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Platform Digital and Content Innovation to Increase Youth Interest in the Agricultural Sector

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Abstract

The use of digital technology is essential in increasing the younger generation's interest in the agricultural sector. Deficient awareness of youth in the agricultural sector, even though the agricultural sector has great potential and has a crucial role in handling anything. The methodology carried out in this study uses data collection, initial processing of data, analysis using python, evaluation, and validation of results. Content with agricultural topics, the use of the Internet of things on agriculture that contains the content of the role of the younger generation in the agricultural sector is then used as a dataset. Variables analyzed in these contents include the year of content creation, how many subscribers, number of viewers, number of videos. In-person interviews with the younger generation were also conducted in this study to explore information with variables in knowledge levels, family environment factors, land availability, social practice, risk factors, and income. The results and discussions of the analysis of content related to agriculture and the Internet of things showed the younger generation's interest in farming with the help of digital platforms. Of the 30 respondents who were used as a sample, prestige social has the highest value compared to other variables with 0,59. The results obtained from the analysis showed that the number of impressions on content related to the younger generation in the agricultural sector reached 248,882,953 impressions and the number of impressions related to Internet of Things content as many as 23. 969 impressions. The use of technology with the digital Youtube platform is an excellent opportunity in giving birth to various kinds of innovations by utilizing digital technology to support the sustainability of the agricultural sector in Indonesia.

Keywords: *Digital Platforms, Internet of Things, Youth, Agriculture*

1. Introduction

Digital Platforms bring a lot of content innovation and creativity from the current generation. The use of digital platforms is becoming popular, proving the existence of a more dynamic innovation process [1]. Now digital platforms have become part of the economy and business that has shifted traditional patterns [2]. The ease of using digital platforms makes interaction and exchange of information with many users faster [3]. Connectivity of the internet and social media platforms, making digital technology a means in supporting all activities. Thewiderreach on the Internet, especially in low-income countries, is very helpful to improve the economy, agricultural productivity, food security, and nutrition and reduce poverty [4]. The latest technology and new digital platforms leave young people without significant difficulties in getting their work done. Extensive research data has revealed changes in young people [5]. The younger generation now likes something creative, practical, fun, such as creating channels and content in the agricultural sector shows a substantial amount. Several Youtube accounts can subscribe to channels and display content that provides personal experiences to young people [6]. The number of channels and content related to the agricultural sector can still not attract the interest of youth to work as farmers. The application of IoT and the latest technology has great potential to change the perspective of youth to change traditional agriculture into modern [7]. The Central Statistics Agency noted a decrease in the number of farmers, wherein 2018 the number of farmers as many as 35.70 million, in 2019 as many as 34.58 million, in 2020 as many as 33.4 million. Land limitations also prevent youth from working in the agricultural sector [8]. Channels and content have not been utilized to the fullest to increase youth knowledge and interest in the agricultural sector. Youth perception and interest in agriculture are obstacles [8]. Deficient awareness of youth in the agricultural sector, even

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though the agricultural sector has great potential and has a crucial role in handling many things [9]. Large and fertile areas have not been able to be utilized by youth in managing land. The right strategy is essential for managing land and conserving resources [9]. The study aims to find a model of Digital Platforms and the Internet of Things to foster youth interested in pursuing jobs in the agricultural sector. The agricultural sector globally has been recognized as having enormous potential, but at the same time, there is a decrease in interest and youth involvement in the agricultural sector. Use of platform services proposed as part of the system model of user access to digital platforms [10]. The study of digital technology is essential to empower people and help reduce poverty [11]. Digital Platforms are now prevalent, and Digital Platforms are proven to bring the innovation process in a better direction than before [1].

2. Research Methods

In this section explain about the research methods carried out, from this stage will be done research design by explaining in more detail about the dataset used. Research design can provide a new perspective on many things [12].

2.1 Process research method and research design

The research method conducted is an experimental method to find models from dataset analysis in the youtube platform and youth interest questionnaire.

