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A STUDY OF TASKS REPLACEABLE BY ARTIFICIAL INTELLIGENCE IN VIETNAMESE ADVERTISING AGENCIES IN THE NEAR FUTURE

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ABSTRACT

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In the age of digital, the marketing race among brands has become significantly more competitive than ever with the advancement of artificial intelligence. The race even occurs between human advertisers and artificial technology in every ad campaign. This qualitative study aimed to identify tasks that possibly would be replaced by the most advanced technological intelligence in advertising agencies based in Vietnam.

The theoretical framework of this study examined the concept of artificial intelligence, basic learning mechanisms and practical applications of machine learning, deep learning. In addition, departments and processes in a typical advertising agency were also examined to define similar structures between AI capabilities and tasks requirements.

The methodologies used in the study were desk research and qualitative research. Desk research was used to gather theory and secondary data. Primary data was the result of interviews with experts in the field of advertising, who had trend-watching experience over artificial intelligence topics. The key theme of the interviews was to establish the possibility that AI could replace certain agency tasks.

The gathered data was analysed to study which types of processes and tasks could possibly performed by artificial intelligence. The main result indicated that artificial intelligence tools should be integrated to support planning, media analysis and some of creative tasks.

To conclude, the thesis studied the intersection between artificial intelligence and processes in advertising agencies to indicate types of tasks that can be performed by AI.

Keywords Artificial Intelligence, Advertising Agency

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1 INTRODUCTION

Artificial intelligence, although it is no more a phenomenon, has yet proved its importance across unlimited fields and industries. The term "artificial intelligence (AI)" was first used in 1956, at a university conference in New Hampshire, USA. AI has since been deployed to assist forecasting stroke accidents in healthcare, analyzing routes to suggest optimal logistic solution, etc. In marketing and advertising, the role of AI is so significant that it even outperforms human employees in some certain tasks, e.g. identifying rising audience tastes on film streaming platforms, creating hundreds of personalized messages in just one single day. Therefore, concerns arise whether artificial intelligence can replace human's role in a creative field such as advertising.

In fact, in recent years, there have been real life advertising and campaigns executed by artificial intelligence, for example the Lexus "Driven by Intuition" commercial in 2018. IBM Watson was the AI system that scripted the storyline of the film, after analyzing award-winning attributes from all the car and luxury brand campaigns for the previous 15 years. Features such as text, audio, twist were scripted with AI's rationale in very detail for a 60-second spot. When handed the script, the commercial's Oscar-winner director – Kevin Macdonald admitted that the story did convince him of its potential (Todd, 2018). Indeed, artificial intelligence has proved its role in part of the creative process, the field that has been viewed as unique to human mind.

This thesis examines the topic of artificial intelligence and the scope of work in a typical advertising agency in Vietnam to address rising questions in the recent years. Will AI replace human workers in the field of advertising? In which department can AI outperform human employees and which type of tasks and assignments could be handled by AI? Having answers to all the above questions, it is reasonable to ask How should agencies adopt AI in their day-to-day working processes to maximize the technology's capabilities while letting human creativity shine?

To comprehend the issue, this study is divided into theoretical and an empirical part. The theory explains the concept of artificial intelligence, machine learning, deep learning, and scope of work in an advertising agency. In the research part, literature and expert interviews will be analyzed to establish answers to above questions from diverse and different

point of views. The results will then be concluded concisely concluded in the thesis conclusion.

2 ARTIFICIAL INTELLIGENCE

Artificial intelligence refers to the system that simulates human brain operation, how it processes information and construct conclusions or statement. In other words, artificial intelligence, as its name is described, is the man-made "intelligence" programmed to mimic human brain. As learning and problem-solving are distinct characteristics to human mind, those machines or system with ability to exhibit similar traits are also categorized as artificial intelligence (Frankenfield, 2020). As Larry Page (2000), co-founder of Google, stated "artificial intelligence would be the ultimate version of Google". Indeed, AI has been innovated for years that now people can partly rely on their smartphone to watch suggested Netflix series, getting advice from Siri whether to hang out based on weather data, and even modify nutrition plan from fitness apps such as Meal Planner.

2.1 History of Artificial Intelligence

The term "Artificial Intelligence" was coined in 1956 by John McCarthy, an American computer scientist when he organized a research project lasting 10 weeks at Dartmouth University together with his colleagues. The study was then introduced at a conference as a computer program named "Logic Theorist", whose role was to solve math theorems from Principal Mathematica. Despite not garnering much interest, the program has been considered as the first AI program ever written. (Taulli, 2019a)

In 1957, Frank Rosenblatt created the first AI program that based on the human brain's neural network. The program's main task was to distinguish two images; each was 20 x 20 pixels. It was a ground breaking of the AI progress that the New York Times described Rosenblatt's achievement as "the embryo of an electronic computer today that it expects will be able to walk, talk, see, write, reproduce itself and be conscious of its existence." Later in 1965, Joseph Weizenbaum, MIT professor, developed ELIZA – a program providing counsel to questions from users. It was a press hit at that time and was the foundation of present chatbots. (Taulli 2019a)

In the 1980s, Geoffrey Hinton and his colleagues were working tirelessly to develop theories on neural network, which later became deep learning. One significant work from the lab of Hinton was Neocognitron, a program recognizing patterns, which was also the

basis of convolutional neural networks. Another was developed by Christopher Watkins in 1989, “Learning from Delayed Rewards”, which was a major progress to develop reinforcement learning nowadays.

The 21st century marked significant milestones in AI’s advances. In 2009, Google introduced the world’s first self-driving car (Hartmans, 2016). In 2010, personal virtual assistants such as Siri on iPhone, Google Now, Cortana were launched. One of the most remarkable events was in 2016 - an AI program developed by Google Deepmind, AlphaGO defeated human Go champion Ke Jie. This achievement marked an incredible accomplishment of AlphaGO, after studying old matches and self-playing thousands of matches to build up its own expertise in Go (BBC, 2017).

2.2 Levels of Artificial Intelligence

Artificial Intelligence has been through decades of development with hundreds of innovations. The more “intelligence” AI programs become, the more concerns arise among society that computers would dominate the Earth instead of humans. With an aim to comprehending the issue, studying the levels of existing and potential AI will give a clearer picture of this advanced innovation’s progress. Artificial intelligence programs are classified into 4 levels of “intelligence”, which is based on their ability to “think” and “feel” like human. These 4 levels are: Reactive, Limited Memory, Theory of Mind, and Self-aware. (Joshi, 2019).

Reactive is the most basic form of AI system. Reactive machines are programmed to perform specific task, for example playing chess, without ability to use past experience to train itself. (Reynoso, 2019).

Limited Memory refers to reactive systems but equipped with data storing capability and utilise data for self-learning. Chatbot and virtual assistant such as Siri and Alexa are examples of limited memory AI. (Fingent 2019).

Theory of Mind AIs are programs that can understand the surrounding environment, the person they are interacting. It is the stage of AI development that researchers are aiming for at the present. (Joshi 2019, Lu 2019).

