Management Science Letters 10 (2020) 3741–3748

Contents lists available at GrowingScience

Management Science Letters

homepage: www.GrowingScience.com/msl

The effects of work motivation and information technology on farmers' performance

Rifqi Syarif Nasrulloh[a*], Arief Subyantoro[a] and Aghata Ayiek Sih Sayekti[b]

[a]*Department of Management, Faculty of Economics and Business, Universitas Pembangunan Nasional "Veteran" Yogyakarta, Indonesia*
[b]*Social Economics of Agricultural, INSTIPER Yogyakarta, Indonesia*

C H R O N I C L E

Article history:
Received: June 26, 2020
Received in revised format: June 30 2020
Accepted: July 26, 2020
Available online: July 26, 2020

Keywords:
Work motivation
Utilization of information technology
Local knowledge
Farmers' performance

A B S T R A C T

The present paper aims to examine and analyze: 1) the effect of farmers' work motivation on their performance; 2) the effect of information technology on farmers' performance; 3) the effect of farmers' work motivation on their performance as moderated by local knowledge; and 4) the effect of information technology utilization on farmers' performance as moderated by local knowledge. Our study population comprised of all farmers registered as members of farmer association in Tirtomartani Village, Sleman Regency, Yogyakarta. We adopt cluster random sampling as the sampling method and use a sample of 102 respondents. Data were collected using a four-point Likert scale and analyzed using smartPLS 3.0. The results indicate that: 1) work motivation had a positive effect on farmers' performance; 2) utilization of information technology had a positive effect on farmers' performance; 3) local knowledge did not moderate the relationship between work motivation and farmers' performance; and 4) local knowledge moderated the relationship between utilization of information technology and farmers' performance.

1. Introduction

Efforts to improve food sustainability must be based on food self-sufficiency and food sovereignty supported by an integrated subsystem of food distribution and consumption (Renstra, 2019). Agricultural sector remains as one of the government priorities because its growth and development constitute the key to national development and bring hope for improved food security (Saheb *et al*., 2008). Changes in farmers' behavior are among the factors that hinder the progress of food security program. Those changes in farmers' behavior do not just happen: internal and external factors could also play an essential role on their success (Sari *et al*., 2017). Internal factors include behavior, motivation, education, experience, expertise, skills, knowledge and ability. As for external factors, they include technology/equipment, information availability, extrinsic motivation, social-environmental resources, fellow farmers, and organizational attitude (Sasongko *et al*., 2018; Setiawan *et al*., 2006). With the recent development in information and communication technologies, most people opt for the ones that provide faster and efficient access to information (Amin, 2016; Irmawati, 2011).

Changes in behavior greatly affect the extent to which each individual is required to implement a high-performance cultural behavior (Armstrong, 2006). This could be illustrated as follows: better indicators of individual behavior in an organization encourage possible for favorable working environment and, thus, improve in individual performance and, for that reason, individual behavior and performance are strongly related (Rahman, 2013). The effect of behavioral changes can be studied at different time scales from weeks to hundreds of years and at different levels. The effect of those changes can be studied in terms of the individual, group, organization, and society at either national or international level. However, considering their complexity, behavioral changes should be related to various factors to identify them thoroughly (Madson, 2003).

* Corresponding author.
E-mail address: rifqinymph@gmail.com (R. S. Nasrulloh)

doi: 10.5267/j.msl.2020.7.038

Individual performance of certain behavior is mainly determined by the intention of a person with a particular motive to engage in such behavior; individual attitude and the effect of social environment on the intended behavior shall be positive to bring about expected changes. This corresponds to Victor Vroom's expectancy theory (Robbins & Judge, 2008). Important aspects in the process of behavioral changes include perceived behavioral control over opportunity, resources, and skills necessary to take action, therefore one's motivation is strongly related to changes brought about to improve performance (Ajzen & Fishbein, 1980). Behavioral changes induced by technology have generated better individual performance in organizations. Among the ways the technology changes the basic rules are by improving the capacity and generating more information than anyone can absorb without it. Effectiveness and efficiency are considered as more beneficial to individual performance. The use of appropriate information technology, therefore, paves the way for business transformation in terms of speed, accuracy and efficiency of large-scale information transfer so that information technology constitutes the important factor in improving farmers' performance (Igbaria & Tan, 1997; Karanja, 2015).

