# **Blockchain Technology Impact HR Hiring and Off-Boarding Practices in the Telco Sector in Hong Kong**

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#### Introduction

A Deloitte (2016) survey report states that blockchain technology can have an impact on the telecommunications industry in preventing fraud, identifying as-a-service and data management, 5G enabling, and IoT connectivity. For example, fraud costs more than USD 38 billion a year. In a panel of industry experts, Carrier Industry is looking for ways to cut costs, boost revenues, and market segments through blockchain technology (Total Telecom, 2018). Blockchain is treated as a breakthrough technology for managing the operation of telecommunications such as identity management, smart contracts, payments and transactions, reporting and analysis, network management, billing / OSS, etc. A statistical analysis shows that blockchain in telecommunications and postal services in 2017 amounted to more than USD 39 million and is expected to achieve an estimate of more than USD 641 million by 2023-end, suggesting powerful market growth over the next few years (Market Research Future Report, 2018). Since carriers apply telecom standards to run its business and operations, and thus blockchain technology, a high secure of distributed ledger and trust processes to solve the high traffics. According to a survey by IBM Institute for Business Value (2018), it states that 36 percent of Communication Service Providers (CSP) are already considering or actively engaged with blockchain, 41 percent of CSP may support their strategy by assuring data management, and 46 percent of CSP are already exploring or engaging with blockchain and already invested in it to develop new business models.

Carriers in telecommunications Industry Hong Kong are mainly private-owned, and thus they must follow the Telecommunication Ordinance (Cap. 106) governed by Office of the Communications Authority (OFCA) of HKSAR. Telecommunications services such as fixed-line, internet broadband and mobile service support business and residential customers. Hong Kong Telecom (HKT), Hutchison Telecommunications Hong Kong Holdings Ltd (HTHK) and Hong Kong Broadband Network Limited (HKBN) are selected by this study as a number of operators (fixed-line and broadband, mobile, or a mix of both fixed-line, broadband and mobile). HKT (Stock Code: SEHK: 6823), is the major operator to meet the needs of public, local and international businesses with a wide range of services such as local telephony, local data and broadband, international communications, mobile service and enterprise solutions. HKT employs approximately 17,400 staff, the headquarters are located in Hong Kong, and telecommunications network covers more than 3,000 cities and 140 countries (HKT, 2019) Hutchison Telecommunications Holdings Hong Kong Limited (Stock Code: SEHK215), conglomerate of CK Hutchison Holdings, is the leading operator provides mobile service in Hong Kong and Macau. HTHK employs 1,180 staff and the headquarters are located in Hong Kong (HTHK, 2019). Hong Kong Broadband Network, Stock Code: SEHK: 1310), is the foremost operator provides broadband service to commerce and residential customers. HKBN is an aggressive operator with merger and acquisition with New World Telecommunications in February 2016 and WTT Holding Ltd in February 2019. HKBN employs approximately 3,000 staff, and the headquarters are located in Hong Kong (HKBN, 2019). An example of two dominating carrier representatives, Marc Halbfinger, Chief Executive Officer of PCCW Global (subsidiary of HKT) and the Chairman of the GLF, and Andrew Kwok, CEO of Hutchison Global Telecommunications (ex-mega conglomerate of CK Hutchison Holdings sold to Asia Cube Global in Jul 2017) partnering with Colt Technologies Service to conduct trial blockchain technology to re-shape business practices (Colt Technology News, 2018). Other example of blockchain, HKT and PCCW obtained a virtual banking license in early 2019 to expand finance business (South China Morning Post, 2019). Given examples of operators actively study on blockchain technology to its core business and the role of blockchain plays a tremendous role in telecommunications landscape. The research paper is focussed on blockchain/blockchain technology impact to Human Resources hiring and off-boarding practices in telecommunications sector in Hong Kong.

