

Archipreneur – The Future of Architecture

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Architect, according to most definitions and dictionaries, is a person who designs buildings, and in most cases also supervises their construction. Architects ensure buildings are built correctly according to the design specifications. Buildings designed are not only pleasant looking in their aesthetic values, but more importantly they should be safe for use. On site, an architect is known as the superintendent officer or the S.O. whereby he coordinates building construction and works amongst the contractor and the consultant engineers and surveyors. The architect is a professional. By virtue he / she must have completed a required course of studies at the university and practice with competence. This can usually be measured against an established set of standards or examinations set by their professional bodies. A person responsible for achieving a particular plan or aim: is also sometimes known as an architect. Tun M, for example, is often described as the architect for Malaysia's development and progress in the 1980's. Architect can also mastermind a system or a process. There are software architects for computer systems, and architects in some planning and technology. Architecture is the course one should take to become an architect. It usually takes between 5 – 6 years at the university for this. Architecture is the art or practice of designing and constructing buildings – so they will look nice on the outside and feels good from the inside.

Keywords: Archipreneur, Future Architecture

1. INTRODUCTION

In Malaysia, According to Ar. Mohd Zulhemlee An (The Star, 2016), who was the immediate past president of PAM or the Malaysian Institute of Architects, there are some 2,000 professional architects in the country. However, the ratio between one architect against the population is 1:15,000 – far below the range of 1:4,000 to 1:8,000 recommended by UNESCO for developed nations. (The Star, 2016). Is it OK to tell kids now to take up architecture? Not just yet. One has to look at the whole picture. Architects do not all drive luxury cars and live in extravagant bungalows they

designed themselves. Project commissions do not fall from trees unto their laps. Clients also do not always pay the fees accordingly. There are three problems which this paper intends to give insights to which may be value added especially to those who wants to be future architects.

2. ARCHITECTURE SHOULD BE TAUGHT AS A BUSINESS AT UNIVERSITIES

The first problem which is encountered is when one forgets that architecture practice is a business. It is servicing the public who needs any designing works with a fee. However, business is

barely touched upon in architectural education. According to Maescher (2018) there are deficiencies of the current architectural education system. Students are taught to emphasize form-making, design, innovation and individuality over interdisciplinary teamwork. There is hardly any business acumen. These disadvantages, are not in line with the new realities of architectural practice. As architects, they are trained to innovate and think creatively, however there is a stumbling block when applying these skills to their business (Killkelly, 2016). Architecture education is geared towards promoting the idea of the individual genius, however, to get to the next level a lot more is needed (Bernard). This is true of the normal architects who are not 'starchitects' who are / were able to design iconic structures like Zaha Hadid, Norman Foster, Cesar Pelli and the likes. This will be presented in section 3.0

2.1 THE OBSOLETE ARCHITECT'S ETHICS AND CODES OF CONDUCTS

The second problem is that if architecture is a business – as architects do need to make a living for themselves and their families – why are they governed by such ridiculous rules of ethics? Professional architects, at least in Malaysia, are bound by the Architects Act, and the Architects Code of Conduct. There are many Do's and Don'ts. In Malaysia, these acts were originated by the British as Malaysia was once under the British rule. Times have changed therefore rules need to do so too. This will be presented in section 4.0. How can an architect work if the codes are unfounded in business and marketing?

2.2 THE 4TH INDUSTRIAL REVOLUTION AND DIGITAL TRANSFORMATION

Third, is about the Fourth industrial revolution (4IR) which is creating disruptive technology. For someone to become professional architects, it is not easy. In Malaysia, the passing rate of the professional architect's examination is a mere 10% per year – very stringent for a country in need of development in buildings and infrastructure. Therefore most of the architects are the later generations of baby boomers and educated and brought up with the old school of thoughts and the conventional ways of practice

are having difficult time adjusting to the fast changes. And yet – they are the ones with the invaluable experience and expertise to be shared and inherit by the younger generations. This will be discussed in section 5.0.

3 PRACTICING ARCHITECTURE AS A BUSINESS - AN ENTREPRENEURSHIP

In the book by Thomas Maescher, (2016), as seen in Figure below, the archipreneur concept became popular and it has in fact brought about active movements like MIT's Design X startup accelerator (MIT), ArchiBiz (www.archibiz.com), Archipreneur (www.archipreneur.com) and Architrave. The idea behind them is to integrate business more into architecture as Maescher put it very well in his book The Archipreneur :



As an Architect, You Design Buildings.

