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Comparison structure and construction of Husein Sastranegara International Airport terminal and Kertajati International Kertajati terminal in West Java

S A Mahfudz, E R Kridarso and J Iskandar

Preface

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ISLIVAS 2020

PREFACE

We were pleased to welcome you to the 2020 3rd International Seminar on Livable Space (ISLIVAS): Promoting Inclusive, Safe, Resilient, and Sustainable Human Settlement in Disruptive Era, which held by Architecture Department Faculty Civil Engineering and Planning Universitas Trisakti, and took place on August 27, 2020, in Jakarta. The ISLIVAS 2020 was also co-hosted by three prominent universities in Indonesia. They are Faculty of Engineering Universitas Lambung Mangkurat, Department of Architecture UNMER Malang, and Universitas Pembangunan Jaya.

Due to the impact of COVID-19, ISLIVAS 2020 was held in the form of a virtual conference, as opposed to the previous events. Since there were travel restrictions around the world, we held this flexible online conference to bring together experts, researcher, and scholars from all over the world, aiming to disseminate the most advanced research in the field of architecture, urban design, and planning, as well as to develop academic exchange among researchers.

The ISLIVAS 2020 committee was made up of approximately thirty-six experts in the fields of architecture, urban design, and planning both within and outside of the country. We were honored to have the Rector of Universitas Trisakti Prof. Dr. Ali Gufron Mukti., M.Sc., Ph.D. delivered a welcoming speech about the implementation of SDGs in higher education. Following the welcoming speech, six main speakers from several countries gave the presentation. All the main speakers delivered their presentation in about 20 minutes via Zoom during the second session of the conference. Those speakers are :

- Prof. Dr. Ir. Agus Budi Purnomo, MSc. from Universitas Trisaktsi, Indonesia
- Assoc. Prof. Dr. Arief B. Setiawan from Kennesaw University, Georgia
- Etty Padmodipoetro, AIA. from Urban Idea lab, USA
- Dipl-Ing, Dr. Ulrike Herbig from TU Wien, Austria
- Ir. Iwan Prijanto, MM., GP. from Green Building Council Indonesia (GBCI)
- Prof. Sung Hong Kim, M.Arch., Ph.D. from University of Seoul, Korea

In the third session, all participants and presenters were divided into four Zoom panels to discuss the talks further and share their research. Each presenter was given 10 minutes. Discussion and Q&A were held for about 20 minutes.

We were pleased to inform you that we received many paper submissions from the conference during this special period. There were a total of 90 participants who submitted papers, including those from Indonesia, China, Hong Kong, and the United States. We chose several high-quality papers and rigorously reviewed them before compiling them into the proceedings. All papers were grouped into eight topics: Access for Liveable and Affordable Urban Housing, Integrated and Sustainable Human Settlement Planning and Management, Sustainable Transport Systems for All-Inclusive and Accessible Green and Public Spaces Facing Disruptive Issues for Creation, Sustainable Cities, Protecting Urban Cultural and Natural Heritage, Efficiency of Resource Use in Urban Areas, and Preparedness and Resilience of Cities to Disasters.

All of the papers have been subjected to a thorough review and process to meet the requirements of the International publication standard. The main concerns during the organization of the conference

were the provision of internet connection and schedule management. Nevertheless, the conference was well conducted as our IT Team has prepared it well.

We would like to express our sincere gratitude to the distinguished keynote speakers, experts, researchers, lecturers, and all attendees. Additionally, we would like to express our appreciation to the publisher for making the proceedings available. We hope the readers enjoy it and gain some useful knowledge. Lastly, we hope that this international event will attract an increased number of experts and scholars from around the world next year.

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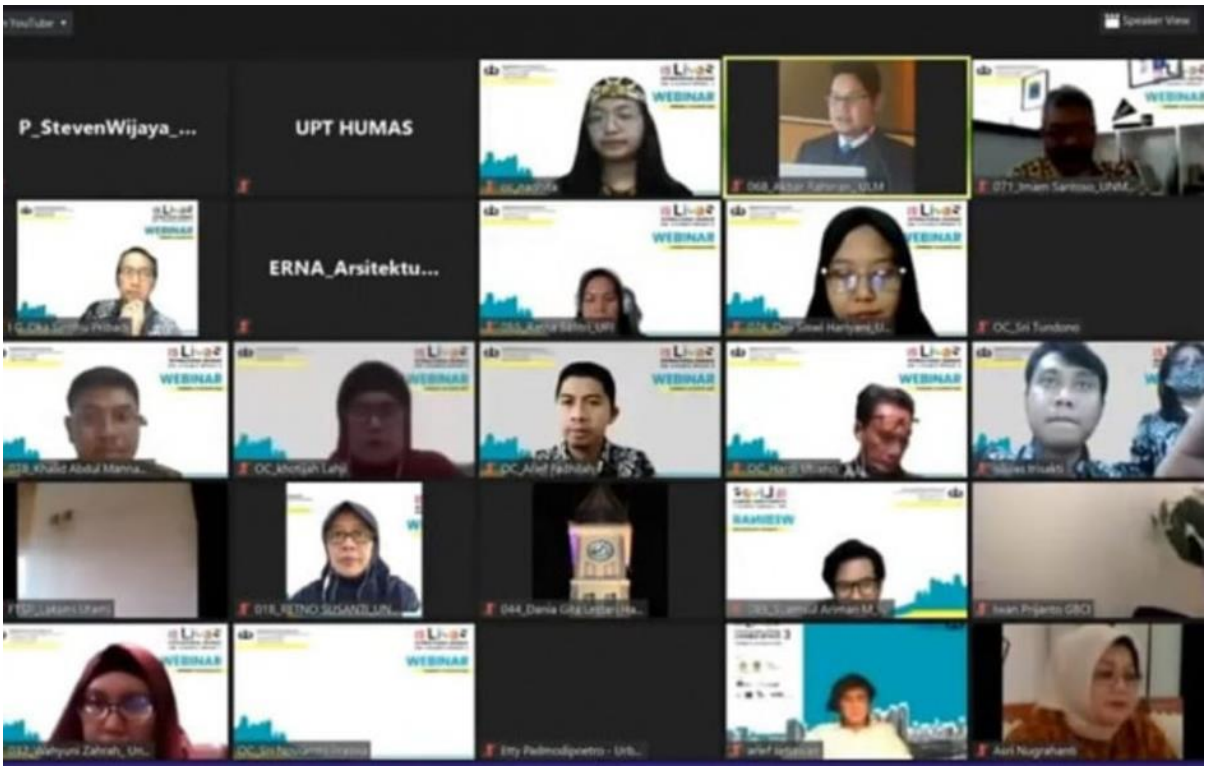