# Literature review

Social platforms allow people to create and upload their own profile without verifications. A finding states that it was 84 percent growth in recruitment via social media, 82 percent of passive job applicants be the top reason that companies use social media for recruitment (SHRM, 2016). Another study by Robert Walters states that the top three social media recruiting platforms for job applicants and employers are LinkedIn, Facebook, and Twitter respectively (Robert Walters Whitepaper). Recruiters connect applicants (active, semi-passive or passive) through social platforms that are not verified. Before posting online, active applicants can polish their resume and then apply for a job to the business or recruitment agency. For instance, without verification, an organization can obtain duplicate work applicants from various channels. A study of approximately 5,000 resumes undertaken by the Risk Advisory Group concluded that 80% of the resumes of applicants found discrepancies with 57% in academic background and 12% of the resumes of applicants found falsified in grading (Batzavalis et al., 2018) Recent findings show that blockchain technology drives paperless-based system for certificates are being issued by educational institutions (Grech and Camilleri, 2017). The deployment of distributed ledger in academic organizations can help recruiters verify skills for education. The data can be verified by distributed ledgers such as person (work applicant), government or private (professional universities / bodies / institutes) or government or private third party (background check company / BCHRIS / BCRMS). Some ledgers can even screen applications for unqualified jobs and provide candidates with ranking. Blockchain benefits recruiters with pre-verifications when reaching applicants through social networking to decrease "time, effort and price," speed up the process and work matching. A report states that blockchain can enhance fraud prevention, cybersecurity and data protection in HR (PwC, 2017). Recruiters face difficulties in verifying the resume of applicants for worldwide recruitment or particular legal blinding. Employing third parties, i.e. background check officer, is a prevalent practice to do checking to promote the recognized candidate's conditional job offer. A written background check approval must have the approval of applicants. As candidates are hungry for work opportunities, they generally do not say "no" or privacy problem. Society for Human Resources Management (SHRM) surveys indicate that organizations frequently use background checks. A finding shows that 86 percent of organizations conducted criminal checks and 47 percent of organizations conducted credit checks (SHRM, 2012 cited in Aamodt, 2015). Background checks have been treated as a standard and accepted employment screening; and any candidates who refuses to proceed the check may be treated as unsuccessful candidates (Brody, 2010). Therefore, blockchain represents an opportunity for third parties, such as employers, to independently and privately verify that shared records (Grech and Camilleri, 2017). Recruiters can access trusted ledger to verify the background of applicants in the history of education and work. Other legal-related information such as credit and criminal records; or private documents such as health records and driving records may still respond to third parties. The candidate's conditional offer requires that the background check has a positive result, otherwise it is disqualified.

#### **Research Methodology & Design**

As study is a step-by-step process (Wilson, 2014), the following steps will be covered in this section: philosophy, approach, technique, survey creation, measurement of variables, information collection, sampling methods, research design, conceptual framework, target population, instruments to be used in data collection, data collection procedures and data analysis methods. The study used a descriptive research design which describes or defines a subject. In this research, the study was assessed by the data's information collected via survey and analyzed to achieve the aims of study. The quantitative research technique is used ,however, this technique is prevalent in assessing whether or not the empirical information supports the hypothesis. The data of the research is be collected via an online questionnaire and will be assessed via mathematical and statistical methods. For this research study, the information source will be based on primary data gathered through a study. Surveys are usually used to obtain information from a bigger base and provide an effective manner for information collection (Ng & Coakes, 2013). Surveys can

be categorized into distinct kinds of surveys, which are surveys and interviews (Ng & Coakes, 2013). The information was gathered through a web-based online questionnaire for this thesis, as this has the advantage that in a short time it can reach many participants, the respondents can answer the questions at their own convenience. The benefit for the investigator is that the study is simple to administer and low price.

## **Research Reflexivity and Data Collections**

Primary data is collected from sampled respondents through questionnaires. Questionnaires are used as they are cheap and easy to administer since they do not require a trained researcher to distribute and collect the questionnaire. In addition to being easy to administer, respondents filling questionnaires are usually anonymous and may be willing to give information especially over sensitive issues. The researcher explained the purpose of the study to the respondents in order to obtain their informed consent and guided them in filling questionnaires in order to avoid any kind of irrelevant misinterpretations by the respondents. This ensured quality data was collected, that equates to having reliable, relevant and comprehensive output since the questionnaires are filled online. Secondary data can be acquired through secondary sources such as journals, websites or accounts from companies. For the purpose of this research, the questionnaire is used online to get to the respondents and the results were analysed based on the questions that was asked in the survey. Depending on the issue, this research will use a 3-to 5-point Likert Scale to gauge the respondents ' view on the issues. The Likert Scale is frequently used to define how powerful participants agree with or disagree with the statements made, allowing the investigator to conduct the required statistical assessment (Saunders, et al., 2009) The research topic requires the researcher to develop a questionnaire to be instituted in Hong Kong rather than Singapore that is the country of residence of the author. Because of the distance and time to be spend, the survey was completed via electronic means of Google forms that was sent via email to the respondents in Hong Kong and from there collate the results via an excel file to be analysed through the use of SPSS software. The collected data was organized, tabulated and analysed according to objectives and variables of the study. The data collected from the field was analysed using both qualitative and quantitative methodologies. Quantitative data was arranged in an organized manner, coded, entered and analysed using Statistical Packages for Social Sciences. (SPSS, Version 25.0) SPSS was used because it is fast, flexible and provides more accurate analysis resulting in dependable conclusions. Descriptive statistics which comprise of frequencies, percentages, means, simple tables, bar graphs and pie charts was used to analyse data and describe sample characteristics and draw factual conclusions. Inferential statistics which include one sample t-test was used to test strength of association between categorical variables and make deductions about the whole population.