Knowledge reflects human capacity to understand and interpret either the results of observation or what has been experienced in order to make prediction or to generate various decision-making considerations (Sunaryo & Joshi, 2003). Indigenous knowledge is generally defined as knowledge used by local people to survive in a certain environment, and subsequently referred to as local knowledge (Warren, 1991). Digging up information about local knowledge and innovation adopted by farmers, we can discover the pattern of natural resource management in the nearby area. Moreover, it can also serve as input for improvement of farmers' living, either from the perspectives of economy, ecology or social (Moulyotami *et al*., 2004). Therefore, local knowledge is considered to be capable of supporting or improving individual performance in case the farmers find it difficult to adopt the offered technology or that it serves no better function than the local technology at their disposal (Fujisaka, 1993; Pretty, 1995).

This study aims to determine the effect of farmers' behavioral changes from both internal and external factors on farmers' performance. The internal factor of farmers' behavioral changes is represented by farmers' work motivation, and the external factor is represented by utilization of information technology. Local knowledge serves as the moderating variable of the causal relationship between motivation and utilization of information technology and farmers' performance. This is so because local knowledge is considered capable of supporting the management of their agricultural land and of their natural resources in a better way (Soeharjo & Patong, 1973; Moulyotami *et al*., 2004).

2. Literature review

2.1 The effect of work motivation on individual performance

Motivation may affect individuals in doing their jobs so that they can exert maximum effort to accomplish something (Robbins & Judge, 2008). Based on expectancy theory, motivation can increase performance by instilling strong confidence that doing the work will lead to task accomplishment in order to gain the opportunity that individual behavior generated (Munandar, 2001). The expectancy theory basically postulates that human will take any action to meet a target that he finds it valuable and he sees what he is doing as helping him meet the target. Therefore, when an individual has an expectation, he will strive to meet it in order to increase his individual performance (Suripto, 2015). Several previous studies indicated that motivation plays a significant role in maintaining and improving individual performance and, therefore, it has a positive effect on individual performance (Abusharbeh & Nazzal, 2018; Bao & Nizam, 2015; Andriana, 2015; Wahyudi *et al*., 2018; Robescu & Iancu, 2016; Satriadi & Agusven, 2018; Paarlberg & Lavigna, 2010). Based on earlier research findings, hypothesis 1 can be formulated as follows:

H_1: Work motivation has a positive effect on farmers' performance.

2.2 The effect of information technology utilization on individual performance

Utilization of information technology is the behavior of using information technology in the workplace. Effectiveness and efficiency are the main reasons for using information technology in the working environment (Iqbaria & Tan, 1997; Karanja, 2015). The use of information technology increases the speed, accuracy, and efficiency of information transfer in a large scale and, therefore, serves a significant role in increasing performance (Iqgbaria & Tan, 1997). Goodhue and Thompson (1995) maintain that individual performance achievement relates to the accomplishment of a number of individual tasks with the help of information technology at hand. Higher performance means higher level of efficiency, effectiveness or quality in individual tasks accomplishment. The actual experience of using the technology will have an effect on the users; whether the technology has a positive or negative effect on the performance (Goodhue & Thompson, 1995). A number of studies indicated that utilization of information technology increases the individual performance and, thus, it can be concluded that the utilization of information technology has a positive effect on individual performance as corroborated by Igbaria and Tan (1997); Hasiholan (2005); Lindawati & Salamah (2012); Stone, *et al*., (2007). Based on earlier research findings, we formulated hypothesis 2 as follows:

H_2: Utilization of information technology has a positive effect on farmers' performance.