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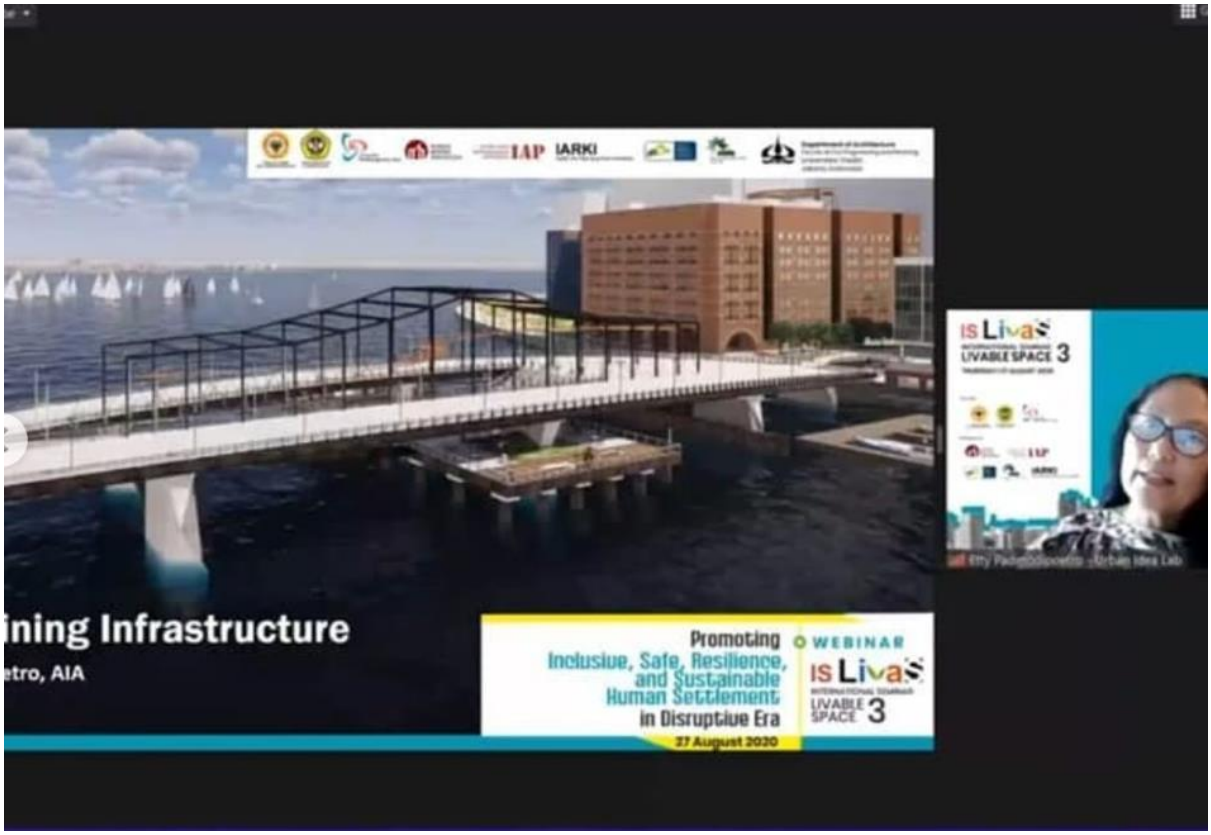
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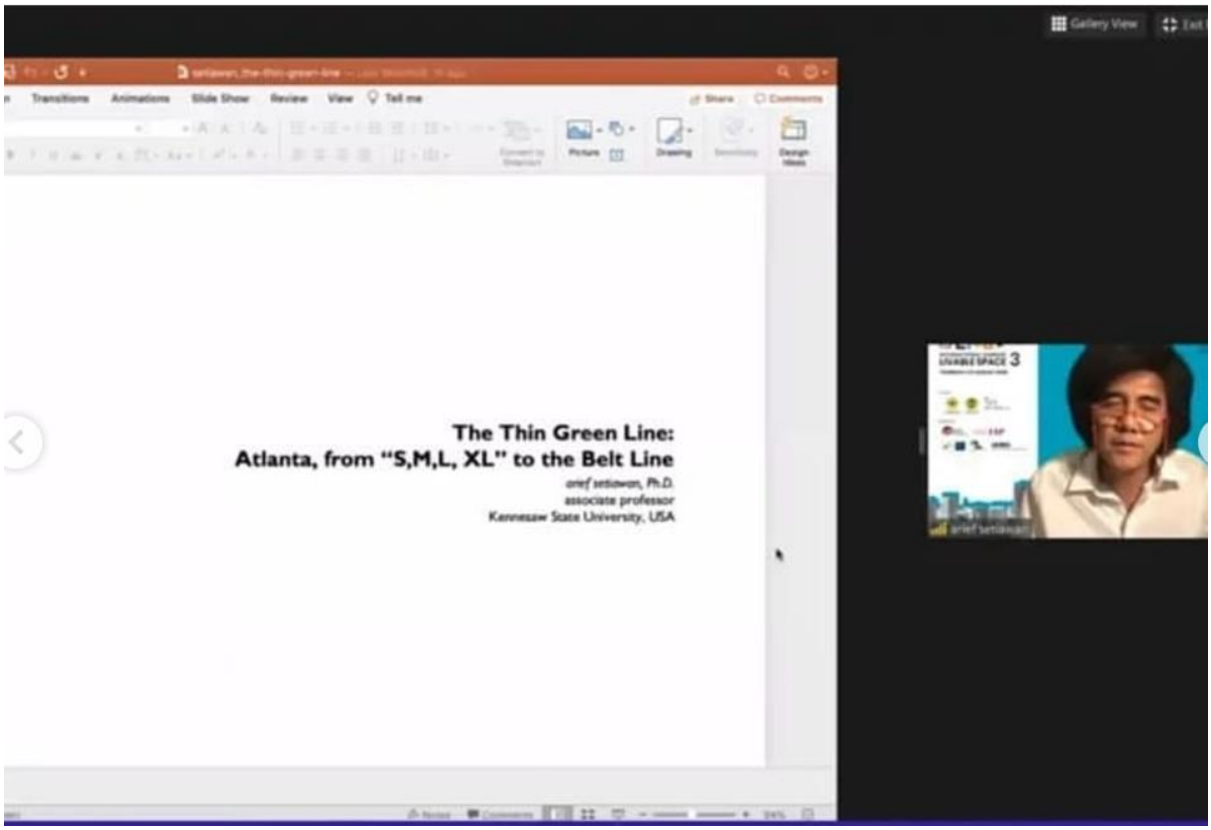
Gallery View
The Thin Green Line:
Atlanta, from "S,M,L, XL" to the Belt Line
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Prepared by Iwan Prijanto
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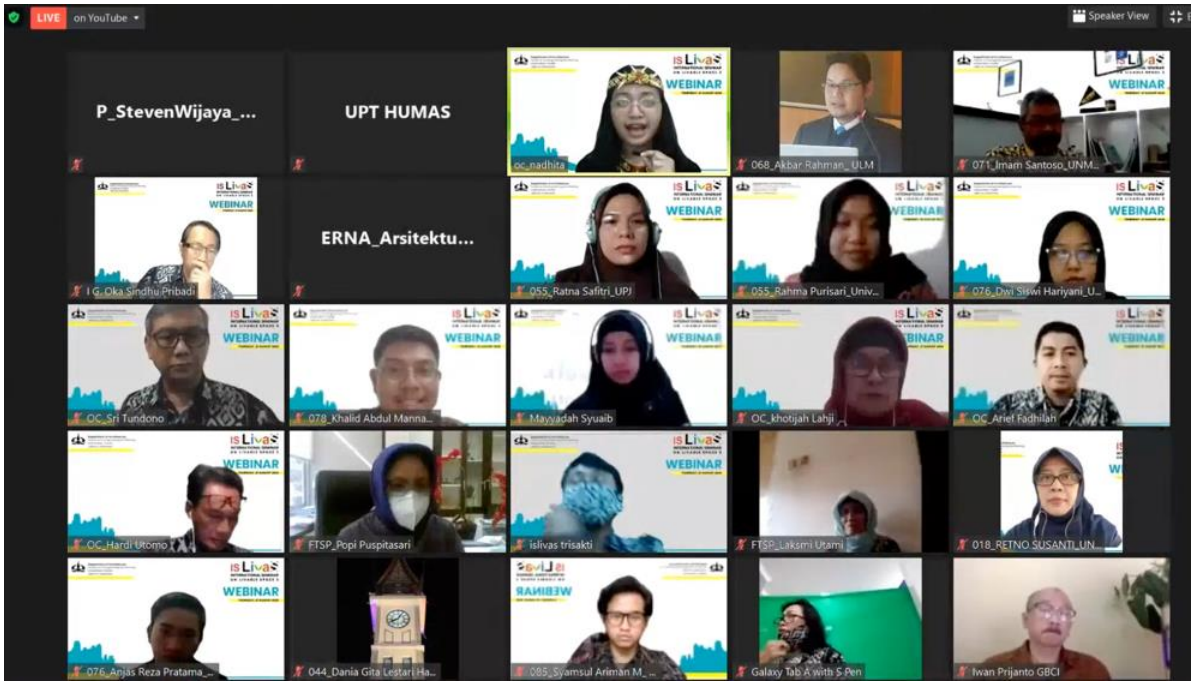
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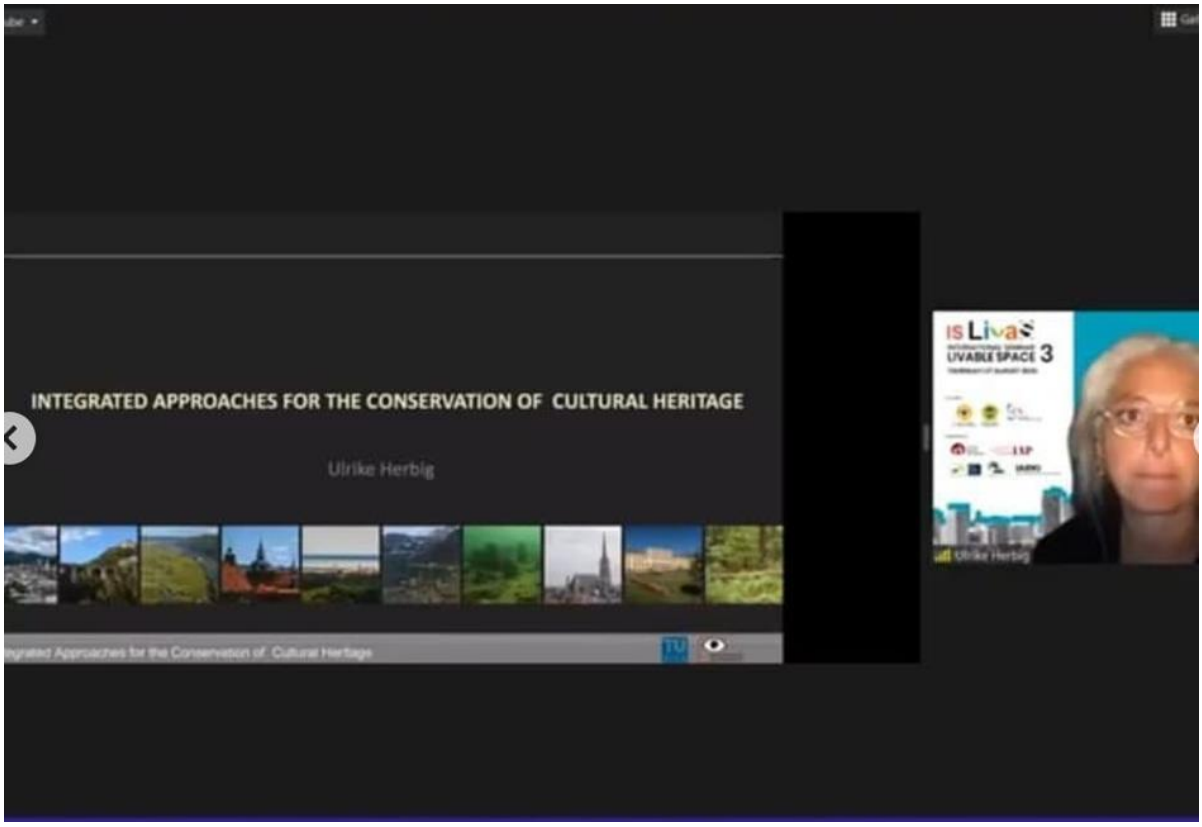
INTEGRATED APPROACHES FOR THE CONSERVATION OF CULTURAL HERITAGE
Ulrike Herbig
Ulrike Herbig


