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The extended role of building information models (BIM): Mp4 Video of the monument of Gelora Bung Karno of Jakarta

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Abstract
The two events of the Asian Games as a four-yearly multi-sport event were held in Jakarta. Both, took place at the main stadium of Gelora Bung Karno (GBK) in 1962 and 2018. Because it the venue for historic events then main stadium became a monument site. This multidisciplinary study in architecture, and digital application source from Building Information Models (BIM) related to historical site of the first Indonesian main stadium. By concerned in combining between a mp4 video of 3D Architecture Model and a documentary film as a Life Action film was created. The "Art Insight" program of Metro TV was created to commemorate the 73nd Anniversary of Indonesia's Independence and to celebration of The Asian Games XVIII of 2018. Due the limited of the documentary life action film then, based on the originally drawing archives of "The Mostproject" in the 1959s put together as a quite interesting TV show especially for millennial. The combining mp4 video and the Documentary Films as Life Action Film has enrich the monument site documentary and become the public information in television program.

Keywords
Art insight of MetroTV, Asian games, BIM, Combining Mp4 Video, Mostproject.

1. Introduction

To celebrate The Asian Games XVIII of 2018 as the second host, the management of The Indonesian Presidential Museum of "*Balai Kirti*" in Presidential Palace of Bogor had created a temporary exhibition of its monument: Soekarno and Jokowi, Two Indonesian Presidents Host of the Asian Games" (Halim, 2018). The exhibition shows the architectural archives of Asian Games 1962 and architecture models of the sport-venues revitalization project. The center issued is related to the venue of Indonesian main stadium. Two events of Asian Games as a four-yearly multi-sport event were held in 1962 and 2018 in Jakarta. Caused of roles as historical event sport venue then *Gelora Bung Karno* (GBK) to be a monument. The exhibition's curatorial "The Indonesia's Stage for the World" was created based on Indonesian Archives collections. Especially by Mr. Soekarno's speeches of the first Indonesian main stadium (Ardhiati, 2018).

During the exhibition, "Art Insight" program of MetroTV are shown (MetroTV, 2017). The "Art Insight" has shown the Indonesian first President's contribution. During it's preparation Soekarno was totally involved, started from the design process till the construction phase. Soekarno needs to confirm that all of the stadium preparation in the right track. Finally, he very loved the main stadium. The beauty and magnificent of the main stadium have made Indonesian proud. And, to give appreciation to him then it named *Gelora Bung Karno* – GBK. The main stadium has contributed in "*Djakarta City Planning*" as a Soekarno political will. His achievement in architecture, urban planning are the tools to Indonesian mentally reform at that time (Ardhiati, 2013).

In the opening ceremony in 1962, President Soekarno was proudly stated: "*…I have seen them in other countries but ohh.., this Main Stadium of Djakarta is the best in the world !....The building which is steel structured, mesmerized public in the event of the Asian Games IV 1962, and the oval-shaped building which enforced with "Temu Gelang" construction, is able to protect 110,000 visitors from the heat of sun...*"
(Soekarno, 1962).

What is "*Temu Gelang*" construction itself? The term of "*Temu Gelang*" means the roof planes rotate so that they meet each other, hence creating a huge circle, is looks like a "bracelet". Why Soekarno took reference the term of "*Temu Gelang*" become the construction's name? Due in period of 1957 he had asked to Indonesian people to explore all of the ancient of Indonesia to enrich the civilization, included in art and architecture. He was very proud and loved the *wayang-* a traditional puppet show which adopted the epic of the *Baratayuda* and *Ramayana*. So, he always portrayed the *wayang*'s hero to be the symbols in art and architecture (Ardhiati, 2005).

At least, two of the *wayang*'s hero was adopted by Soekarno related to the main stadium design preparation. The first, *Bima* is one of the fives heroes of *Pandawa* in the *Baratayuda*'s epic story. In the *wayang* story, the character of a hero is symbolized in his clothes/accessories and weapons. *Bima* always wears his *Candrakirana*'s bracelets. The *Bima*'s originally bracelet is a circular object placed in the *Bima*'s hand as symbol of the knight's intelligence, depicted as the moonlight. The second, *Sri Rama,* is the actor center of the *Ramayana*'s epic story. *Sri Rama* always wearing his elegance archery as his weapon. Related to the main stadium, the gesture of *Sri Rama* wore his elegance archery becomes a big sculpture of in front of the main stadium. Soekarno also asked to adopt the *Sri Rama*'s gesture became the Asian Games IV logo's graphic design (Ardhiati, 2005).