Self-aware is the final, ultimate stage of AI development. At this level, the system's intelligence is almost perfectly stimulated as human brain, which not only possesses the greatest critical thinking but also emotions, beliefs, etc. Self-aware AIs are now existent hypothetically but obviously there are potential that they will become reality after decades or centuries after. (Joshi 2019).

Despite all the substantial applications generated by artificial intelligence, most current AI programs and algorithms are still at Limited Memory level, including even the advanced application such as machine learning, deep learning.

2.3 Machine Learning

Machine learning, according to Chojecki (2020) is part of the computer science with the aim to training computer programs to perform indicated tasks without provided instructions by humans but from its self-learning activities. With hundreds of data sets, including numbers, words, images, etc. provided by human, machine learning algorithms develops its own "intelligence" by decoding and detecting patterns, store these lessons from which making predictions and recommendations in the next problem. In other words, if the question is to distinguish a cat and a dog, rather than showing which one is which, developers give the system hundreds of other dog and cat pictures and let the algorithms learn the patterns of dog and cat in order to choose accurately.

With ultimate self-improving capability, machine learning is widely used to perform predictions (things that could happen), prescriptions (what need to be done to accomplish goal) and descriptions (what happened) related tasks, across industry and several platforms and technology such as at Google, Netflix, Facebook, Tesla (Chojecki 2020, Hao 2018). In detail, machine learning systems are assisting in terms of predictive maintenance, recruiting employees, enhancing customer experience, customer service. For example, Precision Hawk – a data company commercializing drone to help corporations collect data from which forecasts the equipment maintenance time. This results in cost reduction and boosting safety more efficiently. Regarding recruitment, website such as Career Builder utilises AI to sort and match best suitable, most qualified candidates with appropriate vacancies, not only based on keywords extraction but through a process of analysing more than 2.3 million jobs, 680 million unique profiles and 2.5 million background checks (Career Builder, 2019). In terms of user experience, platforms like

Youtube, Netflix have created personalized profile for each of their user based on their most viewed channels, favourite shows, from which distribute videos, films and recommend new content more accurately. (Taulli, 2019b).

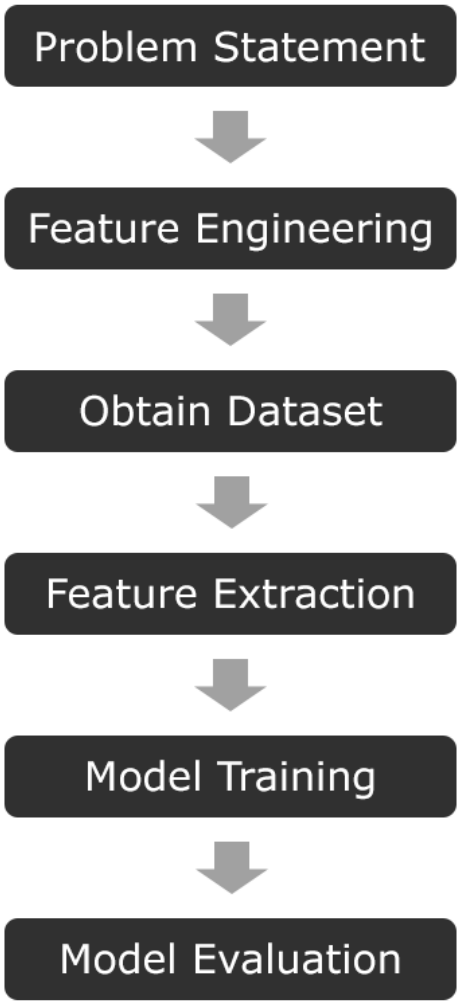

Figure 1. Hands-on Machine Learning with ML.NET

Building a machine learning system is building a learning model, which requires 6 stages: Defining problem statement, Feature Engineering, Obtain Dataset, Feature Extraction, Model Training and Evaluation. Simply explained, problem statement is the goal that the program needs to achieve, e.g. Predicting outcome of the US election, developers then list out matching feature, e.g. number of votes, obtain relevant data from previous election as fuel for system to learn and finally to evaluate its results and performance. (Capellman, 2020)

Machine learning algorithms are categorized into 4 types: supervised learning, unsupervised learning, reinforcement learning and semi-supervised learning.

2.3.1 Supervised Learning

To develop a model training, practitioners usually begin with supervised learning algorithms. This approach uses labelled dataset, which is e.g. indexed image, as fuel for the model. In other words, these data can be compared to one type of math problem, with many exercises and correct result. The goal of the model is to detect patterns in each exercise which correlate with the corresponding result. After the training, the algorithm is expected to determine newly unlabelled data correctly. For example, after being trained to identify a dog, the model can detect if there is a dog in a random picnic picture in a park. (Wilson, 2019).

Although supervised learning is "the most commonly used form of machine learning and has proven to be an effective tool in many fields" (Wilson 2019), the fact is there are massive unlabelled data, which requires significantly abundant effort and time to index the data. Comprehending the problem, ImageNet was established as a platform with over 14 million of clean, indexed pictures, ready to serve as fuel for machine learning model (ImageNet, n.d.). Talented Facebook engineers developed a way to index user uploaded image on Instagram by hashtag prediction model, which suggested more visually described hashtag. Moreover, the largest social network in the world found creative approaches to build the infrastructure more effectively. In specific, as a single computer requires more than year to complete a model training, Facebook engineers distribute the work for 336 GPUs, fastening the progress and reducing the duration down to a few weeks as a result. (Taulli, 2019b).

2.3.2 Unsupervised Learning

As most available data are unlabelled, there is a huge space and need for unsupervised learning algorithms to be developed. In contrast to supervised learning, unsupervised learning model deals with dataset without explicit instructions or correct results, instead it uses deep learning algorithms to detect and organize patterns. (Taulli, 2019b).

Depending on the nature of dataset provided, there are 4 main methods that unsupervised learning model applies to organize data: Clustering, Anomaly detection, Association, Autoencoders. (Salian, 2018).

- Clustering: if given 1,000 pictures of birds, the unsupervised learning model will group them into different groups based on appearance features such as feather color or size.
- Anomaly detection: this is when the model's task is to detect unusual patterns, e.g. when the same credit card is used for purchase in London and Singapore in the same day, it will flag the activity as suspicion in a transaction dataset.
- Association: By looking at how an ecommerce site suggesting sport clothes after user adds a Nike running pair of shoes into cart, deep learning algorithms can detect attributes correlated and associated with others, from which build a strong prediction engine.
- Autoencoders: although rarely used, autoencoders method is often applied to reduce noise in data.

2.3.3 Reinforcement Learning

Reinforcement learning (RI) is a subfield of machine learning which trains the model based on the trial-and-error principle. Like other machine learning fields, reinforcement learning algorithms simulate one of several ways that human mind operates: learning from mistakes and reinforcing from continuous feedback.

