



*HUMAN
RESOURCES
TECHNOLOGY
CASE STUDY:*

Recruitment: Integration of Management
Information Systems effect on Sales
Performance in the Restaurant Industry

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Recruitment: Integration of Management Information Systems effect on Sales Performance in the Restaurant Industry

Introduction

Management Information Systems (MIS) have been a core factor in the success of many international business giants such as Amazon, Airbnb and Uber. Those companies are using MIS to tap into a broader bandwidth of customers worldwide. For a company, this requires an in-depth understanding of its current capabilities and is a means to gain a competitive edge on the market. Although we see many giants rising their valuation and delivering services, companies with abundant human resources capital struggle to find talent and retain them. Today, it is normal for a millennial to change jobs every five to seven years, according to Forbes Magazine¹, thus creating additional hiring pressures on management teams.

Many small companies are struggling to make any progress in building data analytics capabilities. “41 percent of CEOs report that they are not at all prepared to make use of new data analytic tools, and only 4 percent say that they are “to a large extent” prepared”². One of the main challenges that many companies are facing today is the capacity to integrate technology into their core processes and use them to their advantage. Companies that are not tech-driven have a hard time efficiently using MIS to leverage their work and ultimately impact revenue. Effective hiring is one of the significant problems in business management.

In a 2014 survey by The Economist Intelligence Unit (EIU), twice as many executives based their last major decision on either their "own intuition or experience" or on the "advice and experience of others internally," rather than on "data and analysis"³.

The reason why MIS integration has been so difficult is mainly due to the inability to align the business objectives and vision with tangible outcomes. While many companies try to implement Information Technology (I.T.) systems; they do not automatically provide them with alignment. As many businesses focus on tangible metrics, such as Key Performance Indicators (KPIs), they tend to neglect or disconnect the value provided by Critical Success Factors (CSFs). CSFs are fundamental elements that are enabled through vision and drive the achievement of KPIs. They provide quality and value factors and are hard to measure, but they are the ones driving

¹ Zimmerman, K. (2016, June 14). Millennials, Stop Apologizing For Job-Hopping. Retrieved from <https://www.forbes.com/sites/kaytiezimmerman/2016/06/07/millennials-stop-apologizing-for-job-hopping/#3db3380a4656>

² Cappelli, Peter & Tambe, Prasanna & Yakubovich, Valery. (2018). Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. SSRN Electronic Journal. 10.2139/ssrn.3263878.

³ SHRM Foundation (2016). *Use of Workforce Analytics for Competitive Advantage*. Retrieved from <https://www.shrm.org/foundation/ourwork/initiatives/preparing-for-future-hr-trends/Documents/Workforce%20Analytics%20Report.pdf>

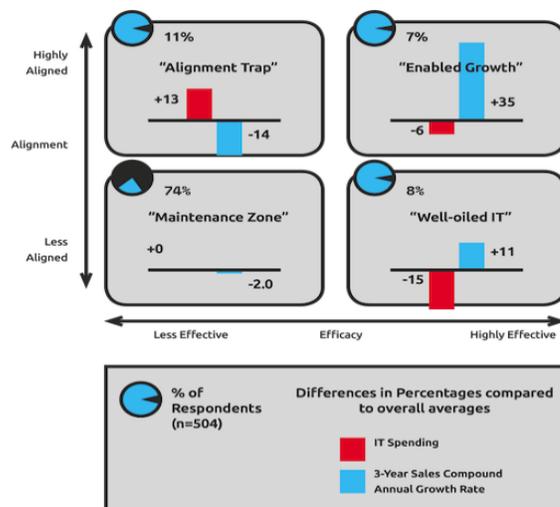
success. For example, maintaining a work-life balance for employees can be a CSF leading to the success of many KPIs such as quality in service delivery, staff retention and overall operations.

FIGURE 1: KPIs & CSFs IN THE RESTAURANT INDUSTRY

Restaurant industry examples of alignment factors	
Key Performance Indicators (KPIs)	Critical Success Factors (CSFs)
Sales	Customer satisfaction
Revenue	Feedback
Cost	Job fulfillment
Time spent hiring	Retention
Product delivery time	Quality
Quality control	Achieving differentiation
Human Capital Turnover	Reduce product cost

For this specific case, "alignment" is an information-driven system term meaning better effectiveness of operations with IT-enabled growth. The restaurant industry is currently affected by the lack of alignment, mainly due to the expensive costs of MIS integration and "old-school" organizational culture. Hiring and retaining quality talent are amongst the biggest challenges of the restaurant industry. With limited exposure to the I.T. sector and investment mentality, few restaurants can afford to invest in MIS development, but even then, that does not mean they achieved the perfect alignment (see Figure 2). Small to midsize restaurant owners are proving to have difficulties in assimilating and implementing I.T. systems in a rate that would suggest quick and efficient adaptation, thus creating problems in their hiring capabilities.