Before built the venue, President Soekarno's ambition to hold the Asian Games IV in 1962 as the best one was a part of his nation building vision. Then, he sent a proposal to the Asian Games Federation in 1958s to be the host to the next Asian Games IV. But, the committee doubt about the Indonesian sport facilities. After long and heated debate, a voting was held. Indonesia won after Karachi. President Soekarno asked to perfectly as possible by built a "new" sport venue complex in Jakarta. To realizing the main stadium, then he asked to Soviet Premier Nikita Khrushchev to give his techni-

cal support.

Finally, the first Indonesian main stadium was built as the Asian Games IV venue at 1962 was built to conduct an international corporation with the Soviet Union. They had agreement to realizing the main stadium complex as a symbol of friendship between Indonesia and the Soviet Union. The main stadium can be realized based on of the assistance from the Soviet Union, including in terms of architectural design. Moscow committed a soft loan of USD 12.5 millions, and they had involved in the architectural planning of the stadium. During its process of design, Soekarno was asked to the Moskow's Architect to build the construction composition by his basic of ideas to realize a circularly 'form'/shape the main stadium building like a bracelet in association with the *Candrakirana*'s bracelets of *Bima*.

In 1956 the circularly 'form'/shape of main stadium of Luzhniki in Moskow just already opened. Before its renovated in the 1980s, the main stadium Luzhniki in Moskow and the "*Gelora Bung Karno*" in the 1962s in Jakarta. Both has similar in basic 'form'/ shape as well as the circularly of the Colosseum in Rome. By circularly 'form'/ shape, then visitors can watching the game in comfort (Ardhiati, 2013).

The Soekarno's spirit has accommodated by President Joko Widodo. During preparing as the Asian Games 2018 host in Jakarta, he asked to the Minister of Public Works to newness the *Gelora Bung Karno* monument. He needs to actualization the monument by a contemporary touch in order the monument has been designated as "The New Energy And Spirit of Asia". He stated: "*Especially to aesthetic of design, the main stadium of Gelora Bung Karno (GBK) must be have a credit value character of the historical nation heritage*" (Joko Widodo, 2018). Then, the Asian Games XVIII of Architecture's team preparing the new design to show the features archives and other supported artifacts to represent idea of the President.

Meanwhile, the "Art Insight" Program Metro TV @2017 as a documentary film monthly program also need to celebration The Asian Games XVIII of 2018 (MetroTV, 2017). "Art Insight"

shows the triumph of the nation was held on 56 years ago held in old stadium. They need to show the originally main stadium in the 1962s. So, they need the originally film documentaries of the Asian Games IV during its construction and the event. It can't show the architectural aerial of view. Due of limited collections of National Archives related to an originally architecture drawings of the main stadium then it needs a creative solution. In other hand, the old architectural drawing archives of "The Mosproject" Book of Moscow was apparently kept by the State Secretariat Office (State Secretary Office, 2018).

On other hand, during it revitalized by PT Adhi Karya Contractor "The Mosproject" images had re-draw by PT Unitri Cipta Consultant (Unitri Cipta, 2018) as well as role as a part of *Gelora Bung Karno* (GBK) archives as the Secretary State Office. "The Mosproject" was traced the Soviet Architect team involved in the planning and design of *Gelora Bung Karno* (GBK) complex consist architects and engineer. Then, it became to be the basic design of Building Information Model (BIM) by PT Adhi Karya - the main contractor of the project revitalization. BIM itself mean a process of architectural work starts with creating a digital 3D model as a virtual/imaginary building, and contains all the information of the building design, which serves as a means to make planning, design, implementation of construction, and maintenance of the building, also the infrastructure for all parties of the project such as consultant, owner, and contractor (Adhi Karya, 2019).

"The Mosproject" book was represented the Architectural-Planning Department of Moscow, which was under the auspices of Moscow City Executive Committee. The team members were: (a) Mr. A.A Osmer as the Director of Institute, (b) Mr. G.N Lwov, the Chief Engineer, (c) Mr. A.F.Khrianov, the Manager Studio No.15, (d) Mr. R.I Semerdjiev, The Architect, (e) Mr. L.A Muromtsev, the Engineer, (f) Mr. J.C.Africanov, Architect, (g) Mr. B.I. Miroshin, Engineer, (h) Mr. A.P. Golubinsky, Engineer (State Secretary Office, 2018).