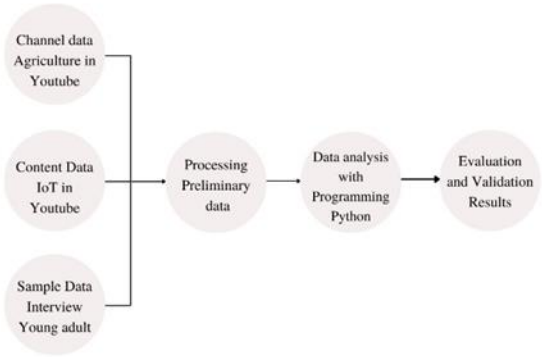

Figure 1. Process research method

Videos on youtube can be meaningful learning, especially with the excellent video quality [13]. Empirically developing new models is essential for future research [14]. Data experiments conducted on a limited basis can see potential differences from specified variables [15]. Knowing the interests and interests of youth in the agricultural sector is done using questionnaires because it is practical and cost-effective [16].

The first stage is the collection of data on youtube platforms related to the channels and content of the agricultural sector and conducting live interviews with youth. This practice aims to provide the best information [17].

The second stage is the initial processing of data by taking the variable year of video creation, number of subscribers, number of videos and number of impressions and live interviews with youth to dig up information with variables of knowledge level, family environment factors, land availability, social prestige, risk factors, and income. Initial data processing is carried out systematically following the framework proposed in this study [18].

The third stage performs dataset analysis using python programming language using pandas library and matplotlib library. The use of python software can facilitate better data analysis [19]. Python software's ability to process and visualize data is highly recommended for data analysis [20].

The fourth stage performs evaluation and validation results on the dataset variables that have been analyzed. Datasets are used to identify trend structures based on tables to compile large amounts of information and visualize them in plots and correlation heatmaps [21].

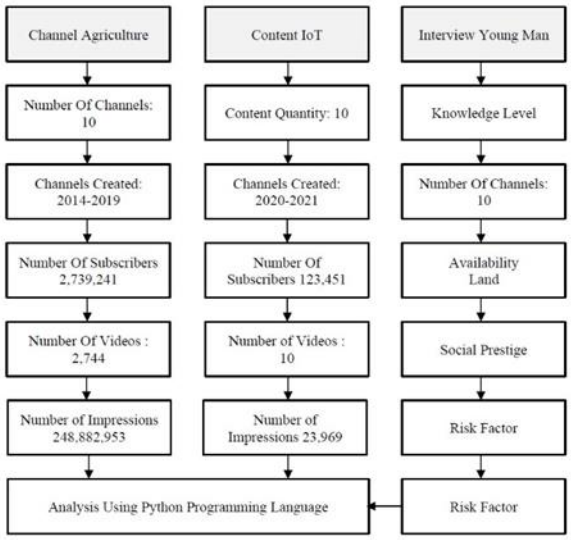

Figure 2. Process research design

The show image explains the research design that has been done. This stage then preprocesses the data to be analyzed using python programming language using pandas and matplotlib libraries. The use of python programming is essential because it follows mathematical concepts and principles [22].

Quantitative analysis with python programming can be optimized and developed for future use [23]. Python programming language is widely available and can be used freely [24]. Python programming has ekstensi.py code [25]. Python is excellent for simulating and experimenting with data to find quality information [26]. Python is one of the object-oriented software that

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is highly recommended for calculating a wide variety of indicators [27].

2.2 Population and Sample

The dataset used in the study is acceptable data from the YouTube Platform by taking ten channels related to youth in the agricultural sector. Internet channels and social media are an advantage in finding information [28]. Channels taken as sample datasets are YouTube channels that contain explicit agricultural content. The dataset used above is data from the YouTube Platform by taking ten contents related to the Internet of Things in the agricultural sector. The Internet of Things has made humans digitally connected[29] . Between the agricultural content dataset and the Internet of things usage content, there is a difference. Agricultural content takes a Channel as a dataset, while Internet Of things content takes content from that channel.