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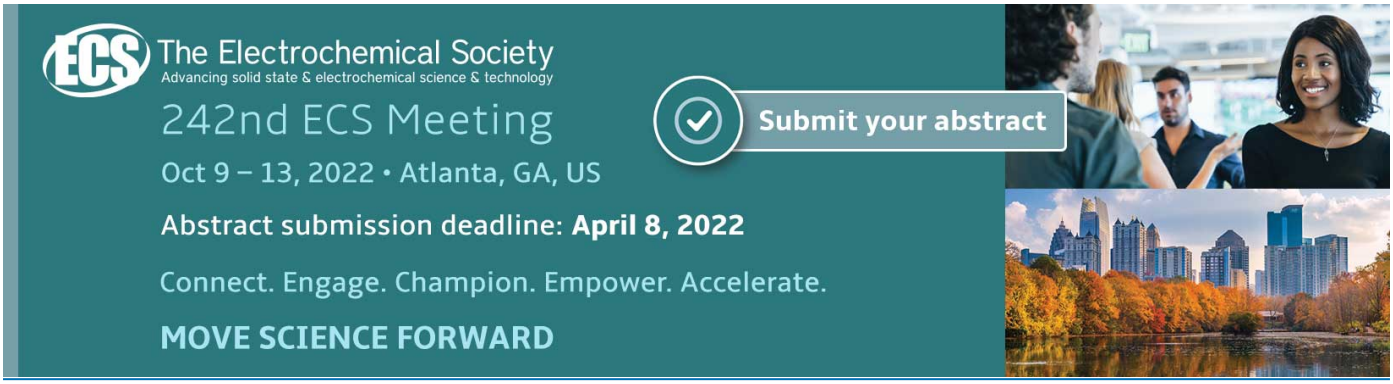
Identification of information and communication media in multi-team working relationship on construction project continuity



