International Journal on Advanced Science Engineering Information Technology

Vol.14 (2024) No. 2
ISSN: 2088-5334

Configuration Analysis of Technology Readiness, Technology Acceptance, and Public Satisfaction Regarding Continued Induction Stove Use in Indonesia

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Abstract—**In 2022, Indonesia began the energy conversion pilot project from Liquefied Petroleum Gas (LPG) stoves to induction stoves in Surakarta. Before the program is scaled up, it is vital to conduct an in-depth analysis of the technology readiness, technology acceptance, and user satisfaction to assess program continuity. This research aims to identify what configuration of aspects of technology readiness, technology acceptance, and satisfaction will produce continuance intention and the necessary conditions of continuance usage intention. This study involved 412 conversion program participants in five districts in Surakarta, Indonesia. Utilizing fuzzy-set qualitative comparative analysis (fsQCA), four solution configurations that lead to high continuance intention and four for low continuance intention were obtained. Generally, nearly all conditions must be maintained at a positive level to produce high continuance intention, especially innovativeness, and satisfaction. The research has theoretical and practical implications, including satisfaction having the greatest impact on configurations and the quality of the conversion program, in which the induction stove and its service program must become the main focus to ensure satisfaction. Clear policies and wider socialization must be conducted to enhance people's awareness and trust. To boost sustainability and continuity, synergistic cooperation between stakeholders and the creation of a better environment for induction stove implementation must also be established. Future research should conduct a longitudinal study approach to strengthen the analysis of a long-term induction stove conversion program.**

Keywords—**Continuation; energy conversion; induction stoves; technology acceptance; technology readiness.**

Manuscript received 14 Apr. 2023; revised 28 Aug. 2023; accepted 27 Feb. 2024. Date of publication 30 Apr. 2024.

I. Introduction

Since 2007, the main source of fuel usage for cooking activities in both Indonesian households and small medium enterprises (SMEs) has been Liquefied Petroleum Gas (LPG). LPG replaced kerosene as the main fuel in response to the government energy transition program in 2007 [1]. This program successfully reduced the consumption of kerosene from 10 million kiloliters in 2006 to 0.8 kiloliters in 2016 [1] and reduced almost US$ 2.94 billion from the government kerosene subsidy from 2007 to 2010 [2]. However, the increasing demand for LPG has not been accompanied by a corresponding growth in supply from domestic LPG refineries. Demand is expected to increase from 7.2 million tons in 2017 to 17.4 million tons in 2050, with an average increase of 2.7% per year; however, only 2 million tons are provided from refineries, and the remainder of the LPG consumed in Indonesia is imported [1]. The government insisted on maintaining LPG prices by providing subsidies for 3 kilograms of LPG cylinders. The 3 kilograms of LPG was initially implemented for low-income households and SMEs. However, middle- and high-income households and SMEs are also able to purchase 3 kilograms of LPG, causing a massive increase in demand [3].

Moreover, the uncertainty of global crude oil prices has resulted in fluctuations in the LPG subsidy along with the increasing demand. In 2021, the LPG imports reached 6.2

million tons, with the LPG subsidies amounting to nearly US$ 4.2 billion, causing a heavy burden on the state budget [2]. Indonesia has a surplus of electricity-generating capacity. The State Electricity Company (Perusahaan Listrik Negara–PLN) is currently constructing many power plants with a total power output of up to 35,000 megawatts (MW) [1]. This surplus capacity is an opportunity to provide an alternative energy source for uses, including cooking activities. Hence, in 2021, the government introduced an energy conversion program from LPG to electricity using induction stoves. The induction stove was chosen because it has many advantages, including higher efficiency and lower carbon dioxide (CO_2) emissions, reaching nearly zero, than LPG [4]–[7]. This condition is in line with government goals to achieve a zero emission target by 2060 [1].

The government established the target that induction stoves will replace LPG in 8.2 million households by 2025 [1]. To boost the conversion program, in 2022, PLN will carry out pilot projects in Surakarta and Bali by giving free induction stoves plus utensils along with free installation, free electrical power enhancements, and special electricity fare induction stoves. In Surakarta, approximately 1,000 induction stoves have already been distributed to 1,000 households across five districts.

Most households in developing nations lack experience using electric stoves [2], including induction stoves. Hence, this cookware is still a new technology for most Indonesians, especially the 1,000 families in the participant program in Surakarta. Although in the initial phase, the pilot project team had already introduced and disseminated information about the usage of induction stoves, when it comes to daily usage, some users still experienced difficulties. Therefore, the accompanying activities are important to ensure the continuity of use of the induction stove. Some accompanying activities, such as creating an induction stove information system with a call center, sharing video tutorials, and conducting onsite visits to explain how to use the induction stove, have already been developed

These accompanying strategies are meant to address the conditions or the context of the beneficiary family in the post-implementation phase to ensure the induction stove, along with its technology, is ready to be used and continuously accepted by users. This strategy is critical when introducing any new program or technology to the public [8]–[10]. Additionally, the customer or users' satisfaction becomes another important aspect to be considered regarding usage continuity [11]–[13].