As an Entrepreneur, You Design Businesses.

As an Archipreneur, You Design Both.

Figure 1: The book The Archipreneur Concept by Maescher (2016)

Probably, this needs to start at school – as years of doing the same thing of architectural education is really quite difficult to eradicate. Architecture education should not be seen as focusing 100% on becoming a individualistic designer and turning everybody into 'Starchitect'. Starchitect is the term a famous and a high profile architect, transformed them into idols of the architecture world (Wong, 2015). The question is, how many architects in the world can transform to be starchitects?

Many universities have already started to change. At MIT for example DesignX accelerator was created to make way for a modern, tech-savvy approach to architectural education. This is as opposed to the outdated teaching practices (Grozdanic, 2017). With DesignX accelerator, architecture students while still at school, is provided with a platform for developing business models, pitching and also

the most difficult, even funding projects (Grozdanic, 2017).

MIT professors even commented how the antiquated educational model which is still dominant in our architectural schools fails to explore varied and different avenues for practicing architecture. This myopic puts architecture students at a disadvantage compared to schools in other professions (like medicine, pharmacy and even engineering) which are more attuned to new developments in today's market economy (Grozdanic, 2017). Successful products derived from DesignX will make any architect shift their conventional paradigms include (Grozdanic, 2017) :

- A startup team “Nesterly” connects public with non-utilized real estate assets with long-term renters. Affordable rates was charged in exchange for help around the house.
- “Kumej” is the transformable floor-seater which enables those without a conventional workspace to use and create on the go (wherever they are).
- “Learning Beautiful” creates tactile, Montessori-inspired learning materials to teach the young children.

Obviously, the building design has diluted, but the practicalities of business is nurtured. The intention is that if you are an architect, you need not design buildings alone, you can design almost anything especially your own business!

3.1 DUAL DEGREES – ARCHITECTURE AND BUSINESS

It is of no surprise when the University of Yale School of Management is offering the joint-degree program MBA/M.ARCH with Yale School of Architecture. The MBA/M.Arch is designed for students who wish to combine the design, and management careers in government or the private sector (www.som.yale.edu). Several other universities are following suit like Kent State and University of Michigan.

Malaysia is not there yet but it is ironic that the Board of Architects Malaysia still recognizes only ‘pure’ architectural degrees, and considers

degrees like Architectural Science, Environmental Architecture and Architecture Technology as not being ‘Real’ architecture. Reinholdt (2013) emphasized how detrimentally important is the knowledge of business to practicing architects. He even concluded that business management is paramount and more important than working towards an Architecture license. An architect himself, he saw how other businessmen who did not know anything about architecture or construction, yet were able to build a profitable business off the talents of architects. He was not too happy about this as architects should themselves be the businessmen.

Therefore with these kinds of dual degrees the knowledge of business and entrepreneurship the architecture students will be more ready to face the real world and the real market after graduation.

3.2 IMPORTANT ELEMENTS OF ARCHITECTURE BUSINESS

In a report by Hall (2016) architect Strassmaier believes in the value of a business plan as the critical first step for any architecture business, a solid one for that matter. Simply being a good architect or designer doesn't necessarily make you a good business owner, therefore understanding the dynamics of owning and running a company is very important. Several questions need to be answered like the ones listed below (Hall, 2016) :

- What are my goals in creating this business?
- What does success look like?
- What is my market differentiator (what am I bringing that's different to the marketplace)?
- Is the marketplace ready for and available to me?
- What are my capital, people, and infrastructure needs?

Maescher in his book *The Archipreneur Concept*, also emphasized the basics of branding and marketing. These are skills he thinks every architect should master. Is architecture then a business? Definitely. Architecture is selling

service for a fee. Architecture is also about marketing and advertising. All these will lead us to the next architectural problem which is : the architect's ethical dilemma.

4 THE ARCHITECTS ETHICAL CODE OF CONDUCT

In Malaysia with the Architect's Act and Architect's Rules and Codes of Conduct (1974) it seems that everything about the architects job scope and ethics have been set for them to be followed accordingly. Like school kids in a boarding school, everything is set from what you get to eat and when you go to bed. Listed below is a list of jobs which the architectural consultancy services should be doing (Architect's Act 1974). These are also the conventional scope of works of an architecture practice.

The question is – what if an architect does only 2 of the above and do 9 others not in the list? An architect may be a prolific writer. He may love to teach and lecture. He may be into furniture design, web design, signage design, namecard design. This is business and businesses change with time, technology, economy, the external and internal factors and so many other factors. Can an architectural practice be 20% buildings, and 80% entrepreneurial others, for example?. The list is obsolete.