2.3 The effect of Local knowledge on individual performance

Local knowledge generally means the knowledge employed by local people in order to survive in a particular environment (Warren, 1991). Local knowledge serves also as an input for improving the farmers' living on an economic, ecological and social basis (Moulyotami *et al*., 2004). Local knowledge makes possible for sufficient food production by increasing the quantity and quality of production. Therefore, integrating local knowledge into formal adaptation policy is a necessary (Ajani *et al*., 2013). Hijang and Lampe (2017) stated that local knowledge can be implemented in all farming activities; from determining the season, selecting the best seeds to post-harvest soil treatment. To increase the quantity and quality of production, adaptation and adoption of local knowledge and the existing technology, respectively, is necessary. Farmers' local knowledge is obtained from continuous processes and experiences. This helps devise an adaptation strategy based on experiments and knowledge of production in order to increase the quantity and quality of agro business production (Boillat & Berkes, 2013). Earlier studies indicated that local knowledge has an effect on the quantity and quality of farmers' production. Therefore, the present study predicts that local knowledge will strengthen the effect of work motivation and utilization of information technology on farmers' individual performance as measured by two indicators: quantity and quality of production. Based on several previous research findings we formulate hypotheses 3 and 4 as follows:

H_3: Local knowledge strengthens the positive effect of work motivation on farmers' performance.

H_4: Local knowledge strengthens the positive effect of information technology utilization on farmers' performance.

3. Research method

Our study population comprises all 510 members of farmer associations throughout 17 hamlets in Tirtomartani village, Sleman, Yogyakarta. The sampling in this study was conducted using cluster random sampling method because 17 farmer associations in Tirtomartani village share common characteristics such as farming behavior, education level, farming pattern, cultivated plants, area of cultivated land, and organizational structure of each farmer association. Therefore, the sample was taken from daily caretaker units of each association, consisting of chairman, deputy chairman, secretary and treasurer (Subyantoro, 2009). Number of daily caretakers is 102 people and thus meets the criteria for sample size in SEM research of minimally 100 (Ghozali & Latan, 2013). Data collection was conducted using 4-point Likert-scale questionnaire: 1) strongly disagree, 2) disagree, 3) agree, and 4) strongly agree (Widoyoko, 2016). We employ Partial Least Squares as the statistical method to assess the validity, reliability and hypothesis.

Measurement of research variables was conducted based on empirical findings of earlier studies as follows:

1. Individual performance refers to Mangkunegara (2010); Moehriono (2009) that define performance as the quality and quantity achieved by a person in accomplishing his task in accordance with the responsibility placed on him. Quantitative and qualitative measure serves as the indicators of performance (Nahrisah, 2013).
2. Work motivation refers to Gibson *et al*., (1987) that define work motivation as the will power that comes from within an individual person to do the job in accordance with his duties and responsibilities. Based on Victor Vroom's expectancy theory, there are 3 indicator variables: relationship between effort and performance, relationship between effort and reward, and relationship between reward and personal goal (Lamborn, 1991).
3. Utilization of technology refers to Triandis' theory of attitude and behavior. Triandis (1980) recommends 3 indicators of information technology utilization and have been adopted by Thompson *et al*., (1991;1994), i.e. ability and will (intensity), frequency of use and diversity of applications.
4. Local knowledge, as presented in Warren (1991), is also referred to as indigenous knowledge, that is, the knowledge adopted by local people to survive in a certain environment (Purwoko et. al., 2017). There are 8 indicators for local knowledge measurement: determining the preparation, planting, and harvesting times, soil processing, indigenous planting practices, seeds processing and storing, planting practices, harvesting and storing, processing and marketing, pest eradication and plant protection method (Grenier, 1998; Hartinah et al., 2020).

4. Results

4.1 Convergent Validity

From the convergent validity test we can conclude that: all 3 question items for work motivation are valid; all 3 question items for utilization of information technology are valid; 4 out of 8 question items for local knowledge are valid and the rest Z11, Z13, Z15, Z18 are not valid; and 7 out of 10 question items for individual performance are valid and the rest Y13, Y14 and Y16 are not valid. From Table 1we can see that the loading factors below 0.7 are not excluded because they range from 0.5 to 0.6 which is acceptable for a research study that still in a development phase (Chin, 1998).