Because the conversion program in Surakarta is a pilot project, it is important to conduct a more in-depth analysis of technology readiness, technology acceptance, and user satisfaction toward the continuation of induction stove usage before the government scales up the program in other regions throughout Indonesia.

Thus far, in the application or adoption of new technologies, those factors are usually studied using a correlation approach, including regression correlation, structural equation models (SEM), and other multivariate analyses [14], [15]. This type of analysis is sufficient for identifying the factors that influence the successful adoption of a new program or technology. However, the achievement of a particular result or target is often not only affected by one or several factors but by many factors in a combination of conditions [16]–[18].

The concept of a combination of factors has the potential to be applied to examine the process of adopting new programs or technologies [19], [20] , including the induction stove conversion program in Surakarta. Two things strengthen the basis for selecting the analysis. First, this approach allows an analysis of a combination of conditions related to technology readiness, technology acceptance, and the satisfaction of program participants (induction stove users) regarding their continued use of the induction stove. Second, the induction stove conversion program in Indonesia, with Surakarta as a pilot project, can be seen as a complex system, considering the many aspects that interact and influence one another involving technology readiness and acceptance.

This condition not only relates to the program or technology aspects, but also refers to changes in the social culture such as cooking habits and behavior as well as sociopolitical implementation. This study will be more comprehensive if conducted with a simultaneous configuration approach involving the conditions of readiness, acceptance, and user satisfaction regarding the continuity of use of induction stoves.

The fuzzy-set comparative analysis (fsQCA) is utilized in this study to examine the induction stove usage continuity in a conversion program based on the combination conditions of technology readiness, technology acceptance, and user satisfaction. fsQCA is a configuration analysis method based on a comparative approach between combined variables with Boolean algebra [21],[22]. This method provides a balanced analysis between a qualitative approach based on an empirical case study and the quantitative mathematical Boolean expression [23]–[25].

This study offers both theoretical and practical contributions. From a theoretical point of view, it potentially provides fresh insights into the combination of readiness, acceptance, and user satisfaction that determine program continuity and adoption of new technology with a simultaneous configuration analysis approach, especially in energy conversion cases. The use of fsQCA is also relatively new in the field of energy management, so it has the potential to provide opportunities for knowledge of fsQCA applications in the field of conversion programs and technology adoption. On the practical side, this study provides lessons learned for stakeholders and decision-makers in Indonesia.

This study is presented in four sections. The first elucidates the background and the problem formulated into the research objective. Section 2 presents the concepts of technology readiness and acceptance, satisfaction, and the continuance of use of new technology, as well as a literature review on technology adoption. This section also contains research methods, detailing the study approach and procedure. The results and discussion about the research finding and research contributions are presented in Section 3. Finally, the research conclusion and limitations are presented in Section 4, as well as suggestions for further study.

II. MATERIALS AND METHOD

A. Indonesia's Stove Conversion Program

The induction stove is modern cookware that utilizes high-frequency magnetic flux to induce high-frequency eddy current and hysteresis on a thin surface for heating a vessel [26]. al Irsyad et al.[2] summarizes studies related to the use of induction stoves from previous research and concludes that induction stoves are cleaner, produce less air pollution, more efficient (compared to gas stoves), more comfortable and safe to use, and relatively faster to cook with. However, induction stoves also have limitations, including requiring a high source of electrical energy (minimum 2000 Watt) [2], [27] and special ferromagnetic cookware [2], [26]; however, in some developing countries, the electrical installation infrastructure is inadequate [2], [28].

Indonesia is running a conversion program from LPG stoves to induction stoves to reduce the consumption of LPG consumption, whose raw materials are still imported. So far, financing for the community's 3 kg cylinder LPG gas is still being borne by government subsidies. Along with the increasing price of LPG materials, the government's financing burden is also increasing [1],[2].

Conversion of LPG stoves to induction stoves is considered the most efficient in Indonesia compared to alternatives such as Dimethyl Ether (DME) coal gasification and expanding the urban gas network program to distribute LNG [29]. This conversion program has also been applied in countries similar to Indonesia, including Ecuador [30]; India [31], [32]; and Nepal [28].