The dataset is done by sampling as many as 30 respondents by assigning knowledge, family environment, land availability, social prestige, risk, and income. Instruments are used in research by filtering data on YouTube platforms and live interview techniques. Live interview techniques are used to provide explanations and feedback from respondents [30]. Dataset analysis is done with python programming. Data related to channels and agricultural content, both the interests of the younger generation and the use of the Internet of Things, were analyzed using several variables such as the year the channel was created, the number of subscribers, the number of impressions, the number of videos on a channel. Recording events and activities will be processed and shared with many parties [31]. Table 1. Dataset Content Agriculture

3. Results and Discussions

The use of digital technology is very important in increasing the interest of the younger generation in the agricultural sector. Content innovation with the topic of agriculture and the use of the Internet of things in agriculture can encourage the interest of the younger generation in the agricultural sector, so that this can be a recommendation to policy makers. Analysis of content related to agriculture by utilizing the internet of things shows the interest of the younger generation to farm with the help of digital platforms. The results obtained from the analysis show that the number of impressions of content related to the younger generation in the agricultural sector reached 248,882,953 impressions and the number of impressions related to Internet of Things content was 23,969 impressions. The results of this analysis can be shown Figure 3.

This section will display the results of the analysis that has been done with the python programming language using pandas and matplotlib libraries. The analysis results in this section are displayed inline plots and head maps contained in python programming. In the line plot image above, we can see how the content related to the use of digital platforms such as youtube from 2014 has been much in the interest with the achievement of subscribers reaching 118,000 people. Likewise, the channel created in 2015 is also very interested in people with the achievement of subscribers 1,025,000 people. The data used in the image above is data obtained from the digital youtube platform using ten channels discussing agriculture conducted by the younger generation.

In the Figure 4, known values with a reasonably significant correlation of 0.77 are found in the variable subscribers and question. This means that with more content in the agricultural sector created, this is indirectly able to provide education and interest in the audience, especially the younger generation, to be interested in the agricultural sector. The line plot Figure 5, shows that content created in 2020 is more significant than in 2021. A line plot is recommended to help evaluate and alternative to new concepts [32].

In this varied data about the number of videos is not included because it only has one content. In the Figure 6, we can see a correlation of 0.21 between the year of the channel's creation and the subscribers on the channel related to the use of the Internet of Things (IoT) in the agricultural sector (Table 2).

The figure 7 shows the results of an analysis conducted with a sample of 30 respondents with direct interview methods in youth. The analysis is done to obtain a representative sample [33]. In the data figure 8, the variable X4 associated with Prestige Social has the highest value compared to other variables with 0,59.

The results obtained from the analysis showed that the number of impressions on content related to the younger generation in the agricultural sector reached 248,882,953 impressions and the number of impressions related to Internet Of Things content as many as 23. 969 shows. Education on the benefits and how to manage the agricultural sector needs to be a concern for policymakers. Policymakers can make this a new idea in the agricultural sector [34]. Prestige Social is still a problem for youth to be able to work in the agricultural sector. Individuals need to achieve high social status by using skills and knowledge [35]. The need for innovation in using and approaching technology with digital platforms becomes very important to support Indonesia's.

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Table 1. Dataset Content Agriculture

No.	Channel Name	Create	Subscribers	Types of Videos	Number of Videos	Impressions
1	Asian Survivor	2014	118000	Agriculture	1071	32362667
2	Bali Organik Tv	2016	244000	Agriculture	319	19672285
3	Dosen Petani	2014	45000	Agriculture	155	2490452
4	Mitra Bertani TV	2016	15700	Agriculture	179	10518032
5	Ini Kebumen	2017	8041	Agriculture	67	842791
6	Petani Muda	2019	347000	Agriculture	266	41970562
7	CapCapung	2015	1025000	Agriculture	106	120695652
8	Nur Arifin	2018	702000	Agriculture	190	4938570
9	Tanilink TV	2018	105000	Agriculture	157	7951973
10	Zakaria Sidik	2017	129000	Agriculture	234	7439969

Table 2. IoT content data related to agriculture sector

No.	Channel Name	Create	Subscribers	Types of Videos	Number of Videos	Impressions
1	UGM Channel	2020	62000	Smart Farming with IoT	1	9000
2	AgrobankTV	2021	4032	Smart Farming with IoT	1	4000
3	Agrozine ID	2021	9092	Smart Farming with IoT	1	2000
4	SMK Negeri 1 Purwodadi	2020	1032	Smart Farming with IoT	1	1636
5	M Arifin D	2020	316	Smart Farming with IoT	1	1569
6	Juon Junior	2020	83	Smart Farming with IoT	1	1288
7	The Hot Rooms	2021	1047	Smart Farming with IoT	1	1255
8	TBIPI	2020	312	Smart Farming with IoT	1	1234
9	Politeknik Negeri Lampung	2021	3037	Smart Farming with IoT	1	992
10	IPB TV	2020	42500	Smart Farming with IoT	1	995