Take kicking a ball as a scenario to demonstrate how RI training model works. Imagine you are the new one to soccer, today is the first day you learn to kick a ball into the goal. As you have never tried the sport before, the first kicks will possibly failures and full of flaws. You might kick with your ankle and hurts yourself really bad, or the toes might meet the ball instead of instep, etc. After several mistakes, you start to figure out which area of the foot might work best for a kick and how much force is needed to get the ball into the down right corner of the goal. In other words, you have tried and collected useful information and used it to correct the following attempts. As a result, your kick, although yet perfect, achieves the objective of getting the ball into the goal.

In reinforcement learning, “you” are the “agent”, the ball and goal are the “environment” which surrounds the agent. By interacting with the environment, making numerous trials, receiving immediate feedback to enhancing the next attempt, RI algorithm reinforces the model continuously. (Keng, Graesser, 2019).

One of the applications of reinforcement learning in real life is the case of AlphaGo Zero. This program uses RI to learn playing Go from scratch. After playing numerous matches against itself in 40 days, it defeats the master version Alpha Go, which previously defeated the world Go champion Ke Jie. (Mwiti, 2020).

2.3.4 Semi-supervised Learning

This is a hybrid combination between supervised and unsupervised learning, where a small portion of dataset is unlabeled. In this case, a deep learning algorithm can be used to index the unlabeled data, turning the whole dataset into appropriate fuel for supervised learning model. (Taulli, 2019b).

2.4 Deep Learning

Deep Learning is a subset of machine learning. While machine learning deals with simple concepts as predictive model, deep learning works based on complicated system called artificial neural network (ANN). This ANN simulates how human neural network operates, how human thinks and construct decisions towards more complex problems than distinguishing a dog and cat. (Arora, 2020).

Deep learning systems can deal with a huge amount of unlabeled data. By asking hundreds of binary questions yes/no, the system can detect patterns and classify them without human intervention, which in the case of machine learning requires human to correct generated false results. The word “deep” refers to multiple layers of ANN that builds up a deep learning program. (Taulli, 2019c).

Deep learning is a buzz word regarding artificial intelligence. Indeed, Netflix, Youtube, Google search have created breakthrough innovation on their own platforms, resulting in more personalized user experience thanks to cutting-edge deep learning.

3 ADVERTISING

Being one of the 4 Ps of marketing mix, Promotion or Advertising has long became indispensable part of several marketing strategies. Indeed, with hundreds of products serving the same purpose, e.g. car transporting people, brands relentlessly seeking way to differentiate from competitors through advertising. Many sales efforts rely on positioning, message communication delivered by advertisement. Despite the fact that people do not like ads, the role of advertising is irreplaceable that it helps consumers make purchasing decision among the abundant product line and brand options. (Farris, et al 2020).

Apart from marketing, advertising is usually outsourced (instead of internally handled) by brands to agencies with specialty, e.g. research, event, creative. Scope of work of these ad agencies varies depending on each campaign brief, which includes brand objectives, deliverables, timeline, and budget. Marketing campaigns are transforming from mass media channels such as television, radio, newspaper, billboard to omni-channel, e.g. integrated, 360º, etc. thanks to the Industrial Revolution 4.0 (Oñate, Cagiao, Teixidó, 2019).

Figure 2. shows the top Vietnam Agency of the Year 2019 by Campaign Asia, a network of website editorial, conference, awards focusing on the advertising industry of Asia-Pacific area. (Campaign Asia Agency of The Year, 2019.).

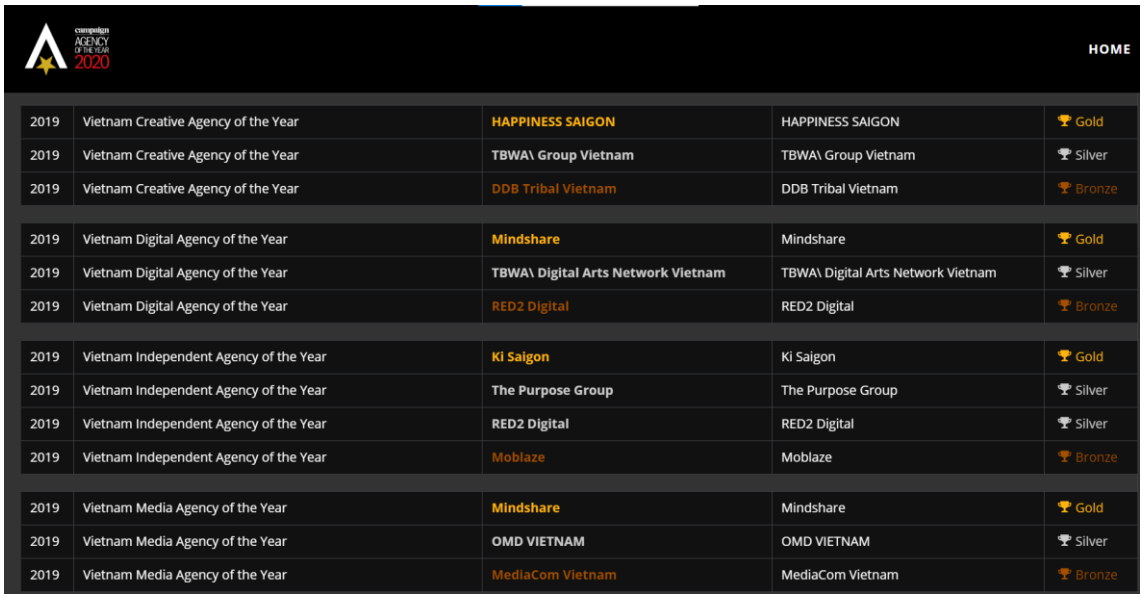

Figure 2. Vietnam Agency of the Year 2019

3.1 Department in Advertising Agency

Advertising agency are operated with different departments ranging from Account Management to Production, UI/UX. Different agencies have different, more or fewer departments, depending on the scale of companies (global/ local) and the operated fields (digital/ integrated/ research). However, there are certain and irreplaceable departments in ad agencies since the 90s, which are account, strategy, media, creative.

A typical process in an advertising agency starts from account department, who meets and receives the brief, including brand issue, objective, timeline and budget for the campaign or project from clients. The brief will then be forwarded to the strategic planning department, where brand objective, problems are translated into what is called the creative brief. With this inhouse brief, creative department people can understand exactly which deliverables are needed, served for what purposes, and aired on which media channels. Some agencies, often as company member of an agency network, have inhouse media department whose responsibility is media buying, managing, evaluating, and reporting campaign's performance to clients.

As digital media arises, people are shifting focuses online (Windels, Stuhlfaut, 2018). Consequently, advertising agencies are adapting themselves by involving more digital-specialized roles in almost every departments. By surfing across recruitment platforms, it is easy to encounter newly-arise titles such as digital content writer, digital account executive, digital strategic planner, digital video producer, etc.

