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# CAN THIS IMAGE LIE? THE TRUTH AND THE LIE OF ARCHITECTURE IN ITS PRESENTATIONS

## CZY TEN OBRAZ MOŻE KŁAMAĆ? PRAWDA I KŁAMSTWO ARCHITEKTURY W JEJ PRZEDSTAWIENIACH

### Abstract

The art of presenting Architecture in paintings and drawings accompanies Architecture itself almost always. The first preserved example of an orthogonal projection of an architectural object on an appropriate scale dates from around 2100 B.C.E. Projections, views, cross-sections, sketches – the story about Architecture requires illustration, image. How does an image of Architecture complement the story about it? Tells? Illustrates? Provides reliable technical information? Does it always complement the story of Architecture in a real way?

*Keywords: Architecture, architectural drawings, visualization of Architecture*

### Streszczenie

Sztuka przedstawiania Architektury w obrazach i rysunkach towarzyszy samej Architekturze niemalże od zawsze. Pierwszy zachowany przykład przedstawienia w odpowiedniej skali obiektu architektonicznego w rzucie prostokątnym pochodzi z ok. 2100 r. p.n.e. Rzuty, widoki, przekroje, szkice – opowieść o Architekturze wymaga ilustracji, obrazu. W jaki sposób obraz Architektury uzupełnia opowieść o niej? Informuje? Ilustruje? Przekazuje rzetelną informację techniczną? Czy zawsze uzupełnia opowieść o Architekturze w sposób prawdziwy?

*Słowa kluczowe: Architektura, rysunek architektoniczny, wizualizacje Architektury*

## 1. THE TRUTH

The art of presenting Architecture in paintings and drawings accompanies Architecture itself almost always. The first preserved example of a presentation of the spatial object in orthogonal projection is a native of approx. 2100 B.C.E. The plan of the temple probably was dedicated to the god Ningirsu, guardian of the Sumerian city-state of Lagash.<sup>1</sup> It is located

<sup>1</sup> A. Wancław, *Warsztat rysunkowy polskiego inżyniera* [in:] *Inżynierowie polscy w XIX i XX wieku*, vol. 8, Polskie Towarzystwo Historii Techniki, Warszawa 2005, p. 194.

on the statue of Prince Gudea,<sup>2</sup> ruler of Lagash. On the prince's lap, the sculptor placed a slab with the projection of the temple projected on it.

Other preserved examples of ancient drawings, worth mentioning because of their unique qualities, on which architectural objects are depicted in rectangular projections, are:

- dating from 1105 B.C.E. plan of the tomb of Ramses IV<sup>3</sup> located in the Egyptian Valley of the Kings,<sup>4</sup>
- dating from 211–203 B.C.E. fragments of Rome's urban plan.

The drawing of the tomb of Ramses IV was made on papyrus, and the dimensions given in the figure in a descriptive form, in hieratic writing, allow to determine the scale at which the drawing was developed – 1 : 28.<sup>5</sup> The monumental, marble plan of ancient Rome – *Forma Urbis Romae*, developed on a scale of 1 : 240, depicting Rome in the time of Septimius Severus, was in *Templum Pacis*, which is today part of the basilica complex of St. Kosma and Damian. On 150 marble slabs forming a rectangular surface 18 m wide and 13 m high, there are plans of public buildings, private houses together with the street grid and names of individual objects.<sup>6</sup>

Projections, views, cross-sections, sketches – the story about Architecture requires illustration, image. According to Vitruvius, “an architect must be able to write in order to strengthen his memory with notes, then he must know the drawing so that with the help of sketches it is easy to create an image of the intended work.”<sup>7</sup> After all the Architecture consists of

the ordinatio, the **dispositio**, the eurythmio, the symetrio, the décor, and the distributio. The dispositio is the appropriate arrangement of building elements and obtaining by the juxtaposition of them a refined work and its quality. There are the following types of dispositio, called ideas:

- the ichnographia – the drawing of the base of the planned building, made with a scale using a compass and a line, from which dimensions are later transferred to the surface of the building site,

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<sup>2</sup> Gudea, circa 2144–2124 B.C.E. the Sumerian ruler of the city – the state Lagash, extended his influence to most of the Sumerian cities; led the country to economic and cultural flourish; developed construction; thanks to numerous monuments of art and literature, the best known Sumerian ruler. – *Nowa Encyklopedia Powszechna PWN*, vol. 2, p. 659, Wydawnictwo Naukowe PWN, Warszawa 1998; A. Mierzejewski, *Sztuka sumeryjska i akadyjska* [in:] P. Trzeciak (ed.), *Sztuka świata*, vol. I, Arkady, Warszawa 1989, p. 202.

<sup>3</sup> The tomb of Ramses IV was discovered in 1905 by British archaeologists Edward Ayrton and Howard Carter. E. Ayrton in 1905–1906 discovered the entrance to the tomb, and H. Carter in 1920 discovered the main part of the necropolis. A. Dodson, S. Ikram, *The Tomb in Ancient Egypt: Royal and Private Sepulchres from the Early Dynastic Period to the Romans*, Thames & Hudson, London 2008.

<sup>4</sup> Valley of the Kings, Biban al-Muluk, a valley in Upper Egypt located within the Theban necropolis, in which the tombs of the rulers of Egypt from the 18th to the 20th dynasty are located (XVI–XI century BC). *Nowa Encyklopedia Powszechna PWN*, *op. cit.*, p. 98.

<sup>5</sup> At present, the historic drawing is in the Egyptian Museum in Turin. A. Dodson, S. Ikram, *op. cit.*

<sup>6</sup> *Forma Urbis Romae* in the Middle Ages gradually deteriorated – fragments of the plan were used as a building material. In 1562, fragments of the plan discovered as a result of excavations were given to Cardinal Alessandro Farnese and probably thanks to this survived to modern times. There are over 1000 marble fragments of *Forma Urbis Romae* in the Roman *Museo Ara Pacis* which constitute about 10% of the original plan. A. La Regina (ed.), *Archaeological guide to Rome*, Electa, Milano 2007, p. 179.

<sup>7</sup> M. Vitruvius Pollio, *O architekturze ksiąg dziesięć*, Państwowe Wydawnictwa Naukowe, Warszawa 1955, p. 12.

- the *ortographia* – the vertical facade image made in scale, corresponding to the future building,
- the *scenographia* – the sketch of the facade and sidewalls, which all lines converge at a central point.<sup>8</sup>

According to Vitruvius, the drawings of an architectural object are, therefore, part of Architecture, with the help of which an architect can present his thoughts and ingenuity, solve vague issues, discover the laws of new things.<sup>9</sup> The original treatise of Vitruvius was lost, and the preserved copies of the work did not contain drawings, therefore the graphic forms and techniques used for realizing them, described by the architect as the *ichnographia*, the *ortographia* and the *scenographia*, can only be presumed by us. However, based on the Vitruvian description of three ideas, it can be concluded that they correspond to contemporary definitions of standard concepts in the field of architectural and construction drawing:

- the floor plan<sup>10</sup> which is a cross-section realized by horizontal plane which cut the architectural object,
- the façade<sup>11</sup> which is constituting the view of the presented object,
- the central perspective<sup>12</sup>, also known as one vanishing point perspective.

Despite of the ancient architectural treaty from the first century BC, it was rediscovered for modern Europe only in 1414,<sup>13</sup> examples of architectural drawings related to works of Romanesque and Gothic architecture testify that the idea of presenting an architectural object using its floor plans/projections and façades was known to the creators of these works. The plan of the Benedictine monastery buildings of Sankt Gallen from 816, made by the ink on the parchment,<sup>14</sup> the plan of Cantenbury Abbey from 1070, on which water supply installations and sewage are shown,<sup>15</sup> the pattern-book by Villard de Honnecourt from 1235,<sup>16</sup> or also the plans and elevations of the Strasbourg cathedral from 1270<sup>17</sup> – they can testify that presenting Architecture with the use of the *ichnographia* and the *orthographia* was a universal, unambiguous and to some extent intuitive form of presentation of the architectural work.

