Sibatik Journal
Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, dan Pendidikan
E-ISSN: 2809-8544

EFFICIENCY OF QR CODE IMPLEMENTATION IN RELATION TO SKILLS ALIGNMENT IN SELECTED INDONESIAN ENTERPRISES TOWARD A PROPOSED BUSINESS DEVELOPMENT PLAN AND MODEL

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
AMA University, Philippines
AMAOED, Quezon City University, Villagers Montessori College, Xavier-Ateneo University, Quezon Colleges of the North, Philippines
***Email Correspondence:** angelitoebora@gmail.com

Abstract

QR codes, with their multidimensional data storage and widespread mobile usage, have become crucial in modern commerce, streamlining transactions and improving user experiences. Despite their benefits, challenges like data security threats persist, necessitating a balanced approach. The study aims to explore QR code implementation efficiency, particularly in skills training, within Indonesian enterprises, addressing a literature gap on this specific context and QR code integration into training. The study's primary objectives include investigating the adoption and impact of QR code technology within select Indonesian companies. It seeks to understand participants' demographic profiles, assess QR code implementation efficiency across various operational aspects, explore demographic differences in perceived efficiency, evaluate the alignment of skills training with QR code utilization, and establish any significant relationship between QR code implementation efficiency and skills training alignment among participants. The study sought standardized information on QR code adoption, utilizing surveys for varied perspectives. The study finds that Indonesian employees are mainly young, with 70.3% under 30, indicating potential openness to QR code technology. Despite a balanced gender distribution, mostly non- managerial roles are held by respondents (76.6%). Efficiency ratings across sectors (composite means: 3.89 to 4.16) highlight QR codes' effectiveness. Demographics like age, gender, and education don't significantly affect QR code perceptions. While QR-related skills training alignment is generally rated adequately (composite mean: 3.62), variability suggests areas for improvement. The study highlights a youthful demographic among Indonesian employees, indicating potential openness to QR code technology adoption. Despite balanced gender distribution, non-managerial roles are predominant. Efficiency ratings across operational sectors show QR codes' perceived effectiveness in boosting productivity. Demographic factors like age, gender, and education don't significantly affect perceptions of QR code efficiency, suggesting widespread acceptance. However, while QR-related skills training alignment is generally rated adequate, variability suggests room for improvement in ensuring effective skill development for optimal QR code utilization.

Keywords: QR Code Implementation, Skills Training Alignment, Selected Indonesian Enterprises, Proposed Business Development Plan and Model.

INTRODUCTION

A Quick Response (QR) code, characterized by its machine-readable square grid of pixels, has transformed the landscape of information storage and retrieval. Originally devised to track supply chain data, its widespread applications now span marketing, advertising, and point-of-sale transactions (Hayes, 2021). While traditional barcodes served their purpose, the QR code's multidimensional nature and subsequent ISO certification in 2000 heralded a new era of data storage efficiency (Gonnagar, 2018). Coupled with the

ubiquity of mobile phones, QR codes have carved out an indispensable niche in today's digital-first business environment.

This digital evolution has rendered QR codes an invaluable tool in bolstering commerce efficiency. Whether it's facilitating contactless transactions at brick-and-mortar outlets or authenticating product quality and origin online, QR codes have permeated everyday consumer behavior. Through mobile platforms such as Apple Pay and Google Wallet, businesses can seamlessly integrate QR- based transactions, reducing reliance on tangible bills and enhancing the user experience (Tu et al., 2022). Boyd (2022) further accentuates the value proposition of QR codes, emphasizing their cost-effectiveness and timeliness in this technologically advanced market landscape.

For businesses, QR codes offer not just operational efficiency but also a strategic advantage. By channeling users from physical products to digital platforms, businesses can enrich their customer interactions, offering a blend of offline and online touchpoints. However, like all digital advancements, QR codes aren't devoid of challenges. Threats like data theft and potential phishing traps loom large (Summerall, 2019). Moreover, the lack of uniformity in QR code application can sometimes result in the need for advanced technological infrastructure, making it imperative for businesses to strike a balance. But the tangible benefits of QR codes are hard to ignore. Research underscores the allure of QR codes for consumers; they're more than just dotted patterns. They are pathways to enriched information, interactive experiences, and more efficient transactions (Hossain et al., 2018). Businesses, by incorporating QR codes, not only capture consumer attention but also streamline their operational processes. As Hegde (2022) asserts, QR codes serve as "a nimble and intuitive solution for inventory management," ensuring real-time asset tracking and operational optimization.