In the scope of this study, 3 departments – creative, strategy and media planning are discussed regarding AI's capability to automate, assist human employees in certain tasks and scope of work within the campaign or project.

3.2 Strategic Planning Department

Strategic planners, also known as planners for short, are the bridge between account and creative team. After receiving the client brief, planners conduct a variety of research about brand, customer insight, campaign objective and strategic direction (Windels, Stuhlfaut 2018). Regarding brand, the planning department's role is to study almost A to Z: what is brand mission and vision, product and service, brand personality, target customer –

both existing and new target group, initiatives done during the past years, etc. This assignment is sometimes limitless to giant clients such as Coca-cola, Nike, Apple since the more planners understand the brand, the better they comprehend client's needs and demands beyond the brief.

One of the important tasks of a planner is to gather data, analysing customer behaviours to discover new and potential insights, which is appropriate for each campaign purpose. The task is challenging as good old insights have been used in previous brand campaign or their competitors, while newly insightful understandings require major efforts of observation and decoding from very small and casual customers' thoughts, actions. After having comprehensive understanding of the brand problems and its customers' insight, the planning department will construct a creative brief in which clarify detailed strategic direction, including communication message, key deliverables for creative team to follow.

In recent years, when digital advertisement is dominant, at least two new roles within strategic department are developed: Digital Analyst and User Experience Strategist, according to a study by Kasey Windels and Mark Stuhlfaut (2018).

As more and more people consume through Internet, their action and "footprint" are tracked on every platform, ranging from Google search to Email, social media, and Ecommerce websites. Despite huge amount of data, it would be useless if no one decode and build up strategic decision to fully exploit these online lands; therefore, digital analysts are highly welcome to agencies. Digital analysts have been hired to evaluate, analysing metrics from brand's online touchpoints such as website, emails, social media. From these given data, these analysts are expected to explore reasons behind certain consumers' actions, such as high bounce rate or low conversion rate. A good digital analyst is the one who can construct recommendation to improve effectiveness and generate more sales for the clients. (Windels, Stuhlfaut 2018).

If the role of digital analysts is enhancing efficiency, user experience strategists focus on designing effective customer journey on digital spaces. Regarding an integrated campaign, UX strategists would sit with planners to work on the creative brief, noting down which formats to deliver the creative pieces, display ads or microsite for example. They are also responsible for leading customers down the purchase funnel as low as possible.

In some larger scope campaign, UX strategists determines specific ratio for deliverables components, whether they are influencer-lead or conversational-lead campaign. Therefore, UX strategists need to have well understanding of user behaviors on every digital touchpoint together with tech-background of e.g. HTML, CSS, WordPress. (Windels, Stuhlfaut 2018).

3.3 Media Planning Department

Media planners are responsible for developing media plan, arranging tactics to bring creative assets to life. These people are the bridge between strategy and creative team. Firstly, they work with strategy to determine appropriate media channel, e.g. television, outdoor, print, social media. Secondly, after the creative concept established, they sit with creative team to recommend specific tactics, for example Superbowl game, Dep Magazine, along with timing, weights, and unit. (Windels, Stuhlfaut 2018).

Traditionally, media planners deal with vendors, who are either the actual magazine, television, event organizer or a partner agency specialized in media booking, to arrange media buying and placement. In fact, these tasks are still among media planners' responsibilities nowadays in Vietnam. However, as Internet advances, popular advertising platforms such as Google AdWords and Facebook Ads Manager make it easily accessible for even amateur advertisers to run a single ad or campaign. Therefore, media planners have experienced more flexibility to think more strategically and integrated.

Communication planner is a new role among agencies. As a part of strategy department, these people focus on designing where, when, how the big idea appears to best deliver the brand message. Communication planners collaborate closer with copywriter and art director with their inputs of channels, ways how the idea can be expressed through media tactics and even suggestion to make creative assets feasible in real life. Communication planners must possess a wide range of knowledge on each channel's role, pros and cons, customer behaviors, etc. "It's not just messaging, it's also placement, it's also time of day, it's also context, all these different types of things that you need to understand." (Windels, Stuhlfaut 2018).

3.4 Creative Department

Creative team are traditionally formed of a “couple creative”: a copywriter and an art director (Reed, 2019). Creative brief is sent to creative team from strategy department. The role of copywriter and art director is to transform key message and insight into a creative expression, normally under an umbrella concept or big idea. Not only to convey a message, but they also need to do it interestingly, disruptively enough to gain customer’s attention among hundreds of other advertisements on the way to work or at home through television, newspaper. As a team, copywriter handles words, tagline, slogan while art director deals with the visual concept, being responsible for the campaign’s artistic design (Windels, Stuhlfaut, 2018). However, the norm of this creative team type has been far more flexible in recent years due to digitalization.

Creative Technologist

Creative Technologists, whose role are partly defined by their titles, are developers or tech-based specialists with knowledge in advertising industry (Windels, Stuhlfaut 2018). They have deep understanding of digital platforms and technology. Therefore, they are indispensable factors in integrated, digital installation or any brand campaign whose big concept built around a technological solution. Without creative technologists, what traditional creative teams pitch are like selling an impossible time machine (Hayes, 2019). Needless to mention how important the role of tech-based creatives behind cutting edge campaigns such as Coke Zero’s Drinkable Ads or Burn That Ad by Burger King. With the involvement of creative technologist, campaign mechanics are clarified step-by-step, prototypes are brought on the meeting table with clients, who would be then more confident with the proposed concept.

User Experience Designer

User experience designer, or UX Designer for short, is a part of technical team that build products such as website and mobile apps. However, technological background is not their compulsory experience. In other words, UX designers provide a simple, easy-to-navigate experience for users without being a developer (Matveeva, 2020). If agency proposes a microsite to launch a promotion campaign, UX designers are responsible for prototyping wireframes, sitemaps for desktop and mobile version.

4 RESEARCH PROCESS

4.1 Research Methodology

The ultimate objective of this thesis is to study applications of AI in advertising, specifically agencies tasks that are potentially handled by algorithms. To construct a comprehensive and most well-rounded answer to the research question, qualitative research has been chosen to be the main methodology throughout the study. Before diving into detail of the method and process, it is necessary to understand the basis of qualitative research.

Qualitative Research is one of two fundamental research methodology used in most study and publications. While the other method, quantitative research focuses on gathering numerical data to measure two variables' correlation or test certain hypothesis, qualitative research aims at collecting and analyzing words or textual data. For instances, this method is used to understand experts' opinions, through insight interview and analysis. (Jansen, 2010).

Qualitative data analysis comprises one of types of data: notes, videos, audio recordings, images, text document. Among these listed data, text or document analysis is the most used methods throughout thesis and study. Qualitative research can be conducted by means of one-by-one interview, focus group, ethnographic research, case study research, record keeping, process of observation. (QuestionPro, n.d.).