The extended role of building information models (BIM): Mp4 Video of the monument of Gelora Bung Karno of Jakarta

2. Method and literature review

The study refers to a qualitative research within a multidisciplinary approach. The approach means that knowledge of several disciplines may be used to contribute and are supplementary to find the best of problem solving. In this study, the multidisciplinary included; (a) Archival Historian, (b) Conceptual Architect, and (c) Architectural BIM Specialist and (d) Commercial Broadcasting Film to create a special television program during the event of Asian Games XVIII in 2018.

The distances of the old event (1962) to the next event (2018) is 56 years, so it needs to catch the huge of data. To enrich the data, then it used an inductive methodology as well as the Grounded Theory Research (Ardhiati, 2018). By used thus method it provides guidelines how to (a) categorized, (b) synthesizing, (c) analyzing, and (d) conceptualizing qualitative data in order to purpose 'a' new theory.

2.1. Main theme

The paper focused in creating the Mp4 Video related to the monument to support A Commercial Broadcasting Film of Metro TV special program to celebration the event of Asian Games XVIII in 2018. The Mp4 Video itself is a part of the 3D architectural model of the Building Information Models (BIM) of *Gelora Bung Karno* (GBK) sport venue. The architectural drawing of BIM was provided in "The Mosproject" archive book of 1959.

2.2. Goals/aims

The study aims to show architectural science into the practical life in this case to a Commercial Broadcasting Film. By combining the Mp4 Video as a part of BIM with the Documentary Films then the "Art Insight" of MetroTV's program was show as public's information of the Old and New of monument. In this episode, "Art Insight" role as the public information related to show how the Western and Eastern architectural expressions of the monument.

They showed the Western of Modern Architecture style knowledge based on "the Mostproject" of the Moscow City Executive Committee, and the Eastern architectural expression based on the *wayang*'s hero of the President Soekarno's idea, represented by the "*Temu Gelang*" architecture shape and construction. In other hand, President Joko Widodo stated that the monument as the Asia Games XVIII 2018 venue it must have a credit value character to enrich to be "the New Energy And the Spirit of Asia".

3. Literature review
3.1. The film genre of architecture animation

Today, animated characters are often seen as National TV program. They show digital effects as well as the Building Information Model (BIM) can expanded as a new creature as imaginary creatures with a special character looks like the real world. They are produced by Artist animation by use of the motion capture has become more interesting. The animation itself related to Computer Generated Imagery (CGI) as visualized by computer program. An animation character a new creature as imaginary may has the uniqueness in 'form'/ shape.

On other hand, Architect animation may use of the motion capture also to create an imaginary of building as visuals created by a computer. An imaginary role as the background of the animated characters, or maybe role as a new creature (Tulijoki, 2018).

Refers to him, an Architect animation so close with 3D software. She/he can continue to designing an imaginer building/space. Through the 3D she/he realized how it feels and continuing to start making a films. Since student architects close to draw digitally, then he can crossover to be a filmmaker as well as a natural progression. Daily practical of Architect in her/his firms are needed to make 3D videos to dazzle their prospective clients. Usually, they use 3D architecture software. They make plans, and engineering drawing for construction. Digitally is one the unit's output to resemble a 3D film program school. Young architects may use various of architecture software.

As well as the famous Architects among others; Zaha Hadid from British, and also Toyo Ito from Ja-

pan. During Zaha Hadid and Patrik Schumacher are work collaboration at Gehry Technologies, especially on Regium Waterfront project in Reggio Calabria Italy in 2007. They used the Maya software. It suitable to developed 3D film to simulate the natural phenomena. Refers to Mr. Schumacher stated, Architecture aimed to emulate the endless 'form' of nature by her/his dynamic designs, the curvilinear, and her/his diverse. Inside their studio, Architects mostly start to work with Maya software. They do more precise, complex in geometries. Refers to Schumacher Gehry Technologies' Project an adaptation of Catia. They feel suitable as well as to develop for an aircraft design. The Gehry Technologies was used Catia in the second stage (Jodidio, 2013). Meanwhile, refers to Toyo Ito, the Japanese Architect said that the 3D virtual are just a tool in his studio. Obviously, all project developed according to their intentions. By used a 3D - three dimensional models help them rationalized and make an organic "form" constructible. They are trying to be able to industrialize the drawing's construction, to create renderings and presentations (Salla, 2014).