QR codes represent a significant advancement in information storage and retrieval compared to traditional one-dimensional barcodes. QR codes offer a two- dimensional avenue, capable of housing up to 100 times more data, including multimedia such as videos and images (Francesca, 2019). Their potential in marketing has surged thanks to the ubiquity of smartphones, with major U.S. supermarkets adopting QR scanners and mobile applications as early as 2010 (Hossain, 2018; Smart Insights, 2021). These codes, introduced by the Japanese firm Denso Wave in 1994, have since gained global recognition.

The study's focal point is three Indonesian enterprises, each accepting cash and card payments and having a limited presence on social media. These companies are YOGYA, with two branches in Bandung, West Java, Indonesia (Sunda 60 Street and Mekar Utama 3A), employing approximately 150 employees each, GRIYA, located in Taman Kopo Indah 2, Bandung Regency, West Java, Indonesia, with 98 employees, and Yomart, running ten branches in the Bandung area with its headquarters in Jl. Sukarno Hatta 236 Bandung, employing around 100 individuals. By harnessing QR codes, these enterprises have the potential to offer customers a more comprehensive understanding of their products and services. QR codes can optimize customer experiences by providing immediate and efficient access to relevant information, potentially enhancing brand perception and boosting sales. The study aims to elevate sales and client engagement across these three companies by

modernizing online payments and product advertising through the integration of QR code innovations. It seeks to explore how QR code- driven communication and marketing strategies can stimulate sales, facilitate payments, and gather invaluable customer feedback.

Finally, as QR codes become more integrated into business operations and skills training, issues surrounding data security, privacy, and ethical considerations become paramount. This area is relatively unexplored, especially concerning the data generated during skills training sessions.

The proposed system's objective is to gain insight if the QR code system proves to be more helpful to the employees of the three firms included in this inquiry, the efficiency of the QR code implementation, evaluate the rate of QR code system deployment among the selected Indonesian enterprises and their employees' training. In addition, it intends to assess the use of QR codes, which have been shown to improve the likelihood of a client doing the intended task, such as navigating to the website, filling out a form, or purchasing an item. Similarly, incorporating a code that links to the social media platform increases brand engagement and sharing since QR codes will assist determine the performance of marketing activities by tracking the number of clicks or visits on the code.

This study assessed the efficiency of the QR code implementation and the skills training alignment on daily operations as perceived by the respondents in selected Indonesian companies with an end view of conceptualizing an appropriate business development plan and model. The limitations of this study on the efficiency of QR code implementation in relation to skills training alignment in selected Indonesian enterprises toward a proposed business development plan and model include potential challenges in generalizability. The findings may not apply universally to all Indonesian enterprises due to the specific nature of the selected companies and their unique contexts. Additionally, the study's reliance on a researcher-modified instrument may introduce a degree of subjectivity in data collection and interpretation.

METHOD

This study intended to use surveys or research questions as an experiment in collecting standardized (therefore comparable) information from several people to determine different pulses or opinions regarding the adaptation and implementation of a QR Code. The author hoped to obtain quantitative data through survey questions using modern methods, such as social media (Facebook, Twitter, etc.) and/or email. These methods were some of the cheapest techniques available to reach out to people at that time, which only cost a minimal amount (almost negligible on the part of the researcher). Quantifying this study aimed to establish general laws of behavior and phenomenon across different settings or contexts. Quantitative data was also used to test a theory, and ultimately the respondents may have supported or rejected it. The author utilized the Simple Random Technique, a probability sampling method, in which every person had an equal chance of being picked from the population at the enterprise's workplace. To ensure that each candidate had an equal chance of being chosen, the researcher only chose managers and entry- level employees. To get an accurate and exact assessment of the efficiency of the suggested study design, the researcher

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
DOI: https://doi.org/10.54443/sibatik.v3i6.2004

opted for a population rather than a small sample. This study employed the simple Random sampling technique via the Slovin's formula to compute for the sample size.

The objective is to understand the prevalent practices, adaptation, and application of the new QR code technology in chosen Indonesian businesses. To do this, the researcher examined and studied numerous notions and responses to QR codes in published works. The essential information from many references produced from data sources is then compiled. The suggested comparative analysis of the many interpretations of the present QR code system should apply to the research's accumulated ideas, principles, and concepts. The initial stage in data collection is introducing the topic to be investigated and studied. The next step is to identify the issue and query the QR code. This is a review of the diverse literature including varied responses to the QR Code.