This study's data is gathered through both secondary data (desktop research) and primary source of data (in-depth interview). Interviews are conducted with senior-level experts in advertising agencies based in Vietnam, as well as marketing managers who have deep insights into AI and its application in the marketing department in general. The objective of desktop research is to gather insights into which agency departments can utilize AI to handle part of their tasks. As these insights are mostly from global agencies in developed markets, they need to be compared within Vietnamese's current AI advance and agencies' adoption. To achieve such in-depth findings, interview with industry experts proves to be most suitable. Therefore, qualitative research is chosen as prominent study methodology in this thesis.

4.2 Secondary Research

As secondary research has a major role in this thesis, it is crucial to understand the nature of this data gathering method and specific type of secondary research used.

According to Largan and Morris (2019, 14),

> Qualitative secondary research is a systematic approach to the use of existing data to provide ways of understanding that may be additional to or different from the data's original purpose.

In other words, qualitative secondary research is accessing, using sets of data or findings that are generated by other researchers. The data is not new and unique to the secondary researcher. Secondary data and findings are existed in different forms, ranging from statistics, figures to text concluded from certain studies. Although the data in the original source may not serve the same purpose or objective as what the secondary researcher is aiming at, it can be utilized to support a concept, hypothesis or be quoted as an reliable statement in the study. Compared to primary research, the key difference lies at the generation to the data. In specific, secondary data is borrowed rather than self-generated. (Largan, Morris, 2019).

In qualitative research, documents are used as main sources to serve literature review and analysis purpose. Both printed and electronic form of documents are eligible. In the literature section, different secondary sources are gathered to demonstrate a statement, viewpoint or to explain a concept in the study. The secondary findings are significant when the author explains his/her topic and subtopics, ensuring readers well comprehend the ideas. Due to its important role, secondary literature sources need to have high credibility and authenticity. (Largan, Morris, 2019).

As for document analysis, sets of data or sources are selected based on research questions. These data may be raw or analyzed into conclusions. In the case of e.g. raw numerical data, an additional analysis stage is required by the secondary researcher to extract valued takeaways, results benefiting the purpose of study. Again, all the selected data needs certain credibility and authenticity to ensure reliable conclusions. (Largan, Morris, 2019).

A list of secondary sources used in this study is listed in the next part.

4.3 Articles and publications used for the research

1	Adobe. 2017. Want to Automate the Creative Process? Not So Fast. Accessed 16.10.2020. https://cmo.adobe.com/articles/2017/8/want-to-automate-the-creative-process-not-so-fast.html
2	Yuan, Y. Wang, F. Li, J. Qin, R. 2014. A Survey on Real Time Bidding Advertising 418-419. Accessed 14.10.2020. doi: 10.1109/SOLI.2014.6960761
3	Robles, P. 2017. Four ways AI is already being applied to sales and marketing. Accessed 12.10.2020. https://econsultancy.com/four-ways-ai-is-already-being-applied-to-sales-and-marketing/
4	Buzzmetrics. 2020. OBM Syndicated Report: Phân tích thảo luận về Tết 2020 và cơ hội cho Tết 2021. Accessed 22.10.2020. https://buzzmetrics.com/obm-syndicated-report-tet-2020/
5	Pradeep, A. K., Appel, A. W., & Sthanunathan, S. 2018. Applications for Creative Storytelling and Advertising. In *AI for marketing and product innovation: Powerful new tools for predicting trends, connecting with customers, and closing sales*. Hoboken (N.J.): John Wiley & Sons.
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9	Facebook. n.d. Business Help Center. Accessed 14.10.2020. https://www.facebook.com/business/help/416997652473726
10	Chakrabarti, S. 2020. Artificial intelligence in market research: What can it do? Accessed 22.10.2020. https://www.raconteur.net/technology/artificial-intelligence/artificial-intelligence-market-research/

4.4 Primary Research

While secondary research accounts for the majority of findings, primary research provides for the thesis key insights from Vietnamese industrial experts. The primary data was gathered by means of in-depth interviews. In the next paragraphs, there would be further explanation of concepts: primary research and in-depth interview.

Primary Research is the study conducted by the researchers themselves. Apart from secondary research, which the author uses others' data, primary data is gathered from results of surveys, interviews, focus group or experiments. The data gathered can be either or both quantitative and qualitative. Primary research is conducted when there is little or no information that is relevant to the research topic. (Reynolds Community College, 2020).

Tare 7 methods to collect primary data, including: Observation, Surveys, Interviews, focus group, Experiments, Secondary Data analysis and Mixed of these listed methodologies (Reynolds Community College, 2020). Depending on the objective of the study, specific method is determined. In this thesis, in-depth interviews were conducted with experts in the industry of advertising and technology.

Interview is among primary data collecting methods. There are two parties participating in an interview, which are informant and researcher. Interviews can be conducted in several formats: Face-to-face, via Phone, Email or Chat (LaVecchia, 2016). All the expert interviews used for this study were conducted through Zoom, a video chat platform. It is due to the physical distance between the interviewer and expert interviewees. All interviews were recorded for the purpose of analysis.

In each interview session, three main questions were addressed with the experts:

1. Which types of tasks have been handled by AI at your agencies, both current and in the past?
2. From your knowledge, in which campaign or agencies in Vietnam have successfully integrated AI into their process?
3. With the pace of technology advancement and adoption by advertising agencies in Vietnam, which processes can be outsourced to AI, from your perspective?

5 RESULT OF THE STUDY – AGENCY PROCESSES THAT CAN BE HANDLED BY ARTIFICIAL INTELLIGENCE

5.1 Document Analysis

Artificial Intelligence emerges as a result of technology advance and the Industrial Revolution 4.0 and has had huge impact on different industries. Even a creative industry such as advertising is not an exception to this macrotrend. There have been a considerable amount of research studying how AI can place impact on this industry. Therefore, it is not a question whether AI can replace people in advertising anymore. Instead, the question is "What could be replaced by AI among advertising tasks?". With gathered findings from different research, articles regarding the topic of AI in marketing and advertising, this chapter discusses how tasks can be automated in agency department of media planning, creative and strategic planning.

5.1.1 Media Planning

With the rise of digitalization, artificial intelligence has proved its excellence in dealing with media planning tasks more effectively compared to human employees. As consumers are shifting their media consumption towards digital devices, and since almost every user behavior can be tracked through these "black mirrors", computer or AI are obviously becoming more media-fluent than a traditional planner. In other words, AI are doing well as media planner in distributing ads through appropriate channels. According to the VP of marketing analytics, Ari Sheinkin (Robles, 2017), IBM's cost per click was reduced up to 71% thanks to the company's AI program named Watson. This is due to the huge amount of data provided by the ad platform such as Facebook, Google together with the machine learning algorithms trained to optimize the ads display performance.

Media buying

As giant advertisers such as Google, Facebook possess huge amount of detailed user profiles, they have developed their AI-powered real-time bidding (RTB) systems that are significantly helpful to media planners. RTB has been a promising advertising model since its emergence in 2009 (Ren, et al 2017). The system utilizes platform cookies to identify users' characteristics and online behaviors in very detail. From gathered profiles,

RTB advertising is capable of distributing ads to best-match target audience, who are likely to view, click or take action.