FIGURE 2: THE ALIGNMENT TRAP⁴



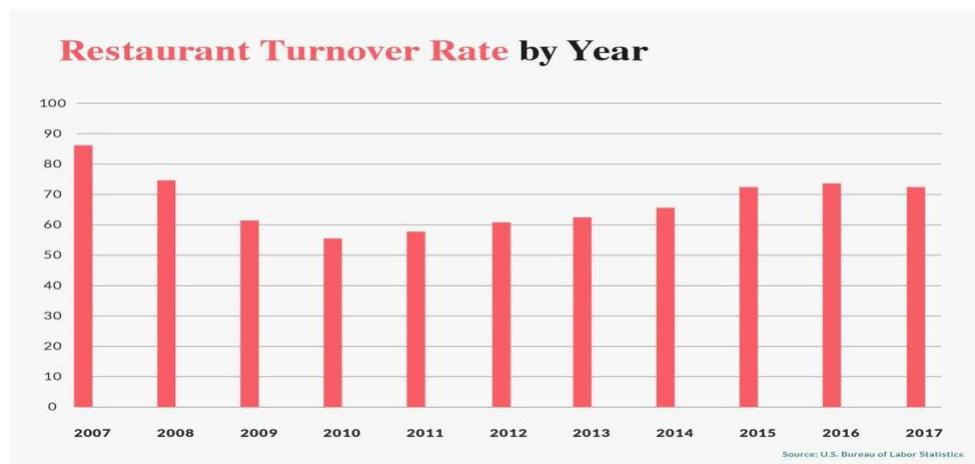
⁴ Praqma. (2018). Avoiding the Agile Alignment Trap. Retrieved July 11, 2019, from Praqma | The Continuous Delivery and DevOps Company website: <https://www.praqma.com/stories/agile-alignment-trap/>

Impact of Turnover in the Restaurant Industry

Restaurants are notorious for their high employee turnover (see Figure 3.) Restaurant and franchisee owners are always facing issues related to human resource management; notably hiring and retaining staff. Many of their potential hires are young people already working in the restaurant industry. Most of them are working part-time as a means to pay for their education. As such, for restaurant or franchisee owners, this implies that they have a temporary workforce which can lead to retention deficiencies and employment gaps. There are situations where these owners have to hire anyone who applies for the available jobs regardless of their talent or potential; creating significant issues in talent management. The lack of candidate applications for rotating personnel creates problems for the restaurant's operational goals. A substantial amount of resources is allocated to hiring, therefore neglecting the improvement of their operational processes. All extra efforts and resources spent on recruitment are a gamble, as managers cannot be confident that their candidates will remain in the organization.

This ultimately leads to negative customer service due to invested time spent on human capital. Failing to meet CSFs will reflect on KPIs. Hiring quality personnel is one of the essential factors in the restaurant industry. Companies are looking to ensure an increased sense of collaboration and teamwork between employees for optimal operational execution. As stated above, MIS integration provides increased leverage for ensuring a competitive advantage in many markets. Restaurant and franchisee owners are opting to use MIS platforms that offer support, recruitment and screening processes to help assist with hiring. The goal of these platforms is to lower the rate of turnover by hiring quality personnel who fit the organization and are willing to progress.

FIGURE 3: YEARLY RESTAURANT TURNOVER RATE IN THE USA ⁵



⁵ You, N. (2019, March 19). The Online Marketplace for Restaurant Supplies. Retrieved July 10, 2019, from The Online Marketplace for Restaurant Supplies website: <https://www.chefhero.com/blog/employee-turnover-cost>

Performance

There are vast benefits of having a whole staffed team working in a restaurant. First of all, when a team is fully staffed and trained, they can perform to the set rate of the industry. This results in being capable of delivering the product within a specific time. In the restaurant industry, food delivery time is crucial as it is its fundamental purpose. It is one of the most critical KPIs.

Second of all, when a team is satisfactorily staffed, we reduce the stress of the employees who directly deal with the customers. Although we do not have the means to measure it, stress and anxiety are amongst the most common symptoms to affect mental health:

“Money and work consistently top the list of stressors for adults overall, and both are common stressors for Gen Z as well. More than eight in 10 (81 percent) of Gen Zs between the ages of 18 and 21 report money as a source of significant stress, with nearly as many (77 percent) saying the same about work”⁶

When employees can work the proper number of hours, rest, and accomplish their jobs efficiently, they tend to go less on stress leave and be more fulfilled about their jobs. "Stress is one of the leading causes of absenteeism in the workplace. Not only will less stress in the workplace results in less 'mental health days,' but it will also reduce the number of sick days taken by employees due to a weakened immune system as a result of excessive stress."⁷

Neuroscience studies demonstrate that stress in small doses can be beneficial, but chronic stress resulting from constant pressures can be devastating for the employee's mental state and can lead to poor performance. "When a company hires an employee, they are essentially hiring that person's brain and hoping it is a smart brain that will grow even smarter with experience. However, place that person in a high-pressure work environment without the tools to transcend stress and the likelihood is that he or she will lose brain capacity."⁸

Chronic uncontrolled stress will lead to psychological burnouts resulting in significant mental health problems. This result is why it is essential to understand the relation between CSFs and KPIs as it defines the connection between measurable objective and subjective metrics.