RESULTS AND DISCUSSION

What is the level of efficiency of the QR codes implementation in the participating companies as perceived by the respondents regarding:

Table 1

Assessment of the Respondents on the Level of Efficiency of the QR codes implementation in terms of Administrative Management

Administrative Management	WM	SD	VI
1. Allows the company supervisors to better handle various administrative affairs.	4.15	0.9766	Very Efficient
2. Streamlines the exchange of administrative documents among various company offices.	3.72	1.0944	Very Efficient
3. Enhances the utility of files and logistics by lessening the need for transport of documents.	3.79	1.0530	Very Efficient
4. Allows the legal department of the company to efficiently coordinate with the administration.	3.89	0.9873	Very Efficient
Composite Mean	**3.89**	**0.8202**	**Very Efficient**

Legend: 4.51-5.00= Extremely Efficient; 3.51-4.50= Very Efficient; 2.51-3.50= Efficient; 1.51-2.50= Somewhat Efficient; 1.00-1.50= Not Efficient

Table 1 presents an assessment of the respondents' perceptions regarding the efficiency of QR codes in the context of Administrative Management.

Table 2

Assessment of the Respondents on the Level of Efficiency of the QR codes implementation in terms of Operations and Communications

Operations and Communications	WM	SD	VI
1. QR codes are useful for the executive management of the company.	4.21	0.9524	Very Efficient
2. Intra-company communication and operations-related exchange of documents are made easier by the use of QR codes.	4.06	0.9983	Very Efficient
3. Inter-company cooperation and coordination in terms of joint operations ventures are made easier with the use of QR codes.	4.11	0.9612	Very Efficient
4. QR codes enhance the operations efficiency of the company as a whole.	4.18	0.9517	Very Efficient
5. Managerial staff find that their workloads are made lighter by the use of QR codes.	3.96	0.988	Very Efficient
6. Improves the communication and cooperation between and among the administration, the operations staff and management teams.	4.41	0.8235	Very Efficient
Composite Mean	**4.16**	**0.7526**	**Very Efficient**

Legend: 4.51-5.00= Extremely Efficient; 3.51-4.50= Very Efficient; 2.51-3.50= Efficient; 1.51-2.50= Somewhat Efficient; 1.00-1.50= Not Efficient

Table 2 provides an assessment of the respondents' perceptions concerning the efficiency of QR codes in the realm of Operations and Communications.

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
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Table 3

Assessment of the Respondents on the Level of Efficiency of the QR codes implementation in terms of Sales and Marketing Strategies

Sales and Marketing Strategies	WM	SD	VI
1. QR code-dependent fliers and advertisements attract more potential customers.	3.96	1.0195	Very Efficient
2. QR code-dependent promotions and invitations are more attractive to the potential clients.	3.90	0.9762	Very Efficient
3. Usage of QR codes does not deter old-aged customers from engaging with the company.	3.47	1.0621	Efficient
4. QR codes allow the company to reach a wider audience for sales and marketing.	4.14	0.9885	Very Efficient
5. QR codes reduce the company costs for engaging in sales and marketing strategies.	4.03	1.0461	Very Efficient
Composite Mean	**3.90**	**0.7950**	**Very Efficient**

Legend: 4.51-5.00= Extremely Efficient; 3.51-4.50= Very Efficient; 2.51-3.50= Efficient; 1.51-2.50= Somewhat Efficient; 1.00-1.50= Not Efficient

Table 3 assesses the perspectives of respondents regarding the efficiency of QR codes in the enhancement of Sales and Marketing Strategies.

Table 4

Assessment of the Respondents on the Level of Efficiency of the QR codes implementation in terms of Day-to-Day Operations

Day-to-Day Store Operations	WM	SD	VI
1. QR code usage simplifies client-store interactions.	4.14	0.9434	Very Efficient
2. The utilization of QR codes allows the company's stores to reach a wider population of customers.	4.23	0.9578	Very Efficient
3. QR codes increase the daily customers of the individual stores.	4.00	0.9909	Very Efficient
4. QR codes do not deter old-aged customers from engaging with the business using more traditional methods.	3.62	1.0339	Very Efficient
5. QR codes make it easier for the company staff to engage in their work.	4.16	1.0116	Very Efficient
Composite Mean	**4.03**	**0.8089**	**Very Efficient**

Legend: 4.51-5.00= Extremely Efficient; 3.51-4.50= Very Efficient; 2.51-3.50= Efficient; 1.51-2.50= Somewhat Efficient; 1.00-1.50= Not Efficient

Table 4 delves into the respondents' perceptions regarding the impact of QR codes on Day-to-Day Store Operations.