Table 3. Dataset on youth interest in the agricultural sector

No.	Indikator/Variabel					
1	3	4	3	3	3	4
2	3	3	2	2	2	2
3	3	2	3	3	2	3
4	3	2	3	3	3	3
5	3	3	3	2	2	2
6	3	3	2	3	2	3
7	3	2	2	2	2	2
8	3	2	3	2	2	2
9	3	4	2	2	2	3
10	3	3	2	2	2	2
11	4	3	2	3	3	3
12	3	3	3	4	2	2
13	3	4	3	3	2	2
14	3	2	2	3	2	3
15	3	3	2	3	3	3
16	2	3	3	2	2	1
17	3	2	2	3	2	3
18	3	3	2	2	2	3
19	3	2	3	3	2	3
20	2	3	4	2	2	2
21	4	3	3	3	3	4
22	4	3	3	3	2	3
23	3	4	2	4	2	4
24	2	2	2	3	3	3
25	3	2	2	3	4	3
26	2	3	4	2	2	2
27	3	2	2	3	2	3
28	3	2	3	2	2	2
29	3	2	3	3	3	3
30	3	4	3	3	3	4

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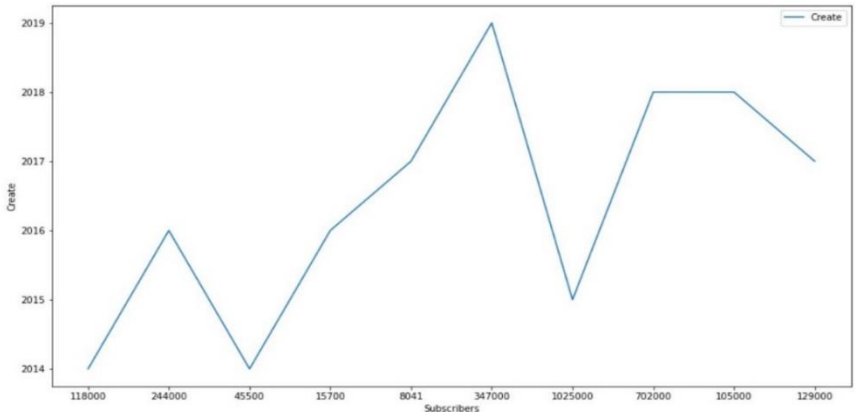