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Identification of information and communication media in multi-team working relationship on construction project continuity

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Abstract. The construction project has a high complexity of work due to the many parties involved in it. In project construction the parties who involved must be able to manage and distribute construction materials properly, it can be realized if the parties who involved can establish good coordination and communication to complete the work. In the flow of information contained in supply chain management must also pay attention to the types of communication media that used so that coordination and communication run effectively. This study aims to determine the pattern of information flow that occurs and the role of communication media in the information flow. This research was conducted by interview method, followed by the distribution of questionnaires using the Delphi method to obtain consensus on what types of communication media have the potential to become an effective communication media in project supply chain management. In this study, information flow patterns formed in 3 projects carried out by state-owned corporation and the communication media used were very diverse and the telephone became the highest ranked communication media and included 3 types of information flow namely general information flow, material information flow, and financial information flow.

1. Introduction

As time goes by, the construction industry must continue to improve and adapt. Utilization of technology becomes very important in the construction project process. In the construction industry the use of technology can be the answer to the complexity of the work faced both technically and managerially so that it can produce optimal output. Previous research found that the application of technology can result an efficient project implementation [1].

Many parties involved, both those working individually and between teams (multi-team) in the construction phase also pose challenges on how to create effective and optimal coordination. The parties involved must be able to provide and receive information clearly so it does not interfere with the process of construction project. Incorrect communication and information results poor performance including, project cost overruns, poor quality of work and delays in working time that are ahead of schedule [2]. These problems can also caused by the construction supply chain. Because to improve the performance of project work ,one of the important aspects is the supply chain of the project, therefore good coordination in supply chain management is needed [3].

In the supply chain, the project does not only emphasize business to business relationships, but also complex relationships involving many parties [4]. Then it needs good communication and coordination

in the project. In project communications, there are many alternative media that can be used depending on from and whom the communication is carried out and when the information must be received. At present, the type of communication media is increasingly developing with the presence of social media, teleconferences, electronic mail, and others. This makes the choice of communication media in construction projects more varied, so that the project can adopt the type of communication media that is effective in supporting the process of construction project.

Thus, considering the potential use of communication media as well as the many parties involved in construction projects, in this study the researcher will identify the flow of information and the contribution of communication media to multi-team working relationship in the supply chain to the construction project continuity.

2. Methods

The concept of this research is a confirmation that was submitted or approved by empirical research before. The method used to achieve these objectives uses descriptive methods and the Delphi method (Delphi study), descriptive methods are used to describe the information flow and the communication media used for each type of information. The Delphi method is used to obtain consensus / consensus regarding what communication media are effectively used in the future in BUMN construction projects.

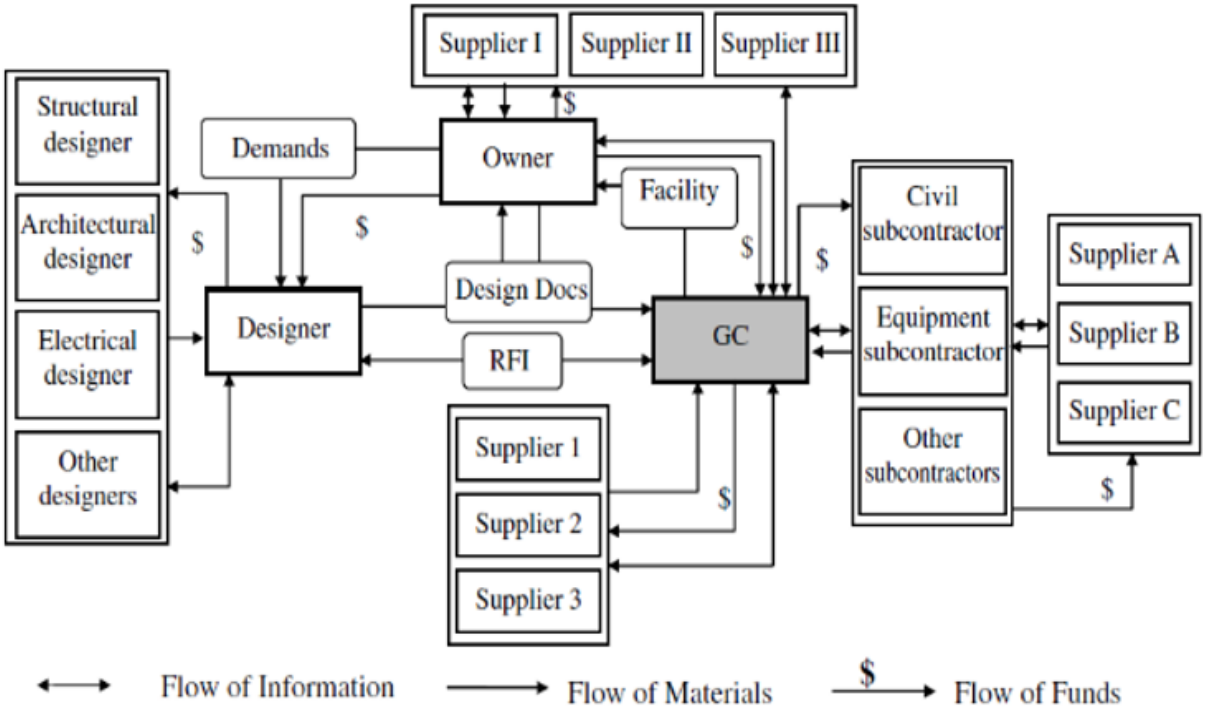


Image Source: [4]

Figure 1. General chart of information flow.