<sup>8</sup> *Ibidem*, p. 15.

<sup>9</sup> *Ibidem*.

<sup>10</sup> PN-B-01025 Rysunek budowlany. Oznaczenia graficzne na rysunkach architektoniczno-budowlanych, PKN, Warszawa 2004, p. 5.

<sup>11</sup> *Ibidem*.

<sup>12</sup> *Ibidem*.

<sup>13</sup> In the year 1414, in the library of the Monte Cassino monastery, was found in the form of an incomplete copy from the 9th century *De architectura libri decem*, a year later, in the St. Gallen monastery in Switzerland the full copy of the treaty of the Roman author has been found by Gian Francesco Poggio Bracciolini. The first printed edition of *De architectura libri decem* was published in 1486. P. Trzeciak, *Kształtowanie renesansu* [in:] P. Trzeciak (ed.), *Sztuka świata*, vol. 5, Arkady, Warszawa 1992, p. 10; A. Wanław, *op. cit.*, p. 196.

<sup>14</sup> The plan to rebuild the monastery in St. Gallen, probably sent by Bishop Heito to Abbot Sant Gallen Gosbert, is a unique example of architectural drawing from the 9th century AD. N. Pevsner, *Historia architektury europejskiej*, vol. 1, Arkady, Warszawa 1979, p. 48.

<sup>15</sup> A. Wanław, *op. cit.*

<sup>16</sup> Villard de Honnecourt, a master of the construction guild, in 1235 developed a pattern-book for members of his guild containing a number of architectural drawings: building plans, projections of vaults, architectural details, drawings of machinery and equipment. N. Pevsner, *op. cit.*, p. 147.

<sup>17</sup> A. Wanław, *op. cit.*

In medieval presentations of Architecture, the orthographic projections are dominated: floor plans, elevations, cross-sections; *the scenographia* was rarely used. This Vitruvian idea of illustrating Architecture in perspective will return to the canon of the means of architectural expression along with the work of Vitruvius in the *Quattrocento* era. Giorgio Vasari in *Lives of the most famous painters, sculptors, and architects* describes Filip Brunelleschi's fascination with the perspective:

He eagerly dealt with the perspective [...] devoted a lot of time to it and discovered the way in which it can be best and most accurately presented, obtaining it from a horizontal and vertical projection using a cross-section (che fu il levarla con la pianta e profilo e per via della interse-gazione); something really clever and useful for the art of drawing. He liked it so much that he drew the di San Giovanni square with his own hand with all the slabs of black and white marble inlays, which were reduced in a special way; similarly, he depicted the house of wafer's bakers, the Pecori arch on one, and the Zanobi pole on the other. This work was so praised by artists and art experts that it encouraged him in a short time to put his hand to another in which he depicted the palace, square and Loggia dei Signori together with the roof of the Pizans and with all the buildings that can be seen around; these works awakened the enthusiasm of other artists who from that moment took up to the perspective with great zeal.<sup>18</sup>

The sketches and the paintings of:

- Leonardo da Vinci – among others a number of perspectives presenting church buildings on a central plan were created during the artist's first stay in Milan in the years 1482–1499, the perspective drawings also illustrate the concept of rebuilding Milan developed by the artist at the same time;<sup>19</sup>
- Donato Bramante – the perspective sketches related to the concept of the basilica of St. Piotr illustrating the analysis of the design solution adopted carried out by the architect;<sup>20</sup>
- views of the ideal city which were created by Piero Della Francesca, Luciano Lauran, Francesco di Giorgio Martini;<sup>21</sup>

are the best pieces of evidence of the strength of the Vitruvian idea of *scenographia* and the principles of perspective formulated on the basis thereof described in treats: *De Pictura*<sup>22</sup> written by Leon Battista Alberti, *De Prospectiva pigendi*<sup>23</sup> written by Piero Della Francesco, among Quattrocento's architects.