Figure 3. Lineplot (x =Subscribers, y = Create) using python

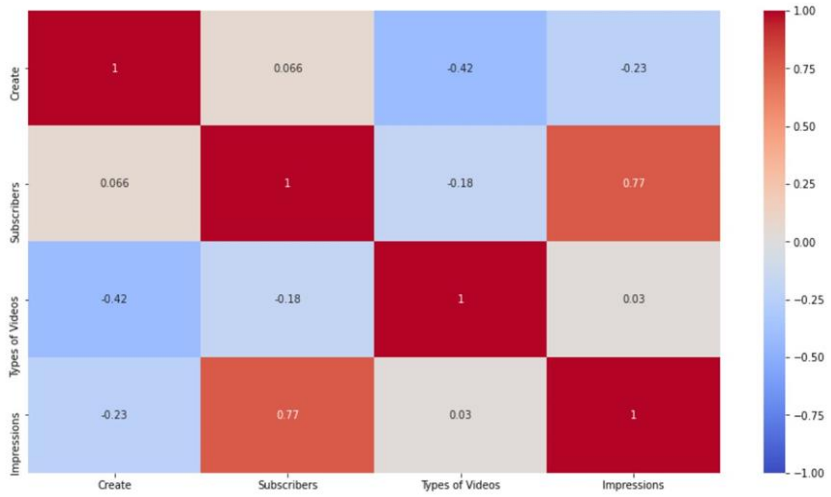

Figure 4. Heatmap corr using python

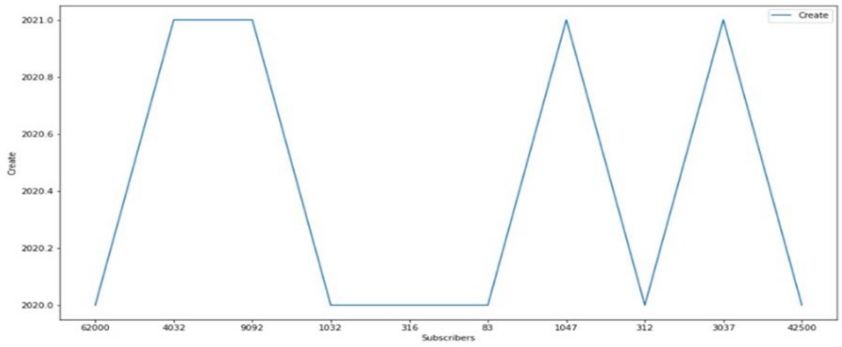

Figure 5. Lineplot (x = Subscribers, y = Create) on IoT content

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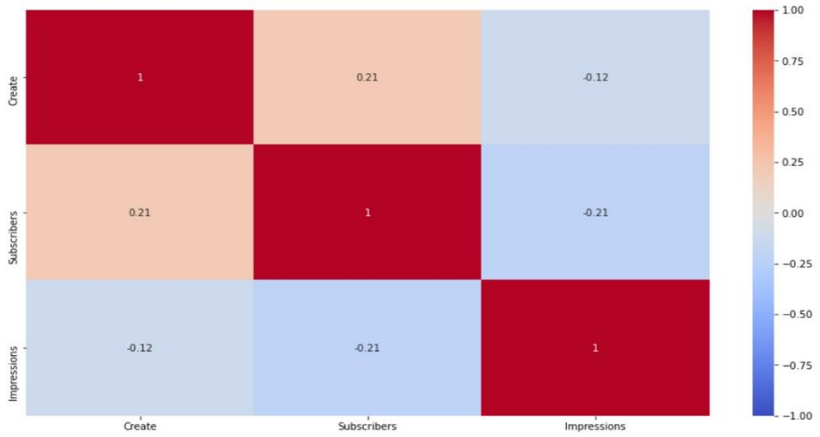