That's the point as the one of the success story of Architect presentation is how to make the Client confident with ideas by visualized through the architecture of animation. How to present the ideas show into the digital effects that can make his/her ideas possible. The architecture movie has seen a new creature as imaginary building looks like the real world.

Refers to Bartlett School of Architecture of London, as one of the architecture institution who concerned to prepare student to familiar with the architecture of animation. During their School of Architecture show, students has shown their animated journey into a labyrinth with the dramatic voice over. Their newly-learned in digital animation, and their design skills to break into the architectural film. It's very interesting and important to see the "space through the lens" or it related to the cyberspace (Shaw, 2016). The Bartlett stated, their architectural films was encouraged by an imaginative thinking, and the project

management skills by teach fundamental principles of architecture design. Architects may create the 3D animation of building the use animation models software like 3ds Max, Maya and After Effects, because they tend to have the vivid of imagination, and have a strong visual sensibility. Naturally, Architects tempered by her/his capacity for analysis to find a problem solving. One of an animation for Film4 visualized by the Al Rayyan's football stadium as the Press Conference Launch of the Qatar 2022 of World Cup (Shaw, 2016).

3.2. A documentary filmmaking

A film documentary is a kind of non-fictional motion picture. It has created based on the historical archives record. Documentary films usually called an 'actuality' films as a part of a Live Action film. Due, the limited of historical record, then it maybe the short or less duration. Documentaries are also role as the educational tools. But, now televisions and the social media platforms are used in YouTube. The YouTuber allowed the documentary films to easily distribute and to educate the receiver. In other cases, the documentary film has content experts are interviewed to enrich a documentary film. The limitation of the short of historical record be overcome by them. The prominent television stations often added the footages and shooting at the same place so that the documentary film to be an interesting show.

Principles of narrative construction in filmmaking there are; (a) plot of the storyline, (b) the cause of effect, (c) duration of time, (d) the space. Architecture as a part of 'space' has role as the important element of the documentary film genre related to the heritage building as the subject (Bordwell, 2008).

According to Rajala, the documentary film is one of text that has more or less publicly claims to present objects, their states of affairs, or events. They truly exist in the actual world of their presented. A communicative act, the audience has invited to believe that their presented is somehow "true". And, it is sort of the contract between Audience and the filmmaker (Rajala, 2017).

A documentary film known as a

The extended role of building information models (BIM): Mp4 Video of the monument of Gelora Bung Karno of Jakarta

'sub-genre' in 'film' or 'cinema', roles as an umbrella for any audio-visual material. They have the theoretical framework(s) as well as the certain historical approaches in the cinema's study. As well as fiction, documentaries also have kind of genres. One common genre named the compilation film. It was produced by the assembling images from many of archival sources. The documentary characteristically is an ongoing event as it happens by minimal interference of filmmaker. A direct cinema itself, had emerged during 1950 till 1960 when a portable camera, sound equipment was become available and allowed in films.

3.3. A combining 3D and a documentary film

An effective approach to mixing a live action video by 3D graphics. In conjunction with the live action of the event video as well as the BBC News. They use of data being it streamed round the world. By use the small white lines connecting dots to represent the data they are being beamed around the world. It's a fantastic technique of videos by creating Combining the 3D animation with a Documentary film as a Live Action Film (Neale, 2015).

Tulijoki has examined the process for animating the digital characters by adopted the filmed footage. By used a modern visual effects method, the Artists/Architects were studied the process of creating a visual effects and animation. Due to the lack of the professional tools, and their experiences, the results were only mediocre at best (Tulijoki, 2018).