If the hiring processes were assisted with MIS and made more efficient, the managers could then spend more time focusing on operational level improvements. These can be used to provide their employees with professional development opportunities and training, which can, in turn, contribute to the well-being of employees.

⁶ *stress in America 'o generation z*. (2018). Retrieved from <https://www.apa.org/news/press/releases/stress/2018/stress-gen-z.pdf>

⁷ Welcoa. (2018, April 26). Retrieved July 11, 2019, from WELCOA website: <https://www.welcoa.org/blog/benefits-stress-management-employees/>

⁸ Don Joseph Goewey. (2014, August 10). Stress, the Brain and the Neuroscience of Success. Retrieved July 14, 2019, from HuffPost website: https://www.huffpost.com/entry/stress-success_b_5652874

Costs:

Employee resignation is a loss for the restaurant. All the training and time devoted to a specific member is instantly lost, resulting in an indirect loss of invested capital. Motivation is a huge factor for this particular metric, but the restaurant industry is known to attract transitory type employees due to the nature of the work. However, this does not necessarily show the reality of all restaurants around the world.

Employee turnover is not only costly in terms of staff replacement, but also the loss of productivity. According to the estimate of the Society of Human Resource Management (SHRM): "It can cost six to nine months of the employee's salary to fill a replacement position."⁹ A report by the Work Institute stated: "An estimated 42 million employees will leave their jobs by the end of 2018 in the U.S. alone" This report also says: "That kind of turnover will cost the industry \$600 billion in 2018, a number that is expected to rise to \$680 billion in the next couple of years."¹⁰ It all falls on finding and executing efficient ways to ensure retention of personnel.

The operational need of a restaurant to acquire the right aspirants needs to include a qualitative dimension (such as better incentives or a friendly workplace environment) and reduce outsourcing. There are tools available to reduce recruitment costs, but as mentioned above all factors within the hiring process need to align and provide value. In the process of alignment, the maintenance of such MIS cannot be delegated to managers as they are not I.T. specialists. However, their feedback and support are crucial to the determination of performance metrics. It is essential as new occupations are rising in the I.T. sector as the market changes. Chief data officer (CDO), chief technology officer (CTO), chief information officer (CIO) and many others are new tech-driven occupations rising in the industry underlining the importance of I.T. integration. While a restaurant most likely would see no use in employing a CTO, there are multiple MIS capable of supporting such roles and providing leverage to their operations.

“Employers also want to reduce cost per hire, or the marginal cost of adding a new worker, which is roughly \$4,000 in the U.S. According to research from LinkedIn, 35 percent of companies feel significantly constrained by limited recruitment budgets, and most don’t expect an improvement in the coming year, even as many anticipate an increase in hiring volume.”¹¹

Retention:

The low rate of retention does not only influence finances; it also affects factors such as reputation and talent management. If potential employees realize that a restaurant has a high turnover, they will directly see it as a red flag. In a market where most of the operational workforce

⁹ White paper, (2019). *Proof that Artificial Intelligence (A.I.) can accurately predict Cultural Fit: develop Unbiased and Enhanced Match for Employees and Employers*. Talent Hiring to retention, retrieved from <https://dotin.us/home>

¹⁰ Ibid.

¹¹ LinkedIn Global Recruiting Trends 2017, <https://www.slideshare.net/pedrooolito/linkedin-global-recruiting-trendsreport-2017> (finding that time to hire is the second most essential way recruiters measure success).

is paid minimum wage, knowing that there might be a potential organizational issue, it could make the potential candidates search for jobs elsewhere. Also, many restaurants are opening in rural areas which affect their access to potential employees due to the low human resources capital available in those locations.

Restaurants with low retention are facing talent attrition. As they cannot retain most of their personnel, it is difficult for managers to maintain efficient talent management through professional development programs and assign suitable work hours that would promote their staff's well-being. As such, managers spend their efforts on hiring and less on innovation to create a unique customer experience:

"Talent attrition is a significant factor that limits a company's attempt to create a consistent employee and customer experience. Addressing these talents and the effect they can have on the customer should motivate restaurant executives to innovate their talent approach hand in hand with their go-to-market strategy, creating a customer experience that is differentiated and successfully derived from a positive employee experience."¹²

Time spent on hiring:

Screening can be quite an extensive process regardless of the actual time spent conducting the interviews. Due to the slow rate of technology assimilation in the talent management of the restaurants, many applicants apply physically through walk-ins meaning that restaurants still mostly rely on physical posters to advertise vacant job positions. Even though it is a reliable hiring technique, most of the potential applicants are actively searching for job positions via online posts and job banks. Hiring online enables restaurant managers to tap in a much larger audience. Nevertheless, many managers are posting job applications online, but they still spend a considerable amount of time and money into screening employees, booking appointments and conducting interviews.

"It takes a typical U.S. employer six weeks to fill a role, and the longer it takes to find a suitable candidate, the more time and resources are diverted from other priorities. A slow hiring process might lead to a poor applicant experience and increase the likelihood that candidates will drop out of the hiring process or share their bad experience with friends. Employers also fear losing candidates to their competitors—a particularly acute concern in a tight job market.