Figure 6. Heatmap corr using python

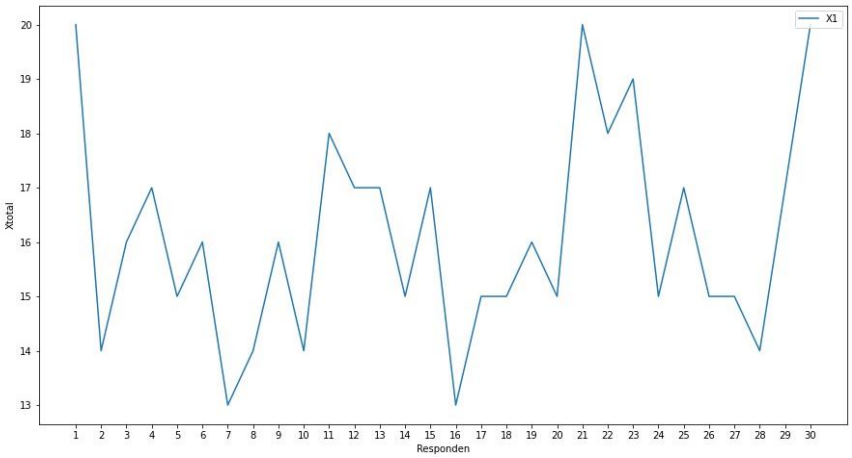

Figure 7. lineplot(x = 'Respondent', y = 'Xtotal' youth interest questionnaire

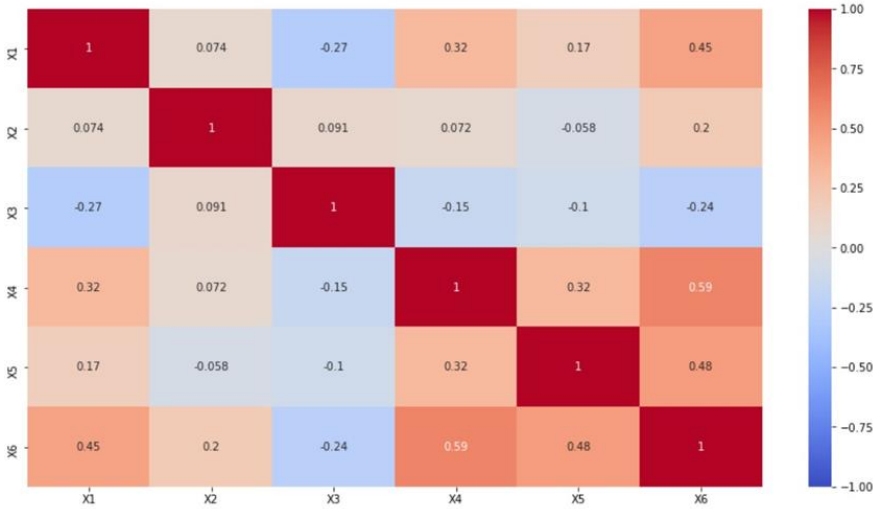

Figure 8. Heatmap corr questionnaire using python

4. Conclusion

Innovation with digital technology needs to be done by policymakers. The results of this study showed that 248,882,953 content impressions in the agricultural sector have enormous potential. Policymakers need to make a grand design. Innovation and competition related to agricultural content can be a means to attract the interest of young people working in the agricultural sector. Content related to the agricultural sector can be a solution for the government, academia, and society in overcoming the crisis of farmer regeneration.

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Reference

[1] A. Zutshi, A. Grilo, and T. Nodehi, "Computers & Industrial Engineering The value proposition of blockchain technologies and its impact on Digital Platforms," *Comput. Ind. Eng.*, vol. 155, no. August 2020, p. 107187, 2021, doi: 10.1016/j.cie.2021.107187.

[2] D. Rohn, P. M. Bican, A. Brem, S. Kraus, and T. Clauss, "Journal of Engineering and Digital platform-based business models – An exploration of critical success factors," *J. Eng. Technol. Manag.*, vol. 60, no. December 2019, p. 101625, 2021, doi: 10.1016/j.jengtecman.2021.101625.

[3] T. L. J. Broekhuizen, O. Emrich, M. J. Gijsenberg, M. Broekhuis, B. Donkers, and L. M. Sloot, "Digital platform openness : Drivers , dimensions and outcomes," *J. Bus. Res.*, vol. 122, no. July 2019, pp. 902–914, 2021, doi: 10.1016/j.jbusres.2019.07.001.

[4] M. Ankrah, Y. Jiang, D. Asante, B. Addai, S. Akuamoah-boateng, and P. Fosu, "Technology in Society Internet use and farm households food and nutrition security nexus : The case of rural Ghana," *Technol. Soc.*, vol. 65, no. April, p. 101592, 2021, doi: 10.1016/j.techsoc.2021.101592.

[5] A. Lareki, J. Altuna, J. Ignacio, M. De Morentin, and N. Amenabar, "Children and Youth Services Review Young people and digital services : Analysis of the use , rules , and age requirement," *Child. Youth Serv. Rev.*, vol. 79, no. January, pp. 126–131, 2017, doi: 10.1016/j.childyouth.2017.06.002.

[6] P. V. Staziaki, I. D. de O. Santo, A. A. Skobodzinski, L. K. Park, and H. S. Bedi, "How to Use YouTube for Radiology Education," *Curr. Probl. Diagn. Radiol.*, vol. 50, no. 4, pp. 461–468, 2021, doi: 10.1067/j.cpradiol.2020.11.007.

[7] E. Alreshidi, "Smart Sustainable Agriculture (SSA) solution underpinned by Internet of Things (IoT) and Artificial Intelligence (AI)," *Int. J. Adv. Comput. Sci. Appl.*, vol. 10, no. 5, pp. 93–102, 2019, doi: 10.14569/ijacsa.2019.0100513.

[8] D. Bougherara, M. Lapierre, and A. Sauquet, "Do farmers prefer increasing , decreasing , or stable payments in Agri-environmental schemes ?," *Ecol. Econ. J.*, vol. 183, no. July 2020, 2021, doi: 10.1016/j.ecolecon.2021.106946.