2.1. Communication media instruments in construction projects

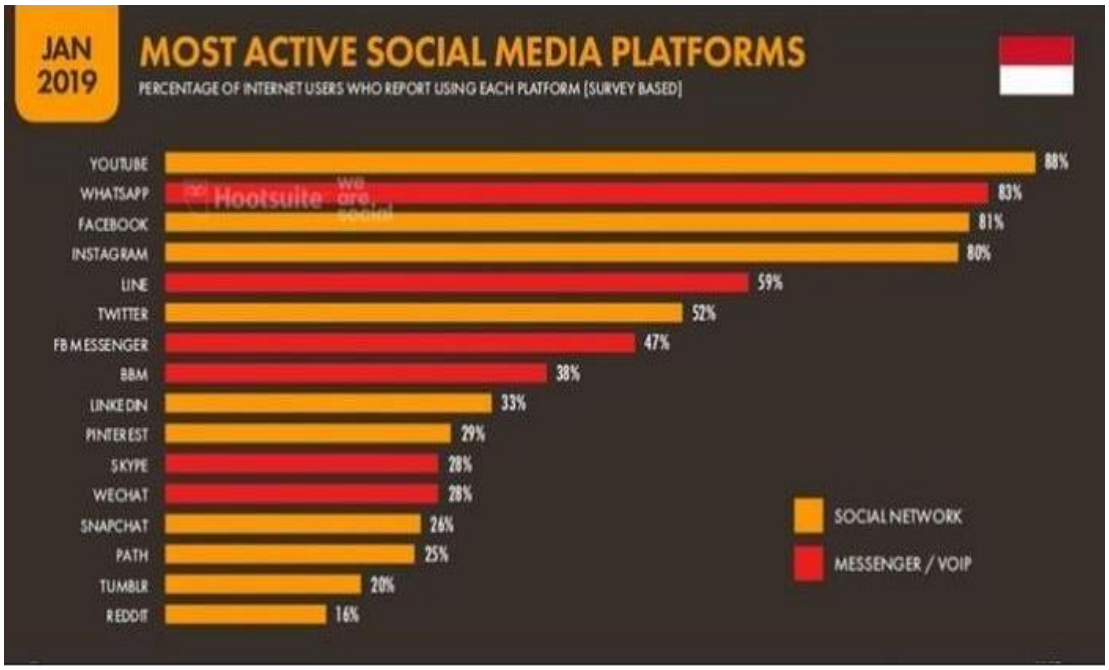
Possible Communications artifacts and methods include but are not limited to:

- Notice boards
- Newsletters/in-house magazines/e-magazines,
- Letters to staff/volunteers
- Press releases
- Annual reports
- Emails and intranets,

- Web Portals and other information repositories (for pull communication)
- Phone conversations,
- Presentations,
- Team briefings/group meetings,
- Focus groups
- Face-to-face formal or informal meetings between various stakeholder,
- Consultation groups or staff forums, and
- Social Computing technology and media.

Source: PMBOK 6th Edition

The author simplify the indicators on electronic communication media and added some of the most widely used communication media instruments today, that is the use of several types of social media. The type of social media that the author enters into the questionnaire option is a social media platform that has the highest number of active users in Indonesia based on the results of the Hootsuite & We Are Social survey in January 2019. The author takes the top 4 social media that have direct message feautres, where is obtained WhatsApp, Facebook, Instagram and Line to add to the instrument selection options.



Source: Survei Hootsuite & We Are Social

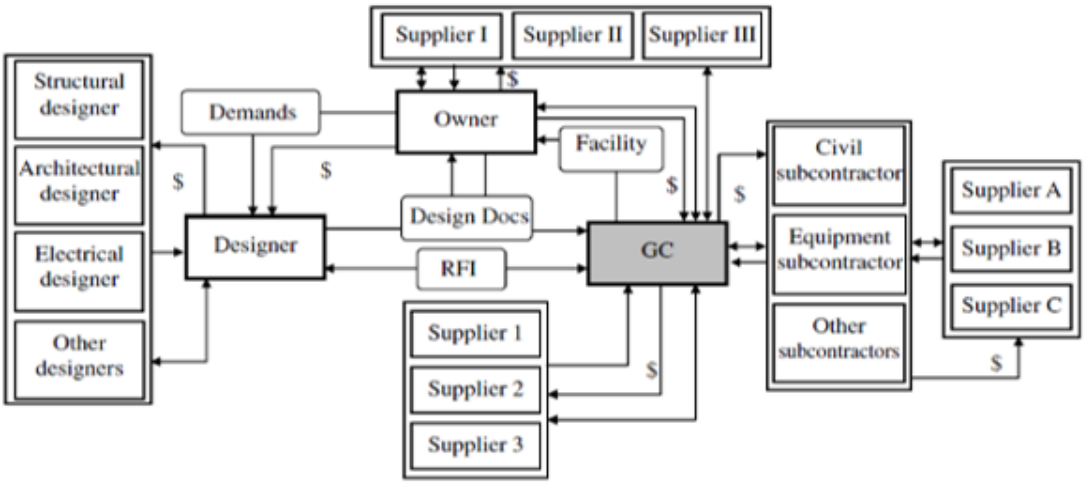
Figure 2. Percentage of active users of social media in Indonesia.

The Delphi method by definition is a process in groups involving interaction between researchers and a group of experts related to a particular topic; usually through the help of a questionnaire. This method is used to get consensus on future projections / trends using a systematic information gathering process. This method is useful when opinions and judgments from experts and practitioners are needed in solving problems. This will be very useful when experts cannot be present at the same time. According to Skutsch and Hall, this method collects judgments about complex matters when appropriate information is not available [5]. The Delphi Method Design in this study went through several stages, through the giving of questionnaires to 3 respondents from each project who controlled project supply chain management.

3. Results and discussion

From the results of the distribution of questionnaires to 9 respondents who controlled the supply chain in the Project carried out by PT. PP Urban, PT. Adhi Persada Gedung, and PT. Brantas Abipraya (Persero) obtained a flowchart of project supply chain management information flow as follows.