4.1 THE ARCHITECTS MINIMUM SCALE OF FEES 2010

There are also issues regarding the architects Scale of minimum fees. The minimum fees are set at a percentage of the project cost depending also on its complexity, types and phases of the services. An architect who is paid below the minimum and who bills the client below the minimum is considered unethical. Fees are what makes the income or revenue of an architect's practice and if they come in stringent rules – the flexibility that is needed surrounding so many varied and different circumstances would have to be compromised. The scale of fees is good as a guideline but to make it mandatory is being too rigid for an architect's comfort. Plus the lousy implementation and control by the governing bodies. The fee debate has been going on so long. This Rule is spelt out as in item number 29 (1) (Architects Rules 1996) as listed below :

Architects Rules 1996

Rule 29(1) of the Rules 1996 provides that “Except with the prior approval of the Board given for special reasons, a Professional Architect shall only enter into an agreement for architectural consultancy services according to the Architects (Scale of Minimum Fees) Rules 2010, the Conditions of Engagement in Part One of the Third Schedule and the Memorandum of Engagement in the Part One of the Fourth item 1(2) of the Third Schedule stipulates that “the architectural consultancy services provided by the Professional Architect shall be in accordance with the Architects (Scale of Minimum Fees) Rules 2010.”

Meanwhile, in a Report on the Regulatory Review on Price Fixing for Professionals in Building Constructions by the Malaysian Competition Commission and Malaysian Productivity Corporation (2014), listed below on Table 2 and Table 3 are the general advantages and disadvantages of fee price fixing.

5.0 GENERAL ADVANTAGES OF PRICE FIXING

The advantages of price fixing include:

- i. To reduce low quality services to the consumers;
- ii. To protect small consumers;
- iii. To increase safety to consumers;
- iv. To increase standard of competence, performance, ethical behaviour and personal accountability;
- v. To prevent most competent providers from leaving the market;
- vi. To provide consumers assurance, consistency and certainty
 - a. Professionals are not businessmen;
 - b. Scale of fees protect the consumers;
 - c. Scale of fees are not meant to enrich the professionals

Figure 2: General advantages of price fixing for architects (Report, 2014)

6.0 GENERAL DISADVANTAGES OF PRICE FIXING

The drawbacks of the price fixing practice can be summarised as follows:

- i. Fixed fees can lead to higher prices and thus disadvantage some consumers;
- ii. Some consumers will not be able to afford the cost of hiring professionals;
- iii. Fixed fees interfere with freedom of contract;
- iv. Difficulty to set fair and reasonable fees;
- v. Fee schedule exposes professionals with risk of litigation;
- vi. Clients do not have freedom of choice;
- vii. Fixed fees create floor to competition; and
- viii. Fees are fixed by the suppliers not by the forces of supply and demand.

Figure 3: General disadvantages of price fixing for architects (Report, 2014)

While the advantages and disadvantages are debatable till now, a look at Table 2 item vi. (a) which states that “Professionals are not businessmen”. This clearly indicate that the

professional architectural service is still seen by many as non-business. Secondly, businessmen are seen non-professionals. If architectural practice is not a business when the dictionary definition of a business is a person's regular occupation, profession or trade; what is it then? And certainly businessmen can be professionals too.

In Table 3 clause viii which states Fees are fixed by the suppliers, not by the forces of supply and demand. To still practice this when one knows how illogical it is for business, simply does not make sense. Is there a better way. Of course, but that is not the intent of this paper. Fees must always be revised according to circumstances surrounding the business and the AIA or American Institute of Architects is doing it regularly (Koger, 2018)

4.2 ARCHITECTS ADVERTISING AND MARKETING

Another one of architect's dilemma when doing consultancy works is the ethical rules concerning advertising of its services. The Architects Rules as stated in 7, 8 and 9 listed these advertising requirements:

(7) An Architect may advertise his professional services by any public means, where such advertisement is in accordance with the guidelines or circulars issued by the Board.

(8) For all matters specified in subparagraphs (6) and (7), the publication or any other permitted advertisement of such matters shall not contain any comparative or superlative description of the Architect or his architectural consultancy practice.

(9) An Architect may advertise for the invitation of tenders concerning a project, a professional appointment or the change of the particulars of the architectural consultancy practice, where such advertisement is in accordance with the guidelines or circulars issued by the Board.

