectations. Nevertheless, some organizations lower starting job expectations to increase commitment, self-selection and job satisfaction (Wanous & Premack, 1985). Realistic job previews can include responsibilities and duties. This gives applicants a work sample of the needed tasks. Furthermore, empowerment levels can be previewed by allowing the applicant to role play a certain position. She would then make decisions autonomously related to the job. Training and education can be shown by presenting orientation programs, as well as, formal education for the job. Moreover, employers can show how they evaluate their employees and its possible implications with promotions and pay increases. Successful employees that are doing the applicant's job can be visited in order to determine a reference to follow. Career paths can be shared with the applicant to see promotion and progression chances. Job expectations can be communicated to set goals, requirements, work attitudes and failure consequences.

Finally, success determinates can be shared to identify common performance records and compare them to those evaluated in formal procedures.

Organizational realistic job previews are not used exclusively during the employee hiring process. They can actually be used throughout the individual's employment life time. For instance, if the organization needs an employee, who is able to work in stressful circumstances. In these cases, a realistic job preview can be set to evaluate how applicants respond to this situation. Then follow up discussions can take place to explain any expectations and obligations. Information about benefits, pay and policies must be given to applicants that have become employees, when they are hired. New employees require written and verbal communication in order to solidify their job offer. In fact, this information will provide guidance to several of their questions. Those employees involved in realistic job previews may answer and anticipate those questions in writing or verbally. Besides, the new employee's manager can identify specific individuals that could be contacted for certain job problems.

In our organization, we are interested in improving this aspect, as sales is not for everyone. We are interested in creating optional sales job previews. The idea is to let the new independent salesperson applicant to experience what it is like to do this job. Furthermore, it is a good opportunity to show them the career opportunities that they have in our organization.

5.6   Job fit

This refers to the congruence between what the organization offers and the employee's experience expectations. Employee satisfaction can be increased by having proper job fit. As a matter of fact, it not only addresses how work is being done, but also how employee interaction is taking place among their teams. Job fits refers to the employee being compatible with the organization (Mitchell, et al., 2001). Employees that are not job fit are more likely to leave their organizations (Caldwell, et al., 1991). In fact, there are some studies that have identified the relationship between employees staying longer in organizations if they are job fit (Cable & Judge, 1996).

If the employee clearly understands the job, this increases the chances for her to be a good job fit. Therefore, job interviews can focus on explaining the job as much as possible. For instance, the job role can be discussed based on the product that is sold or provided service. The amount of risk or certainty can be addressed as actions to clarify the job requirements for the new position. Moreover, questions about employee supervision as well as their independence are can be explained as job autonomy aspects. Also, task priorities and their variety can be reviewed during the interview.   Another option is to create detailed job descriptions. These document are useful for the recruitment and selection processes.

Job fit has some internal components. The first is, person and organization fit. This takes place when there is alignment with the organization's tasks and the employee's former work experience and future objectives. Personal characteristics can be included in the evaluation; such as, dependability, innovation, flexibility, resourcefulness, attention to detail, etc. However, evaluators must ensure that all applicants are being assessed in the same way. Besides, behavioral questions focused on applicant's experience are great options to evaluate that the applicant is person and organization fit. It is critical to make sure employees are fit in order to avoid turnover. The employee's plans for the future, values and objects have to match with the organizations culture (Mitchell, et al., 2001).

The second component of job fit is person cultural fit. This fit takes place when the organizations culture matches the employee's lifestyle and objectives (Hensdill, 2000). Quite frequently, organizations look for

employees that are reliable and loyal to their causes. This last, can be person cultural fit. Consequently, the organization must hire individuals who are aligned to their beliefs and mission. Yet, more importantly it should provide evidence of how employee behavior is connected to culture. In other words, recruitments efforts must find applicants that properly align to the organizations culture. For instance, certain industries like those involved in public communication or media, are better off by hiring individuals that are focused on deadlines. A different example can be software developers, who work on flexible schedules and thrive on imagination. Once the organizational culture is understood, it can be less stressful for an organization to find an applicant that could fit well in it (Smith, 1999).

The third component of job fit is person and person fit. This is about individuals feeling peer cohesion, while they are in the process of aligning their personality with their colleagues. So, organizations can question themselves if the applicant will fit those that she will work with. Or perhaps, the applicant might create unnecessary work tension. Employees may leave an organization if they do not feel colleague acceptance.

Job fit is an important element for our organization. If it is done properly, it can reduce employee turnover. We believe that new independent salespeople expectations should be aligned with what we can offer. Person job fit can be done by evaluating if the applicant has certain salespersons characteristics; such as, good communication, patience, customer orientation and persuasion. If these characteristics are not present in the applicant, it is an opportunity to teach them through our training programs. In other words, we would be showing that these skills are needed. Which in turn, would motivate these individuals to take our training programs. Organization and culture fit can be reached by showing them what the organization is like. This will allow them to decide if they would like to work with us.

5.7 Orientation

Orientation is a procedure used to introduce the organizations image, culture as well as its values to new employees. Throughout this process, organizations can show the best of them in order to create a great impression. So, it must be executed as professionals to avoid early employee turnover. Many individuals remember their first day at work. It is usually associated with stress and excitement. The orientation can take place in a classroom or getting familiarized with employees, who are actually doing the job. Either way, the new employee can feel stressful, especially if the job is complicated. Therefore, effective orientation can assist new employees to manage stress. This can be done by explaining their responsibilities to the organization, as well as, the ones to themselves (Wanous, 1989). It is important for new employees to feel and be accepted by their new team during orientation programs. Furthermore, proper orientations programs can promote new employees to become productive faster, while keeping them in the organization.

Organizations are diverse in their orientation procedures. Some have permanent orientation sessions due to high volumes. Others wait there are sufficient new employees to offer a session. Small organizations may not have formal orientation procedures. Nevertheless, employees can be guided on a one to one conversation. No matter how the orientations is done, it can help organizations and new employees to become successful. The orientation's goal can determine how it is made, content and duration. It should be designed in a way that matches the organizations culture. Orientation can take longer if more training

is needed. This can also happen when jobs are complex. On the other hand, orientation can be given in short time periods if resources are scarce or the job objectives are simple.

Job orientation processes need to set their objectives as an initial step. This is based on what the new employee requires to learn about the organization. In general terms, orientation programs can start by welcoming employees and making them feel important for the organization. Then, begin building positive attitudes towards the organization, its customers, services and products. Historical organizational information can be shared; as well as, its values, vision, structure and mission. Show new employees their work environment. Communicate benefits and how they can be used. In some cases, make sure all documentation is complete to formalize the hiring process. Share procedures, policies, standards and rules. Finally, explain employee performance expectations. Once this structure has been created based on objectives, there should be time allocated for addressing employee's questions and needs. It is useful to test these orientation plans during a pilot to realize if it is effective or not. This test can help the organization identify proper delivery methods and materials. Another source of feedback is asking new employees that went through it to share their thoughts. They can let the organization know if they actually learned what they should have. Feedback is always a valuable tool for continuous improvement. Orientation procedures need to be monitored in order to increase their effectiveness. Organizational change can affect the effectiveness of orientation programs that used to be effective. So, monitoring makes sure that materials and information presented is up to date.