The conversion program to induction stoves in Indonesia was tested through pilot projects in Surakarta and Denpasar. In both cities, each program package will be delivered to 1,000 people to try using an induction stove. The program package provided is in the form of a 2,000 Watt two-burner induction stove, free cooking utensils, free electrical installation, and an increase in electric power at a special rate for induction stoves. The target community for the pilot project is users of a 3 kg LPG gas stove with 450 VA and 900 VA electrical power.

This program has been running for 3 months. The continuity of the program was analyzed based on a study of the pilot project focused on Surakarta. One of the sustainability parameters was assessed based on the pilot project participants' intention to join the program and use an induction stove for daily cooking.

B. Technology Readiness, Technology Acceptance and Satisfaction for Continuance Intention

Based on program implementation studies of new technology, readiness, user acceptance, and satisfaction are the factors that determine sustainability developed of new technologies such as TAM 1; TAM 2; TAM 3 [16], [33], [34], TRAM [35], [36] and UTAUT [17], [37], [38]. The factors that are usually involved in those models are technology readiness, which is related to user readiness and community acceptance of new technology or programs [39], [40]. Technology readiness typically consists of supporting aspects, namely optimism and innovativeness, as well as inhibiting aspects, such as insecurity and discomfort [41], [42].

Technology acceptance comprises perceived usefulness [11],[43] and perceived enjoyment [44], [45]. In addition to user readiness and acceptance of new technology, user satisfaction while using the product or following the new program also has the potential to support the continued intention to buy or use new technology [45], [46].

In the study of the application of these new technologies, correlation analysis is based on both linear and multivariate regression, which is the most commonly used approach by researchers (i.e., [15], [35], [36]). This approach is based on the principle of exploring factors or variables that correlate with results. The researchers analyze models with factors that significantly supported or hindered a particular outcome. Analysis with this approach is based on the correlation of a single factor (independent variable) to an outcome (dependent variable). Although the analysis of the (multi) factor correlation is carried out simultaneously on the dependent variable, the effect is still studied singly. This means ignoring opportunities (not even allowing) between factors (independent variables) to influence each other [23], [47].

Under certain conditions, the introduction and application of a new technology or program may entail many factors that are interrelated and mutually influential (interdependence) to achieve a certain target [16], [17]. That is, the influence of multiple factors is simultaneous, namely, the relationship of each factor to the results is analyzed through the combination of other factor conditions [19], [48]. This is termed configuration analysis, and the fuzzy-set Qualitative Comparative Analysis (fsQCA) is the newest method for this kind of research approach [47].

C. Fuzzy-set Qualitative Comparative Analysis

The fsQCA method is a potential approach to analyze the readiness and acceptance of new technology. This is reflected in the recent use of the fsQCA method by researchers in the field of technology implementation readiness. Because it is a relatively new method development, based on literature searches, only 14 British Scopus-indexed journal articles were identified using the fsQCA method in the field of technology readiness and acceptance, which began in 2015. The trend of fsQCA studies in this field has begun to increase in the last three years.

Nistor et al. [49] examined the readiness of students in the application of educational technology applications in universities in the UK, and the fsQCA method is considered clearer for analyzing various student behaviors related to technological change. Other education researchers have also applied fsQCA to analyze metaverse educational platform applications [16].

In the field of marketing information technology, fsQCA is used to analyze the acceptance of internet technology services in vehicles [50] and the acceptance of mobile online shopping technology to assess buying decisions [51]. In the field of health technology, Nguyen et al. [19] applied fsQCA to analyze the acceptance of 19 tracing application technologies for 288 United States respondents. Hayat et al. [17] examined user acceptance of smart device-based payment technology. Most research using the fsQCA method is related to the field of information technology, which is experiencing rapid growth; thus, it is relevant to study readiness and acceptance. fsQCA is also used by researchers in noninformation technology fields, including agrotechnology, namely to empirically analyze the factors that influence the intention of farmers in China to adopt rice and shrimp technology [18].

Researchers on the application of technology, both in the field of information technology and non-IT, state that fsQCA can be used to clarify conditions simultaneously (in the form of a combination of conditions) that influence a user's desire to try, use, or buy a technology product that is relatively new. Some researchers also complement the SEM-based correlation analysis [51]–[53] and PLS SEM [17], [18], [54].

Apart from being based on previous research studies, the thing that strengthens the use of the fsQCA method in research on readiness and acceptance of conversion programs and induction stove technology is the existence of three principles of fsQCA, namely conjunction, equifinality, and asymmetry [24]. The conjunction principle states that the combined conditions in the configuration determine the outcome, rather than individual conditions. This is in accordance with the circumstances of this research, namely that what influences the community to take part in the conversion program and use induction stoves are the conditions of readiness and community acceptance, which are potentially interrelated. The equifinality principle explains that more than one configuration can produce the same outcome. This also has the potential to occur in the context of this research.