Moreover, some companies have seasonal staffing needs that make it critical to hire new employees within a particular time frame."¹³

Restaurants in rural locations are struggling to hire people to the extent of hiring almost anyone to maintain minimum staffing. It exposes them to higher employee turnover. It is hard to provide fulfillment, a positive workplace and work-life balance when an organization is always

¹² Buchanan C, Daichendt A, Feinberg A, & Hanna M. (2017) The power of employee engagement Redefining the restaurant experience. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-cb-power-of-employee-engagement-restaurant-experience.pdf>

¹³ Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias. (2018). Retrieved June 19, 2019, from Upturn.org website: <https://www.upturn.org/reports/2018/hiring-algorithms/>

chasing to meet the minimal operational standards. "This is exactly why being a restaurant owner is known to be an extremely difficult and stressful job to have."¹⁴

Customer service dissatisfaction:

There is a psychological aspect to consider when it comes to providing services as an organization. Internally, fostering a healthy work environment enables employees to better perform in their jobs and allows motivating them in delivering creative measures to make a better workplace which would encourage their development. Externally, a happy employee will provide better customer service to the client. An angry, frustrated or visibly disinterested employee will most likely offer a poor customer service experience.

"An employee's level of engagement heavily influences a customer's attitude toward the brand. News of poor customer experience with a restaurant's employees may spread virally across social platforms and through word-of-mouth, often prompting consumers to abandon a location or even a brand altogether. In contrast, positive interaction with an energized and engaged employees can turn a first-time customer into a lifelong enthusiast."¹⁵

Maintaining adequate operational staffing is essential, but fostering strong and long-lasting professional relationships with others are as important. This challenge is complex to tackle for managers as a one-page curriculum vitae, and 30-minute interview is not good enough screening processes to see if the potential employee would be a good fit for the team. Even if the manager hires a good employee based on his personal opinion and assessment, this does not imply that the candidate will perform well with the team.

Why simply going online is not enough?

Posting jobs online is not an efficient way of integrating MIS. They only give access to a bigger pool of potential applicants; there is no additional value-added. It is basically as if the restaurants resorted to the same job posters figuring on their front doors but online. Nowadays, tech-driven businesses show that effective MIS integration can disrupt whole markets. Uber and Airbnb are two good examples of such implementations. Taxi drivers were victims of such disruption when a friendly-user software virtually made anyone owning a car a potential taxi driver. That resulted in an unprecedented depreciation of the taxi license that could value up to a million per car in some regions like New York City, before Uber entered the market¹⁶. On that

¹⁴ What Are Some Disadvantages of Being a Restaurant Manager? (2011). Retrieved June 19, 2019, from Chron.com website: <https://smallbusiness.chron.com/disadvantages-being-restaurant-manager-34814.html>

¹⁵ Buchanan C, Daichendt A, Feinberg A, & Hanna M. (2017) The power of employee engagement Redefining the restaurant experience. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-cb-power-of-employee-engagement-restaurant-experience.pdf>

¹⁶ Walker, A. (2018, June 11). In NYC, 139 prized yellow taxi medallions will hit the auction block. Retrieved from <https://ny.curbed.com/2018/6/11/17450366/nyc-taxi-medallions-bankruptcy-auction>

note, going online means integrating the business model to the technologies available today to obtain a comparative advantage.

The future of hiring: Human behaviour leveraged by technology implementation

"Employers also try to maximize the quality of hire, which is judged based on metrics related to performance evaluations, the quantity or quality of worker output, or whether the hire was eventually promoted or disciplined."¹⁷

Implementing and keeping up with MIS change can be challenging and complex. One of its new implementations is Artificial Intelligence (A.I.) algorithms in hiring. It has proven to be a new potential way of dealing with recruiting, screening and interviewing potential candidates. To give a concrete example, we will be using the platform Intrideo, which is offering cost-efficient recruitment solutions to the service industry with their own sophisticated A.I. algorithms. They principally target restaurants by providing them with quality candidates, reducing understaffing and reducing the time spent recruiting. Candidates that come through Intrideo are introduced to the managers through a recorded 20-second video (similar to an elevator pitch about the candidate's strengths and why he/she should be considered for the job position) for a first impression, assessment and screening. Managers can then ensue further interviews if need be.

We had the opportunity to correspond with one of Intrideo's clients, David Blackmore, who is a franchisee owner. Mr. Blackmore has been the victim of employee turnover. Before using Intrideo, he was woefully understaffed. He has been using Indeed (online job bank) to acquire a great deal of applicant flow, but his Management team was working in staff positions as well as completing their daily duties. Mr. Blackmore mentioned that:

"They did not have time to vet the many applicants that were sent from Indeed (most of which were not even worthwhile applicants). The Management teams had difficulty getting in touch with folks to come in for interviews. Then once scheduled, they often did not show up. It became very demotivating and appeared to be a downward spiral".¹⁸

One of the strong points of Intrideo is its ability to accurately vet candidates by their distance and their team personality fit through its TeamFit and JobFit Grid functions. Restaurant owners get applicants that live within or near their location, and they submit to personality screenings predicted and analyzed by the A.I. algorithms and the Grids to match with teams where personalities and strengths are compatible.