General Chart of Information Flow (Source: Xue et al. 2007)



General Chart of MRP Information Flow on BPOM Main Secretariat Building Construction Project (PT.PP Urban), Royal Sentul Park Apartment Construction Project (PT. Adhi Persada Building), Thamrin Bekasi Apartment Construction

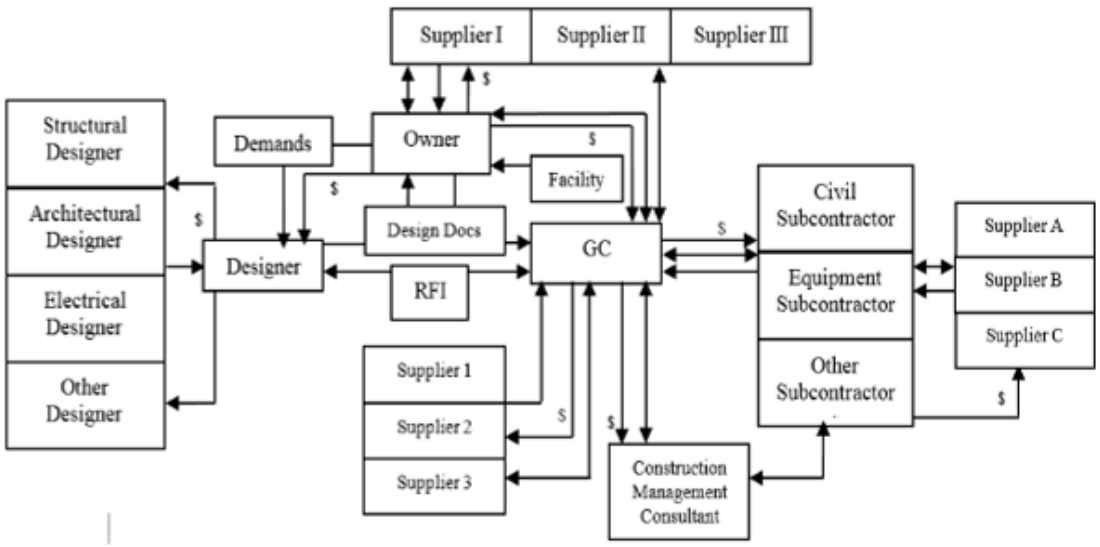


Image Source: Processed by Author (2020)

Figure 3. Comparison of image flow chart.

All three projects have common type of information flow that is formed and the parties involved in it with the general chart sourced from Xue et al 2007 [4]. However there are additional parties namely a construction management consultant whose in implementation on project supply chain management has

the task of material approval (material approval) which will be used in the project sourced from sub-contractors and suppliers before the material installation phase is carried out in the project construction. In the general chart Xue et al. 2007 material approval tasks are focused on the main contractor (General Contractor) [4].

Table 1. Contribution of communication media.

Projects / Company	Type of Information	Communication media used in project supply chain management
Gedung Sekretariat BPOM / PT.PP Urban	General Information	8 types of media
	Materials Information	8 types of media
	Financial Information	8 types of media
Apartemen Royal Sentul Park / PT. Adhi Persada Gedung	General Information	9 types of media
	Materials Information	8 types of media
	Financial Information	4 types of media
Apartemen Thamrin Bekasi / PT Brantas Abipraya	General Information	6 types of media
	Materials Information	5 types of media
	Financial Information	4 types of media

Source: Processed by Author (2020)

From the results of the distribution of questionnaires to 9 people who expert on supply chain management in the three projects, each project consisting of 3 respondents. The following results are obtained.

Table 2. Withdrawal of opinion.

No	Instrumen Media Communication	Respondents								
		1	2	3	4	5	6	7	8	9
1	Telephone	4	5	4	5	5	4	5	5	5
2	Email	4	5	4	5	5	4	4	5	5
3	Video Call/Video Conference	4	4	2	3	2	3	3	4	5
4	Portal Website	5	5	3	4	4	3	4	2	2
5	Pesan Instan (SMS)	3	4	3	5	2	3	4	1	2
6	Handy Talky (HT)	2	4	3	4	4	4	4	2	5
7	WhatsApp (Social Media)	4	4	4	5	4	4	5	5	5
8	Facebook (Social Media)	3	4	2	3	2	2	2	1	2
9	Instagram (Social Media)	3	4	2	3	2	2	2	1	1
10	Line (Social Media)	3	4	3	4	2	2	2	1	1

Image Source: Processed by Author (2020)

Table 3. Processing withdrawal of opinion.

No	Mean	Std. Dev	Modus	Q1	Q2	Q3	IR	Std. Dev	IR
1	4.67	0.13	5	4	5	5	1	kon	kon
2	4.56	0.14	5	4	5	5	1	kon	kon
3	3.33	0.50	4	2.5	4	4	1.5	kon	Kon
4	3.56	0.64	4	2.5	4.5	4.5	2	kon	Kon
5	3.00	0.75	3	2	4	4	2	kon	Kon
6	3.56	0.51	4	2.5	4	4	1.5	kon	Kon
7	4.44	0.14	4	4	4	4	1	kon	Kon
8	2.23	0.38	2	2	2	2	1	kon	Kon
9	2.22	0.47	2	2	2	2	1.5	kon	Kon
10	2.44	0.64	2	2	2	2	2	kon	Kon

Image Source: Processed by Author (2020)

It was found that all instruments totaling 10 instruments were declared convergent or reached a consensus because the value of the Standard Deviation and the Interquartile Range (IR) met the

requirements for achieving convergence or agreement. It can be interpreted that all instruments have the potential to become effective communication media in supply chain management in projects undertaken by SOEs (BUMN). Furthermore, the authors make a rank by using the average value of the instrument to assess what communication media has the highest and lowest level of effectiveness in SOE project supply chain management.

Table 4. Instrument ranking.

No	Media communication	Value	Ranking
1	Telephone	4.67	1
2	Email	4.56	2
3	Video Call/Video Conference	4.44	3
4	Portal Website	3.56	4
5	Pesan Instan (SMS)	3.56	5
6	Handy Talky (HT)	3.33	6
7	WhatsApp (Social Media)	3.00	7
8	Facebook (Social Media)	2.44	8
9	Instagram (Social Media)	2.33	9
10	Line (Social Media)	2.22	10

4. Conclusion

The general chart of information flow and the types of information flow obtained in 3 projects carried out by 3 SOEs have similarities with the general chart made by Xue et al. 2007 [4]. There is only a slight difference, that is the addition of construction management consultants in the three projects but not listed in the general chart made by Xue et al. 2007 [4]. The communication media used are very diverse in the three projects, the functions and specifications of each communication media are different for the three types of information flow. From the consensus results using the Delphi method a projection is obtained related to the type of communication media that has the potential to become an effective communication media used in project supply chain management. It was found that all communication media instruments have a standard deviation <1.5 and interquartile range <2.5 which means reaching consensus, meaning that all communication media contained in the instrument have the potential to become effective communication media to be used in the future.