RTB advertising has proved its excellent performance, surpassing traditional practice of "media-buying" and "ad-slot buying". Indeed, while traditional media booking on a bulk ad impression, programmatic ad buying powered by RTB generates higher target precision and ad effectiveness. In other words, this innovative RTB system delivers brand advertisement to not only right customers but also to whom considering buying brands' products. Consequently, conversion rate on each ad impression is enhanced. (Yuan, et al 2014).

Audience targeting

Identifying set of audience to target is an important task of media planners in every project or campaign. After the strategic planning team defines group of target customers on surface level, e.g. newly married women in the North Vietnam rural areas and are in search for new smartphones, media planners need to further specify this group. For instance, these people often view and interact posts from cellphone retails such as CellphoneS, Thegioididong, smartphone reviews from Schannel page.

After sorting the audience set, Facebook AI algorithm can suggest what called "look alike" set, which are users having similar characteristics and interests to the gathered group by planners. The algorithm takes full advantage of user data and compare with criteria the planners list out to help them find the right customers. While the suggested group does not have exact characteristics determined by media planners, the people in that group is guaranteed to convert based on other media behaviors studied by the AI. (Jessi, 2020).

Performance and spend optimization

While media planners used to have their eyes on monitoring ad distribution almost at all time, it is now well handled to AI. Facebook AI-powered ad manager has self-trained through billions of ads and constructed most effective allocation strategy, based on budget and objective.

For example, if the ads objective is to gain traffic to landing page, the ad will be distributed to maximum number of people who are likely to click on the website link. Not only a platform placing ads on people's newsfeed, but Facebook algorithm have also optimized ad spending with its very detail experience. Regarding app retention, the ads is allocated to people that are likely to open the installed app on the 2nd or 7th day. Or to increase store visit, ads are delivered to people once a day rather than bury them several times, which is proved to be more effective to convert users. (Facebook, n.d.).

5.1.2 Creative Department

Machine can learn to be creative

According to a report by McKinsey Global Institute (Manyika, et al, 2017), studying how occupations around the world are potentially by automated until 2030, creative professionals are among the least to be replaced by artificial intelligence. This result reflects the complexity of the profession nature, which even the smartest machines cannot fully be trained to master. However, creative assets in the advertising world, turn out to have certain successful patterns that make rooms for AI to excel.

In the book "AI for Marketing and Product Innovation", Stan Sthanunathan and his co-authors (2018) bring up an algorithmic template for creating ads in wide range of formats. Most templates share common features, starting with imagery metaphors to connect with non-conscious mind of target audience, followed by message that are emotionally and functionally personalized, finally ending with emotional call to action. Metaphors play an important part in any successful ad due to its advantage of delivering complex product or service concept, message effectively to target audience within 5 seconds or up to 30 seconds. The use of metaphor is to resonate, connect with non-conscious mind which affects 95% of purchasing decision, according to neuroscience research.

Other components often used in creative pieces such as fads, microtrends are gathered and synthesized with music, sound, voice over, visual elements. Not only handling the ad itself, the "advertising algorithm" can even score the component relevance. For example, while sound and slow-motion are more likely to command brain attention, ads containing stress caused by opening problems are not positively preferred by non-conscious minds. (Sthanunathan, Pradeep, Appel, 2018).

Ultimate creative assistant to any agency

As creative algorithms are equipped with hundreds of patterns to make an effective ad, they have become indispensable team players. With given briefs and detailed requirements, e.g. format, budget, timeline, AI creatives can synthesize limitless inputs. Songs, sounds, trends, metaphors, … anything whose scores are high according to above element score. Following the template for creative storytelling, creative pieces are there, ready for human creative director to review.

Nevertheless, these AI-made pieces lack human connection. According to Tom Ollerton (Adobe, 2017), Innovation Director of CMO by Adobe, "there is no machine that can replicate a human brain and truly understand our needs, wants and desires…". In other words, although metaphors, music, twist effectively command customers' attention, what metaphors to use depends on many other complex elements. Therefore, creative algorithms should be collaborated with human creatives to form a perfect team. Indeed, with right inquiries, copywriters and art directors can ask AI to create a car print ad with numerous variations, from cliché to extremely unique, one-of-a-kind combinations. With an AI partner in the team, creatives may never experience creative block – which is stuck, loss of inspiration situation – anymore. Now that hundreds of commercial scripts, print ads ideas are there, what copywriters and art directors need to do is selecting the most human concept, true insight and make some twist to the ads. (Sthanunathan, Pradeep, Appel, 2018).

Personalization is another unique value of AI creative to the agency. As personalization commands great attention and enhances significant recall of non-conscious mind (Sthanunathan, Pradeep, Appel 2018), personalized content is rising trend among brands in recent years. Since human capability is limited, AI plays vital role in creating campaign with hundreds, even thousands of tailored messages. Not only addressing with customer's name inn email, but algorithms also create dynamic commercial videos that are customized to people in different languages, locations, and characteristics. Imagine Serena Williams appears in Nike TVC, motivating girls to pursuing their dream sports in their own name. Personalization makes target audience feel recognized. Hence, having an AI to build such experience to hundreds of people are treasure to both agency and brand.

5.1.3 Strategic Planning Department

As artificial intelligence's advantage over human brain is the ability to gather and process huge amount of data, it is indeed perfect assistant to research and strategy department.

Insight generation

Among strategic planners' tasks, research for consumer insight is one of key assignments to any project or campaign. As this task requires plenty of desk research, data analysis to take out true insights, it is becoming more difficult for human planners to read such overwhelming sources of data. Indeed, data is extracted from every possible channel, e.g. ecommerce buying behavior, how users scroll on their Facebook feeds, trending Netflix series, etc. Nowadays, consumer insights are not simply how they interact with an ad or stop to look at certain products on shelf, they are much more sophisticated. For example, "Day in a life of a single girl" is among popular Youtube contents in Vietnam during the last year. At the same time, traveling alone to Dalat, which is a favorite run-away place, is favored by more and more millennial girls. Combined these two trends, it can be seen that "Staying single and happy" is an insight of 20 – 27 girls, living in urban cities in the year of 2019 and 2020. This example shows that although user data can be tracked from every digital touchpoint, it is fragmented. While a planning team might spend weeks to fully observe this trend, the insight can be inferred by an AI in a few hours.

AI can be seen as an advanced Google Search. It works with queries from human. The right questions will direct AI to retrieve data from different channels. Not only showing results, but algorithms would also "read through" all these data, news, articles, reports and present brief, key findings. These findings are valuable to strategic planners to verify hypothesis, assumptions. Moreover, AI system even offers unexpected findings, which may leverage the strategy from mundane to magnificent. In other words, instead of arguing whether Earth is flat or square, planners can send an AI satellite, taking picture of Earth from the space. With algorithms as assistant, the strategy is more fact-based, backed up with number which guarantees higher effectiveness. (Sthanunathan, Pradeep, Appel 2018).