"Once we were on the Intrideo system, getting them to come in for a face-to-face interview was much easier and more successful because they actually showed up. Managers could sign on and, in a moment, have a shortlist of interviews. Hires started to happen, and we turned things around.

¹⁷ Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias. (2018).

Retrieved June 19, 2019, from Upturn.org website:

<https://www.upturn.org/reports/2018/hiring-algorithms/>

¹⁸ Blackmore David, personal communication statement, June 14, 2019

Since then, we have maintained our staffing levels and have had the opportunity to improve the quality of the staff when we found a good candidate. The teams were built around the personal learning styles and strengths of the members, and by using the grid when scheduling, we have improved teamwork and operational execution overall. We have seen sales and transactional growth 3% above the local market area trend for the last ten months."¹⁹

We also had the opportunity to get a statement from another client of Intrideo, Margaret MacCallum, owner of one QSR (quick-service restaurant) in a rural area. She has explained that Intrideo became a daily tool for her operations at her restaurant. Similar to David Blackmore's statement, she was also victim to high employee turnover:

"We always relied on potential applicants bringing in their resumes. This tedious approach cost time, money, and hiring the right person was a hit or miss. Intrideo was new to me, but I needed something that would screen my applicants and make my decision easier. I have been using it since September 2018 and am still using it now. First of all, I check who has done a video and make sure they have submitted a resume. I also have set up a questionnaire so they can tell me about themselves and why they specifically have chosen our business for future employment. I also use the tool where they live [geolocation feature]. The closer they live to our restaurant; they are less likely to leave to work at another location that is closer to their home. I have seen an increase in sales above 3%, which is above the local market trend in our area."²⁰

When using A.I. algorithms for hiring, it is crucial to have a strong understanding of who the applicants are and how they will fit with the current teams and managers. Even if faced with the choice of hiring an unattractive candidate out of desperation, managers have to keep their horizons broad and know what aspects they will need to manage carefully to mitigate as much of the collateral damage as possible.

There might be concerns as to whether a 20-second video would be suitable compared to a 30-minute interview. Intrideo does highly encourage face-to-face interviews, but their short recording video feature is the first step of their recruiting process. It demonstrates the commitment of serious candidates who are genuinely and actively looking for a job. This feature helps to build a first impression and part of their evaluation, thus ensuring some liability that the applicant does have the potential for the job position and will show up for a face-to-face interview with the employer.

Current Problems

There is recognition for the potential of artificial intelligence in human resource management. Some companies have jumped on developing their MIS by building their data analytics capabilities, from Big Data (B.D.) to Machine Learning (ML) to artificial intelligence.

Amazon has spent years developing its MIS for automating the recruitment process since 2014. However, this giant company obtained biases in their data, thus proving the complexity of H.R. phenomena. The idea was to use their A.I. algorithms to look at a collection of resumes and target the top candidates. They used decades of data from people applying for jobs at Amazon to

¹⁹ Blackmore David, personal communication statement, June 14, 2019

²⁰ Magaret MacCallum, written communication statement, June 18, 2019

feed their A.I. algorithm's prediction tasks. The company is predominantly composed of males. Thus, more male resumes came into the data analytics of their A.I. The system taught itself to downgrade scores with the word "women's" in the resumes. The recruitment system began to favour men over a woman.²¹

As such, much skepticism surrounds the effective application of A.I. algorithms to human resources problems. Including the fact that when applied to individuals, it has severe conflicts with criteria societies which may make consequential decisions. The A.I. would resort to its machine learning application to create an algorithm based on attributes of employees and their job performance in the current workforce. "Even if we could demonstrate a causal relationship between sex and job performance, we might well not trust an algorithm that says hire more white men because job performance itself may be a biased indicator, the attributes of the current workforce may be distorted by how we hired in the past"²²

There are also concerns about fairness due to the lack of causation, which is fundamental in recruitment decision-making, and A.I. algorithms struggle with that challenge because it relies on the association. "Because the creation of algorithms relies on association rather than causation, an absence of notions of causation makes it much more difficult to create the datasets needed for analysis: we need more data because we do not know what to choose."²³

In the article from the University of Pennsylvania, the author argues that employers must see the bigger picture and lower predictive power from the algorithms where there is a lack of causality. They must work to develop a consensus about causal assumptions to set a framework/model to help their algorithms make valid predictions. H.R. leaders and managers need to increase their knowledge to obtain more informed uses of workforce analytics' insights in their decision-making.

²¹ Meyer, David. 2018. Amazon Reportedly Killed an A.I. Recruitment System Because It Could not Stop the Tool from Discriminating Against Women. Fortune. October 10.