<sup>18</sup> G. Vasari, *Le vite de' più eccellenti pittori, scultori et architettori*, Sonzogno, Milano 1928, p. 776.

<sup>19</sup> M. Rosci, *Leonardo da Vinci* [in:] P. Trzeciak (ed.), *Sztuka świata*, vol. 5, Arkady, Warszawa 1992, p. 271.

<sup>20</sup> N. Pevsner, *op. cit.*, p. 331; A.C. Huppert, *Envisioning New St. Peter's. Perspectival Drawings and the Process of Design*, [http://online.ucpress.edu/jsah/article-pdf/68/2/158/181449/jsah\\_2009\\_68\\_2\\_158.pdf](http://online.ucpress.edu/jsah/article-pdf/68/2/158/181449/jsah_2009_68_2_158.pdf) (access: 13.06.2020).

<sup>21</sup> K. Bartel, *Perspektywa malarska*, vol. 2, Państwowe Wydawnictwa Naukowe, Warszawa 1958, p. 329.

<sup>22</sup> The *De pictura* treaty probably came into being in 1435. The first version of the work was written in Latin, a year later the artist developed a version of the dissertation in Italian. Julius Schlosser in his book *Die Kunstliteratur* (Vienna, 1924) states that the first printed Latin edition of *De pictura* came out in 1540 in Basel. The Italian editions come from 1547, 1568 and 1804. The Polish edition of the treaty was published in 1963. According to Alberti's assumption, the dissertation was devoted to painting because, as the author pointed out in the introduction, he will speak in his dissertation as a painter, not a mathematician. Therefore, perspective issues are discussed rather in the context of creating paintings, and the work does not contain a strictly systematic lecture on the construction of the perspective. K. Bartel, *op. cit.*, pp. 324–328.

<sup>23</sup> The *De Prospectiva pingendi* treaty, written in Italian, was probably created between 1474 and 1482. In the form of a manuscript, it was stored at the *Biblioteca Palatina* in Parma, and then at the *Biblioteca*

The rich resources of preserved Renaissance architectural drawings allow us to conclude that the images of Architecture created by architects began to play an illustrative role, addressed to the investor, which is why the creators eagerly used Architecture's representations in perspective.

Some of the artists undertook studies in perspective with great commitment, even getting lost in their work on finding prospective solutions. Giorgio Vasari describes the negative effects of such scientific destruction on the example of Paolo Uccello:

He would be the most charming (leggiadro) and original painter since Giotto's time if the time which he has been lost on the perspective's construction he would be spending on the study of the shapes of people and animals. Undoubtedly, perspective is a rational and beautiful thing, but the one who studies it too exclusively loses time, torments the mind and makes it sterile and obscure, and finally acquires a rigid manner (la maniera secca)... Here's how it happens to those who want to explore things too much, often they are exposed to melancholy, weirdness, and poverty.<sup>24</sup>

The legacy of drawings and paintings which has been left by Quattrocento artists allows us to express the hope that the experiences of Paolo Uccello were not widespread.

## 2. THE GREAT LIE OF ART?

The significance of the dissemination of perspective as a way of presenting and creating Architecture that took place in the 15th century can be compared to the breakthrough that took place in architectural design in the 20th century, along with the spread of the computer-aided design programs.