Table 5

Summary of Assessments of the Respondents on the Level of Efficiency of the QR codes implementation

Summary of Assessments	WM	SD	VI
Administrative Management	3.89	0.8202	Very Efficient
Operations and Communications	4.16	0.7526	Very Efficient
Sales and Marketing Strategies	3.90	0.7950	Very Efficient
Day-to-Day Store Operations	4.03	0.8089	Very Efficient
Composite Mean	3.99	0.7051	**Very Efficient**

Legend: 4.51-5.00= Extremely Efficient; 3.51-4.50= Very Efficient; 2.51-3.50= Efficient; 1.51-2.50= Somewhat Efficient; 1.00-1.50= Not Efficient

DOI: https://doi.org/10.54443/sibatik.v3i6.2004

Table 5 presents a consolidated overview of the respondents' evaluations regarding the efficiency of QR codes across different operational facets of the company.

Is there a significant difference in the level of efficiency of the QR codes in selected companies as perceived by the respondents when grouped according to their profile variables?

Table 6

Differences in the Assessments on the Level of Efficiency of the QR codes implementation when grouped according to Age of the Respondents

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Administrative Management	Between Groups	2.655	3	0.885	1.321	0.268	Accept Ho	Not Significant
	Within Groups	146.023	218	0.67				
	Total	148.678	221					
Operations and Communications	Between Groups	3.446	3	1.149	2.057	0.107	Accept Ho	Not Significant
	Within Groups	121.72	218	0.558				
	Total	125.166	221					
Sales and Marketing Strategies	Between Groups	3.191	3	1.064	1.699	0.168	Accept Ho	Not Significant
	Within Groups	136.468	218	0.626				
	Total	139.659	221					
Day-to-Day Operations	Between Groups	3.43	3	1.143	1.765	0.155	Accept Ho	Not Significant
	Within Groups	141.186	218	0.648				
	Total	144.615	221					
Overall	Between Groups	2.751	3	0.917	1.866	0.136	Accept Ho	Not Significant
	Within Groups	107.119	218	0.491				
	Total	109.87	221					

Table 6 examines whether there are any statistically significant differences in the assessments of the efficiency of QR code implementation when considering the age of the respondents. For each operational facet, there are two main sources of variation: between the groups (different age groups) and within the groups (variance within each age group). The "F" value represents the variance between groups divided by the variance within groups, which is used to determine if the differences between groups are statistically significant. The "Sig." or significance value provides the probability that the observed differences could occur by chance. If this value is below a typical threshold (often 0.05 or 5%), the difference is considered statistically significant.

Table 7

Differences in the Assessments on the Level of Efficiency of the QR codes implementation when grouped according to Gender of the Respondents

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Administrative Management	Between Groups	3.457	2	1.729	2.607	0.076	Accept Ho	Not Significant
	Within Groups	145.221	219	0.663				
	Total	148.678	221					
Operations and Communications	Between Groups	2.047	2	1.023	1.82	0.164	Accept Ho	Not Significant
	Within Groups	123.119	219	0.562				
	Total	125.166	221					
Sales and Marketing Strategies	Between Groups	1.964	2	0.982	1.562	0.212	Accept Ho	Not Significant
	Within Groups	137.695	219	0.629				
	Total	139.659	221					
Day-to-Day Operations	Between Groups	2.956	2	1.478	2.285	0.104	Accept Ho	Not Significant
	Within Groups	141.659	219	0.647				
	Total	144.615	221					
Overall	Between Groups	2.456	2	1.228	2.504	0.084	Accept Ho	Not Significant
	Within Groups	107.414	219	0.49				
	Total	109.87	221					

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
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Table 8 aims to determine if there are any statistically significant differences in the evaluations regarding the efficiency of QR code implementation when the data is segmented based on the gender of respondents.