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Identification of information and communication media in multi-team

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Identification of information and communication media in multi-team working relationship on construction project continuity

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Abstract. The construction project has a high complexity of work due to the many parties involved in it. In project construction the parties who involved must be able to manage and distribute construction materials properly, it can be realized if the parties who involved can establish good coordination and communication to complete the work. In the flow of information contained in supply chain management must also pay attention to the types of communication media that used so that coordination and communication run effectively. This study aims to determine the pattern of information flow that occurs and the role of communication media in the information flow. This research was conducted by interview method, followed by the distribution of questionnaires using the Delphi method to obtain consensus on what types of communication media have the potential to become an effective communication media in project supply chain management. In this study, information flow patterns formed in 3 projects carried out by state-owned corporation and the communication media used were very diverse and the telephone became the highest ranked communication media and included 3 types of information flow namely general information flow, material information flow, and financial information flow.

1. Introduction

As time goes by, the construction industry must continue to improve and adapt. Utilization of technology becomes very important in the construction project process. In the construction industry the use of technology can be the answer to the complexity of the work faced both technically and managerially so that it can produce optimal output. Previous research found that the application of technology can result an efficient project implementation [1].

Many parties involved, both those working individually and between teams (multi-team) in the construction phase also pose challenges on how to create effective and optimal coordination. The parties involved must be able to provide and receive information clearly so it does not interfere with the process of construction project. Incorrect communication and information results poor performance including, project cost overruns, poor quality of work and delays in working time that are ahead of schedule [2]. These problems can also caused by the construction supply chain. Because to improve the performance of project work ,one of the important aspects is the supply chain of the project, therefore good coordination in supply chain management is needed [3].

In the supply chain, the project does not only emphasize business to business relationships, but also complex relationships involving many parties [4]. Then it needs good communication and coordination

in the project. In project communications, there are many alternative media that can be used depending on from and whom the communication is carried out and when the information must be received. At present, the type of communication media is increasingly developing with the presence of social media, teleconferences, electronic mail, and others. This makes the choice of communication media in construction projects more varied, so that the project can adopt the type of communication media that is effective in supporting the process of construction project.

Thus, considering the potential use of communication media as well as the many parties involved in construction projects, in this study the researcher will identify the flow of information and the contribution of communication media to multi-team working relationship in the supply chain to the construction project continuity.

2. Methods

The concept of this research is a confirmation that was submitted or approved by empirical research before. The method used to achieve these objectives uses descriptive methods and the Delphi method (Delphi study), descriptive methods are used to describe the information flow and the communication media used for each type of information. The Delphi method is used to obtain consensus / consensus regarding what communication media are effectively used in the future in BUMN construction projects.

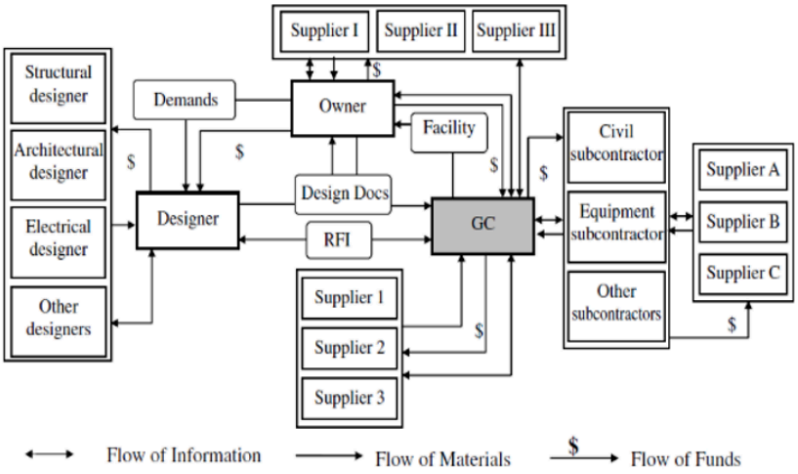


Image Source: [4]

Figure 1. General chart of information flow.

2.1. Communication media instruments in construction projects

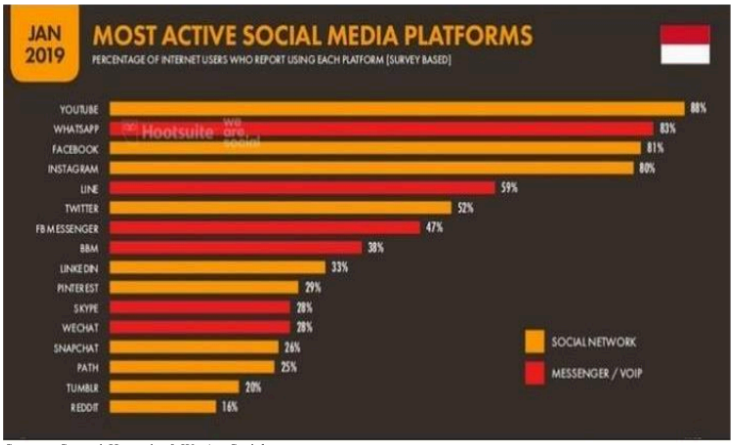
Possible Communications artifacts and methods include but are not limited to:

- Notice boards
- Newsletters/in-house magazines/e-magazines,
- Letters to staff/volunteers
- Press releases
- Annual reports
- Emails and intranets,

- Web Portals and other information repositories (for pull communication)
- Phone conversations,
- Presentations,
- Team briefings/group meetings,
- Focus groups
- Face-to-face formal or informal meetings between various stakeholder,
- Consultation groups or staff forums, and
- Social Computing technology and media.

Source: PMBOK 6th Edition

The author simplify the indicators on electronic communication media and added some of the most widely used communication media instruments today, that is the use of several types of social media. The type of social media that the author enters into the questionnaire option is a social media platform that has the highest number of active users in Indonesia based on the results of the Hootsuite & We Are Social survey in January 2019. The author takes the top 4 social media that have direct message feautres, where is obtained WhatsApp, Facebook, Instagram and Line to add to the instrument selection options.



Source: Survei Hootsuite & We Are Social

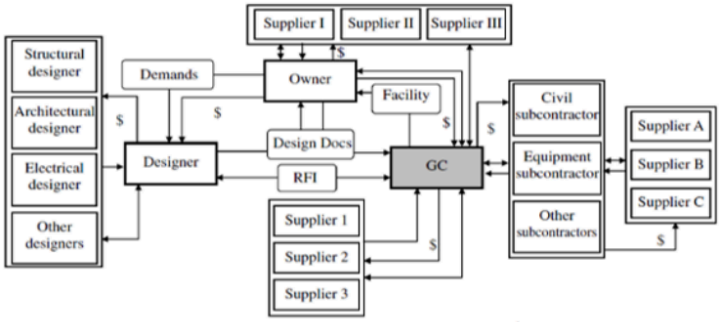
Figure 2. Percentage of active users of social media in Indonesia.