Table 1
Convergent Validity Test

No	Variable-Indicator Relationship	Convergent Validity
1	X11 ← MOTIVATION	0.818
2	X12 ← MOTIVATION	0.833
3	X13 ← MOTIVATION	0.767
4	X21 ← UTILIZATION OF IT	0.934
5	X22 ← UTILIZATION OF IT	0.915
6	X23 ← UTILIZATION OF IT	0.876
7	Z12 ← LOCAL KNOWLEDGE	0.728
8	Z14 ← LOCAL KNOWLEDGE	0.715
9	Z16 ← LOCAL KNOWLEDGE	0.827
10	Z17 ← LOCAL KNOWLEDGE	0.791
11	Y11 ← INDIVIDUAL PERFORMANCE	0.661
12	Y12 ← INDIVIDUAL PERFORMANCE	0.715
13	Y15 ← INDIVIDUAL PERFORMANCE	0.807
14	Y17 ← INDIVIDUAL PERFORMANCE	0.784
15	Y18 ← INDIVIDUAL PERFORMANCE	0.744
16	Y19 ← INDIVIDUAL PERFORMANCE	0.697
17	Y110 ← INDIVIDUAL PERFORMANCE	0.678

4.2 Composite Reliability

Table 2 tells us that all constructs have composite reliability value of more than 0.70. This led us to conclude that all constructs meet the criteria for construct reliability for further assessment.

Table 2
Reliability Test Results

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)	Remark
Work Motivation	0.731	0.848	0.651	Reliable
Utilization of IT	0.895	0.934	0.826	Reliable
Individual performance	0.853	0.886	0.527	Reliable
Local knowledge	0.768	0.850	0.587	Reliable

Source: Primary data processed using smartPLS 3.0, 2020

4.3 Hypothesis Testing

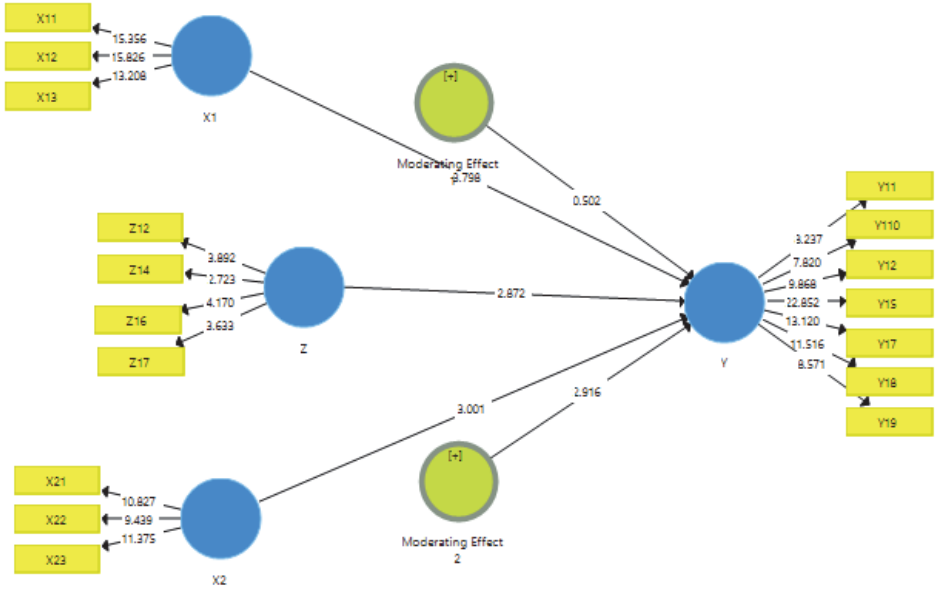

Fig. 1. Structural Test Results

Fig.1 indicates that the model consists of 2 independent variables, 1 moderator variable with 2 effect moderators and 1 dependent variable. The hypothesis test results can be seen in Table 3.