It is possible to create a documentary by compiling several films. They are assembling images from various archival sources. Then, a new genre film produced by mixed-assembling of archival sources with 3D architecture film. Somehow, the historical archives are not found, gone or other reasons, the digital application software is one solution to presenting film-based on the old heritage building. The reconstruction of architecture may use the architectural drawing of 2D into a 3D. Then, by used the Lumion 3D, an animation or mp4 of 3D architecture movie may create. The 3D Dimensional modelling of the architecture drawing

of may be used by AutoCAD/Sketch-Up/3ds max software. Then, improvement and material edit to making 3D movies and still initial images, architecture and design then Architect need the tool. The Lumion 3D is a one of visualization tools for real-time making 3D movie and also provide animation. The Lumion 3D has offers the excellent graphics combined with fast and efficient workflows, saving time and effort. The Lumion 3D sets up scenes by used the GPU-based interface, and the full 3D real-time editing. By adopted the Lumion 3D than it can provides for landscape creation, façades, the interior, the daytime settings like; sun, sky, clouds and water. The offers very excellence rendering makes adding tons of content to scenes as 3D as possible. The Lumion 3D may possible to be mp4 video in short duration beyond the Life Action Film.

3.4. The 3D animation of building reconstruction

The digital software in architecture is a tools of Architects to visualized his/her new or the old projects, start from the preliminary schematics to construction documentation. The 2D architectural drawing then continue into the 3D of architectural 'form'/shape. In virtually, then Architect Architects help to reconstruction the ruined or the damaged of heritage building by redraw and rebuilt as well as the real building. By used the digital software addresses to help the audience understand to the Architect's plan. To improvement the Architect presentation the a prominent software called the Lumion 3D was published, as the one of architecture software to present the 3D architectural video. Related to the heritage building reconstruction project, Architect may use the documentary film to understand the originally building 'form' and facade. A number of architectural drawings are still likely to be reconstructed through a computer program called "digital application of 3D modeling to cultural heritage". The 3D animation of architecture simulation was made through the 3D modelling software to show the actual reconstruction that will be done to reduce the building failures (Cantor & Valencia, 2004).

4. Findings and discussion
4.1. The 3D model animation
as the basic of Mp4 video

The excellence of a Grounded Theory Research used to easily arrangement of a huge of data collections as
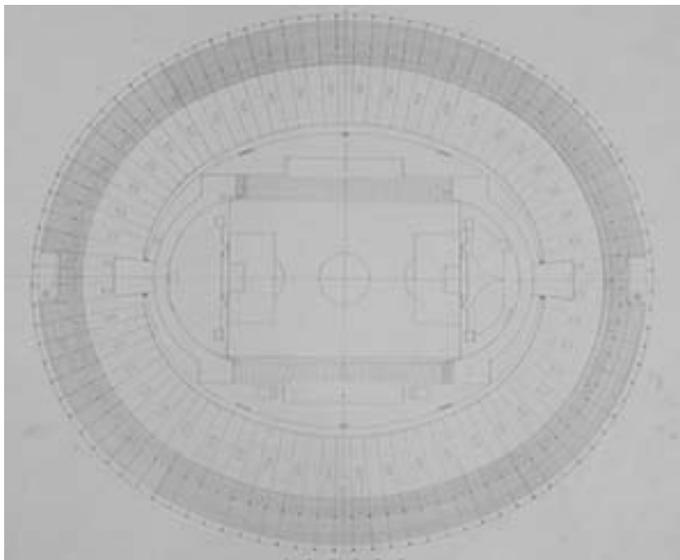

Figure 1. *The originally floor plan of Football Field by "The Mosproject" 1959 as the basic of Building Information Model (BIM) (Source: State Secretary of Indonesia, 2018).*
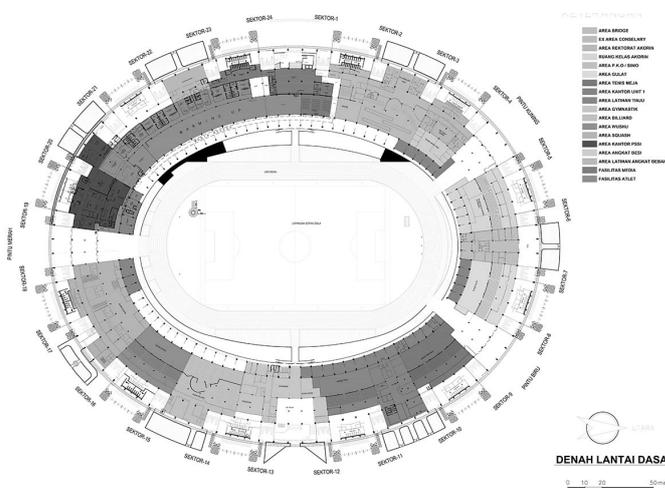

Figure 2. *The floor plan of main stadium after re-draw by Building Information Model (BIM) (Source: State Secretary of Indonesia, 2018).*

an inductive data. Archival data resources are collecting from (a) the National Archives of Republic Indonesia - ANRI, (b) The Ministry Secretary Archives, (c) Academic Archives, (d) Private Archives, (e) Books and Journals, and (f) the originally archives of architectural drawing of "The Mosproject" of 1959.