[9] H. Barth, P. Ulvenblad, P. Ulvenblad, and M. Hoveskog, "Unpacking sustainable business models in the Swedish agricultural sector e the challenges of technological , social and organisational innovation," *J. Clean. Prod.*, vol. 304, p. 127004, 2021, doi: 10.1016/j.jclepro.2021.127004.

[10] S. A. Denisov and A. A. Sorokin, "ScienceDirect ScienceDirect ScienceDirect Model of a management system for deterministic scientific services Model of a management system for deterministic scientific services of digital platform of digital platform," *Procedia Comput. Sci.*, vol. 186, pp. 1–10, 2021, doi: 10.1016/j.procs.2021.04.119.

[11] A. F. Shaibu, Z. Hudu, and M. Israel, "Digital technology and rural livelihood - A study of peasant communities in Pru district," *Agris On-line Pap. Econ. Informatics*, vol. 10, no. 4, pp. 71–78, 2018, doi: 10.7160/aol.2018.100408.

[12] A. Burlea-Schiopoiu, R. F. Ogarca, C. M. Barbu, L. Craciun, I. C. Baloi, and L. S. Mihai, "The impact of COVID-19 pandemic on food waste behaviour of young people," *J. Clean. Prod.*, vol. 294, p. 126333, 2021, doi: 10.1016/j.jclepro.2021.126333.

[13] H. A. Rodriguez, M. T. Young, H. T. Jackson, B. K. Oelschlager, and A. S. Wright, "Viewer discretion advised: is YouTube a friend or foe in surgical education?," *Surg. Endosc.*, vol. 32, no. 4, pp. 1724–1728, 2018, doi: 10.1007/s00464-017-5853-x.

[14] M. Vellei, R. De Dear, C. Inard, and O. Jay, "Dynamic thermal perception : A review and agenda for future experimental research," *Build. Environ.*, vol. 205, no. June, p. 108269, 2021, doi: 10.1016/j.buildenv.2021.108269.

[15] L. Che, X. Gu, and H. Li, "Numerical analysis and experimental research on hard rock fragmentation by high voltage pulse discharge," *Miner. Eng.*, vol. 168, no. February 2020, p. 106942, 2021, doi: 10.1016/j.mineng.2021.106942.

[16] M. A. Sanchez-lastra, S. Varela, D. Martínez-aldao, and C. Ay, "Questionnaires for assessing self-perceived physical fitness : A systematic review," *Exp. Gerontol.*, vol. 152, no. June, 2021, doi: 10.1016/j.exger.2021.111463.

[17] A. Gruzd, J. Jacobson, and E. Dubois, "Cybervetting and the Public Life of Social Media Data," *Soc. Media Soc.*, vol. 6, no. 2, 2020, doi: 10.1177/2056305120915618.

[18] P. Zhao, H. Haitao, A. Li, and A. Mansourian, "Impact of data processing on deriving micro-mobility patterns from vehicle availability data," *Transp. Res. Part D*, vol. 97, no. June, p. 102913, 2021, doi: 10.1016/j.trd.2021.102913.

[19] J. L. Vishart, J. Castillo-león, and W. E. Svendsen, "SoftwareX pyEIA : A Python-based framework for data analysis of electrochemical methods for immunoassays," *SoftwareX*, vol. 15, p. 100720, 2021, doi: 10.1016/j.softx.2021.100720.

[20] Q. Liu, Z. Qiao, and Y. Lv, "PyVT : A python-based open-source software for visualization and graphic analysis of fluid dynamics datasets," *Aerosp. Sci. Technol.*, vol. 117, pp. 1–9, 2021, doi: 10.1016/j.ast.2021.106961.

[21] S. Betn, "A toolbox for visualizing trends in large-scale environmental data," *Environ. Model. Softw.*, vol. 136, no. December 2020, 2021, doi: 10.1016/j.envsoft.2020.104949.

[22] R. Shende, G. Gupta, and S. Macherla, "Determination of an inflection point for a dosimetric analysis of unflattened beam using the first principle of derivatives by python code programming," *Reports Pract. Oncol. Radiother.*, vol. 24, no. 5, pp. 432–442, 2019, doi: 10.1016/j.rpor.2019.07.009.