While the asymmetric principle explains that if a certain causal condition can explain certain outcomes, it cannot be stated with certainty that the negation of those causal conditions also negates the outcome. This principle also has the potential to occur in the context of this research; for example, community readiness and acceptance of the low-conversion program do not necessarily reduce the community's intention to continue participating in the program. This is very likely to occur in a pilot project program or with new technology, where conditions are based on the context.

D. The Conceptual Model

Based on the theoretical description, an analysis of the sustainability of the use of induction stoves in the energy conversion program in Surakarta is examined through four factors related to technology readiness (i.e., optimism, innovativeness, discomfort and insecurity) combined with three factors of technology acceptance (i.e., perceived usefulness, perceived enjoyment, and perceived cost level), and the level of satisfaction of program participants. Using the fsQCA method approach, the conceptual model of this study is shown in Fig 1.

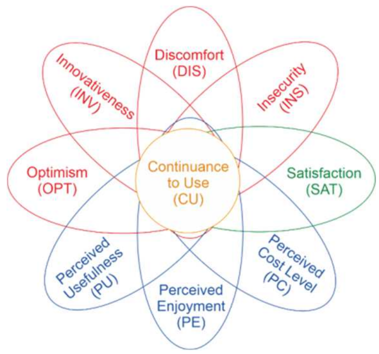

Fig 1. Conceptual Model

Details of the operational definitions and indicator items for each condition (variable) of the conceptual model are shown in Table I.

TABLE I
OPERATIONAL DEFINITION AND ITEM INDICATORS

Condition	Operational Definition	Indicators	References
Technology Readiness			
Optimism (OPT)	The propensity to think that modernization, tool control, and flexibility in daily life are supported by the new technology proposed	Safe technology High flexibility Modern technology and easy to operate	[55],[56]
Innovativeness (INV)	A propensity to invent new technologies and offer a role model for others	Advisor to new users First batch users Enthusiasm Challenged to try new things	
Discomfort (DIS)	Feelings of discomfort due to feeling burdened with new technology, especially due to operationalizing the new technology or new programs	Operating instructions are easy to understand Easy installation instructions Inclusive design Accessible service center Confidence in the program's sustainability	
Insecurity (INS)	Mistrust in the technology or program and worry about its use risks	Feel safe while using the product Do not feel worried while using the product Preference to address complaints to customer service	
Technology Acceptance			
Perceived Usefulness (PU)	The way a person views a piece of technology that can make their job easier	The program is beneficial to users Feel more efficiently Feel more effectively Processing improvement ability Easier (due to the product advantages)	[55],[56]
Perceived Enjoyment (PE)	Feeling happy and enjoying the experience of using technology and joint with the new program	Using a product makes activity fun Enjoy the experience of using the product Child-friendly aspect Short time to master the product operations	

Condition	Operational Definition	Indicators	References
Satisfaction (SAT)			
Tangibles	Characteristics that are evaluated based on appearance	The product's modern look The product's informative features The product's safe installation The team's project standard appearance	[57],[58]
Reliability	The program's ability to provide services in accordance with its promises is used to determine its quality	The product's various feature Suitable electrical power installation Appropriate installation placement Product's quality Availability of electricity supply	
Responsiveness	The program team's ability to respond quickly and effectively to requests for assistance and to provide services	The team's quick response while answering questions The team's swiftness in responding to complaints The team's speed when dealing with problems The team's performance in providing solutions	
Assurance	The promise of the program in terms of legitimacy, skill, and politeness.	The team's knowledge in explaining the program The team's hospitality Regulation and sustainability guarantee Service guarantee	
Empathy	Efforts to understand the user (including its difficulties and background).	The informative way the team delivered the program Supporting activities by PLN Understanding the things experienced by respondents	
Outcome			
Continuance Intention (CI)	Individual determination to use technology and follow the program in the future.	Intend to continue the conversion program and to use an induction stove in daily cooking Intend to continue the conversion program and to use induction stove although policy changes occur (as long the policy is acceptable) Intend to continue the conversion program and make induction stove the main source for cooking (although other stove options are available)	[59], [60]

E. Data Collection

Data collection was conducted interviewing respondents using a questionnaire. The questionnaire is constructed with indicators statements that are shown in Table I. The pilot project in Surakarta involved 1,000 participants in the induction stove conversion program. The participants were distributed in five subdistrict areas (Banjarsari, Jebres, Pasar Kliwon, Laweyan, and Serengan). Stratified random sampling is used in this study by dividing the population into smaller, separate groups (strata) [61], [62].