Table 3
Hypothesis Test Results

	Original Sample (O)	T Statistics (|O/STDEV|)	P Values	Remark
Moderating Effect 1 → Y	-0,041	0,502	0,616	Not significant
Moderating Effect 2 → Y	0,330	2,916	0,004	Significant
X1 → Y	0,400	3,798	0,000	Significant
X2 → Y	0,422	3,001	0,003	Significant
Z → Y	-0,386	2,872	0,004	Significant

Source: Primary data processed using smartPLS 3.0, 2019
Note: X1 (Work Motivation), X2 (Utilization of Information Technology), Z (Local Knowledge), Y (Individual Performance), moderating effect 1 (moderating X1 → Y), moderating effect 2 (moderating X2 → Y)

Table 3 indicates the effect between constructs:

1. The estimated coefficient value indicates that the direction of the effect of work motivation on individual performance is positive. Therefore, it can be concluded that hypothesis 1, stating that work motivation has a positive significant effect on farmers' performance, is **supported**.
2. The estimated coefficient value indicates that the direction of the effect of information technology utilization on individual performance is positive. Thus, we can conclude that hypothesis 2, stating that utilization of information technology has a positive significant effect on farmers' performance, is **supported**.
3. The probability value is larger than 0.05 and therefore local knowledge (Z) does not moderate the effect of work motivation (X1) on individual performance (Y). This led us to conclude that hypothesis 3, stating that local knowledge increases the positive significant effect of work motivation on farmers' performance, is not **supported**.
4. The probability value is less than 0.05 and therefore it can be concluded that local knowledge (Z) is significantly moderates the effect of work motivation (X1) on individual performance (Y). From the estimated coefficient value, we see that the direction of moderation value is positive. Thus, hypothesis 4, stating that local knowledge strengthens the positive significant effect of information technology utilization on farmers' performance, is **supported**.
5. Table 3 also indicates the direct effect of local knowledge on individual performance, resulting in an estimated coefficient value of -0.386, t-count of 2.872, and probability value of 0.004. From this we can conclude that local knowledge (Z) has a significant effect on individual performance (Y). The estimated coefficient value indicates that the direction of the effect of local knowledge on individual performance is negative.

5. Discussion

The results corroborated earlier studies by Abusharbeh & Nazzal (2018); Bao & Nizam (2015); Andriana (2015); Wahyudi *et al*., (2018); Robescu & Iancu (2016); Satriadi and Agusven (2018); Paarlberg & Lavigna (2010) concerning the effect of work motivation on performance. In essence, motivation can increase performance by instilling strong confidence that doing the work will lead to task accomplishment in order to gain the opportunity that individual behavior generated (Munandar, 2001). Each individual will strive to meet his expectation it in order to increase his individual performance (Suripto, 2015). The results also indicate that the indicator for the highest motivation could be the effort to develop self-motivation through the expected rewards and in line with personal goal in order to increase individual performance.

The finding concerning the effect of information technology utilization on performance corroborates those of studies by Igbaria & Tan (1997); Hasiholan (2005); Lindawati & Salamah (2012); Stone, *et al*., (2007). Basically, the use of appropriate information technology increases the speed, accuracy and efficiency of large-scale information transfer so that information technology makes up an important factor in improving farmers' performance (Iqbaria & Tan, 1997). The actual experience of using the technology will have an effect on the users (Goodhue & Thompson, 1995). Effectiveness and efficiency are considered as the main reasons for the utilization of the technology (Igbaria & Tan, 1997; Karanja, 2015). Farmers' experience in information technology brings a positive effect on their performance. Thus, farmers will continually utilize information technology, accessing necessary information to help accomplish their tasks in a faster, better and more productive way (Haryani, 2001).

The moderating role of local knowledge in the effect of motivation on farmers' performance is unproven and, therefore, not supported (Anjani *et al*., 2013; Hijjang & Lampe, 2017; Boillat & Berkes, 2013; Guterresa et al., 2020). This further indicates that the presence or absence of local knowledge causes no significant positive effect of work motivation on individual performance.