#### **Ethical considerations**

Research ethics refers to the appropriateness of researcher's behaviour in relation to the rights of those who become the subjects of the research work, or are affected by it. Researchers have some general obligations to people who provide data in research studies and these include the obligation not to harm, force or deceive participants (Hall & Roberts-Lombard, 2002). The appropriateness and acceptability of behaviour as researchers affects broader social norms of behaviour. Access of data and ownership as an ethical consideration will focus on only the licensed and authorized personnel being the key persons who actually on storage can retrieve it to work on it to make information as well as own the given details. Anonymity and confidentiality involves access by authorized persons and names and identity not being of any significance during this study by use of serial numbers respectively. Respondents were asked to participate voluntarily. The researcher respected the individual's rights and also safeguarded their personal integrity.

In the course of the study, the respondents were assured of anonymity and confidentiality. Also, the respondents were assured of their ability to withdraw from the study at any time if they wished to do so. There were no names or person identification numbers to be reflected on the questionnaires except the numbering and identification of data during data editing. The research shall be done with always to make sure that all the data collection and analysis is done on ethical background. Data collection included any interviews, surveys or on paper feedback, and was done by the researcher with participants' consent properly. In addition, all data gathered from external source was referenced only, no manipulation of the data was made while carrying out the required statistical calculations. Moreover, data collection was done carefully and data obtained from reliable and genuine sources so that it may not interfere with results from some external effects. Names of the participants and organisations were kept confidential as should and only

be published if permission is granted by the participants. Lastly, given that a few ethical issues would be possibly identified with a research based on numerical data, the researcher took into consideration all these ethical issues while the research study was being carried out.

#### Validity and Reliability of Research Instruments

According to Patton (2002), validity is quality attributed to proposition or measures to the degree to which they conform to establish knowledge or truth. For example, an attitude scale is considered valid to the degree to which its results conform to other measures of possession of the attitude. Validity therefore refers to the extent to which an instrument can measure what it ought to measure. It therefore refers to the extent to which an instrument can measure what it of accuracy. According to Oso and Onen (2005), validity is the success of the scale in measuring what it sets out to measure so that the differences in individual scores can be taken as representing true differences in the characteristic under study. This was done through content validation measure which involved discussing items in the research instruments with the supervisors and expert. The suggestions for changes were incorporated in the final instrument used in the study.

Earlier studies referenced in this research paper have been thoroughly analysed to obtain high reliability and validity of this research. Additionally, the variables were selected in the questionnaire to assess the connection between Block chain technology and Human Resources Hiring and Off-boarding Practices. In addition, prior to the primary information collection, a pilot study was conducted. The involvement in the questionnaire was voluntary. Respondents were keen and most likely to take the survey seriously and this is stated at the introduction to the online questionnaire used in this study. This assured this study's reliability and validity. For research to be reliable it must show that if carried out on a similar group of respondents in a similar context, then similar results would be found. Poor reliability degrades precision of a single measurement and reduces ability to track (Mislevy, 2004).

#### **Data Analysis and results**

The findings of the study show that 65 (44.2%) of individual who responded to this question are female, while 82 (55.8%) of individual who responded to these questions are male. The findings from the analysis above show that 23 (15.6%) of individuals who responded to this question have finance, legal or human resources as their job function, 23 (15.6%) of individuals who responded to this question have management as their job function, 25 (17.0%) of the individuals who responded to this question have operations and support as their job function, 35 (23.8%%) of individual who responded to this question have sales, business development, product or marketing as their job function and the remaining 40 (27.2%) of individuals who responded to this question have sales, business development, product or marketing as their job function. The respondents were asked to state their highest academic qualification. The research findings from respondents' highest level of education, 77 (52.4%) of the people who responded to this question are bachelor degree holders, 41 (27.9%) of the people who responded to this question are master degree holders or above, 10 (6.8%) of the people who responded to this question are school graduates.