Orientation not only can be delivered face to face, but also through the internet. This approach is applicable when employees are not located near their employer. For instance, employees that live in a different city or country. Some of these programs can be delivered through video conferences or a structured orientation website. The last one, can be useful to make sure all orientation topics are presented to the employee (Toloken, 2000). This also allows the organization to receive quantitative feedback if the orientation is an online course with assessments (Noe, 2002). Organizations similarly to individuals just have one opportunity to make first impressions. So, orientation programs that are properly designed can help organizations to create these positive impressions. Also, retention and productivity are both benefited. These programs should show what the organization requires to share with those new employees that are ready to learn. If these programs are well designed the new employee will get a head start.

Our organization is interested in creating more effective orientation courses. Although, we currently have an orientation program, we realized that it needs to be updated frequently. In fact, many of our independent salespeople use social networks to sell our products, but these sites are changing continuously. So, we cannot have material that is out of date or no longer applicable. Moreover, we are trying to make our courses more effective by removing parts that are not relevant. Creating these courses has been challenging and we need to keep working on them.

5.8   Job satisfaction

This can be understood as how much employees are pleased with the activities that must be done in their jobs. It includes aspects like pay, supervision, opportunities to grow, satisfaction with the job, and relationships with colleagues. Employee retention can be increased in organizations by having satisfied employees. Individuals have the basic need to feel satisfied with their life. This last also includes their work. The aspects mentioned before are important to determine employee needs. Nevertheless, these aspects have different importance degrees depending on each employee. To illustrate this point, some

employees may consider pay to be the most important factor for job satisfaction. Yet, another may appreciate more to have better relationships with her supervisors. Therefore, these aspects have different meanings for all employees. Furthermore, some employees might require just one or two aspects in order to feel satisfied. However, other employees might need all the previous aspects.

Employees can feel anxious if they are given a job that lacks of proper description or objectives. This can cause the employee to feel that no progress is ever made. On the other hand, jobs that are properly designed can increase employee's productivity, while promoting retention and job satisfaction. Designing a job properly requires the employer to provide adequate tools, as well as, an objective to their employees (Davenport, 1999). While designing a job, employers should make sure that the job is clear. Also, all sub processes need to be identified and understood. The right tools should be available for doing the job. The job should have some variety if it is repetitive. The job could use different degrees of creativity, input and empowerment. Moreover, rewards and incentives can in included to promote objective achievement.

Job satisfaction can be increased further by providing employees professional training. In order to improve opportunities for promotion, it is suggested to review how employees are chosen for promotions. In fact, career plans can be discussed with employees. Sometimes, organizations can improve their employee's payments. Yet, special attention should be put on benefits that can be losing their appeal. For those employees that are in supervision positions, can appreciate management training. There can be special recognitions to those employees that show or live the organizations values. Also, teams can be rewarded if they are reaching satisfactory results. Employees should be allowed to do their tasks in a way that they consider it as enjoyable. Likewise, employees should be able to complete all tasks that they started. Managers should seek with their teams for new ways to become more productive and efficient. Organizational leaders should visit their employees no matter what the condition of the organization (Moss, 2000).

Job satisfaction is a crucial element to keep our independent salespeople working with us. We would like to work on this aspect by creating more recognitions, which should be relevant to both the individual and organization's goals. Nevertheless, each individual may like to receive different recognitions. So, the we would like to create some recognition options or categories. Then the independent salesperson could choose the most relevant one for herself.

5.9   Workplace design

This refers to how the working area is arranged and organized. It must focus on enabling employees to be productive and efficient. So, not all working places can be the same. The design will depend on the kind of activities that must be done by employees. Organizations that invest resources into properly designed and functional workplaces, not only provide an attractive place to work, but also encourage employees to keep working for the organization. As a matter of fact, employees with larger salaries tend to complain if they do not feel comfortable in their workplace. Nevertheless, employees with lower salaries tend to leave their jobs instead of complaining about it (Brown, 2000). Employees that work in places that do not support their activities can lead to frustration. In other words, these inadequate conditions can lead to poor productivity and high performers leaving the organization. Consequently, work environments need to be aesthetically pleasing as well as functional to promote productivity.

Workplaces that support employee's activities, aligned with the organizations objectives and corporate image are more likely to keep employees satisfied.

Well-designed workplaces, support productivity as well as allows employees to communicate better. Nonetheless, it does not require the workplace to be the newest, largest or the most expensive settings. It should be attractive and functional to work. The primary condition for effective workplaces is it to be functional. This is, providing the employee sufficient space, equipment or tools to do their work. Moreover, employee communication is also important. They must be able to speak to their leaders and other organizational departments. Also, employees like to work in places that are conductive to the performed work. Austere workplaces that are very functional can promote employee turnover if they are aesthetical. Workplaces that are cramped are likely to reduce productivity. Yet, spacious ones encourage creativity (Richter, 2001). Workplace design can be an image of what the organization considers as priorities (Harvard Management Update, 2000). Innovative designs can promote communication for organizations that value it.   Many workplaces have collision areas to encourage informal employee discussions or share innovative ideas. The need for better communication grows, while some organizations require more innovation (Girion, 2001).

Our organization is interested in expanding the area that we allocated for our independent salespeople. Although, it is not necessary for them to come and work at our organization's facilities, some of them voluntarily decide to do so. This happens, as this area has been designed as a working area. It has meeting rooms, wireless internet access, desks and chairs. In other words, it is a place where the ISP can work without distractions. Nevertheless, somedays this place tends to get crowded. Therefore, we would like to expand it and include more facilities; such as, a lunchroom and some vending machines.

5.10 Safety

Another aspect for employees to feel satisfied with their jobs has to do with safety. It can be a hidden aspect, which is noticed when it does not exist. Safety concerns can be addressed by creating programs focused on prevention. It is a basic need for individuals to feel safe. Security and safety should be addressed by organizations proactively. Therefore, not being able to provide a secure workplace to employees can promote turnover (Jordan, et al., 2002). This issue can become more complicated if employees think that their workplace is not safe due to management problems. It is common for most safety programs is to highlight prevention. If employees see that the organization is worried about them, they can feel more satisfied. In other words, they may consider staying within the organization. Safety program's creation need organizations to understand what their employees perceive as threats. Actually, it all begins when new individuals start working for an organization. Some companies require new employees to present police records in order to find out if the individual has committed a crime. Others, get in contact with new employee's former employers to find out any irregularities. All of this is done to identify false statements, as well as, potential violence. In fact, organizations should have visible policies that explain why these background checks are necessary. Sometimes, organizations can ask for additional tests to find out if applicants are abusing substances or have contagious diseases (EMASEO, 2016).

The final task of safety programs is to write a security and safety statement. Employees that are not involved in its creation nor follow it might be potentially civil liable (Crawford, 2001). Consequently, organizations that follow and implement their safety programs can expect to have less turnover. In other words, the organization is protecting its human capital. Some organizations have a safety committee to create their training and safety programs. This committee can manage responsibilities, roles and policy

statements. As a result, workplaces that are safer have employees that perceive fewer or not harmful issues related to safety.

In our organizations case, we have had some complaints from our independent salespeople, who decide to come and work at our facilities, about misplaced items. This is an unexpected issue that we are going to address promptly. We currently have ID badges, which control access to the different parts of our facilities. However, it seems that we need to invest in cameras and place them in strategic locations.

5.11 Job security

Job security can be understood as a sense of stability for employees in their companies. This can allow them to purchase assets or make plans in the future. If organizations lack of this last, employees may decide to look for a job somewhere else. Employees like the feeling of having a secure job that can provide them stability in the future. Yet, acquisitions, mergers and downsizing can affect this aspect. The lack of job security can affect the organizations employees' sense of belonging. This in turn can affect their responsibility (Ashford, et al., 1989). Therefore, job stability becomes a critical investment strategy in order to keep employees working for an organization (Shaw, et al., 1998).