The minimum sample is calculated using the Slovin formula with a 95% degree of freedom and 5% error. With 1,000 program participant families as the population size, the sample size needed is 286 respondents. To strengthen the results, the sample size was increased by 10% [63], and a total of 410 respondents were obtained. After cleansing the data, there were 389 valid respondents.

F. The Data Processing

Before the data is processed using the fsQCA method, statistical validity and reliability tests are run with the support of SPSS 25 version software. Clean data, generated from instruments that are valid and reliable, is followed by the fsQCA processing stage. The fsQCA method is used to find the configuration based on the data collected before. The data processing utilized fsQCA 3.1 software package developed by Ragin and Davey [64]. The first step in fsQCA is data aggregation. This step is performed by finding the average of the indicators across each variable and each respondent from the data obtained so that a single variable value is obtained for each respondent [23]. The data aggregation results are shown in Table II.

TABLE II
DATA AGGREGATION

Respondents	OPT	INV	DIS	INS	PU	PE	PC	SAT	CI
Res1	4.00	4.00	2.00	2.00	4,20	4.00	4,33	4.07	4.00
Res2	4.00	4,25	2.80	2.00	4,20	4,25	5.00	4,40	4.00
Res3	3.00	3.00	2.80	2,33	3.60	3.75	3.00	4,21	4.00
Res4	4.00	3.00	2.40	2,33	4.00	4.50	4,33	4.00	4.00
…	…	…	…	…	…	…	…	…	…
Res387	4.67	4.00	2,20	1.67	4,40	4.50	4.00	4.73	3.00
Res388	4.00	4.00	3.80	3,33	4.00	3.75	3.67	4.50	3,33
Res389	5.00	3.50	5.00	4.00	4.80	5.00	4.67	5.00	4.67

The second step is determining the thresholds, which are the benchmark for changing the aggregate data into fuzzy values [47]. The thresholds are divided into upper point, middle point, and lower point. In this research, the maximum value is used as the upper breakpoint, the average value as the middle breakpoint, and the minimum value of the data as the lower breakpoint. The thresholds are shown in Table III.

TABLE III
THE FUZZY VALUE THRESHOLD

Threshold	OPT	INV	DIS	INS	PU	PE	PC	SAT	CI
Upper	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Middle	4.29	4.05	3.84	3.34	4.12	4.21	3.94	4.28	4.14
Lower	2.67	2.00	1.00	1.00	2.00	2.00	1.33	2.18	1.67

The next step is fuzzy calibration. In this step, the aggregate data is transformed into fuzzy values based on the thresholds that have been previously determined [47]. The thresholds will classify the fuzzy membership of the cases, whether it is full membership (labeled as “1”), crossover membership (labeled as “0.5”), or non-membership (labeled as “0”). The fuzzy value lies between these breakpoints.

The aggregate data will be converted into a Boolean number of either 0 or 1 in the next step of fsQCA, the truth table construction. Fuzzy values above the middle breakpoint (above 0.5) will change to 1, and below the middle breakpoint (below 0.5) will change to 0. However, cases with an exact value of 0.5 will be excluded from the analysis because they have the same value as the middle breakpoint. To solve this case, all conditions below full membership (below 1) are adjusted by adding them with 0.001 so there will be no value with the exact number of 0.5 [65]. The final calibration value is shown in Table IV.

TABLE IV
THE FSQCA DATA CALIBRATION

Respondent	fOPT	fINV	fDIS	fINS	fPU	fPE	fPC	fSAT	fCI
Res1	0.371	0.481	0.131	0.151	0.571	0.431	0.751	0.421	0.461
Res2	0.371	0.651	0.251	0.151	0.571	0.541	0.951	0.621	0.461
Res3	0.081	0.181	0.251	0.221	0.321	0.351	0.251	0.471	0.461
Res4	0.371	0.181	0.181	0.221	0.461	0.751	0.751	0.401	0.461
…	…	…	…	…	…	…	…	…	…
Res387	0.831	0.481	0.151	0.101	0.721	0.751	0.541	0.871	0.201
Res388	0.371	0.481	0.491	0.501	0.461	0.351	0.421	0.711	0.271
Res389	0.951	0.311	0.951	0.771	0.911	0.951	0.891	0.951	0.861

The fourth step in fsQCA, as already mentioned before, is the truth table construction. The term “truth table” refers to a matrix table that includes all possible causal condition combinations [66]. The truth table is constructed by Boolean number based on the fuzzy membership in the fuzzy calibration after adjustment results. For all causal conditions (fOPT, fINV, fDIS, fPU, fPE, fPC, and fSAT), the fuzzy value will be converted to “1” if it is above 0.5 (above the crossover membership) and to “0” if it is below 0.5 [38]. The number “1” is called “presence,” meaning that the condition is “presence” in the configuration and is associated with “high level.” The number “0” means “absence” and could be interpreted as the condition being “absent” in the configuration, associated as “low level.”