[23] J. W. Shepherd, E. J. Higgins, A. J. M. Wollman, and M. C. Leake, "PySTACHIO : Python Single-molecule TrAcking stoiCHiometry Intensity and simulatiOn , a flexible , extensible , beginner-friendly and optimized program for analysis of single-molecule microscopy data," *Comput. Struct. Biotechnol. J.*, vol. 19, pp. 4049–4058, 2021, doi: 10.1016/j.csbj.2021.07.004.

[24] Y. Zhou, W. Wu, R. Nathan, and Q. J. Wang, "MethodsX Python program for spatial reduction and reconstruction method in flood inundation modelling," *MethodsX*, vol. 8, p. 101527, 2021, doi: 10.1016/j.mex.2021.101527.

[25] F. Sartori and J. A. Matelli, "Script for resilience analysis in energy systems : Python programming code and partial associated data of four cogeneration plants," *Data Br.*, vol. 36, pp. 0–4, 2021, doi: 10.1016/j.dib.2021.106986.

[26] P. Puschnig, "kMap . py : A Python program for simulation and data analysis in," *Comput. Phys. Commun.*, vol. 263, p. 107905, 2021, doi: 10.1016/j.cpc.2021.107905.

[27] M. Zampieri, A. Toreti, A. Ceglar, P. De Palma, T. Chatzopoulos, and M. Michetti, "SoftwareX Analysing the resilience of agricultural production systems with ResiPy , the Python production resilience estimation package," *SoftwareX*, vol. 15, p. 100738, 2021, doi: 10.1016/j.softx.2021.100738.

[28] E. R. Germic, S. Eckert, and F. Vultee, "The Impact of Instagram Mommy Blogger Content on the Perceived Self-Efficacy of Mothers," *Soc. Media Soc.*, vol. 7, no. 3, 2021, doi: 10.1177/20563051211041649.

[29] A. Wang, P. Wang, X. Miao, X. Li, N. Ye, and Y. Liu, "A review on non-terrestrial wireless technologies for Smart City Internet of Things," *Int. J. Distrib. Sens. Networks*, vol. 16, no. 6, 2020, doi: 10.1177/1550147720936824.

[30] J. M. Opiniano, "Methods in Psychology Object-centered interviews in mixed methods : Yielding the emotions of overseas migrant households in family financial socialization," *Methods Psychol.*, vol. 5, no. March, p. 100073, 2021, doi: 10.1016/j.metip.2021.100073.

[31] S. Wanotayapitak, "Asia - Pacific Journal of Science and Technology," *Asia-Pacific J. Sci. Technol.*, vol. 26, no. 02, pp. 1–11, 2021, doi: 10.14456.2016.17.

[32] L. H. Shih, Y. T. Lee, and F. Huarng, "Creating customer value for product service systems by incorporating internet of things technology," *Sustain.*, vol. 8, no. 12, pp. 1–16, 2016, doi: 10.3390/su8121217.

[33] B. Svensmark, "Analytica Chimica Acta Extensions to the Theory of Sampling 1 . The extended Gy ' s formula , the segregation paradox and the fundamental sampling

DOI: https://doi.org/10.29207/resti.v6i2.3924

uncertainty," *Anal. Chim. Acta*, vol. 1187, p. 339127, 2021, doi: 10.1016/j.aca.2021.339127.

[34] J. Platos, R. Vala, M. Valova, P. Drazdilova, and P. Kr, "Children and Youth Services Review Behaviour associated with the presence of a school sports ground : Visual information for policy makers," *Child. Youth Serv. Rev.*, vol. 128, no. July, 2021, doi: 10.1016/j.childyouth.2021.106150.

[35] C. Liu, J. Li, Z. Tao, Z. Wang, C. Chen, and Y. Dong, "Prestige and dominance as assessed by friends , strangers , and the self," *Pers. Individ. Dif.*, vol. 179, no. March, p. 110965, 2021, doi: 10.1016/j.paid.2021.110965.

DOI: https://doi.org/10.29207/resti.v6i2.3924