Organizations can have different levels of job security. Many organizations can have their job security affected by economic cycles. This is, in growth cycles, more employees are hired and promotions can take place soon. Yet, recessions can promote the opposite effect. In some organizations job security can hardly exist. In these cases, employees can start to rely on employability. In other words, being able to find another job as soon as possible. Moreover, industries that cannot keep reliable employees due to arising organizational issues, may offer them to be rehired in the future. Furthermore, in some countries jobs offered by the public sector can be more secure than those of the private one (Houston, 2000).

Sometimes, job security can be offered to employees by paying them lower salaries, but not laying them off. This can happen when the economic environment is not favorable to organizations and sales are low. Under these conditions, organizations may ask their employees if they are willing to do strange jobs just to keep them employed. Nevertheless, once organizations recover from these downturns, they can put their employees back into their original positions.

Furthermore, organizations can ask employees if they are interested in sabbaticals. This can be done to continue with their work relationship in the future. During a sabbatical, employees feel loyal to their organizations if they are being at least partially paid. As a matter of fact, organizations can benefit from these arrangements, as they will not have to spend more resources in training employees.

Organizations that cannot assure long-term employment, can increase their loyalty by providing employability options to their employees. That is, their organizations can prepare their employees through assignments, training, as well as, roles for their next job. The training programs are focused on teaching employee's new skills and sometimes the chance to get new licenses or certificates. Also, organizations provide incentives in the form of time to attend class, tuition assistance, workshops, etc. This is done as an exchange for employability security. In some cases, this can promote employees to

remain in the organization and work harder (Oss, 2001). Organizations that give employability options should try to increase their employee's responsibilities and roles. Likewise, employee development, training and empowerment should increase as well. These strategies and activities create positions of employability. They also enrich job roles (Oss, 2001).

For some organizations layoffs are unavoidable. In these cases, loyalty can be promoted by easing the load for those that have been laid-off. Organizations can make evident that other expenses have suspended before any jobs are touched. This in turn increases employee loyalty. Also, severance packages are not limited to money. In fact, employees can keep their health benefits, until they are able to find a new job. This can encourage employees to return to their original organizations.

There have been some of our independent salespeople, who have shown interest in becoming full time salespeople for our organization. In fact, some look for job security, while others enjoy to manage their time and activities freely. Moreover, our organization does not have the financial resources to convert all our ISP into full time positions. So, job security is a complicated aspect for us. We have tried to address this situation by providing permanent training. In other words, improve individual's skills, which will allow them to do their work properly. Then, if these individuals show remarkable and sustained progress in their sales levels, we may offer them a full time job.

5.12 Culture

Culture is the organizations identity, which keeps all of its parts together. It is composed of policies, attitudes, practices, values and support procedures. Each organization has its own culture. Even branches of the same organization can have culture differences. Organizations that keep their culture positive can promote employee retention. Moreover, the organizations culture, as well as, its working environment should address employee's needs. Both strong leadership and social support are components of the culture answer. This also requires employees to have a balance between their personal life and work. Rewards, career programs, training and recognition are components used to create culture focused on employees (Stein, 2000).

Some organizations drive their employees away due to their culture. Therefore, if organizations understand their culture, they can use it as an employee retention approach. It supports employees as they start to feel linked to their jobs and company. Organizations that have progressive mindsets can leverage their values and culture to keep employees aligned to their objectives. In other words, being able to understand and use organizational culture can make a company successful. Culture that treats employees respectfully retain them. Moreover, organizations can change their culture and make it adaptive based on employees input. Being able to value employee concerns and listen to them may also increase culture. Communication can greatly influence employee retention. So, communication should be kept positive, while employees are aware of problems and changes (Attridge, 2009). The objective of positive communication is to make sure individuals are heard. This includes their ideas being shared with tolerance to differences.

Some organizations have welcoming programs in order to create a positive first impression. Once new employees start working, they will be sent welcoming emails. This can also be done during the orientation session. In some cases, new employees are assigned a tutor or sponsor. All of these actions are done to create positive experiences. These sponsors are not their supervisors. Instead, they are employees who

guide new ones throughout their initial employment weeks. Organizational culture is also addressed during this time.

Employee retention can be improved by organizations that commit to organizational culture. Consequently, culture should be permanently measured. Some organizations use surveys to asses this aspect in several areas. Nevertheless, management actions and responses based on these surveys can be the most important aspects of the procedure. Culture surveys can vary from one organization to another. Yet, they can focus on common elements; such as, life and balance, pay, diversity and safety. Sometimes, it is best to have anonymous surveys, because feedback can be more honest (Wright, 2005). If organizations depend on surveys that gather information from identifiable respondents, answers can be biased. This can happen due to fear of management not agreeing with the respondent's reply. Furthermore, surveys can be used to assess employees many times a year. Specially, if corrective actions have been put in place to find improvement evidences. It is like visualizing the organizations pulse in many areas.

We have realized that culture is an aspect that needs to be reinforced in our organization. To address this situation, we have included information about: rewards, career programs and recognition into our training programs. Also, we have emphasized on the importance of listening to our employees; as well as, respecting them. This has been done before, specially to identify new trends in our consumer's market place. Therefore, we would like to communicate better these contributions among our independent salespeople.

Finally, after going through these reflections, we realized that there will always be aspects in our organizations that can be improved. This is needed as the environment is in permanent change. Therefore, future action research cycles are required and our participants are happy to continue being part of these changes.

5.13 Chapter summary

During this chapter, we read some general reflections. There were several aspects shown that are related to keeping employees engaged with organizations. Best practices were reviewed, which can lead to reduce organizational turnover. The following chapter focuses on how the finding of this study are implicated for knowledge and practice.

6.   Implications for knowledge and practice

6.1   Purpose statement

The purpose of this chapter is to understand what the implications of this study are. It also focuses on the projects' contribution to knowledge. Several aspects are going to be reviewed, which lead to improve employee engagement.

6.2   Implications

Employee turnover is a serious problem that affects many organizations worldwide. Therefore, management should be permanently looking for new ways to keep their human talent engaged with their organizations (Hom & Kinicki, 2001). Yet, getting to understand their employees can be challenging due to several variables that are part of an unknown equation. In other words, it is complicated to find links between many aspects.

In these cases, Machine Learning Algorithms can be used to provide management, a second opinion or suggestion to evaluate their activities and likely outcomes. Furthermore, these algorithms can help us make sense of vast numbers of variables, which can be hardly considered by individuals on our own (Mitchell, 2006). Also, these algorithms are flexible, as predictions can be made for one or several cases, as long as there is sufficient training data. Minimum sufficiency levels can be reached by having at least 50 labeled cases (Scikit-Learn, 2015). These algorithms can help all kind of organizations to understand their employee's behavior from a different perspective. Also, researchers in organizations can benefit by keeping notes of aspects that are occasionally visible that can become relevant during the study (Boud, 2001). For example, employees need the appropriate tools to do their work; without them, they are likely to have difficulties while trying to reach objectives. Moreover, organizational improvement impact can be increased by having all relevant individuals participating in it. In our case, I have been working closely with my independent salespeople (ISP), who in turn have felt my support. I consider this to be very important for any project, as decision making time has decreased. This makes the organization more agile and democratic. So far, my ISP are showing participation willingness. I strongly believe this is happening, as they have been taken into account and they will be benefited by improving our practice. It is also important to consider the findings and methods of this study being applicable to other organizations. As a matter of fact, these findings can be explored by an external community. This will also encourage others to look for ways to enhance these ideas or tailor them to fit their specific needs.