The computer-aided design has been used since the 1960s. At that time, the first computers with an external data entry terminal appeared – with a monitor and keyboard. In 1960, Douglas T. Ross in his doctoral dissertation at the Massachusetts Institute of Technology – MIT (Cambridge, USA) defined the issue of computer-aided design, the title of his work was: *Computer – Aided Design: A Statement of Objectives*.<sup>25</sup> In 1963, Ivan Sutherland presented in his doctoral thesis, which was also presented in MIT, a system *Sketchpad: A Man-Machine Graphical Communication System*,<sup>26</sup> which enabled entering and output of graphic information to a computer. The program was to be used to support numerically controlled production processes. In the same year, Timothy E. Johnson (also at MIT) developed the version of SKETCHPAD III, allowing to create records of three-dimensional

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*Ambrosiana* in Milan. The work was published for the first time in 1899 in the Italian original, together with the original drawings, including German translation. According to Kazimierz Bartel and other perspective researchers, the work of Piero Della Francesca is the first, systematic lecture on constructional perspective. *Ibidem*, p. 329; K. Andersen, *The Geometry of an Art. The History of the Mathematical Theory of Perspective from Alberti to Monge*, Springer, New York 2007.

<sup>24</sup> K. Bartel, *op. cit.*, p. 323.

<sup>25</sup> D.T. Ross, *Computer-aided design: a statement of objectives*. Technical memorandum, <http://images.designworldonline.com.s3.amazonaws.com/CADhistory/8436-TM-4.pdf> (access: 13.06.2020).

<sup>26</sup> I.E. Sutherland, *Sketchpad, a man-machine graphical communication system*, [http://images.designworldonline.com.s3.amazonaws.com/CADhistory/Sketchpad\\_A\\_Man-Machine\\_Graphical\\_Communication\\_System\\_Jan63.pdf](http://images.designworldonline.com.s3.amazonaws.com/CADhistory/Sketchpad_A_Man-Machine_Graphical_Communication_System_Jan63.pdf) (access: 13.06.2020).

space.<sup>27</sup> In 1968, Ivan Sutherland with his student Bob Sproull demonstrated, considered the world's first virtual reality system, The Sword of Damocles.<sup>28</sup> Since then, the spontaneous development of computer graphic programs, design support programs, and animation creation programs has been realized.<sup>29</sup> Since the mid-1980s, the process of creating comprehensive IT solutions for architectural design, CAAD systems, has been observed,<sup>30</sup> and the issues of parametric design and design based on BIM technology are becoming the focus of interest for architects.

The Architecture created using digital tools becomes a parametric solid object in the virtual space of a computer program. *The ichnographia, the orthographia, the scenographia* in a modern architectural design is automatically generated based on a computer model of the object. *The scenographia* in modern design works is rather seldom called the perspective. The Vitruvian *scenographia* in the 21st century is called the visualization of the object, which through its realism is to have an even greater impact on the recipients of Architecture – the investor, potential users. A beautiful picture of the designed Architecture presented in the company of existing facilities captivates the public. It seems to be saying to people “look how beautiful I present myself in this place.” Does this beautiful picture always “tell” the truth? Barbara Świt-Jankowska, in her doctoral dissertation and publication, draws attention to the existence of huge possibilities of modification and control of the feelings of the recipients/users of Architecture through computer-created images of the Architecture:

The computer visualizations have unlimited possibilities of shaping and processing their image, contained in the very properties of their creation, and the means of expression assigned to them. The visualization creator selects a specific scene that he wants to develop graphically. In this scene, it can eliminate some elements, cover them or display them particularly – without affecting the shape of the object. It can increase or decrease the size of elements, make the small elements important, take away the importance of the big elements. It can show the beauty of an object from an unusual perspective, draw the viewer's attention to formal relationships, guide his way of thinking. It can give special meaning to the shapes shown in the image...<sup>31</sup>

## 2.1. THE GREAT LIES OF ART? THE CASE STUDY

In recent years, many new investments have appeared in the spatial arrangement of Katowice. In the context of the analyzed issues, two of them seem particularly interesting – reconstruction of the railway station in Katowice and construction of the Integrated Interchange Node System.

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<sup>27</sup> A. Wancław, *op. cit.*, p. 223.