The moderating role of local knowledge in the effect of information technology utilization on farmers' performance is proven and, thus, supported (Anjani *et al*., 2013; Hijjang & Lampe, 2017; Boillat & Berkes, 2013). Local knowledge can serve as an input for improvement of farmers' living by integrating the knowledge into a formal adaptation policy. Moreover, it is necessary to adopt and adjust local knowledge to the existing technology in order to increase the moderating role of local knowledge in the effect of information technology utilization on individual performance. Farmers can integrate information obtained from the technology into local knowledge and process it to help them in soil processing, managing, and seeds storing, agricultural marketing, pest eradication, as well as increasing product quantity and quality.

Other interesting finding is that knowledge that is unable to develop is the one that could no longer keep up with the current era (Thrupp, 1989). Even worse, improper local knowledge can lead to increasingly severe environmental damage (Grenier, 1998). Therefore, local knowledge can negatively affect individual performance as represented by the indicator for the quality and quantity of crops. From this finding we see that local knowledge cannot stand on itself or as an independent variable because it will negatively affect individual performance.

6. Conclusion

A clearly appropriate personal goal gives birth to a tendency to act in a certain manner; depending on the strength of expectations, actions taken to achieve that goal will follow. Farmers' behavior in utilizing information technology based on their attitude, mind, routine, and consequences of their actions forms a collection of positive experiences. This forms highly repetitive routines that increase farmers' individual performance, depending on their utilization rate of information technology. Work motivation and utilization of information technology positively affect farmers' performance. In moderator effect, local knowledge strengthens the relationship between utilization of information technology and farmers' performance. Local knowledge serves as the moderating variable that has been proven to increase the positive effect that information technology utilization has on individual performance. This may occur because farmers who have local knowledge yet never use information technology will be lacking in information and limited in their efforts to develop their knowledge.

References

Abusharbeh, M. T., & Nazzal, H. H. (2018). The impact of motivations on employees performance: Case study from Palestinian commercial banks. *International Business Research*, 11(4), 142-153.

Ajani, E. N., Mgbenka, R. N., & Okeke, M. N. (2013). Use of indigenous knowledge as a strategy for climate change adaptation among farmers in sub-Saharan Africa: implications for policy. *Asian Journal of Agricultural Extension, Economics & Sociology*, *2*(1), 23-40

Ajzen, I. & Fishbein, M. (1980). *Understanding Attitudes and Predicting Behaviour*. Prentice Hall, New Delhi.

Amin, M. (2016). Efektivitas dan perilaku petani dalam memanfaatkan teknologi informasi berbasis cyber extension. *Informatika Pertanian*, *23*(2), 211-219.

Andriana, R. (2015). Pengaruh Motivasi dan Kepemimpinan terhadap Kinerja. *Jurnal Maksipreneur: Manajemen, Koperasi, dan Entrepreneurship*, *4*(2), 38-49.

Bao, C., & Nizam, I. (2015). The impact of motivation on employee performance in the electronics industry in China. *International Journal of Accounting & Business Management*, *3*(2), 29-45.

Boillat, S., & Berkes, F. (2013). Perception and interpretation of climate change among Quechua farmers of Bolivia: indigenous knowledge as a resource for adaptive capacity. *Ecology and Society*, *18*(4), 21-33

Chin, W. W. (1998). The Partial Least Squares Approach for Structural Equation Modeling. In G.A. Marcoulides (Ed.), Modern Methods for business research (pp. 295-336). London: Lawrence Erlbaum Associates.

Fujisaka, S. (1993). Were farmers wrong in rejecting a recommendation? The case of nitrogen at transplanting for irrigated rice. *Agricultural Systems, 43*(3), 271-286.

Ghozali, I., & Latan, H. (2013). *Partial Least Square. Konsep, Teknik dan Aplikasi Menggunakan Program SmartPLS, 3*.

Gibson, J. L. (1987). Organisasi Dan Manajemen: Perilaku, Struktur, Proses. *Binarupa Aksara, Jakarta*.

Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS quarterly*, *19*(2), 213-236.

Grenier, L. (1998). *Working with indigenous knowledge: A guide for researchers*. IDRC.

Guterresa, L. F. D. C., Armanu, A., & Rofiaty, R. (2020). The role of work motivation as a mediator on the influence of education-training and leadership style on employee performance*. Management Science Letters, 10*(7), 1497-1504.