The Delphi method by definition is a process in groups involving interaction between researchers and a group of experts related to a particular topic; usually through the help of a questionnaire. This method is used to get consensus on future projections / trends using a systematic information gathering process. This method is useful when opinions and judgments from experts and practitioners are needed in solving problems. This will be very useful when experts cannot be present at the same time. According to Skutsch and Hall, this method collects judgments about complex matters when appropriate information is not available [5]. The Delphi Method Design in this study went through several stages, through the giving of questionnaires to 3 respondents from each project who controlled project supply chain management.

3. Results and discussion

From the results of the distribution of questionnaires to 9 respondents who controlled the supply chain in the Project carried out by PT. PP Urban, PT. Adhi Persada Gedung, and PT. Brantas Abipraya (Persero) obtained a flowchart of project supply chain management information flow as follows.

General Chart of Information Flow (Source: Xue et al. 2007)



General Chart of MRP Information Flow on BPOM Main Secretariat Building Construction Project (PT.PP Urban), Royal Sentul Park Apartment Construction Project (PT. Adhi Persada Building), Thamrin Bekasi Apartment Construction

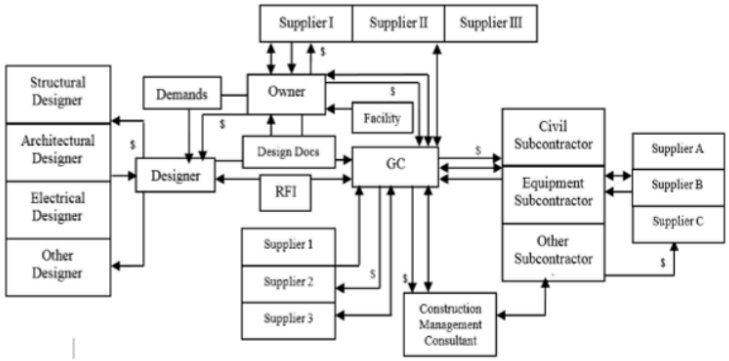


Image Source: Processed by Author (2020)

Figure 3. Comparison of image flow chart.

All three projects have common type of information flow that is formed and the parties involved in it with the general chart sourced from Xue et al 2007 [4]. However there are additional parties namely a construction management consultant whose in implementation on project supply chain management has

the task of material approval (material approval) which will be used in the project sourced from sub-contractors and suppliers before the material installation phase is carried out in the project construction. In the general chart Xue et al. 2007 material approval tasks are focused on the main contractor (General Contractor) [4].

Table 1. Contribution of communication media.

Projects / Company	Type of Information	Communication media used in project supply chain management
Gedung Sekretariat BPOM / PT.PP Urban	General Information	8 types of media
	Materials Information	8 types of media
	Financial Information	8 types of media
Apartemen Royal Sentul Park / PT. Adhi Persada Gedung	General Information	9 types of media
	Materials Information	8 types of media
	Financial Information	4 types of media
Apartemen Thamrin Bekasi / PT Brantas Abipraya	General Information	6 types of media
	Materials Information	5 types of media
	Financial Information	4 types of media

Source: Processed by Author (2020)

From the results of the distribution of questionnaires to 9 people who expert on supply chain management in the three projects, each project consisting of 3 respondents. The following results are obtained.

Table 2. Withdrawal of opinion.

No	Instrumen Media Communication	Respondents								
		1	2	3	4	5	6	7	8	9
1	Telephone	4	5	4	5	5	4	5	5	5
2	Email	4	5	4	5	5	4	4	5	5
3	Video Call/Video Conference	4	4	2	3	2	3	3	4	5
4	Portal Website	5	5	3	4	4	3	4	2	2
5	Pesan Instan (SMS)	3	4	3	5	2	3	4	1	2
6	Handy Talky (HT)	2	4	3	4	4	4	4	2	5
7	WhatsApp (Social Media)	4	4	4	5	4	4	5	5	5
8	Facebook (Social Media)	3	4	2	3	2	2	2	1	2
9	Instagram (Social Media)	3	4	2	3	2	2	2	1	1
10	Line (Social Media)	3	4	3	4	2	2	2	1	1

Image Source: Processed by Author (2020)

Table 3. Processing withdrawal of opinion.

No	Mean	Std. Dev	Modus	Q1	Q2	Q3	IR	Std. Dev	IR
1	4.67	0.13	5	4	5	5	1	kon	kon
2	4.56	0.14	5	4	5	5	1	kon	kon
3	3.33	0.50	4	2.5	4	4	1.5	kon	Kon
4	3.56	0.64	4	2.5	4.5	4.5	2	kon	Kon
5	3.00	0.75	3	2	4	4	2	kon	Kon
6	3.56	0.51	4	2.5	4	4	1.5	kon	Kon
7	4.44	0.14	4	4	4	4	1	kon	Kon
8	2.23	0.38	2	2	2	2	1	kon	Kon
9	2.22	0.47	2	2	2	2	1.5	kon	Kon
10	2.44	0.64	2	2	2	2	2	kon	Kon

Image Source: Processed by Author (2020)

It was found that all instruments totaling 10 instruments were declared convergent or reached a consensus because the value of the Standard Deviation and the Interquartile Range (IR) met the

requirements for achieving convergence or agreement. It can be interpreted that all instruments have the potential to become effective communication media in supply chain management in projects undertaken by SOEs (BUMN). Furthermore, the authors make a rank by using the average value of the instrument to assess what communication media has the highest and lowest level of effectiveness in SOE project supply chain management.

Table 4. Instrument ranking.

No	Media communication	Value	Ranking
1	Telephone	4.67	1
2	Email	4.56	2
3	Video Call/Video Conference	4.44	3
4	Portal Website	3.56	4
5	Pesan Instan (SMS)	3.56	5
6	Handy Talky (HT)	3.33	6
7	WhatsApp (Social Media)	3.00	7
8	Facebook (Social Media)	2.44	8
9	Instagram (Social Media)	2.33	9
10	Line (Social Media)	2.22	10

4. Conclusion

The general chart of information flow and the types of information flow obtained in 3 projects carried out by 3 SOEs have similarities with the general chart made by Xue et al. 2007 [4]. There is only a slight difference, that is the addition of construction management consultants in the three projects but not listed in the general chart made by Xue et al. 2007 [4]. The communication media used are very diverse in the three projects, the functions and specifications of each communication media are different for the three types of information flow. From the consensus results using the Delphi method a projection is obtained related to the type of communication media that has the potential to become an effective communication media used in project supply chain management. It was found that all communication media instruments have a standard deviation <1.5 and interquartile range <2.5 which means reaching consensus, meaning that all communication media contained in the instrument have the potential to become effective communication media to be used in the future.

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