Although, Machine Learning Algorithms have proven to be useful tools for predicting employee turnover, they require a structure based on relevant variables to increase their prediction accuracy. This study has identified some areas that might be common among other organizations. Yet, the number of relevant variables can vary from one company to another. Therefore, I suggest organizations that are having

turnover issues to change their practice. In our case, we changed our practice by having our ISP participate in this research project. Moreover, we measured and improved aspects related to job design, employee capabilities and skills, which have improved employee engagement. These three general aspects, can be analyzed in detail by reviewing the survey that was applied in this study. Other organizations may decide to use the same survey structure or create one suited for their needs, but keeping the same general aspects. Nevertheless, other organizations should first be willing to accept their turnover issue and be willing to do something about it. This can be their biggest challenge. Additionally, there are some aspects that organizations have to promote in order to decrease their turnover rates. For instance, life balance is highly valued by employees, which can encourage employees to stay longer in an organization. Similar effects, are expected from organizations that support diversity, offer different pay options and benefits. Likewise, employees need to be recognized for their work and receive feedback through performance management. There are also more variables; such as, leadership, empowerment, teamwork, trust and ethics that have proven useful to keep employees motivated.

6.3 Life balance

Even though employees in an organization have their responsibilities, they also have their own life and family. The term life balance is about the necessity of employees being able to balance work and their personal life. Balance can be reached when organizations support their employee's non labor activities. This in turn can make employees more loyal, as well as, satisfied with their work. Higher turnover and absenteeism rates are expected when work interferes with their employee's personal life (Jones, et al., 2006). Employees that see family support from their companies tend to have higher levels of commitment (Guest, 2002). Also, employees appreciate companies that show family friendly values (Allen, 2001). In fact, depending on how the individual sees this support is a significant factor to work commitment and job satisfaction (Hubley, 1999). Yet, many employees may not even be aware of the need for family support programs.

Flexible schedules and part time jobs are different alternatives that organizations can offer to their employees for life balance. This strategy can benefit the employee and organization because it reduces turnover and absenteeism. Additionally, it allows individuals that cannot work to have an income source. Among these individuals, organizations can find students, older employees or parents with different priorities. Flexible employment alternatives; such as job sharing and part time jobs are attractive to some individuals. Flextime, allows full time employees to work at different schedules. This is also good for organizations as personal time off costs are kept low. In some cases, hours are extended without having to pay for overtime.

There are some organizations that provide day care for their employee's children. This can make employees feel motivated and relaxed by knowing their children are not far away. In some cases, organizations go one step further and offer sick child day care. This strategy is also useful to reduce absenteeism. Elderly care insurance is offered by other organizations to pay for nursing homes. Also, there are more insurance plans that can provide the dependents if the employee ceases to exist. In some countries, new mothers are given more than 60 paid off days to take care of their new child (Ecuador Legal Online, 2016). Sabbaticals are another option to offer family support to employees. However, it is important to find out what employees appreciate, before implementing any of these options. These needs can be identified through surveys. Then, after the program is implemented, each option must be

evaluated in terms of effectiveness. This helps the organization to make sure their programs are actually balanced.

6.4   Diversity

Diversity not only refers to gender or race, but also employee's age. Individuals want a workplace that is tolerant to this differences. The term diversity can have several meanings. Some define it as, all of the differences among employees. These differences can be based on skills or specific knowledge that one individual has more than the rest (Cox & Blake, 1991). So, employee's identity can be set based on their colleagues or department. Diversity identity is how employees describe themselves compared to another employee's appreciation. This identity can be determined based on religion, ethnicity, sexual orientation, race, age, gender, etc. It is important to have a workplace that is tolerant and accepts diversity in order for an organization to be successful. If this does not exist, it can impact in a negative way, employees that are seen as different. It is not likely for employees to keep working for an organization that provides special treatment to a few. People acceptance and fairness support the organization to expand its culture and labor pool. Moreover, organizations that open themselves to diversity and do not discriminate people have a competitive edge (Robinson & Dechant, 1997).

Diversity in workforces can be reached by having relevant organizational policies. These policies try to ensure all employees are treated in the same way within the organization. They can be aligned to the organizations objectives, as well as, its mission. No matter where these policies are located, they exist to encourage diversity. Some organizations use a handbook, which is given to new employees in order to explain these policies (Turban & Greening, 1997). Organizations can decide to create diversity programs in order to keep employees. This can also help employees to grow and develop. Equitable employee treatment can be attained by performance models. Creating and implementing career advancement options, job tasks, training and development plans can improve employee treatment. This in turn can increase employee loyalty and retention rates (McCarty, et al., 2005).

Organizations can find employees mistreatment by having focus groups with them. For instance, the first participants can be invited to the session and share their negative and positive job experiences. This initial group would be a diverse one susceptible to mistreatment. Later, a second group of participants can be evaluated with the same questions. This can help the organization identify any particular aspects of each group. If the organization is treating diverse employees fairly, then the both groups should have similar job experiences.

Management leadership support is a key element to encourage and accept diversity in organizations. This can be done through role modeling. Leadership sets practices that are emulated by employees and acceptable by the organization (Combs, 2002). Consequently, organizational leaders must remain open to review undesirable experiences and complaints. This willingness shows that the organization values its employees and their talent. Moreover, diverse human talent recruitment can be reached by responding to different employee's needs. For instance, organizations that are willing to keep more female employees can create programs that allow them to do their job at home.

6.5   Pay

Many employees have the impression that they should get paid more than they currently are. This is a common disparity between what organizations spend and employees consider to be worth. If this difference is too big and employees get to know about a new job opening, turnover is likely to take place. Pay can be understood as compensation, salaries or wages that are given to employees by the organization. Furthermore, it can be recognized as the employee's contribution. The value that the organization pays to its employees can affect turnover (Gupta & Shaw, 2001). Therefore, some companies should pay their employees with high wages. Yet, organizations that compensate highly their employees can still have turnover due to payment dissatisfaction. In other words, pay satisfaction is connected to employee's value (Lum, et al., 1998). So, when both pay and people value are high, employees can feel more satisfied with their organization and remain within it.

Employees expect their organizations to distribute pay fairly in their organizations. If this is done correctly, employee's leaving intent tends to decrease (Folger & Konovsky, 1989). Also, they need to be aware of pay administration. This is useful when there are pay delivery issues, so that employees know how to proceed. In fact, pay procedures focus on pay inequality, as well as, performance connections with pay. Some organizations allow their employees to appeal about unfair pay. Then these disputes can be reviewed by using appeal procedures.

Organizations have different ways to set pay rates. Some compare their pay to other local organizations or the industry. In some cases, pay consultants are hired to review the organizations pay. Some companies provide monetary rewards or bonuses in order to remain competitive with their industry. That is, organizations looking for the most appropriate employee pay value. Pay determination can be done by using market research in order to find differences among companies that are alike.   However, geographical location and working schedules should be taken into account. Also, organizations whose workplace is changing may require their pay to be dynamic too. In other words, organizational restructuring can impact compensations. Pay should be aligned to organizational strategy. Therefore, organizations need to identify the links between pay and performance. Employee feedback can be useful to learn about the organization's pay structure. This in turn, can help the organization to improve its pay strategy. Customers are another feedback source, as the service given to them can reflect the employee's pay satisfaction. Moreover, it is important to make employees aware that pay is not increased automatically. Instead, pay increases can be done based on performance. Pay guidelines are documents that can help employees understand when pay increases take place. These guidelines can help the organization to be fair and clear about pay (Milkovich, 1999).