Haryani, S. (2001). Komunikasi Bisnis. *Yogyakarta: UPP AMP YKPN*.

Hartinah, S., Suharso, P., Umam, R., Syazali, M., Lestari, B., Roslina, R., & Jermsittiparsert, K. (2020). Teacher's performance management: The role of principal's leadership, work environment and motivation in Tegal City, Indonesia. *Management Science Letters, 10*(1), 235-246.

Hasiholan, H. M. (2005). Pengaruh faktor kesesuaian tugas-teknologi dan pemanfaatan teknologi informasi terhadap kinerja. Analisis pada PT Indonesia Epson Industry (Doctoral dissertation, Universitas Gadjah Mada).

Hijjang, P., & Lampe, M. (2017). The Farmers Local Knowledge To Support The Environment Friendly Agroecopreneur In South Sulawesi. *Science International*, *29*(1), 169-169.

Igbaria, M., & Tan, M. (1997). The consequences of information technology acceptance on subsequent individual performance. *Information & management*, 32(3), 113-121.

Irmawati, D. (2011). Pemanfaatan e-commerce dalam dunia bisnis. *Jurnal Ilmiah Orasi Bisnis–ISSN*, *2085*, 1375.

Karanja, A. W. (2015). Organizational change and employee performance: A case on the postal corporation of Kenya. *Change*, 7(11), 232-241

Lamborn, M. L. (1991). Motivation and job satisfaction of deans of schools of nursing. *Journal of Professional Nursing*, 7(1), 33-40.

Lindawati & Salamah, I. (2012). Pemanfaatan Sistem Informasi dan Teknologi Informasi Pengaruhnya Terhadap Kinerja Individual Karyawan. *Jurnal Akuntansi dan Keuangan*, *14*(1), 56-68

Madson, K. (2003). *Organizational Behavior*, McGraw-Hill, London.

Mangkunegara, A. A. P. (2010). Evaluasi kinerja SDM. Tiga Serangkai.

Moeheriono. (2009). *Pengukuran Kinerja Berbasis Kompetensi: Competency Based Human Resource Management*, Jakarta: Ghalia Indonesia.

Mulyoutami, E., Stefanus, E., Schalenbourg, W., Rahayu, S., & Joshi, L. (2004). Pengetahuan lokal petani dan inovasi ekologi dalam konservasi dan pengolahan tanah pada pertanian berbasis kopi di Sumberjaya, Lampung Barat. *Agrivita*, *26*(1), 98-107.

Munandar, A. S. (2001). *Psikologi industri dan organisasi*. Universitas Indonesia (UI-Press).

Nahrisah, E. (2013). Pengaruh Karakteristik Individu dan Motivasi Kerja Terhadap Kinerja Karyawan pada PT. PP London Sumatera Indonesia Tbk. Bah Lias Research Station Simalungun (Master's thesis).

Paarlberg, L. E., & Lavigna, B. (2010). Transformational leadership and public service motivation: Driving individual and organizational performance. *Public Administration Review*, 70(5), 710-718.

Pretty, J. (1995). *Regenerating agriculture: policies and practice for sustainability and selfreliance*. Earthscan Publications Ltd, London. 320 pp.

Purwoko, A., Andayani, Y., Muntar, & Diartha, I. (2017). Efforts in Improving Teachers Competencies Through Collaboration between Teacher Forum on Subject Matter (MGMP) and Pre-Service Teacher Training Institution (LPTK). *Jurnal Pendidikan IPA Indonesia*, *6*(1), 11-15.

Rahman, A. (2014). Pengaruh Perilaku Individu Terhadap Kinerja Pegawai Pada Kantor Wilayah Departemen Agama Provinsi Riau. *Jurnal Cano Ekonomos, 2*(1), 1-19.

Renstra. B.K.P. (2019). *Rencana Strategis Badan Ketahanan Pangan Tahun 2015-2019*. Jakarta: Kementerian Pertanian.

Robbins, S. P., & Judge, T. A. (2008). *Perilaku organisasi (Organizational behavior)*. Jakarta: Salemba Empat.