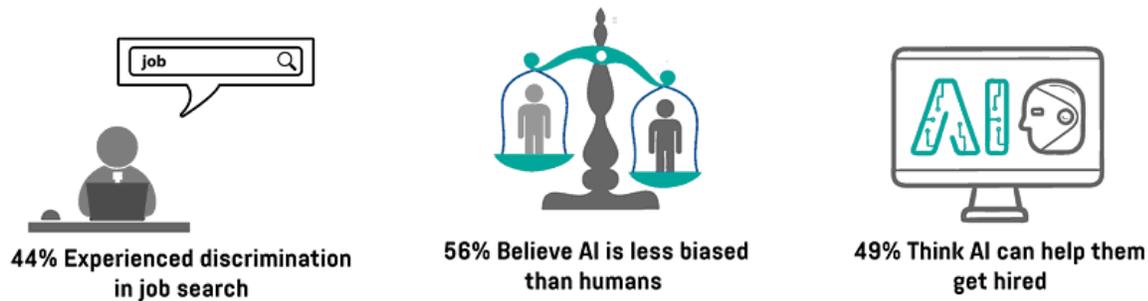
[Http://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/](http://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/)

²² Cappelli, Peter & Tambe, Prasanna & Yakubovich, Valery. (2018). Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. SSRN Electronic Journal. 10.2139/ssrn.3263878.

²³ Ibid.

FIGURE 4²⁴

Candidates' perspective on hiring



Source: "AI Could Reduce Hiring Bias, Recruiters & Candidates Agree," *Montage*, 2018

A.I. Factors

We have shed some light on the current problems that A.I. algorithms are facing as well as the possible biases they might provide in the decision-making of a recruitment process. On the other hand, while Intrideo is targeting a particular niche, the restaurant industry, it has been very successful in providing accurate and efficient recruitment solutions in various other sectors. In a conference call with Wade MacCallum, Chief of Client Innovation at Intrideo, efficiency and accuracy of their A.I. algorithms estimate at 85%. Most of their data analyses come from a massive job bank database called O*Net. A separate case study, *A&W Restaurant Franchisee Results with Intrideo Staffing System*, demonstrates positive results for Intrideo. It explains that Lori Martineau, franchisee owner of five A&Ws in Sault Ste. Marie and Thunder Bay had big problems with the quantity and quality of applicants. "Before Intrideo, Lori's restaurants were 20 percent understaffed. Now that she is using Intrideo, she is only understaffed by 2 percent – a dramatic improvement."²⁵

Intrideo has proven to be able to reduce turnover, which can have a positive impact on customer experience as well as cutting down overall operational costs.

There have been significant issues related to the digitalization of hiring processes. As mentioned previously, Amazon fell victim to such problems. It is one of the most successful companies renowned for their supply management systems. It would be easy to assume that they would be able to deliver a robust A.I. software capable of facilitating hiring, but they failed.

²⁴ "A.I. Could Reduce Hiring Bias, Recruiters & Candidates Agree," *Montage*, 2018.

²⁵ Intrideo – Case Study A&W Restaurant Franchisee Results with Intrideo Staffing System

"Unfortunately, the data were dominated by applications from men, and the A.I. taught itself to prefer male candidates, discriminating against C.V.s that referred to "women's" clubs, and setting aside graduates from certain women's colleges. The initiative was downgraded, and the research team scrapped. Amazon has claimed it never used the program to evaluate applicants."²⁶

This issue is reflective of the algorithmic challenge in trying to achieve unbiased hiring. Companies such as Amazon have been attempting tackling such projects, but the reality is that failure induces extensive costs and puts their reputation at risk. Even though they stopped pursuing such endeavours, they illustrated that if someone was capable of providing them with this capability; they would consider using it.

It is fundamentally important to understand that A.I. has many different usage forms such as expert systems, neural networks, genetic algorithms, intelligent agents and virtual reality. These are some of its core components as it can merge with other technologies such as video-conferencing and geolocation technologies such as Google Maps. Therefore, there is still much work to be done before we can genuinely see a complete product delivering tangible value. Just as Uber disrupted the taxi drivers, H.R. managers may have to face and assimilate similar disruption in the hiring industry. It is merely a matter of time before a company figures out the necessary technological components required to deliver quality hiring services through unbiased A.I. algorithms.

More than just A.I.

Up to this day, we are still struggling to define many human-specific factors in MIS integration. Since H.R. deals with human beings, human behaviour must be considered as a metric. It is highly likely that the reason behind Amazon's hiring project abandonment was due to the discriminatory nature of the results and its inability to quantify an individual's gender within a hiring process. Integrations of A.I. algorithms through hiring have to adapt in a way which would address the human factor. We cannot estimate or predict to which extent current A.I. and technologies can help with the hiring process, but we are positive that they can do better than a human.

If a manager prefers a specific candidate for a job position, this does not necessarily entail that the candidate will be compatible with the team or the position in question. It is common that if an applicant has a friend that mentions a good word on his or her behalf to the hiring manager, chances of getting hired are already better than any other candidate. It is normal human behaviour as it is preferable to trust people that we know rather than a stranger. However, this behaviour is biased, and it influenced the manager's hiring choice. This bias could be avoided if the manager would leverage his decision-making with technology. The question is how to adapt and assimilate human factors with technology as they are often difficult to measure or assess. A good example of a company trying to do this is Intrideo; they use psychometric integration using Holland's six

²⁶ Hill, A. (2019, January 24). Amazon offers a cautionary tale of AI-assisted hiring. Retrieved July 6, 2019, from Financial Times website: <https://www.ft.com/content/5039715c-14f9-11e9-a168-d45595ad076d>

personality type test and Gardner's Multiple Intelligence. These theories incorporate human factors in their psychometric algorithms. It is important to note that the integration of non-technological components might be the answer to the Amazon issue. MIS integration must not be the only solution because the implication of human-specific criteria like sex, human nature and character are hard to quantify. Thus why the next company capable of integrating current technologies with the right human approach, might completely disrupt the hiring sector.