Figure 4: The rules for advertising for architects (Rules 1996)

It is further elaborated in general circular no 3/1997 on Guidelines on advertising by architects by the Board of Architects Malaysia in this phrase below :

1.3 As a prerequisite for all marketing or promotional activities undertaken by an Architect it is expected that it will be informative and not in any way cheapen the image of or cause the profession to be discredited or ridiculed by the public. Should there be any doubt as to the appropriateness or otherwise of the proposed action, guidance or prior clearance should be obtained from the Board.

Figure 5: Further elaboration on advertising from General Circular no 3/1997

What exactly is to be superlative, comparative, informative yet not cheapen the image of the profession to be discredited or ridiculed? Are there any examples? Let's take a look at this case study example from the USA. Enoch Bartlett Sears, is an architect with AIA (American Institute of Architects). He is the founder of Architect Business Institute, Business of Architecture, and he is also the co-founder of the Architect Marketing Institute. What he does is he helps / trains and motivates architects become leaders in their market. Enoch also hosts interview programs for architects, where prominent guests share tips and strategies for success in architecture (Sears, 2018). Enoch initially was upset about this ethical rule on advertising for architects to the extent that he became an expert in architectural marketing. The traditional word of mouth 'selling', self promotion and recommendations by clients are simply not working hard enough. Enoch eventually produced an authoritative guide on marketing for architects, and on how to raise visibility through effective architecture firm marketing.

This is Enoch's definition of architectural marketing "Effective marketing is the process of making your prospects aware of the value your design firm provides and persuading them to take the next step in your process." (Sears, 2018). Listed below are the various elements which Enoch has tailored exclusively for architecture firms (Sears, 2018). Obviously one can see that without business and marketing, an architectural practice will be deemed to fail.

- Company Vision, Goals and Objectives
- Company Mission .
- Market Overview or Audit
- Market Segmentation
- Competitive Advantage
- Strategies and Tactics
- Budget & Timelines
- Tracking and Monitoring

Enoch believes that all architectural firm must have a business plan and also a marketing plan and if the architect replied back that saying we are designers and not measly marketers or businessmen Enoch will pose another question to them : " How then do you get new clients?"

Therefore it is recommended that the Architects rules which are quite stringent and ambiguous on advertising and marketing should be re-looked into. Yes – architects are businessmen and businesswomen and yes we do marketing as well! We are archipreneurs.

5 THE 4.0 INDUSTRIAL REVOLUTION DIGITAL TRANSFORMATION

One area which architects can venture in diversifying its architectural practice and becoming archipreneurs would be in the area of digital transformation. This is the state of the art of architecture and technology. This will be the future of architecture. However it will not be just architects in the team – it will be a collaboration of architects and specialists in other fields like computer softwares and information technology.

An example of this is the development of Virtual Reality (VR) and Immersive Architecture. Architecture here is non-physical but it is an artificial space that you can observe, walk through, and reach out to even touching objects which you can see. It uses a combination of computer graphics, wireless tracking technology, headsets, HD projectors, and much more. (TMD Studio 2018) It can create interactive, real-life experiences in a world of 3D virtual design and engineering. In this VR model which can be manipulated, an accurate sense of really being presence in a space that is designed and yet to be built can be provided with such detail. This is seen in Figure 2 below :



Figure 5: Virtual Reality and Immersive Architecture (TMD Studio 2018)

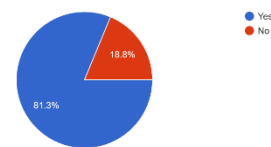
Architects probably should not be studying this in detail, what more if they are already senior in age, but their inputs are what is needed. Architects should also be working in collaboration with other specialists. That is the future of architecture.

6 THE ARCHIPRENEUR SURVEY

To make the study more interesting, a short survey was conducted to several Malaysian architects to get some information on the topic of archipreneur. The survey was carried out for 7 days (22nd – 29th March 2019) via Google forms (Appendix 1). Considering they are all busy architects, from a possible 150 in the list, 32 respondents participated. Below, the results are given in percentages and pie charts:

For the first question : If you have a practice and assuming you will have a practice

Are you practicing/will you be practicing the conventional architect's jobs in your practice (i.e. schematics/design...ngs/submissions/contract works/CCC)?
32 responses



Have you heard of Archipreneur?
32 responses

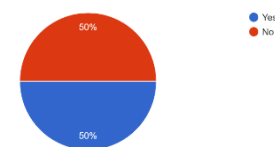
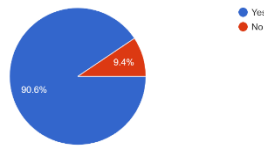