<sup>28</sup> B. Świt-Jankowska, *Współczesne narzędzia pracy architekta, a jakość nowo projektowanej przestrzeni mieszkalnej*, Architecturae et Artibus, 2010, vol. 2, no. 4, p. 80.

<sup>29</sup> In the '80s and '90s of the 20th century, appeared among others, first versions of such computer programs supporting design as: Romulus (1981), Uni-Solid (1981), CATIA (1981), AutoCAD (1982), ArchiCAD (1982), Allplan (1984), Pro/ENGINEER (1987), 3D Studio (1990), SolidWorks (1995), Solid Edge (1996), Blender (1995), Maya, (1998), Autodesk Inventor (1999).

<sup>30</sup> R. Barełkowski, *Techniki informatyczne w architekturze i urbanistyce*, Ośrodek Wydawnictw Naukowych, Poznań, 2001.

<sup>31</sup> B. Świt-Jankowska, *op. cit.*, pp. 83–84.

The decision to rebuild the Katowice train station was made on July 10, 2007. From the offers of developers responding to the invitation to negotiations formulated by PKP, the offer of the Spanish development company NEINVER was selected, and on July 23, 2009, a contract was signed for the construction of a modern commercial and communication complex, which had to include: a new railway station, the bus terminal, the shopping center, and the office center. In addition, the developer was to develop a road infrastructure reconstruction plan with the help of the city and reorganize and organize the urban space around the railway station.

The tender for the design of the Katowice Integrated Interchange Nodes system was announced in April 2014. The tender envisaged the award of contracts for four parts of design works: part I – The Transfer Center “Brynów Pętla,” part II – The Transfer Center “Zawodzie,” part III – The Transfer Center “Ligota,” part IV – The Transfer Center “Sądowa”. According to the main assumptions of the concept of the Katowice Integrated Interchange Node, individual interchanges/centers were to integrate various forms of transport at local, regional, supra-regional, national and international level. The designs of three interchange centers: “Brynów-Pętla”, “Zawodzie,” and “Sądowa” were developed by the MERiTUM design studio in Katowice.

The design concepts for the reconstruction of the Katowice railway station and the integrated Katowice hub system have been presented in numerous promotional publications of the Katowice City Hall. The descriptive information for planned investments was illustrated with computer visualizations of designed objects:

- the design concept of railway station reconstruction (Ill. 1). The visualization of the new Katowice Railway Station with Galeria Katowicka, aerial view – “bird’s perspective” of the facility (Ill. 2). The visualization of the new Katowice Railway Station with Galeria Katowicka, the public area in front of railway station;
- the design concept of The Transfer Center “Brynów-Pętla” (Ill. 3 and 4). The visualization of The Transfer Center “Brynów-Pętla,” aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System;
- the design concept of The Transfer Center “Zawodzie” (Ill. 5). The visualization of The Transfer Center “Zawodzie,” aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System (Ill. 6). The visualization of The Transfer Center “Zawodzie,” the entrance area of the facility, Katowice Integrated Interchange Node System;
- the design concept of The Transfer Center “Sądowa” (Ill. 7 and 8). The visualization of The Transfer Center “Sądowa,” aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System.<sup>32</sup>

Five graphic presentations of designed objects are aerial views, so-called “Bird’s perspective”. The three computer visualizations used are the perspectives with the position of the camera/observer adopted lower than in the bird perspectives, while only in two perspectives (Ill. 2 and 8) the position of the camera/observer is adopted at a height similar to the height of the human eye. The aerial view of the concept of rebuilding the Katowice railway station presents a vision of a green roof on part of the object, also includes the concept of a new service facility located in the entrance area of the railway station (Ill. 1). The service object accompanying the rebuilt station is also visible on the visualization showing the public area in front of the railway station (Ill. 2).

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<sup>32</sup> The cited illustration materials were taken from promotional materials of the City of Katowice, detailed information on the sources of individual drawings was given in their descriptions.