Table 9

Differences in the Assessments on the Level of Efficiency of the QR codes implementation when grouped according to Position of the Respondents

Sources of Variation		t Value	Sig.	Decision	Remarks
Administrative Management	Equal variances assumed	0.280	0.597	Accept Ho	Not Significant
	Equal variances not assumed				
Operations and Communications	Equal variances assumed	0.379	0.539	Accept Ho	Not Significant
	Equal variances not assumed				
Sales and Marketing Strategies	Equal variances assumed	0.024	0.878	Accept Ho	Not Significant
	Equal variances not assumed				
Day-to-Day Store Operations	Equal variances assumed	0.531	0.467	Accept Ho	Not Significant
	Equal variances not assumed				
Overall	Equal variances assumed	0.518	0.472	Accept Ho	Not Significant
	Equal variances not assumed				

Table 9 explores whether there are any statistically significant differences in the perceptions about the efficiency of QR code implementation when the data is categorized based on the position of respondents within the company.

Table 10

Differences in the Assessments on the Level of Efficiency of the QR codes implementation when grouped according to Educational Attainment of the Respondents

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Administrative Management	Between Groups	3.872	4	0.968	1.451	0.218	Accept Ho	Not Significant
	Within Groups	144.806	217	0.667				
	Total	148.678	221					
Operations and Communications	Between Groups	2.993	4	0.748	1.329	0.26	Accept Ho	Not Significant
	Within Groups	122.173	217	0.563				
	Total	125.166	221					
Sales and Marketing Strategies	Between Groups	3.7	4	0.925	1.477	0.21	Accept Ho	Not Significant
	Within Groups	135.959	217	0.627				
	Total	139.659	221					
Day-to-Day Operations	Between Groups	3.961	4	0.99	1.528	0.195	Accept Ho	Not Significant
	Within Groups	140.655	217	0.648				
	Total	144.615	221					
Overall	Between Groups	3.309	4	0.827	1.685	0.155	Accept Ho	Not Significant
	Within Groups	106.561	217	0.491				
	Total	109.87	221					

Table 10 assesses whether there are any significant variations in perceptions about the efficiency of QR code implementation when the responses are grouped based on the educational attainment of respondents.

What is the extent of alignment of skills training among respondents in selected Indonesian companies as perceived by the respondents?

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
DOI: https://doi.org/10.54443/sibatik.v3i6.2004

Table 11

Assessment on the extent of alignment of skills training among respondents in selected Indonesian Companies

	ALIGNMENT OF QR-RELATED SKILL TRAINING	WM	SD	VI
1.	Defining the goals of QR code	4.12	0.8898	To a large extent
2.	Finding a QR code generator	3.57	0.9866	To a large extent
3.	Selecting the QR code type	3.73	0.9846	To a large extent
4.	Customizing the QR code	3.90	0.9575	To a large extent
5.	Inputting data in QR code	3.10	1.1309	To some extent
6.	Generating the QR code	3.68	1.0600	To a large extent
7.	Testing the QR code	3.73	0.9983	To a large extent
8.	Downloading the QR code	3.27	1.1499	To some extent
9.	Printing the QR code	3.88	1.0630	To a large extent
10.	Distributing the QR code	3.23	1.1559	To some extent
	Composite Mean	**3.62**	**0.8228**	**To a large extent**

Table 11 assesses the extent to which skills training aligns with various tasks related to QR code utilization in selected Indonesian companies.

Defining the goals of QR code: With a weighted mean (WM) of 11 and a standard deviation (SD) of 0.8898, it suggests that there's a strong emphasis on training individuals in defining the purposes of QR codes. This training appears to be uniformly imparted, as indicated by the verdict "To a large extent".

Finding a QR code generator: Despite being an essential step, the WM of 3.57 and SD of 0.9866 show that the emphasis here is slightly less compared to defining goals, but still significant.

Selecting the QR code type and Customizing the QR code: With WM values of 3.73 and 3.90, respectively, there is a notable focus on these aspects, ensuring that the participants are well-versed in selecting and customizing the QR codes aptly.

Inputting data in QR code: This aspect, with a WM of 3.10 and an SD of 1.1309, reveals a relative weakness in the training alignment. The training regarding this seems to be less consistent, which might result in some participants not being adequately trained in this area.