Hiring is not the only process that is outdated. Per example, the education sector is also on the verge of disruption. Schools initial purpose was to provide kids with consistent inputs and hope to forge quality workers. The education system pushes young people to strive for the best grades possible and not necessarily knowledge. Harvard, MIT, Oxford became iconic institutions with astronomical tuition fees. They became a brand of prestige in education, but research is showing a different reality.

The human brain is a complex organ, but neuroscience is slowly discovering fascinating facts about it. Humans resolve problems better in teams, in specific environments and yet success is measured by individual performance.

“Standardized tests do not take into account learner differences, out-of-the-box thinking, or the individual qualities, talents, and passions of students. Requiring students to pass arbitrary, subjective, pre-determined pass-or-fail scores disserves our entire society”²⁷.

There is a disconnect between what was established in the Industrial era and what is required today. Similar problems arise when we analyze the hiring sector. Resumés, degrees, quick interviews are not good enough to thoroughly screen individuals. On the other hand, technology innovations are slowly disrupting such industries as it enables integration and optimization of factors we could not quantify or test before.

Sales

I.T. driven businesses are all looking to leverage their products. In the restaurant industry, Small Business Owners (SBOs) are ultimately looking to generate more revenue to reduce their costs and increase sales. Assuming that the hiring process enabled via platforms like Intrideo, managers will have more time on their hands as the process will be somewhat automated. With solid psychometric, geolocation and video-conferencing technologies, managers can spend their time on other issues such as improving customer satisfaction, work-life balance and sales training. This relief might have no direct impact on sales; however, we must consider their relation to more tangible metrics. Going back to CSFs and KPIs, we know that CSFs are intangible factors driving KPIs. For example, if a restaurant sees an increase in positive customer experience, we will naturally see a sales increase. Customer experience encompasses speed of delivery, product quality, hygiene and staff attitude. If all those factors can be increased simply because the manager

²⁷ Cox, A. (2018, March 9). The Current Education System is Failing our Students. Retrieved July 17, 2019, from Medium website: <https://edsurgeindependent.com/the-current-education-system-is-failing-our-students-b35614943541>

used an efficient hiring software; we can assume that sales can be directly related to the quality of the personnel hired through such software.

In the article, *Using people analytics to drive business performance: A case study*, the authors confirm that a growing number of businesses are applying analytics to their hiring and retention processes. As mentioned previously, the integration of MIS processes such as A.I. algorithms provides insightful analytics for recruiting and uncovering sources of talent in potential applicants. Focusing analytics on frontline staff is a game-changer for the restaurants overall business performance. The authors mention, that the company People Analytics "focused the power of people analytics on [QSR] frontline staff and achieved dramatic improvements in customer satisfaction, service performance, and overall business results, including a 5 percent increase in group sales in its pilot market."²⁸

Intrideo gets live feedback from restaurant owners and managers stating that merely using their software in some of their locations generated a reduction of 82 %²⁹ employee turnover. This statistic is an enormous reduction in human capital turnover and is proof that the platform has an impact on retention, suitability and employee compatibility.

As previously mentioned, both statements from two of Intrideo's clients noted a three percent year over year sales increase above their respective regional growth. This outcome is a significant milestone considering that most SBOs are struggling to meet the regional standards. Also, both clients have businesses located in rural areas where seasonality and human capital are constraining factors. Intrideo provided us with a concrete glimpse of the potential of MIS implementation in hiring processes. They provide their customer with value, but they also provide quality candidates which impact the work environment into becoming a better place where employees are happier. Employers can, therefore, cut hiring costs and focus on growth as well as fostering a competitive work environment leading to retention.

Disruption of the Hiring Sector

Hiring is a complex process that can be leveraged by technology. It is a question of time before companies define suitable A.I. algorithmic models which will encompass the intricacies of H.R. phenomena and unbiased decision-making. In retrospect, as per the KPIs and CSFs outlines, these metrics have been met through the use of Intrideo without the mention of sales increase by both clients. In the restaurant industry, Intrideo is already providing significant results by leveraging A.I., video-conferencing and psychometric testing in order to filter employees and match them with compatible work teams. Intrideo is not the only company offering these services, and we know that many other companies are in a race to deliver the best product and services on the market. Amazon's failure to adapt the A.I. algorithms' analytics does not preclude the potential of such capabilities and the opportunities which lie in these technologically driven innovations.

²⁸ Arellano, C., DiLeonardo, A., & Felix, I. (2017, July). Using people analytics to drive business performance: A case study. Retrieved July 26, 2019, from <https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/using-people-analytics-to-drive-business-performance-a-case-study>

²⁹ Intrideo (2019) *Case study*, p.3

Companies chasing effectiveness need to understand the importance of the alignment principle with the relation between CSFs and KPIs. In a high employee turnover industry, effective implementation of tangible MIS demonstrates a significant increase in turnover reduction and sales increase.