Figure 6: Results from the first 2 questions in the survey

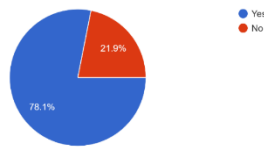
The first 2 questions, architects were asked whether they are still practicing the conventional way as determined by the Board for an architectural practice and a big 81.3% said YES. The second question of whether they have heard of the term Archipreneur, 50% said YES and 50% said NO. The next question is more interesting as when asked if they have been practicing entrepreneur (not archipreneur) 90.6% said YES. This is probably because most of us are familiar with 'entre' as opposed to 'archi' preneur. And most architects do venture in some kind of entrepreneurship besides their normal conventional architecture service.

Have you/will you be practicing entrepreneurship in your practice?
32 responses

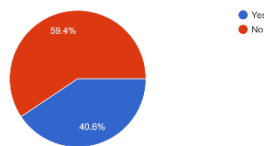


Architects then were asked to list the types of entrepreneurship jobs viable for architects. The list above has the answers, top 3 answers are listed in the red broken line box as becoming specialist consultants / interior designers / contractors / graphic designers / Educators and product designers. The list goes down to grab driver / motivator and travel agents. Interestingly marketer is in the list too, and Enoch would have been proud! This is true that architects are indeed creative, and ideas must be made to full use.

Do you think and feel that practicing as the conventional architect is to slowly becoming to your disadvantage?
32 responses



Do you think the architect "AS IS" profession will soon be obsolete?
32 responses



Do you feel "left out" in the 4.0 industrial construction revolution "on goings" especially the IoT (Internet of Things...y and environmental performance etc.?
32 responses

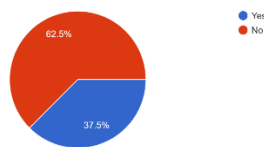


Figure 7: Results from the questions 5 and 6 in the survey

For the next question, when asked if practicing the conventional architecture will be to a disadvantage, a big 78% said yes. This implies that the conventional ways may not be

working so effective any more, and changes are probably needed. However, when asked if they think architect 'AS IS' profession will soon be obsolete 59% said NO implying there is still some hope and architects are still needed will not be obsolete so soon.

The last question is relating to technology and really gearing towards the future - whether architects feel left out with the 4th industrial revolution in construction and a good 62% said NO. This implies that they are keeping pace with evolving technology as it relates to their professions. They are aware that their skills need be updated according. However a quite significant 38% said YES – and reasons being coming from the old school, too fast to catch up, lack of skill and also it is costly. These are all seen in the diagrams below.

7 DISCUSSION

Even though the survey carried out was simple, short and was not extensively designed, the results achieved managed to get some insights to the current views of the Malaysian architects. Even though most architect are practicing the conventional ways – many have found that it may be to their disadvantage. The main reason is probably the economy is bad and projects are hard to come by, plus stiff competitions.

Many architects admitted to be engaged to some kind of entrepreneurial activities and this is crucial during hard times and down turns. However they need to master the skills and get the knowledge what are entrepreneurial activities which will help them in their architectural practice. Therefore they need to become archipreneurs. Teaching architecture (education), product design, marketing and doing any free lance design work are feasible archipreneurial activities. Whereas driving Grab and food business may be far off, but in a world which is full of uncertainties and filled with challenges, why not.

8 CONCLUSION

According to Josal (FAIA), Fellow member of the American Institute of Architects (2018), the structure of architectural practice of the future may resemble a consultancy of

collaborative specialists. These specialists (creative, financial, strategic, etc.) come together for projects under a director (who may not be an architect). So, the architect, cannot, continue to remain traditional in any possible sense (Josal, 2018).

We may see, in the future, more architects and other practitioners working in broad, interdisciplinary projects. They will be in internationally focused, creative and strategic businesses. The architects need to expand the modes of their practices. In fact, it is demanded they do so (Josal, 2018) and to get into other diverse fields of design and technology. Marketing is a field not to be forgotten in architectural practice. It is a way a firm can consistently think about its future. Architects cannot abide by stringent outdated rules on advertising and marketing. Architectural practice is a business which depends on its marketing. Marketing is very important and not just an activity. Marketing is an orientation. Architecture plus Education plus Communication plus Business plus Marketing - added them all together they will equal Survival. (Kolleeny, 2001).