Descriptive statistics analysis findings indicated that a majority of the respondents agreed with the fact that blockchain technology had a positive impact on the hiring and off-boarding processes. More than half of the respondents (strongly) agreed that blockchain technology sped up hiring and off-boarding processes, was an effective tool to help in background check and a secure tool to support proof of documentation. These findings are in tandem with those of (Tapscott and Tapscott, 2019 cited in the MITSloan Management Review, 2019) which states that blockchain transforms company into a more structured and well-managed company, eliminates transaction costs, uses resources wisely and also provides stakeholders with values. More than 50 percent of the respondents were aware that blockchain technology has impact on the world today. This finding is backed by findings from a study carried out by (Cognizant, 2017) in which about 60% of the participants intended to use blockchain technology in their businesses in future where 36 percent of them said their businesses intend to use blockchain to substitute some legal issues and the remaining 24 percent of participants said businesses are looking for a hybrid strategy to safe legacy infrastructure and distributed ledger models.

## **One Sample T-test Analysis**

HA: Blockchain does not impact HR hiring and off-boarding practices in the Telco sector in HK HO: Blockchain technology impact HR hiring and off-boarding practices in the Telco sector in HK Table1: One sample test Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Blockchain technology plays a critical role to support HR hiring and Off boarding practices	147	3.5952	.84242	.06948
Blockchain Technology Awareness	147	3.6383	.80627	.06650
Blockchain Technology Adoption	147	3.7823	.73264	.06043

*Table 1* above shows the descriptive analysis of the factor "blockchain technology plays a critical role to support human resource hiring and off-boarding practices", "blockchain technology awareness", and blockchain technology adoption. The table shows that mean of blockchain technology plays a critical role to support HR hiring and off-boarding practices (M=3.59, SD=.842, N=147, S.E=.069) was higher than the population (blockchain technology plays a critical role to support HR hiring and Off boarding practices) strong score 3.0

The table shows that mean of blockchain technology awareness (M=3.638, SD=.806, N=147, S.E=.0665) was higher than the population (blockchain technology awareness) strong score 3.0. Further, the table above shows that blockchain technology adoption (M=3.782, SD=.732, N=147, S.E=.0604) had a higher mean than the population (blockchain technology awareness) strong score 3.0

One-Sample Test										
	Test Value = 3									
			Sig.	Mean	95% Confidence Interval of the Difference					
	Т	Df	tailed)	Difference	Lower	Upper				
Blockchain technology plays a critical role to support HR hiring and Off boarding practices	8.567	146	.000	.59524	.4579	.7326				
Blockchain Technology Awareness	9.599	146	.000	.63832	.5069	.7697				
Blockchain Technology Adoption	12.946	146	.000	.78231	.6629	.9017				

# Table2: One Sample T-test Analysis

From *table 2* above, a sample t-test was run to check whether the factor blockchain technology awareness score in respondents for this survey was stronger in agreement, the defined agreement score that respondent are aware of blockchain technology is 3.0 and above. Blockchain technology awareness score were normally distributed, as revealed by Shapiro-wilk's test (p<.050). Blockchain technology awareness (M=3.638, SD=.806, N=147, S.E=.0665) was higher than the population (blockchain technology awareness) strong score 3.0, a statistical mean difference of .638, 95% CI [.507, .780], t(146)=9.59 p=.0001. There is

statistically significant difference between the population mean the blockchain technology awareness mean (p<.05) which is positive and, therefore we do not reject *H1*. These results led me into accepting the first hypothesis *H1: There is a strong Awareness of blockchain technology in the Telco sector in HK*. The table also showed that the factor blockchain technology adoption score in respondents for this survey was stronger in agreement, the defined agreement score that respondent adoption of blockchain technology is 3.0 and above. Blockchain technology adoption score were normally distributed, as revealed by Shapiro-wilk's test (p<.050). Blockchain technology adoption (M=3.782, SD=.732, N=147, S.E=.0604) was higher than the population (blockchain technology adoption) strong score 3.0, a statistical mean difference of .782, 95% CI [.6629, .9017], t(146)=12.946 p=.0001.