The 3D Model Animation itself is the result of Building Information Models (BIM). It was created based on the origin of architectural re-drawing of "The Mosproject" of 1959s. In order they can show the originally architecture of monument then started to prepare the 3D architecture animation refers to Lumion 3D that created based on The Sketchup software. A Lumion software is the prominent fastest 3D rendering for Architectural work. In minutes you can visualized the CAD's model in a video shows a real-life image (Lumion, 2109). In other hand, the Mp4 Video itself was created by the architecture model animation within the Lumion 3D program. Then, a Commercial Broadcasting Film of Metro TV combine the Mp4 Video of the monument with the historical archives to show the Old and the New of the monument.

The software has simple tools, is quite easy, and has a plug-in to easily and quickly process. The old archives of "The Mosproject" was modified into CAD-software. The Cad Software to professional projects may have not suitable to the 3D of Lumion software. Then all archives of "The Mostproject" are needed to convert into the Sketch-Up program. SketchUp is one of the suitable 3D design software to make the 3D modeling whatever you can imagine, especially the SketchUp version 2015 had compatible export to the Lumion 6.0 program. The Lumion 3D software is a software has a level of images/ material resolution that is quite
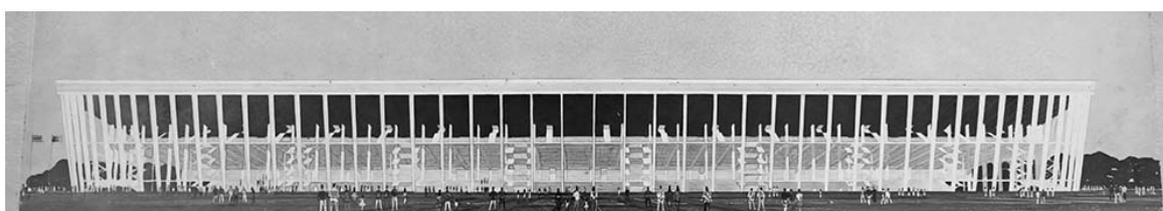
Figure 3. The originally façades alternative-1, proposed by "Mosproject" of Moscow 1959 (Source: State Secretary of Indonesia, 2018).

The extended role of building information models (BIM): Mp4 Video of the monument of Gelora Bung Karno of Jakarta

realistic. It has tools and menus that are quite easy and simple to use.

In terms of comparison with similar software, the 3DS Max software is the excellence output because is almost as realistic of rendering, but 3DS Max has more of tools and menus that tend to be more difficult to use and not practical. The process design there are the description phase of 3D of the video animation process, among others: (1) The Schematic design, among others; (a) determine the type and function of design/ building, (b) determine the basic ideas/ concepts of the building 'form'. Referring to the "*Temu Gelang*" construction - the circular bracelet's construction as the originally archives of "The Mostproject", (c) make a design of transformation sketch to visualized the architectural forms, (d) would be better to create the sketch in several alternative designs, (e) create/ copy the selected design sketches to the computer and keep as the basic idea to create a 3D model by using the SketchUp application, (e) after the 3D model and the architecture detailing are complete, then enter the 3D. In the coloring stage is need to clearly the material specifications, for example glasses is given a transparent color, the floor is colored with marble material, etc. (f) After the Schematic Design of 3D model is completed then enter the animation output stage with final output as mp4 and make the 2D images as the final output of pdf.

The second step is the 2D Images Phase, among others; (a) determine the location of the building section with the tool section in the SketchUp 3D model, (b) determine several horizontal building pieces (plan) to vertical pieces (building section), (c) export the view section to the Autocad (DWG) format by Autocad 2015 version, (d) edit the 2D images that have been exported using Autocad software and plotting images to pdf format. The AutoCad software is used because it is more commonly used for 2D image output work. Compared to other similar software such as ArchiCad or Revit of Architecture software.