The outcome is continuance intention (fCI). In fsQCA, continuance intention will be analyzed as both high and low continuance intention to gain deeper analysis. The continuation intention determination is “presence” or “absence” based on the raw consistency. Raw consistency explains the empirical level of whether the combination is able to support the conceptual model or not [64]. The combination with raw consistency above 0.8 results in the “presence” outcome, which will be labeled “1,” while below 0.8 means “absence” and is labeled “0.” A configuration elimination is conducted for cases below 10 cases to focus the analysis on larger cases [66]. The truth table of high and low continuance intentions is shown in Table V.

TABLE V
THE FSQCA TRUTH TABLE FOR HIGH AND LOW CONTINUANCE INTENTION

High Continuance Intention										
fOPT	fINV	fDIS	fINS	fPU	fPE	fPC	fSAT	fCI	Num of Cases	Raw Consistent
1	1	1	0	1	1	1	1	1	18	0.9864
1	0	1	1	1	1	1	1	1	14	0.9820
1	1	1	1	1	1	1	1	1	71	0.9790
1	1	1	1	1	1	1	0	1	10	0.9786
0	0	0	0	0	0	0	0	1	16	0.8595
0	0	0	1	0	0	0	0	1	26	0.8440
0	0	1	1	0	0	0	0	1	27	0.8435
Low Continuance Intention										
fOPT	fINV	fDIS	fINS	fPU	fPE	fPC	fSAT	fCI	Num of Cases	Raw Consistent
0	0	1	1	0	0	0	0	1	27	0.9605

0	0	0	1	0	0	0	0	1	26	0.9575
0	0	0	0	0	0	0	0	1	16	0.9395
1	1	1	1	1	1	1	0	1	10	0.8595
1	0	1	1	1	1	1	1	1	14	0.8014
1	1	1	0	1	1	1	1	0	18	0.6934
1	1	1	1	1	1	1	1	0	71	0.6541

III. Results and Discussion

The result in fsQCA is the solution configuration, namely the best configuration that could result in a particular outcome. In a configuration solution, a causal condition that is "present" indicates that the condition has a high level in the configuration and is written based on the name of the fuzzy causal condition itself. In contrast, an "absence" causal condition explains that the condition has a low level in the configuration and is written by adding a negation sign (~) in front of its name. For example, "fOPT" means "high level of optimism" while "~fOPT" means "low level of optimism." The "don't care" causal condition indicates that the causal condition itself still produces the same outcome in both high and low conditions and, therefore, the causal condition is not written in the solution configuration.

A side note for discomfort and insecurity, since both of these variables are negative, the value of the result has already been reversed. Therefore, fDIS and fINS will be interpreted as "low level of discomfort" and "low level of insecurity," respectively, while ~fDIS means "high level of discomfort" and ~fINS means "high level of insecurity." The configurations for high and low continuance intentions are shown in Table VI.

TABLE VI
THE CONFIGURATION FOR HIGH AND LOW CONTINUANCE INTENTION

No	Configuration	Raw Coverage	Raw Consistency
High Continuance Intention (Solution Coverage: 0.675341; Solution Consistency: 0.859145)			
1	~fOPT*~fINV*fINS*~fPU*~fPE*~fPC*~fSAT	0.28378	0.798124
2	fOPT*fINV*fDIS*fINS*fPU*fPE*fPC	0.530861	0.971385
3	fOPT*fINV*fDIS*fPU*fPE*fPC*fSAT	0.575554	0.974482
4	fOPT*fDIS*fINS*fPU*fPE*fPC*fSAT	0.544103	0.977081
Low Continuance Intention (Solution Coverage: 0.710883; Solution Consistency: 0.819318			
No	**Configuration**	**Raw Coverage**	**Raw Consistency**
1	~fOPT*~fINV*~fDIS*~fPU*~fPE*~fPC*~fSAT	0.469739	0.941540
2	~fOPT*~fINV*fINS*~fPU*~fPE*~fPC*~fSAT	0.490475	0.958003
3	fOPT*fINV*fDIS*fINS*fPU*fPE*fPC*~fSAT	0.448776	0.859582
4	fOPT*~fINV*fDIS*fINS*fPU*fPE*fPC*fSAT	0.43085	0.801463

In this research, four configurations resulted in a high level of continuance intention. The first configuration could be interpreted as, despite the low level of optimism, innovation, perceived usefulness, perceived enjoyment, perceived cost, and satisfaction, if combined with either a low or high level of insecurity and discomfort, it still produces a high level of continuance intention.