There are common pay strategies found in organizations. For instance, pay schedules are those that set pay considering how long the employee has worked for the organization and job classification. Other organizations pay based on knowledge or skills. So, job type is not considered. In these cases, the employee's competencies, capabilities and knowledge can obtain superior performance. Broad banding is another common practice for pay. It creates employee's groups depending on their functions. This last allows employees to be compensated considering their performance. Yet, it does not imply that career advancement to managerial positions has to take place (Hofrichter, 1993). Furthermore, commission or variable pay lets employees to share profits based on a specified achievement. Nevertheless, this pay option may promote motivation in some employees, and fear due to risk in others. Other organizations

use retention bonuses. They give employees a reward if the employee decides to continue working within the organization. However, contract guarantees must be signed specifying its work length. These contracts can contain legal clauses, which can void the agreement if the employee can't keep their part. Both being able to find what employees require to keep working at the organization and compensations that can be paid are crucial to increase pay.

6.6   Benefits

Benefit programs can have many parts; such as, sick time, dental or medical insurance and paid vacations. Some organizations have offer other benefits like: children day time care, flextime, elder insurance, etc. However, employees may choose to remain in an organization, because of their benefits and not pay. These benefits can cost significant amounts to the organization. So, these benefits must be communicated clearly to employees (Josefak, 1999). As a matter of fact, benefits are appreciated by employees if they are understood. Otherwise, employees can feel confused and frustrated it they do not know how to use them. This information can be presented in groups or individually. Better benefit usage comprehension can be reached by providing information verbally and in writing. Additionally, there should be continuous employee follow-up sessions in order to find out if the benefits are fitting their needs. Some organizations have benefits programs that allow employees to choose the most relevant package depending on their interests. Yet, this may require additional process customization.

Employees needs can be determined by surveying employees. There are several kinds of employee surveys in organizations. Some of them focus on measuring satisfaction and relevance based on benefits. The important point is to determine what is appreciated by each employee. For instance, some employees may appreciate retirement plants. Others may want to increase their income through some bonus and so on. Therefore, benefit structures should be flexible. Nevertheless, benefits costs can vary from one to another. So, organizations need to set a maximum employee benefit amount per individual or job category. Also, if employees are interested in packages that cannot be fully paid by the organization, they can be given the option to pay for the difference to receive it. Some employees may not use some benefits as their spouses can already have them. Additionally, certain organizations let their employees purchase or sell some of their vacations (Meisenheimer, 1989).

6.7   Recognition

Employees, who work for an organization appreciate being rewarded or recognized for their work. Moreover, recognition and rewards are useful strategies to promote performance. This also helps employees to remain motivated. Recognition not only improves individual performance, but also the organization as a whole. Reward programs are meaningful, as long as they are credible. Otherwise, these programs can generate a contrary effect. If underperforming employees are recognized, this can harm those that are high performers. In fact, they would feel that their efforts and value are not important. This in turn, can promote turnover (Saks, 2006). Consequently, it is crucial for organizations to recognize work that has been done correctly by providing honest positive feedback.

Organizational culture needs to include employee recognition, as it helps to keep them working for organization. Recognition can also support employees to be satisfied with their work. So, top performances should be rewarded. Rewarding employees should be done immediately after an objective has been reached. It should be appropriate for the situation and employee. However, rewarding is done differently in organizations. Some pay a bonus once the year is over. Others divide the bonus in smaller fractions and spread them throughout the year (Nelson, 2012). Furthermore, sometimes a personal

thankful note, can be more valued than a typical one. In other words, organizations can ask their employees how they would like to be recognized.

Rewarding programs should be visible throughout the company. They have to be set based on reachable indicators. Rewards need to be understood by employees and add value to the organization. It is important to establish the timeframe for these objectives to be reached. In some cases, rewards can be spontaneous. If the organization decides to use nonmonetary rewards, these must be valued by the employee. For example, employees that enjoy doing exercise may appreciate a gift card for a gym. So, rewards need to be well thought and relevant to each employee. Also, rewards have to be given professionally to employees in order to emphasize on their recognition. Besides, the amount invested in the reward should be somehow equivalent to the reached objective. Nevertheless, there are organizations that prefer to reward employees by paying them money. It is usually welcome by employees and may not require formal recognition meetings. There are rewarding strategies based on variable payments if objectives are reached. Some organizations share their profits. Others pay based on incremental individual's skills (Bartol & Srivastava, 2002).

Rewards can be motivational and meaningful if they are based on standards. If these standards are impossible to reach, they will make employees feel demotivated. This in turn, can lead to turnover. Moreover, rewards can be given to individual employees, as well as their team. In fact, organizations that require teamwork as their employee's competencies, need to recognize this behavior. If organizations focus solely on individual recognition, they may not be encouraging teamwork. Furthermore, the value of the reward can be associated to the motivation generated in the employee. Recognition and rewards that are well valued can encourage employees to achieve more ambitious goals. Additionally, intrinsic motivation can be reached with rewards. For instance, some employees can feel more motivated afterwards attending to an awards event (Stewart, et al., 1993). That is, organizations recognizing the individual and employee at the same time. This kind of recognition shows employees that they are valuable organizational partner.

Top organizational performers should be kept within the organization. However, this may require the company to concentrate more on them, while putting aside those poor and average ones. As a matter of fact, top performers that are not recognized are more likely to leave an organization voluntarily (Allen & Griffeth, 1999). Therefore, organizations that are creating recognition programs should keep in mind this fact.

6.8   Performance management

Organizations that use performance management can help their employees to develop continuously. This happens as their work behavior is tracked and focused on objectives. It also supports the organization as a whole to reach strategic goals. Also, employees require feedback based on their work. If this does not exist, the same mistakes are likely to continue happening. Measuring job performance is important to find out if employees are reaching organizational expectations. This source of information can later be used as performance reviews.

Issues with employee's performance can generate turnover. For instance, employees that perform poorly can be considering to get a job somewhere else, where their performance will not be judged. Also, as rewards can differ from those with great performance, low performing employees can feel shocked.

Furthermore, lack of performance appreciation may influence an employee to leave. High performers that do not receive positive feedback can decide to look for new job opportunities (Nyberg, 2010). Communication is an important aspect between employees and supervisors. Individual behavior can be adjusted by giving truthful feedback. This also allows gaps to be located and objectives to be reached. In other words, performance management encourages employee improvement and recognition.

Communication is a key element in performance management, as it shows the individual their expected accomplishments. When job reviews take place, supervisors can guide employees how to improve their processes. Yet, during these reviews supervisors may realize that employees require additional resources to reach their goals. Some of these resources can be specific skills to address new issues. Then training plans can be created. Sometimes, organizations can train employees in these fields. Nevertheless, employees also have to keep themselves employable by learning new skills on their own. Consequently, proper communication during performance reviews benefits both the employee and the organization.

Organizational goals can be communicated to all employees at least once a year. Then, their progress is reviewed during their performance processes. This in turn, creates employee alignment with strategic objectives. Furthermore, performance management can provide individuals feedback of several aspects. For example, employees can know what they are doing well. Also, their objective's progress and areas that can be improved. They can also find out how the organization can help them (Pincus, 1986).