### 3. SUMMARY AND CONCLUSIONS

The examples of design concepts related to the Katowice investments of recent years referred to in these considerations are analyzed in the context of graphic forms by means of which they were presented to potential users and investors. The architectural qualities of the adopted design solutions were not subject of the analysis. The main goal of the author was to compare the way of presenting the Architecture in the promotional materials addressed to a wide audience, on the example of objects that significantly affect the spatial arrangement of the city and the quality of urban space.

The presented *scenographies* of Katowice objects are probably correctly generated on the basis of developed computer models of the designed objects. The selection of perspectives illustrating design concepts and the dominance of “bird perspectives” among them is puzzling. None of the potential users of these objects and users of the space associated with them will be able to perceive the designed Architecture in this way.

One of the visualizations of The Transfer Center “Zawodzie” (Ill. 6) presents the entrance area of the object, but also in this perspective, the authors of the *scenographia* decided to take the camera so high that they obtained the image of the object, which in fact, is almost a “bird’s perspective.” In this way, the entrance area of the facility will certainly not be perceived by people using The Transfer Center object or by passers-by passing close to the object.

The visualizations of the rebuilt Katowice railway station (Ill. 1 and 2) include facilities that have not been realized – including the green roof of the facility, service facility located within the square in front of the entrance to the station, fountains accompanying the Galeria Katowicka building. The presence of these objects in the developed visualizations may, in the author’s opinion, affect the recipients assessing the design solution.

Barbara Świt-Jankowska in her reflections on contemporary architect’s work tools and the quality of the newly designed living space, notes

Architectural visualization should be more than just a “nice picture” – it should be a guide on the form and function of the object. The architect must be sure that he has presented the object honestly and accurately as it will look in a given environment, paying attention, inter alia, to existing and intended elements of the environment, such as trees or shrubs and other buildings, i.e. the context of the investment which will be unchanged.<sup>33</sup>

It is impossible to disagree with her in these matters.

In the context of the issues discussed, it seems important to pay attention to the need for reliable representation of the designed structures and presenting the designed Architecture in a credible way. Perhaps the visualizations presented were one of the bases for making important decisions related to the implementation of expensive investments. Creating virtual objects, and preparing based on them realistic visualizations, which are to evoke specific decisions related to the implementation of the investment, is associated with extraordinary responsibility, not only professional but also ethical.

An architect cannot be just a businessman who does not care about the social and spatial consequences of his design activities. She or he should remember that Vitruvian ideas: *ichnographia*, *orthographia*, *scenographia* should serve to present the refined and the quality of his work.<sup>34</sup>

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<sup>33</sup> *Ibidem*, p. 84.

<sup>34</sup> M. Vitruvius Pollio, *op. cit.*, p. 15.



- III. 1. The visualization of the new Katowice Railway Station with Galeria Katowicka, aerial view – “bird’s perspective” of the facility, Neinver Polska, source: *Sektor nowoczesnych usług biznesowych w Katowicach i Metropolii Silesia*, publikacja Urzędu miasta Katowice, Katowice 2012, p. 50
- III. 2. The visualization of the new Katowice Railway Station with Galeria Katowicka, the public area in front of railway station, Neinver Polska, source: <https://www.neinver.com/sites/default/files/field/image>
- III. 3. The visualization of The Transfer Center “Brynów-Pętla”, aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>
- III. 4. The visualization of The Transfer Center “Brynów-Pętla”, aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>
- III. 5. The visualization of The Transfer Center “Zawodzie”, aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>
- III. 6. The visualization of The Transfer Center “Zawodzie”, the entrance area of the facility, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>



- III. 7. The visualization of The Transfer Center “Sądowa”, aerial view – “bird’s perspective” of the building, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>
- III. 8. The visualization of The Transfer Center “Sądowa”, the inner space of the center, Katowice Integrated Interchange Node System, MERiTUM Projekt, source: <http://meritum-projekt.pl/category/wezel-katowice>

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