The mp4 was created from the old architectural drawing archives of "The Mostproject" in the 1960s. Modified into SketchUp and exported the view section drawing of the Autocad 2015 version. Then, was created to be an animation output by plotting the 2D images. After all of video scenes are rendered in mp4 format, continued into Camtasia Studio 8 serial version.

4.2. "Art insight" of MetroTV as the combine of Mp4 Video with film documentary

Even though, the National Archives
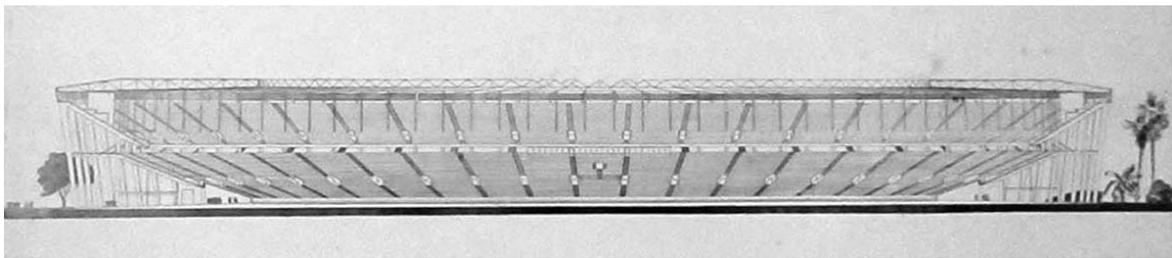
Figure 4. The originally façade of alternative-2, proposed by "Mosproject" of Moscow 1959 (Source: State Secretary of Indonesia, 2018).

Figure 5. The "Temu Gelang" of main stadium construction proposed by President Soekarno (Source: State Secretary of Indonesia, 2018).

of Republic Indonesia – ANRI was collected more than 100 documentary films of Soekarno's speech during his roles as President especially in his first milestone of the projects or inauguration the buildings, but it not provid-

Figure 6. The old images of the Main Stadium of Gelora Bung Karno in the 1962s (Source: PT Adhi Karya Contractor, 2018).

Figure 7. The New images of the Main Stadium of Gelora Bung Karno in the 2018 (Source: PT Adhi Karya Contractor, 2018).

Figure 8. The Extended role of BIM inside "Art Insight" of MetroTV show at 27 January 2018 (http://video. metrotvnews.com/art-insight/4KZOrypN-wajah-arsitektur-gelora-bung-karno-1).

ed the architectural drawing archives of "The Mostproject". Fortunately, the State Secretary Office has collected the architectural drawing of the Soviet Union project archives, and it built to be the mp4 video of architecture. Then, MetroTV studio has created their special television program of the monument by combining the documentary film with mp4 video of architecture. Finally, the "Art Insight" program of MetroTV has successfully shows the Old and New of the *Gelora Bung Karno* (GBK) monument.

The "Art Insight" entitled "*Wajah Arsitektur Gelora Bung Karno*" or "The Architectural Façade of the Main Stadium of *Gelora Bung Karno*" was aired in 2017 in excellence show. Through program audiences knew related to the architectural drawing archives of "The Mostproject" (1959). The combining filmmaking was created by hybrid of; (a) documentary films of ANRI, (b) recent films and interviews, (c) the private footages, (d) the 3D of Architecture Animation of the monument of *Gelora Bung Karno* (MetroTV, 2017).

5. Conclusion

Due of limitation documentary film related to the historical heritage may re-construct based on the mp4 video of architectural drawing. Based on the mp4 video of the Old and New monument of *Gelora Bung Karno* (GBK) monument shows the Soekarno's and Jokowi's idea of 'Western meets Eastern' expression. Both of the Indonesian Presidents are concerned to proudly the monument as the Western of Modern Architecture's knowledge based on "the Mostproject" of the Moscow City Executive Committee. The Eastern architectural expression itself based on the *wayang's hero* (the Indonesian's puppet show) as the President Soekarno's idea. And, it will be continued by President Joko Widodo to be "the New Energy And the Spirit of Asia". By compose the combining between a mp4 video and the documentary film then the "Art Insight" program of MetroTV was represented the "Stage of Indonesia" to be get closer the millennial to the great of historical memories.

The extended role of building information models (BIM): Mp4 Video of the monument of Gelora Bung Karno of Jakarta

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