Real time analysis

The capability to process data in real time is another unique advantage to AI system. As consumer behaviors change daily, what planners conclude yesterday may not be relevant today any more due to e.g. an influencer's social post. Therefore, staying up to the very current users' conversation is key to connect with consumers. This again affirms irreplaceable role of artificial intelligence in the team.

The Washington Post publishes over 1,000 news and articles daily, while a human is struggled to digest such vast information, AI system can read, memorize and list out key takeaways within hours. According to David Benigson, CTO and co-founder of Signal AI, the system reads up to 2.7 million sources in a day and reduce a 2-hour task down to just 10 minutes (Chakrabarti, 2020).

In recent years, social listening platforms such as Buzzmetrics, YouNet Media are proving their effectiveness in Vietnam market. Looking back a report by Buzzmetrics (2020) on social conversations, there are predictions that actually occurred during the Covid-19 pandemic. When the virus hit Vietnam in early February, people were worried about buying face masks, cancelling trips, and considering home cooking. While the research was conducted in real time by Buzzmetrics' social listening system, it provided brands useful insights to tap into consumers' needs. For example, Grab was offering more promotion when order food home. The similar strategy was applied to ecommerce platform such as Lazada, Shopee as people were recommended to stay home. Thanks to real time analysis, brands always stay ahead of consumers' needs.

Although AI can perform excellently in research and analysis data, human involvement is still a must. While AI can list out hundreds of findings, human planners will decide which insight is potential and relevant. In the future, strategic planners will need to have an adequate understanding of AI system and how to direct, co-operate with this wonderful tool in solving a brief. Similarly, vendors will compete with each other in terms of depth, quality and breadth of their AI grasp. (Sthanunathan, Pradeep, Appel, 2018).

5.2 Interview Findings

With an aim to collecting most relevant scenarios to advertising and communication industry in Vietnam, in-depth interviews are conducted with field managers and professionals. Interviewees are experts from both global agency and brand. This diversity will provide the study with comprehensive perspectives. The insights are structured into two parts: interview response and analysis.

Tu Tran Thien – Digital Marketing Lead at Ve Xe Re

The second interview was conducted with Mr. Tu Tran Thien, Solution Marketing cum Digital Marketing Lead at Ve Xe Re, the leading coach ticket platform in Vietnam. Working in the tech start-up environment, Mr. Tu has been responsible for growth hacking marketing with a team of 5 people, which requires involvement of several AI-powered programmatic advertising tool. Therefore, Mr. Tu's field insights are highly relevantly to the topic. The interview was conveyed on October 25th, 2020 in person.

The first question was: "Which types of tasks have been handled by AI at your agencies, both current and in the past?" His response was:

> When I was working in digital marketing team at FPT, which was the largest Vietnam-based information technology company providing ICT-services, I was leading an AI-powered project to sell the new Samsung Galaxy smartphone. We developed an AI model whose task was to clustering customer data. The data was gathered from different touch points, including FPT Shop database, audience groups on social media and Google Ad. The data was segmented into 2 consideration phases, based on AIDA funnel: awareness and action.
>
> The reason why the AI was directed to cluster data into only 2 group: Awareness and Action was due to their distinctive user behaviors. We did not focus on customers who were interested in the product since their search, comparison might confuse the algorithm, which ruined the learning model.
>
> (Tran, 2020)

The second question was: "From your knowledge, in which campaign or agencies in Vietnam have successfully integrated AI into their process?", Mr. Tu shared:

> In Vietnam, not many that I know have integrated AI into their process, especially advertising agencies. Due to limited resource, both human and server. Most data scientist, business intelligence people are hired at tech firm, information technology corporate rather than working for marketing agency.
>
> (Tran, 2020)

The last question focuses on the future of AI in advertising industry: "With the pace of technology advancement and adoption by advertising agencies in Vietnam, which processes can be outsourced to AI, from your perspective?". He responded:

> From my point of view, media and creative will be likely beneficial the most from AI integration. Although AI has been successfully incorporated in advertising campaigns, it is still at early stage to Vietnamese market. Such as the case of FPT project, what AI can do best in Vietnam scenario is data clustering. AI can categorize a 1,000,000 people database into very detailed target group based on their smartphone preferences. Next, it will run thousands of content tests, on each platform, with each objective and content format to figure out the most effective formula. As a result, AI-writer can generate e.g. 100 different social posts for one single content angle.
>
> However, as what AI generates, writes, or speaks are not familiar with human. It is then the human copywriters' job to refine the words to match the "human language". Nevertheless, the workload for creatives is now significantly reduced as insights, segmentation, market research is already perfectly handled by AI. The result of this AI-human collaboration is an insightful message, well-crafted with human voice.
>
> (Tran, 2020)

Kim Bui Quoc – Creative Planning Manager at LINE Vietnam

The third interview was conducted with Mr. Kim Bui Quoc, Creative Planning Manager at LINE Vietnam. Mr. Kim Bui Quoc has experienced different roles in agency, ranging

from copywriter, art director to planner. Therefore, Mr. Kim provides comprehensive insights from several agency role perspectives. The interview was conveyed on October 10th, 2020 via email.

Regarding the first question, Mr. Kim's response was:

> Through the last 5 years working in the industry, I had not been assigned a project or worked at agencies that integrated AI into the process. The reason, AI was not a focus 5 years ago from marketing and communication's perspective. Moreover, all my past agencies were traditional model. They concentrated on above the line campaigns, which were mainly TV commercial, activation events rather than investing in an AI system.
>
> (Bui, 2020)

The second question about AI-powered campaign in Vietnam, he shared:

> One of the noticeable campaigns with AI integration in Vietnam is from Clear Vietnam. An AI is developed to portrait Toc Tien – a famous Vietnamese singer, to become Clear's ambassador. The AI can create Facebook content, reply comment and fan's message. Through machine learning algorithm, tone and mood of Toc Tien is perfectly simulated, from her slangs to favorite emojis.
>
> This is the first time that an AI influencer is built for brand in Vietnam. Consequently, it has created huge awareness for Clear on press and social media. Although the sales lifted from the campaign is not revealed, it is among the most innovative and boldest marketing campaigns in Vietnam.
>
> (Bui, 2020)

The last question regarding the future of AI in advertising agency, he responded:

> I do not think that AI can do more than project management assignments. That is, for example, dividing the tasks to specialized team, set deadlines, and manage the progress. Since market research is too complicated a task for AI to handle. In the near future, strategic planners still have to perform what they are doing at the

> present. There is too little resource in Vietnam to develop such high-level AI system, which is really assisting agencies in their daily works rather than requiring their huge effort to train, test and retrain.
>
> (Bui, 2020)

An Dang Le Hai – Chief Marketing Officer at Mr.Phủi – The Sneaker Spa

The first interview was conducted with Ms. An Dang Le Hai, Chief Marketing Officer at Mr. Phủi and Marketing Communications at Rogue Saigon. The interview response was received on October 30th, 2020 via email.