It is interesting to find that even though almost all conditions are low, a high continuance intention can still be the outcome. This situation occurred due to the reluctance of the community. Surakarta is located in Central Java and Javanese is the majority ethnic group. Javanese are known for their polite and shy manner, which is expressed as reluctance.his is called "*Pekewuh*."

"*Pekewuh*" is the reluctance to increase the relationship that arises within the limits of the norm [67]. This reluctance leads to acceptance, called "*nerimo,*" which means that everyone should be grateful for whatever happens in their lives [68]. When it comes to the customer realm, this "*nerimo*" behavior often leads the customer to accept all products or services provided [67].

"*Nerimo*" behavior is very evident in Surakarta's community. Since the program participants obtained an induction stove along with utensils for free as part of the pilot project program, they felt "*pekewuh*" if they did not use it in daily life. Although in a few cases the stove delivered had some troubles, such as faulty stove installation, a damaged program, unclear socialization, and other barriers that led to many "negative" tones on most variables, the participants still want to try and continue using the induction stove due to PT. PLN quickly replaced the damaged stoves with new stoves. In this configuration, it is also shown that even the respondents feel uncomfortable and insecure; due to the national mandatory program, they believe the government through PT. PLN will provide better policies and improvements in the future.

The second configuration could be interpreted as a high level of optimism, innovativeness, perceived usefulness, perceived enjoyment, perceived cost, and low level of discomfort and insecurity together with satisfaction, which can be either high or low, which will all result in high continuance intention. The third configuration means a high level of optimism, innovativeness, perceived usefulness, perceived enjoyment, perceived cost, and satisfaction together with a low level of discomfort and insecurity, which can be either high or low, will lead to high continuance intention. Lastly, the fourth configuration could be interpreted as a high level of optimism, perceived usefulness, perceived enjoyment, and perceived cost.

Unlike the first configuration, the second to the fourth configuration gives a more positive connotation. This explains the positive work of the stove deliverable activities.

Although some troubles occurred, generally, the socialization, delivery activities, and post-handover activities were all successful and performed well. A positive first impression of the induction stove in the socialization process also gave positive results for optimism and innovativeness. Explaining the benefits of using an induction stove (faster cooking, safer and easier to operate, etc.) will motivate the user to use it. Onsite visits and tutorial videos greatly decreased the discomfort and insecurity of beneficiary families because they gained a better understanding of how to operate an induction stove, which is when they started to feel that induction stoves were better than LPG stoves.

Optimism and technology acceptance (perceived usefulness, perceived enjoyment, and perceived cost) play a big role in the configuration because these conditions always appear either as high or low level. There is no necessary condition for a high continuance intention outcome because there is no consistency value above 0.9 [23],[65]. However, high satisfaction (fSAT) nearly reaches 0.9 with a value of 0.886266. This means that high satisfaction has a significant influence on high continuance intentions.

A low level of continuance intention is reached through the following configuration: a low level of optimism, innovativeness, insecurity, perceived usefulness, perceived enjoyment, perceived cost, and satisfaction with a high level of discomfort, all of which lead to a low continuance intention. This result indicated that some respondents still had negative perceptions toward the induction stove and the program in general. In the beginning, the team disseminated information about the program and gave explanations. However, due to unclear policies, especially about electricity tariffs and other confusing issues about induction stoves, some respondents had doubts about the program, which, in turn, led to an uncomfortable experience when they started using an induction stove. With many conditions being "negative," it is not surprising that there will be some cases of low continuance intentions.

The third configuration means that optimism, innovativeness, perceived usefulness, perceived enjoyment, and perceived cost are at a high level while discomfort and insecurity are at a low level. When combined with a low level of satisfaction, a low level of continuance intention is produced. However, the fourth configuration highlights the role of innovativeness. Although optimism, perceived usefulness, perceived enjoyment, perceived cost, and satisfaction are at a high level while discomfort and insecurity are at a low level, when combined with a low level of innovativeness, it will lead to an overall low level of continuance intention.

It is interesting that although most conditions are positive, a low continuance intention is still the outcome. The third configuration shows the great impact of satisfaction. In this configuration, all conditions are positive except satisfaction. As mentioned before, there were some cases in which the induction stoves had some technical difficulties. They felt safe and did not feel worried while using the induction stove. Generally, they were also very enthusiastic in the beginning and felt cooking was more efficient and effective. However, due to those technical troubles, the respondents no longer enjoyed cooking and had a bad impression of the induction stove, despite receiving a replacement stove or the original stove being repaired. The limitation of cooking utensils having to be made of stainless steel also reduced respondents' satisfaction.