Hiring is a fundamental business component, and if poorly managed, it can quickly deteriorate the productivity and the culture of any business. There are many potential integrations with other innovative capabilities that could potentially help increase the value of MIS implementation in hiring. The hiring sector is on the verge of disruption, and we might see new technological integrations of components such as geolocation, biological testing, psychology and I.T. enabled efficient hiring via MIS. The next Uber of hiring will fundamentally revolutionize recruitment. Such disruption can even lead to transforming the process of managing human capital.

References:

"A.I. Could Reduce Hiring Bias, Recruiters & Candidates Agree," Montage, 2018.

Arellano, C., DiLeonardo, A., & Felix, I. (2017, July). Using people analytics to drive business performance: A case study. Retrieved July 26, 2019, from <https://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/using-people-analytics-to-drive-business-performance-a-case-study>

Blackmore David, personal communication statement, June 14, 2019)

Buchanan C, Daichendt A, Feinberg A, & Hanna M. (2017) The power of employee engagement Redefining the restaurant experience. Retrieved from <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-cb-power-of-employee-engagement-restaurant-experience.pdf>

Cappelli, Peter & Tambe, Prasanna & Yakubovich, Valery. (2018). Artificial Intelligence in Human Resources Management: Challenges and a Path Forward. SSRN Electronic Journal. 10.2139/ssrn.3263878.

Cox, A. (2018, March 9). The Current Education System is Failing our Students. Retrieved July 17, 2019, from Medium website: <https://edsurgeindependent.com/the-current-education-system-is-failing-our-students-b35614943541>

Don Joseph Goewey. (2014, August 10). Stress, the Brain and the Neuroscience of Success. Retrieved July 14, 2019, from HuffPost website: https://www.huffpost.com/entry/stress-success_b_5652874

Help Wanted: An Examination of Hiring Algorithms, Equity, and Bias. (2018). Retrieved June 19, 2019, from Upturn.org website: <https://www.upturn.org/reports/2018/hiring-algorithms/>

Hill, A. (2019, January 24). Amazon offers a cautionary tale of AI-assisted hiring. Retrieved July 6, 2019, from Financial Times website: <https://www.ft.com/content/5039715c-14f9-11e9-a168-d45595ad076d>

Intrideo – Case Study A&W Restaurant Franchisee Results with Intrideo Staffing System

Intrideo (2019) Case study

Linkedin Global Recruiting Trends 2017, <https://www.slideshare.net/pedrooolito/linkedin-global-recruiting-trendsreport-2017> (finding that time to hire is the second most important way recruiters measure success).

Magaret MacCallum, written communication statement, June 18, 2019

Meyer, David. 2018. Amazon Reportedly Killed an A.I. Recruitment System Because It Could not Stop the Tool from Discriminating Against Women. Fortune. October 10. [Http://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/](http://fortune.com/2018/10/10/amazon-ai-recruitment-bias-women-sexist/)

Praqma. (2018). Avoiding the Agile Alignment Trap. Retrieved July 11, 2019, from Praqma | The Continuous Delivery and DevOps Company website: <https://www.praqma.com/stories/agile-alignment-trap/>

Pre-employment genetic screening, *Journal of Medical Ethics* 2004;30:420.

SHRM Foundation (2016). Use of Workforce Analytics for Competitive Advantage. Retrieved from <https://www.shrm.org/foundation/ourwork/initiatives/preparing-for-future-hr-trends/Documents/Workforce%20Analytics%20Report.pdf>

Stress in America tm generation z. (2018). Retrieved from <https://www.apa.org/news/press/releases/stress/2018/stress-gen-z.pdf>

Walker, A. (2018, June 11). In NYC, 139 prized yellow taxi medallions will hit the auction block. Retrieved from <https://ny.curbed.com/2018/6/11/17450366/nyc-taxi-medallions-bankruptcy-auction>

Welcoa. (2018, April 26). Retrieved July 11, 2019, from WELCOA website: <https://www.welcoa.org/blog/benefits-stress-management-employees/>

What Are Some Disadvantages of Being a Restaurant Manager? (2011). Retrieved June 19, 2019, from Chron.com website: <https://smallbusiness.chron.com/disadvantages-being-restaurant-manager-34814.html>

White paper (2019). Proof that Artificial Intelligence (A.I.) can accurately predict Cultural Fit: develop Unbiased and Enhanced Match for Employees and Employers. Talent Hiring to retention, retrieved from: <https://dotin.us/home>

You, N. (2019, March 19). The Online Marketplace for Restaurant Supplies. Retrieved July 10, 2019, from The Online Marketplace for Restaurant Supplies website: <https://www.chefhero.com/blog/employee-turnover-cost>

Zimmerman, K. (2016, June 14). Millennials, Stop Apologizing For Job-Hopping. Retrieved from <https://www.forbes.com/sites/kaytiezimmerman/2016/06/07/millennials-stop-apologizing-for-job-hopping/#3db3380a4656>