When being asked about marketing campaign with AI integration, Ms. An replied:

> At both my current and past companies, there has not been yet campaign or project with AI collaboration. I think the main reason lies at cost. To run a marketing campaign is becoming more expensive, especially an integrated marketing campaign (IMC); therefore, investing another huge budget for an AI system used for only one single campaign is not yet a plan for brands based in Vietnam. Moreover, there are not many experienced technology suppliers available in Vietnam; hence, brands are hesitated with AI related proposal from agencies.
>
> (Dang, 2020)

Responding to the second question, which is "… campaign or agencies in Vietnam have successfully integrated AI into their process", Ms. An answered:

> One successful campaign that I know is from OMO Vietnam. On the 2019 Mother's Day, OMO together with Google Vision API, Buzzmetrics, Mindshare and Biz-eyes created 150 real-time bumper messages within only 6 hours.
>
> The technology behind this campaign was Vision API provided by Google. This AI was a pre-trained machine learning that scanned through hundreds of images uploaded to label and detect most mentioned keywords. On the 2019 Mother's Day, at 9am, "flower", "pink", "white" and "mother" were the most popular. From

> these keywords, different stories and messages were created by Mindshare Vietnam and distributed real-time by Director Mix, another technological solution from Google.
>
> Beside Vision API, AI-powered system from Mindshare meanwhile analyzed ads display performance, click-through-rate and conversion rate to continuously adjust budget spending. Therefore, only most effective bumpers were spent, leading to higher sales.
>
> As a result, 1,700 orders were placed in one single day, which was 15 times higher than average sales on other occasions. In addition, consumer interest in the key OMO product was lifted by 212%. It was among the first and most effective campaigns in Vietnam with integration of AI system.
>
> (Dang, 2020)

The response of Ms. An to the question about AI potential in handling agency tasks was:

> I think the most possible future will be similar to the case of OMO and Google Vision API. That is, AI system scan through social conversations, search terms to know what people care about. The gather data in form of keywords, insights will become materials for creatives to craft messages. Thanks to technology, AI-media tools provide insights of effective types of contents, from which marketers or agencies can better divide spending budget. It will be a future of hybrid agency, where AI and human collaborate on every campaign projects. (Dang, 2020).

5.3 Interview Analysis

The 3 interviews provide very comprehensive insights of AI advancement in the context of Vietnam. It can be seen from the responses that not only at agencies, but AI is also applied at tech brand as being a data-driven firm. Through the 3 interviews, the thesis's perspectives are confirmed that Strategy, Creative and Media tasks are potentially handled by machine learning algorithms.

Strategic Planning

According to the responses, what AI system available in Vietnam can do best is clustering. The first is to cluster target group into very detailed characteristics such as smartphone use, search history. The second cluster capability is to clustering users' concerns through keyword analysis. Clustering, although limited, yet contributes significantly to rising targeting effectiveness. It is a result of true insight generation, which is a strong base for delivering right message, to the right people.

Creative

In Vietnam, AI-creative can basically create contents; however, it is at very early stage. What Toc Tien AI did for Clear Vietnam was just replying comments, answered tagged posts like a chatbot. Scanning through what it wrote, they were all in similar format of "context keyword + product keyword". In other words, these contents were obviously not human. The case of OMO's 150 bumper messages, which were truly insightful, showed that only human copywriters could delivered such touched words. It is not denied that AI plays no role in supporting creatives. On the other hand, insights generated by Google Vision API were the base for such insightfully crafted copies. However, AI-writers or AI-creatives are still far from truly understanding human's mind, interests rather than their written keywords.

Media Planning

It can be concluded that media is the department benefiting most from AI system. Social listening, ad spending real time analysis are such helpful assistant to media planner. AI can handle much larger amount of ads performance index to generate improving suggests. It is obvious that AI yet to outsmart human, but its ultimate advantage is the processing speed that real time analysis is possible. Data is gold, but to exploit the gold, people still require machinery assistance. In this case, AI is undoubtedly a perfect gold mining assistant.

6 CONCLUSION

In the conclusion, summary of the study research will be concluded. This thesis' objective is to provide comprehensive answers to three research questions, focusing on the intersection between artificial intelligence and advertising. In addition, restrictions while conducting the study will be addressed after the main findings.

6.1 Main findings

The purpose of the first research question is to study in which department AI can outperform human employees and which type of tasks and assignments could be handled by AI. Desktop research has shown that Strategic Planning, Creative and Media Planning are three departments whose tasks can be handled by AI. By AI, the author means the weak supervised machine learning systems.

In the strategy department, AI can gather insights and convey real time analysis. AI can connect different source of data, consumer behavior online and their conversations to understand rising topics and concerns. Consequently, relevant keywords and trends are gathered at one place for a human planner to review and make selection of potential insights. In Vietnam, agencies have successfully integrated AI into the campaigns to generate insight in real time by Google Vision API tool. Moreover, AI is incorporated to cluster, segment customer groups with very detailed interests, which enables better targeting effectiveness.

Regarding creative team, AI has been trained with creative-formulated models. That means AI creatives can basically produce video ads ranging from 5s to 30s, inputting all typical ads components such as storyline, music, product placement and call-to-action. In Vietnam, the first AI ambassador by Clear Vietnam has proved its capability in generating contents in form of social posts, comments, and personalized messages. However, there has been no significant campaign or project in which an AI-creative is entirely in charge.

AI has proved its ultimate roles in changing the media game in Vietnamese context. Indeed, with AI-powered analytic tools, media spending is significantly optimized. In other words, AI points out which content, media channel is effectively performing. From the data, the system can automatically adjust the media budget to optimize the effectiveness.

6.2 Restrictions

One of the main restrictions is lack of relevant information in the context of Vietnam. Books, articles of artificial intelligence in advertising are available abundantly online; however, they are studies in the context of developed markets such as America or UK. Furthermore, since AI is not yet developed and widely applied in the field of advertising in Vietnam, there are only a few case studies that are relevant to the topic.

The second major restriction is lack of expert working in the field of artificial intelligence to conduct interview. Although contacted interviewees are manager-level in advertising agencies or brands, their knowledge and perspective are only from the agency side. The research results would be broader and in-depth if one or more interviewers are people with technological background.

Last but not least, the knowledge of artificial intelligence and advertising field is yet to be sufficient. As the author's background is international business, the author's understanding of artificial intelligence is limited to basic concepts, e.g. machine learning, reinforcement learning rather than deeper layer knowledge of the algorithms.

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APPENDIX

In each interview session, three main questions were addressed with the experts:

1. Which types of tasks have been handled by AI at your agencies, both current and in the past?
2. From your knowledge, in which campaign or agencies in Vietnam have successfully integrated AI into their process?
3. With the pace of technology advancement and adoption by advertising agencies in Vietnam, which processes can be outsourced to AI, from your perspective?