Robescu, O., & Iancu, A. G. (2016). The Effects of Motivation on Employees Performance in Organizations. *Valahian Journal of Economic Studies*, *7*(2), 49-56.

Saheb, S., Slamet, Y., & Zuber, A. (2018). Peranan Modal Sosial Bagi Petani Miskin Untuk Mempertahankan Kelangsungan Hidup Rumah Tangga Di Pedesaan Ngawi (Studi Kasus Di Desa Randusongo Kecamatan Gerih Kabupaten Ngawi Provinsi Jawa Timur). *Jurnal Analisa Sosiologi*, *2*(1), 17-34.

Sari, R. P., Rosnita, R., & Yulida, R. (2017). Faktor-Faktor Yang Mempengaruhi Perilaku Petani Dalam Menerima Program Kawasan Rumah Pangan Lestari (Krpl) Di Kabupaten Pelalawan. *Jurnal SEPA (Social Economic and Agribusiness Journal)*, *13*(1), 63-77.

Sasongko, N. A., Zaika, Y., & Suharyanto, A. (2018). Pengaruh Faktor Internal Dan Eksternal Terhadap Kinerja Sumber Daya Manusia Pada Pabrik Kontruksi Beton. *Rekayasa Sipil*, 11(3), 220-227.

Satriadi, D., & Agusven, T. (2018). Pengaruh Motivasi Dan Pelatihan Terhadap Kinerja Karyawan. *Jurnal Economica*, 7(1), 17-28.

Setiawan, I. G., Putra, A., Asngari, P. S., & Tjitropranoto, P. (2006). Dinamika Petani dalam Beragribisnis Salak (Kasus di Kabupaten Karangasem Provinsi Bali). *Jurnal Penyuluhan*, *2*(1), 44-52.

Soeharjo, A., & Patong, D. (1973). *Sendi-sendi pokok ilmu usahatani*. Depertemen Ilmu-Ilmu Sosial Ekonomi. IPB, Bogor.

Stone, R. W., Good, D. J., & Baker-Eveleth, L. (2007). The impact of information technology on individual and firm marketing performance. *Behaviour & Information Technology*, *26*(6), 465-482.

Subyantoro, A. (2009). Karakteristik individu, karakteristik pekerjaan, karakteristik organisasi dan kepuasan kerja pengurus yang dimediasi oleh motivasi kerja (studi pada pengurus kud di Kabupaten Sleman). *Jurnal manajemen dan kewirausahaan*, *11*(1), 11-19.

Sunaryo, J. L., & Joshi, L. (2003). *Peranan pengetahuan ekologi lokal dalam sistem agroforestri. World Agroforestry Centre (ICRAF) Southeast Asia Regional Office*. Bogor.

Suripto, T. (2016). Meningkatkan Kinerja Karyawan Melalui Expectancy Theory Dalam Motivasi. *JESI (Jurnal Ekonomi Syariah Indonesia)*, *5*(2), 115-123.

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: toward a conceptual model of utilization. *MIS quarterly*, *15*(1), 125-143.

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1994). Influence of experience on personal computer utilization: testing a conceptual model. *Journal of management information systems*, *11*(1), 167-187.

Thrupp, L. A. (1989). Legitimizing local knowledge: From displacement to empowerment for Third World people. *Agriculture and Human Values*, *6*(3), 13-24.

Triandis, H. C. (1980). *Values, Attitudes, and Interpersonal Behavior*. In University of Nebraska (Lincoln campus). Dept. of Psychology. (Ed.), Nebraska Symposium on Motivation (pp. 196-259). [Lincoln, Neb.]: University of Nebraska Press

Wahyudi, R., Poernomo, D., & Puspitaningtyas, Z. (2018). Effect of Information Technology, Satisfaction and Motivation to Teacher Performance. *The International Journal of Social Sciences and Humanities Invention*, 5(1), 4370-4378.

Warren, D. M. (1991). *Using indigenous knowledge in agricultural development* (No. 127). World Bank.

Widoyoko, E. P. (2016). Teknik Teknik Penyusunan Instrumen Penelitian. *Yogyakarta: Pustaka Pelajar*.