9 REFERENCES

- Architects Act 1974 Online Available At <https://people.utm.my/tlchoon/files/2015/09/ARCHITECTS-ACT-1967-ACT-117.pdf> [Accessed 1 March 2019]
- Architects Rules 1996 and Codes of Conduct Online Available At <http://www.lam.gov.my/index.php/act-rules/finish/14-act-and-rules/5498-architects-rules-1996.html> [Accessed 1 March 2019]
- Board of Architects Malaysia. General Circular No 3 / 1997. Guidelines on Advertising by Architects
- Chin, Christina. Nation Builders Wanted. The Star. Sunday 28th February 2016
- Dual degrees – Architecture and business. MBA/MARCH with Yale School of Architecture Online. Available at: <https://som.yale.edu/programs/joint-degrees/mba-march-yale-school-architecture> [Accessed 20 March 2019]
- Grozdanic, L. (2017) How Startup Accelerator DesignX Turns Architecture Students into Entrepreneurs Online. Available at <https://archipreneur.com/startup-accelerator-designx-turns-architecture-students-entrepreneurs/> [Accessed 10 March 2019]
- Hall, T. (2016) The Report : Why Some Architects and Designers Don't Want to Grow Their Businesses Online. Available at : <https://www.architecturaldigest.com/story/why-some-architects-and-designers-dont-want-to-grow-their-businesses> [Accessed 20 March 2019]
- Josal, L. (2017) The Future of the Architecture Practice. Online. Available at : <https://www.di.net/articles/future-architecture-practice/> [Accessed 20 March 2019]
- Kilkelly, M. (2016) The Archipreneur Concept: A Review Online. Available at <https://archsmarter.com/archipreneur-concept-review/> [Accessed March 1 2019]
- Koger, M (2018) Calculating the architect's fee: Is there a better way? Online. Available at <https://www.aia.org/articles/202726-calculating-the-architects-fee-is-there-a-b> [Accessed 20 March 2019]
- Kolleeny, J. (2001). MARKETING TODAY: BALANCING PEOPLE AND MACHINES Architectural Record. May2001, Vol. 189 Issue 5, p180. 5p.
- LAM Policy and Procedures for the Validation of Overseas Program in Architecture. Council of architectural accreditation and Education Malaysia. LAM Kuala Lumpur 2016.
- Manoram, M.Y. (2016) Conventional architecture is exclusive - the future is inclusive. Online. Available at <https://www.designcouncil.org.uk/news-opinion/conventional-architecture-exclusive-future-inclusive> [Accessed 1 March 2019]
- Ministry of Higher Education Malaysia. Report: The Direction of Architectural Education in Malaysia. Penerbit UPM Kuala Lumpur 2014
- Pertubuhan Akitek Malaysia. MAP The Case for the formulation of the Malaysian Architectural Policy. PAM Publishings Kuala Lumpur 2009
- Reinholdt , E (2015) Architect and Entrepreneur: A Field Guide to Building, Branding, and Marketing Your Startup Design Business Kindle Edition Online. Available at <https://www.amazon.com/Architect-Entrepreneur-Building-Branding-Marketing-ebook/dp/B00VXUJV2E> [Accessed 20 March 2019] [Accessed 20 March 2019]

- Report on the Regulatory Review on Price Fixing for Professionals in Building Constructions by the Malaysian Competition Commission and Malaysian Productivity Corporation (2014),
- Sears, E. (2018) Marketing For Architects: The Authoritative Guide (with Case Studies) . Online Available at <https://www.businessofarchitecture.com/marketing-for-architects/> [Accessed 20 March 2019]
- Shen. The Endangered Professions of Local Architect and Engineer. Architects Life March 6 2015
- TMD Studio (2018) Emerging Trends That Will Shape the Future of Architecture Online. Available at <https://medium.com/studiotmd/emerging-trends-that-will-shape-the-future-of-architecture-356ba3e7f910> [Accessed 20 March 2019]
- Wagner, k. (2018) The Interloper: WeWork Upends the Conventional Architecture Firm . On;line Available at <https://www.architectmagazine.com/practice/the-interloper-wework-upends-the-conventional-architecture-firm> [Accessed 1 March 2019]
- Wong, K. (2015) Starchitect fever – Top 10 cutting edge architects you should know about. Online. Available at <https://www.bisnow.com/national/news/other/x-starchitects-51368#0> [Accessed 20 March 2019]
- www.pam.org.my The official Website of Pertubuhan Arkitel Malaysia (PAM)
- www.lam.gov.my The Official Website for Board of Architects Malaysia (LAM)