There is statistically significant difference between the population mean the blockchain technology adoption mean (p<.05) which is positive and, therefore we do not reject H1. These results led me into accepting the second hypothesis H2: There is a strong adoption of Blockchain technology in the Telco sector in HK. The table also showed that the factor blockchain technology plays a critical role to support human resource hiring and off-boarding practices score in respondents for this survey was stronger in agreement, the defined agreement score that respondent blockchain technology plays a critical role to support HR hiring and Off boarding practices is 3.0 and above. blockchain technology plays a critical role to support HR hiring and Off boarding practices score were normally distributed, as revealed by Shapiro-wilk's test (p<.050). Blockchain technology plays a critical role to support HR hiring and Off boarding practices (M=3.59, SD=.842, N=147, S.E=.069) was higher than the population (Blockchain technology plays a critical role to support HR hiring and Off boarding practices) strong score 3.0, a statistical mean difference of .595, 95% CI [.458, .732], t(146)=8.567 p=.0001. There is statistically significant difference between the population mean the blockchain technology benefits mean (p<.05) which is positive and, therefore we do not reject H1. These results led me into accepting the third hypothesis H3: Blockchain technology benefits to human resources and off-boarding practices in the Telco sector in Hong Kong. Currently, it can be painfully slow to conduct the pre-hire verification process by conventional techniques of finding applicants, determining whether or not they are worth pursuing. Worse, inaccuracy and the potential for fraud can be fraught. Potential hires, for instance, may tweak their resumes according to each job's demands that interest them. They were even able to make references. Hiring executives may wait days before hearing back from references, and owing to liability reasons some businesses are unwilling to provide any accurate data about previous staff. Now, think if the personnel papers were stored by the blockchain. Applicants could authorize potential employers to access blockchain-based work data. This could include work background, letters of advice, educational papers, and more.

Since there are potential human errors in data processing and verification, blockchain-based record offers a secure platform to create, access and store a traceable data transaction. This means that employers and candidates can quickly get the answers they need. No more fielding applicants' messages as we await feedback from their former employers/institutions. A report shows blockchain, is a leading technology that can improve fraud prevention and avoid cybersecurity in HR Industry. (PwC, 2017) In view of the study findings the researcher recommends that the government in conjunction with institutions of higher learning, policy makers and stakeholders should increase awareness and amplify knowledge on the importance of businesses (especially those in the telecommunications sector) adopting blockchain technology in order to enhance smooth running of their businesses. These are clear areas in which human resource professionals can develop and use these technologies to improve efficiencies and productivity, and also avoid cyber-attack.

#### **Conclusion and Recommendations**

This study sought to assess the impact of blockchain / blockchain technology on Human Resources hiring and off-boarding practices in Telecommunications Sector in Hong Kong. It is important to note that blockchain technology brings value to store and maintain accurate employees' employment history; and current or prospective employees' education and training qualifications. This study was based on three (3) hypotheses proposed in this paper to examine the effect of the blockchain technology in the hiring and exit practices in the telecommunications industry among them; there is a strong awareness of blockchain technology in the telecommunications sector in HK, there is a strong adoption of blockchain technology in the telecommunications sector in HK and blockchain technology benefits to HR and off-boarding practices in the Telecommunications sector in HK.Descriptive statistics analysis findings indicated that a majority of the respondents agreed with the fact that blockchain technology had a positive impact on the hiring and offboarding processes. More than half of the respondents (strongly) agreed that blockchain technology sped up hiring and off-boarding processes, was an effective tool to help in background check and a secure tool to support proof of documentation. These findings are in tandem with those of (Tapscott and Tapscott, 2019 cited in the MIT Sloan Management Review, 2019) which states that blockchain transforms company into a more structured and well-managed company, eliminates transaction costs, uses resources wisely and also provides stakeholders with values. More than 50 percent of the respondents were aware that blockchain technology has impact on the world today. This finding is backed by findings from a study carried out by (Cognizant, 2017) in which about 60% of the participants intended to use blockchain technology in their businesses in future where 36 percent of them said their businesses intend to use blockchain to substitute some legal issues and the remaining 24 percent of participants said businesses are looking for a hybrid strategy to safe legacy infrastructure and distributed ledger models.

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