Organizations that are interested in using performance management must have their strategic objectives previously defined. These goals are shared with other areas within the organization. This in turn, allows employees to visualize how their work contributes with all. Moreover, organizations have different objectives, which require a variety of performance indicators focused on those needs. Additionally, objectives have to be well-thought in order to avoid collisions among them. This can happen as sometimes goals are not mutually achievable. Instead, objectives have to support each other. Objectives have to consider vendors and customers in order to support performance. Besides, organizations have to find activities that ensure objective achievement. It is important to show that employees can succeed to encourage their effort. In fact, their activities have to meaningful for themselves and the organization. So, the difference between what is achievable and expected has to be measurable. This requires reached goals to be recorded for future improvement analysis. Furthermore, both the organization and employee have to agree on performance measures. This has to be done when the performance cycle begins. However, the organization may change its goals during the cycle. This would require the previous measures to be agreed on again. Forced or one-sided imposed measured tend to have less acceptance by employees (Perrin, 1998). Objective reaching follow-up has to be done continuously. Some organizations review them quarterly, monthly or weekly. Once employees have reached goals, the organization should recognize their effort immediately. This positive reinforcement can have several forms; such as, written awards, verbal praise or monetary rewards. Performance management can also focus on employee's competencies. That is, talent, abilities, knowledge and skills that are needed to get the job done. Work environments that encourage improvements positively can make employees feel safer and improve quicker. Nevertheless, management may have to become more tolerant with mistakes to reduce fear. Communication of poor performance has to be done clearly. Then employees can understand the consequences of not improving, which may support the organizations retention rate. Coaching and mentoring can be useful to develop employees (Armstrong, 2009). This can help them reach their maximum performance.

6.9 Leadership

Great leadership can encourage employees to remain working for an organization. Individuals that have leadership traits can mentor, guide and coach employees. As organizations differ from one to another, it becomes challenging to develop the right kind of leaders for them. This development can take some time and may require role modeling, hiring consultants, coaching, etc. Effective leaders are involved in each part of a retention strategy. In fact, leadership can be measured by employee retention rates (Christensen & Rog, 2008).

Organizations have to define those competencies required by their leaders. Then leadership development programs can concentrate on those aspects. Moreover, those competencies have to be aligned to the organizations objectives. Some organizations consider competencies to be talents. For example, striving talents can be measured based on the individual's stamina, achievements, and desire. Additionally, leaders need thinking talents like problem solving, discipline, responsibility and creativity. There are relating talents that measure courage, persuasion and empathy (Luthans, et al., 2006). Development plans can be used to enhance individual leadership levels. Yet, these plans have to be created per individual to suit their learning styles and needs. These plans have to be created with the leader's manager and set a timeframe to be accomplished. Some organizations use additional feedback sources to identify the areas that need improvement. In these cases, individuals are assessed in 360 degrees. In other words, their managers, colleagues and subordinates participate in the process. Then these results are put together as one feedback source.

Leadership training can take place at the organization or through normal classes. Yet, the content and method must be aligned with the organization's needs. Leadership training can be done in universities or institutes if the organizations does not have internal resources. Sometimes, external consultants are more accepted by individuals, as they are seen as field experts (Giber, et al., 2009). Mentoring can help individuals to increase their leadership by role modeling. In these situations, the leader's behavior is observed in order to emulate it later. Yet, continuous discussions have to take place to reinforce the experience. Being able to discuss with role models allows the individual to make improvements. Additionally, leadership training programs can require the individual to read and later discuss material. These discussions can take place monthly with other colleagues. The material used for these sessions can be business cases, which show different leadership situations. Nevertheless, proper case discussion may require professionals, who are trained in the subject to guide the class.

6.10 Empowerment

Empowerment refers to the responsibilities and authority given to subordinates. That is, control and authority is given to them to do their work. Empowerment can be encouraged to the whole organization from top to lower levels. Or also, based on individual cases. Empowerment degrees can vary depending on the situation and objectives. However, leaders need the organization to make sense of these empowerment structures (Honold, 1997). Empowering employees makes them more responsible for their work. Also, they can create or provide better services and products. Decision making time and absenteeism can decrease. This in turn can increase employee retention rates (Arthur, 1994).

Empowerment can change from one organization to another. It can also depend on the individual and job. The organization's size can be another important variable. For instance, small organizations that have a few employees working for it, may force them to adopt different positions throughout a day. This happens as their responsibilities and authority are usually expanding. Nevertheless, big organizations can find employee empowerment to be challenging, as there can be conflicts with different organizational levels. Sometimes, employee empowerment can be affected by organizations that have complicated hierarchical structures. This can happen, due to formal hierarchical processes that slow them down (Conger & Kanungo, 1988). Actually, empowerment can be a positive experience for organizations, as their employees can develop and grow. Yet, empowerment can have negative influences. For example, employees may feel that they are not growing hierarchically. This in turn, may not show salary increases or growth in their CVs. Moreover, employee's responsibilities and their roles can be confusing. Limitless empowerment, may create gaps between what the organization is expecting and the employee doing. So, organizations have to create adequate empowerment structures, time frames and objective follow-ups.

Properly implemented and configured empowerment can be beneficial to the organization. There are several work circumstances, which require different empowerment levels. Each of them, allow the individual to take action on their own. Consequently, empowerment can make employees think that they should have more authority than is already given. Nevertheless, employees can feel unsatisfied if these expectations are not reached. In other words, employees may have unrealistic expectations. Therefore, those that empower subordinates must communicate their levels. Empowerment can have a structure, which is used to define organizational hierarchy. Sometimes, empowerment levels have to be negotiated in order to resolve problems. In fact, empowerment needs to be understood by the whole organization (Schulz, et al., 1995). There are situations when empowerment is temporary. This can happen when the organization has a specific project that requires a team to execute it. Once the project is over, employees may return to their normal work. At this time, empowerment can be reviewed in order to find future improvement opportunities.

6.11 Teamwork

Teamwork can take place when a group of individuals work together to reach a shared objective. Therefore, there can be many kinds of teams. Each with their specific purpose. When teams are well organized, effectives and productivity can improve. Moreover, individuals can bond better by being part of a team. However, an individual can belong to several teams. This is known as cross functional teams. Employees, who work for an organization require to be part of teams that are productive and supportive. Sometimes, teamwork can help retain employees within an organization (Sheridan, 1992).

Teamwork requires, the individuals that form part of the team to have an objective. Therefore, team members may be asked to improve or create a product or service. Also, these team members can feel identified with their organization. Nevertheless, objectives have to be clearly identified before executing the task. This allows members to measure their progress and feel that they are getting closer to the goal. In fact, productivity can be improved by a belonging sense. Teams need the organization to support them reach their goals. That is, sufficient resources allocated to them; such as, financial resources, employees and equipment. Moreover, their group's leader must also show support (Griffin, et al., 2001). In these cases, leaders can help them by creating their structure and assigning roles to all members. Leaders must ensure their team's structure is formalized. This can be done in a document that explains their roles,

responsibilities and objectives. There are some situations that can require team members to have special authority. Then, the leader might have to empower this individual to reach their objectives.

Trust is a key element needed to keep a team working together. So, interpersonal relationships should exist in order to create reliance among them. In other words, team bonding can be fostered by having lunch together, motivational speeches, entertaining activities and so on. Sometimes teams like to identify themselves by wearing common clothes or using common things. Additionally, team cohesion can be improved by getting the team to compete. This all, promotes teamwork and the individuals sense of belonging. Some organizations promote teamwork by giving their employees time to practice some kind of sport together. In these cases, employees can feel encouraged to remain in their organization in order to keep their social network and privileges. This in turn, can improve their organizational loyalty and commitment (Goetsch, 2014).