The fourth configuration highlighted the contribution of innovativeness. The respondents enjoyed cooking, felt safe using the induction stove, and were satisfied with the program. The respondents' technology acceptance was also at a high level. However, it was found that the respondents lacked enthusiasm in some cases. This is due to some respondents still having leftover LPG gas stoves. Many of them still want to use LPG stoves, at least until the LPG runs out. Using both LPG stoves and induction stoves results in a low rate of usage, with the LPG stove being the main option for cooking and the induction stove secondary. This led to a low level of continuance intention.

In the low continuance intention configurations, almost all conditions play a significant role since most always appear (both on high and low level). This is the same as with high continuance intention, in which there are no necessary conditions found with low continuance intention.

Based on the research findings, if the government wants to scale up the conversion from LPG stoves to induction stoves, some issues must be considered. The quality of both products and service must become the main consideration in the conversion project. Standardization must be applied to both products and services. Better quality of products and services leads to a better cooking experience for the users, which will contribute to user satisfaction and will highly influence use continuation. The electricity tariff must also be highly considered by the government. Policies that do not burden the people should be established so that the program will be widely accepted. The aim of the program is to reduce LPG usage and increase usage of induction stoves. However, it is not a wise move to strictly limit LPG circulation and force people to use induction stoves. A steady penetration together with accompanying activities and massive socialization could help boost induction stove usage.

Wider socialization and publicity must become priorities in the main agenda to raise awareness and knowledge about induction stoves and the energy conversion program. This will eliminate any doubts about induction stoves and the program. A synergistic cooperation between stakeholders can boost the success of socialization and publicity. Furthermore, it is a must to create a better and more sustainable environment for induction stove implementation by the supplier until it reaches the customer. Technical aspects such as an induction stove service center can ensure continuity of the program. So far, when an induction stove is broken or damaged, PT.PLN will replace it with a new one. If the number of induction stoves increases due to scaling up the program, PT.PLN will have difficulty handling the greater volume.

IV. Conclusion

This research succeeded in identifying a combination of conditions needed so that the energy conversion program from LPG gas stoves to induction stoves continues. Optimism and technology acceptance are the main conditions, appearing in all solution configurations. Generally, all conditions must be maintained at a positive level to create high continuance intentions, despite there being one configuration

This research also succeeded in formulating a combination of conditions and context that could potentially hinder program continuity. A low level of continuance intention occurs if many conditions are negative; thus, keeping them positive can avoid the possibility of low continuance intention occurring. However, maintaining all conditions at a positive level is useless if innovativeness and satisfaction are low.

Satisfaction is the condition that had the greatest impact in the configuration of both high and low continuance intention since it has the highest consistency and coverage value. To ensure satisfaction, several strategies can be implemented for the future scaled-up energy conversion program to induction stoves. First, clear policies and wider socialization publications are very important to promote awareness of and trust in the program. Second, the standardization of the products and services must become the main consideration. This strategy is necessary because this is a new program, so products and technology (induction stove and electrical installations) must be guaranteed by strict procedures. This is to avoid damage or other hazards that reduce public perception of insecurity, discomfort, and satisfaction.

While successful in some findings, this study has limitations. This research was carried out in October 2022 while the program and handover of the induction stove were carried out in August 2022, so the respondents were still at the introduction stage. This short timeframe has the potential to affect the analysis, especially on technological readiness and acceptance bias because respondents were still adjusting their daily cooking behavior. For further research, it would be interesting to analyze in depth the changes in respondents' behavior in adapting their cooking activities to using an induction stove. To examine changes in cooking habits of program participant communities, longitudinal studies may be a fruitful research approach.

Additionally, this study only analyzed a pilot project in Surakarta, while the conversion program was also running in Denpasar. For further research, it would be interesting to explore and compare the program implementation in Surakarta and Denpasar. Additionally, for the next study, program analysis related to long-term tariff policies and regulations is also needed. Also, the study that projects sustainability related to energy and environmental issues in this conversion program needs to be studied further.

With regards to methods, the success of fsQCA combines factors in configuration form, made up of technology readiness, technology acceptance, and satisfaction toward continuance intention of participation in the conversion program and usage of induction stoves. Correlation-based analysis such as SEM or PLS SEM can potentially be utilized to complement the configuration analysis research findings, especially to explore the conditions that most impacted on the community continuance intention to join the program and use induction stove technology.

ACKNOWLEDGMENT

The authors thank the surveyor and project team for supporting this research. The authors would like to thank Enago (www.enago.com) for the English language review and also grateful to anonymous reviewer for their valuable comments which significantly improved the quality of the paper.

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