Team member recognition that is motivational and meaningful can be a positive aspect for them. Consequently, team dedication can be reached by recognizing their members through some kind of award. However, these recognitions should not be given on an individual basis. Instead, the recognition should be given to the team as a whole.

6.12 Trust

There are different kinds of trust. The first kind is the employee willing to trust their supervisor. Meanwhile, the second is about the employee trusting their organization acting in a beneficial way. Therefore, all interactions between the employee and its organization can promote or demolish trust. Leaders that are interested in achieving trust might have to put aside their personal integrity. This is done to reach trust because of their empowerment, skills and information (Thomas, et al., 2009). Managers that develop trust among their team group can encourage them to remain in an organization. Trust is also developed by the organization keeping their commitments and promises. This also happens when information is delivered in an accurate and prompt way.

Employees in an organization appreciate having a supervisor that can show integrity, benevolence and abilities. So, organizational leaders must have these characteristics. Also, organizations should recognize and promote employee that can form trusting bonds with their colleagues. Yet, this must be complemented by all needed skills. Supervisor skills development can enhance relationships among leaders, employees and the organization. Therefore, supervisors become employee role models. They are expected to behave properly by showing integrity and keeping their commitments. Employee's interest protection can be accomplished by listening to their needs. Moreover, organizations must recognize those employees, who are always honest. Consequently, trust is built by treating employees honestly and fairly. Also, teambuilding activities are useful to create and sustain trust. Either way, trust is a key element to reach employee retention.

Trust given to supervisors may also be generalized to the whole organization. After all, the organization is represented by the supervisor. Despite organizational and supervisor trust being different, employee can sense them as the organization itself. In other words, employees can trust an organization by interacting with its supervisors (Pugh & Konovsky, 1994). Trust spillovers are likely to take place, once mutual trust between the supervisor and employee happen. This would require organizations to be aware of this fact.

Organizational practices and policies have to make sure to be procedural to create trust. Also, integrity must be shown to keep built trust. That is, all employees being treated in an equal way and avoiding preferential behaviors. Nevertheless, this does not imply that all employees have to work at the same time or earn the same salary. This also applies to pay increases being distributed to all employees. Some organizations benefit a few by sharing profits with them, due to objectives being reached. Yet, others share profits with all their employees in order to recognize their work. In these cases, distributive justice is being reached (Cowherd & Levine, 1992). Furthermore, distributive justice can be accomplished in organizations by having procedures that allow employees to complain. This can be done in a simple way by having open doors policies to share concerns. Additionally, employees are allowed to escalate to the next hierarchical position to express their discontent. However, these policies may not be sufficient and sometimes employees need to be heard out of their chain of command. In these situations, the organization can decide to create a committee to address them. Sometimes, complains cannot be addressed the committee. Specially, when they have to do with poor employee performance. These situations require the employee to discuss them with their supervisor to get proper coaching. Committees let employees communicate their complaints openly. They should be formed of empowered employees. Their processes should be shared among employees to show that the organization is supporting them.

Organizations can show integrity by having consistent communication. This should be done at the right time and accurately. Therefore, information needs to be shared among employees as soon as possible. Yet, leaders sometimes do not share information. This makes employees feel not trusted. No matter if the information is bad, it should communicate the truth. Additionally, organizations have to follow through their offers. That is, communicated organizational plans, should let employees know their progress. If there are any delays, they should be communicated as well. Organizational integrity is enforced by the organization being able to keep its promises (Leroy, et al., 2012). Trust is key for employees to behave ethically in a company. In fact, employees want to trust in their employers, who are showing permanent integrity.

6.13 Ethics

Organization's ethics are centered on their values. Trust is fundamental to promote employees to act ethically. Also, organizational culture is a reflection of its values. Standardized ethics support organizational employees to see they are being treated impartially. These standards are applicable to all stakeholders. Organizations that perform their activities in an ethical way can increase job satisfaction. This in turn, decreases employee's turnover (Schwepker, 2001). Moreover, organizations that enforce ethics code and control work conflict can decrease employee's intentions of leaving them (Schwepker, 1999). Ethical programs should be communicated throughout the organization. It requires employee's buy-in and maintenance. Furthermore, ethical program members can create statements focused on proper behavior. Then, these statements will be used to guide employees. Administration models need to be revised to make sure they have high ethical principles. Besides, training programs focused on real word ethical issues can be offered. Employees can also be given different options to report behavior that is not aligned with that required by the organization.

There are several groups of professionals that have their own code of ethics. So, employees of a certain industry can subscribe to them. However, these groups may require their members to pay fees in order to support themselves. Ethical codes can be created based on personal responsibilities or situations that

members may have to face. Furthermore, ethical programs can have a certain audience in mind. For instance, organizational leaders can have a program focused on moral imperatives. Integrity in organizations can be reaffirmed by supporting codes of ethics (Paine, 1994). So, ethical behavior, trust and integrity should exist in all individuals, who work for an organization. In fact, leaders should create trust among their people and show proper ethical behavior. Leaders have to become roles models and be consistent.

6.14 Limitations and future work

This study is limited to the dimensions and subdimensions shown in the survey applied to the independent salespeople. Moreover, the study only used: Naïve Bayes, SVM and Decision Trees, as Machine Learning algorithms. Also, the surveys answers reflect the beliefs and behaviors shown at the time, when the participants took the survey. These beliefs and behaviors may vary over time. Consequently, Machine Learning models need to be updated to remain showing accurate predictions.

We are interested in exploring new algorithms, which could increase the prediction accuracy levels using the same survey structure. There are Machine Learning algorithms named: "Deep Learning Neural Networks" that are being used by the most revolutionary tech organizations (Tensorflow, 2018). Nevertheless, these algorithms results must be compared with the ones we are currently using to reach new conclusions.

Researchers, who are interested in understanding more about employee turnover, can explore different Artificial Intelligence approaches. It is important to emphasize that these future research projects, should have voluntary participants, who are aware of the entire research structure. For instance, in the Natural Language Understanding field, Sentiment Analysis can extract information from text and categorize it based on its magnitude (how strong the sentiment is) and the sentiment itself (being positive or negative) (Liu, 2012). This could be applied to: corporate blogs, social networks or massive qualitative surveys. Specially, where it would be too time consuming to read every single answer. Furthermore, in the Computer Vision field, face images can be classified based on their sentiments (Google, 2018). This would allow researchers to find out, if participants daily emotions are somehow associated to employee turnover.

6.15 Chapter summary

In this chapter, several study implications were presented. These implications can affect any organization. Therefore, the researcher presents an alternative to address this issue. In fact, Action Research and Machine Learning can be used together in order to detect, predict and take action to reduce turnover. There are some contributions to knowledge and practice mentioned in this chapter. The following chapter presents the researcher's self-reflection.

7.   Self-reflection

7.1   Purpose statement

This chapter is about the researcher's self-reflection. It shows how I have changed throughout the project. These changes have taken place in many aspects. Finally, a project conclusion is presented.

7.2   Researchers' reflections

The execution of this research project has changed my management style. I have learned about the importance of Action Research, which has proven to be useful for my organization. This framework organizes the project in continuous research cycles in a collaborative manner. This experience has shown me again, how important it is to have others involved in a project. In other words, participants being able to take part actively throughout the project. This is different from traditional approaches, where management just imposes actions that must be taken and ignores any valuable feedback from employees (Eden & Huxham, 1996).

Voluntary participation of independent salespeople from my organization, have enhanced the research quality of the project. This methodology can provide different points of view, which helped us to get a better understanding of the issue. Moreover, participants feel empowered if their opinions are taken into account and they will try their best to solve an issue using their proposed solutions (Marquardt, 2007). Another benefit that I have seen of this methodology is that complicated problems can be solved faster. This happens as one individual may not have the answer to all questions. Instead, there can be actions taken by others, which can lead to new answers. This is the power of different points of view (Stringer, 2013). Nevertheless, if these points of view are not aligned with the organizational objectives, they will not be useful and only produce noise.

This takes me to another stage of my learning process. The importance of setting objectives that benefit individuals and the organization as a whole. As a manager, you cannot be selfish and just think about numbers, while remaining separated from daily operations. People are important and their work allows organizations to grow. Therefore, organizations should be fair with employees by providing them the right conditions to keep them engaged (McGregor, 1960). Moreover, these adequate working conditions may require continuous investments. For instance, my organization has invested in permanent training programs to keep my independent salespeople skills up-to-date. This was complicated at first, due to the limited resources that we had. In fact, proper employee training gives them better opportunities to succeed in their work. I cannot rely on their common sense completely and expect them to already know what is needed. As a matter of fact, common sense is created through the individual's experiences (Ratcliffe, 2008). So, all individuals have had different experiences in their lives, which means their common sense will differ among them. This is an assumption that has changed in me during this project.

Another change that I have had in this time has to do with communication. I realized that I can understand concepts more easily by visualizing them. In fact, there are different learning preferences that can be oriented to visual, auditory or kinesthetic learners (Mayer & Massa, 2003). I remember that during our project meetings, sometimes people would just get lost and not understand the issue. I reflected upon

this and realized that they were only listening to the conversation, but not seeing it. So, I had to learn how to draw in order to visualize ideas. This simple change, helped individuals grasp ideas faster and not get lost. Then I started using different marker colors, which are useful to emphasize importance visually.

A new change in my practice, came through the usage of innovative technology to address problems. This happened by using Machine Learning Algorithms, to create predictions of employees who are willing to leave our organization. Nevertheless, prediction accuracy levels depend on the quality of information that is used in the model (Cestnik, 1990). In other words, we were able to find relevant features to address this issue. That is, focusing on employee's capabilities, attitudes and job design. Furthermore, I realized that it is important to focus on features that can be changed. In other words, those that the organizations or its individuals can take action upon them. I am interested in continuing using this framework in future engagement projects due to its great results.

Furthermore, I have improved some of skills like conflict resolution. Having many individuals participating in a project actively and giving them a voice can create conflict among them due to different ideas (Barki & Hartwick, 2004). All ideas are not necessarily welcome to all participants. Some individuals may feel offended, because of comments that do not represent their reality. Sometimes, people just think about general rules and forget about individual identities. So, these situations did take place and I had to promote a safe environment for everyone to participate. That is, being able to address conflict and at the same time remind participants of the importance of this study. This last, was very useful to lower tension levels.

My creative thinking and mind openness levels have also changed. I feel that my creativity can get ignited by asking myself questions. I realized this happened during the reflection stages. The best question was "how can…" and not force myself to get an immediate answer. Instead, I would just let my mind think about it for as long as it was needed. Surprisingly, the answers to those questions would eventually appear. Sometimes, when I did not even expect that to happen like when I was about to wake up. I would let my mind tell me everything and blocks of information would become easier to understand. It is like you mind has an incredible power and it only needs time to put the answers in the right order. I shared these findings with the research project participants. I asked them to ask themselves the question using the "how can" words. Moreover, I also suggested them to avoid blocking themselves. This happened with some individuals, who could not see any solutions or were not able to break the status quo. They would say this is not possible or situations cannot be changed. Some participants would consider this behavior as people being negative. Fortunately, most of the participants were open-minded and they did their best effort. As a matter of fact, leaders can empower employees by asking them the right questions as this encourages them to think about new solutions (Marquardt, 2007).

Organizational relationships were strengthened with this project. I think that this happened, because we showed genuine interest in addressing a problem that does affect people. Honest and respectful dialogs were key elements to archive this goal. Changes should benefit both individuals and the organization. Additionally, positive changes contribute to make people more loyal to their companies. This in turn, would affect its culture in a good way, by making the organization more attractive for future aspirants (Burchell & Robin, 2011).

I have also reflected about myself being a change agent throughout this project. Sometimes, it is easy to say change is needed when issues are evident. However, there is a huge distance between saying and actually doing something. Taking action in order to address a problem can be challenging due to many

obstacles that will appear during this process. Nevertheless, I decided to take this challenge and work on it. Once you start something meaningful, you will realize that you are not alone. Despite being the owner of my organization, I was able to gain participant's trust and willingness to change. This can happen when you are honest and look for win-win situations (McGregor, 1960). Moreover, I realized that after going through this research project, its participants have become change agents themselves. I see this as a positive effect of their previous active participation in the project. I consider that their initiative has also improved, as they try to address issues as a team. Consequently, the organization's teamwork competencies have improved as well. Nevertheless, I am also aware that I should not take any actions that can be seen as punishments if these initiatives do not work out (Tushman & Nadler, 1986). Instead, I have to be more supportive and promote employees to look for the best solutions by asking insightful questions when needed (Marquardt, 2007). As I can see this, organizations that are willing to use Action Research may find some expected and unexpected results from these projects. Authorities and former practice can be questioned, which may not be accepted in some organizations. This can be even more challenging in countries that have high levels of power distance. In other words, employees who do not question their superiors, even if a clear mistake is taking place. This used to happen in Ecuador some years ago. I have sometimes faced this situation and addressed it by letting participants know that it is fine to question their superiors respectfully. It all has to do with trust.

To conclude, I am pleased to have gone through this project and been able to improve our turnover issue. It has helped me gain better understanding of people, who work for our organization and changed our working environment in a positive way. I really like the collaboration that I have seen from several individuals. This is a great experience, as I feel confident about the future by knowing that our people are willing to give all that is in their means to support us. Moreover, I see this project as an initial step to continue improving our organization as a whole. Additionally, this project is not only meaningful for my organization, but also for other ones. Unfortunately, turnover exists in many other places. Companies that do not face this issue, can be affected negatively. Specially, in competitive markets where businesses compete based on service differentiation. Employees that are not engaged with their companies, may not provide service at the levels expected by their customers (Pech & Slade, 2006). This in turn, may promote customers to look for new suppliers. Therefore, the findings of the research project and the methodology used in it can be adopted by other organizations. They are not exclusive to the retail industry. In fact, they can be used in any business, which has people working for it, who may not be feeling engaged. Furthermore, I feel proud of being able to contribute with this project to knowledge. I also look forward to future contributions from the practitioner and scholarly community to continue exploring and proposing solutions for this important organizational challenge. Researchers can use this thesis and an initial guideline to address turnover. However, there are more Machine Learning algorithms that can be explored; such as Deep Learning or Deep Neural Networks, which can support future research.

7.3   Chapter summary

This chapter concludes this Doctoral Thesis by showing my self-reflections. I explained how I changed during the project. In fact, these changes have enhanced my practice and given skills to manage my organization in a better way. I have seen how important permanent research is for organizations and how complicated issues can be addressed by using Action Research and Machine Learning combined.

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