Generating, Testing, and Printing the QR code: These steps exhibit good training alignment, with WMs ranging from 3.68 to 3.88, implying that employees are trained to a large extent in these operational aspects of QR code utilization. Downloading and

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
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Distributing the QR code: These steps, with WMs of 3.27 and 3.23 respectively, have been aligned "To some extent". This suggests that while there's training available, it may not be as comprehensive or as uniformly imparted as other areas.

The Composite Mean of 3.62 with an SD of 0.8228 shows that, on average, the alignment of skills training concerning QR-related tasks is "To a large extent". However, there are specific areas, like inputting data, downloading, and distributing the QR code, where training could be enhanced or made more consistent to ensure a well-rounded proficiency across all tasks related to QR codes in these Indonesian companies.

The alignment of skills training, especially in relation to the deployment and effective use of QR codes, is essential in ensuring that employees harness the full potential of the technology. In Indonesian companies, as in many rapidly digitizing economies, the degree to which skills training aligns with actual operational requirements can be pivotal.

As Indonesian companies adopted QR codes for various functionalities – ranging from payment gateways to information access – there arose a substantial need to equip the workforce with the requisite skills (Suharto and Wijaya, 2018). With QR code applications varying across sectors and functions, training modules in Indonesia started being customized to cater to industry-specific and role- specific needs (Putri and Amanah, 2019). While the intention behind skills training was clear, some studies indicated a gap between what was taught and the evolving needs of businesses, emphasizing the need for continuous updating of training modules (Aditya and Rahman, 2020). To address the gaps, some companies began adopting feedback loops, ensuring that employee feedback post-training was used to refine and improve training sessions (Nugroho and Santoso, 2022). Realizing the long-term implications and the growing demand, several Indonesian educational institutes started incorporating QR-related training in their curriculum, ensuring that students are industry-ready (Widodo and Prakoso, 2023).

The alignment of skills training in relation to QR codes in selected Indonesian companies has seen an evolution from the initial stages of mere adoption to more intricate and customized training sessions. Feedback mechanisms and collaboration with academia are shaping the future of training, ensuring not just alignment with present needs, but also readiness for future technological innovations.

Is there a significant difference in the extent of alignment of QR-related skills training of the respondents when grouped according to their profile variables?

Table 12

Differences in assessments on the extent of alignment of QR-related skills training of the respondents when grouped according to their Age

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Alignment of QR skills-related training	Between Groups	2.953	3	0.984	1.463	0.226	Accept Ho	Not Significant
	Within Groups	145.995	217	0.673				
	Total	148.948	220					

Angelito Magbato Ebora[1], Richard Oliver F. Cortez[2], Jay A. Sario[3]
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Table 12 presents an analysis of variance (ANOVA) to determine if there are significant differences in the assessments on the alignment of QR-related skills training among respondents based on their age.

Table 13

Differences in assessments on the extent of alignment of QR-related skills training of the respondents when grouped according to their Gender.

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Alignment of QR skills-related training	Between Groups	1.046	2	0.523	0.771	0.464	Accept Ho	Not Significant
	Within Groups	147.902	218	0.678				
	Total	148.948	220					

Table 13 delves into the variance analysis (ANOVA) to ascertain if there's any significant difference in perceptions about the alignment of QR-related skills training based on the gender of the respondents.

Table 14

Differences in assessments on the extent of alignment of QR-related skills training of the respondents when grouped according to their Position

Sources of Variation		t Value	Sig.	Decision	Remarks
Alignment of QR skills-related training	Equal Variances Assumed	1.052	0.31	Accept Ho	Not Significant
	Equal Variances Not Assumed				

Table 14 presents a t-test analysis designed to compare perceptions about the alignment of QR-related skills training based on the position of the respondents. Unlike ANOVA, which is used for more than two groups, a t-test is generally utilized for comparing means of two groups. The "Equal Variances Assumed" descriptor suggests that the analysis was conducted under the presumption that the two groups being compared have similar variance levels.

Table 15

Differences in assessments on the extent of alignment of QR-related skills training of the respondents when grouped according to their Educational Attainment

Sources of Variation		Sum of Squares	df	Mean Square	F	Sig.	Decision	Remarks
Alignment of QR skills-related training	Between Groups	4.646	4	1.161	1.739	0.143	Accept Ho	Not Significant
	Within Groups	144.302	216	0.668				
	Total	148.948	220					

Table 15 displays an ANOVA (Analysis of Variance) examining the variations in respondents' perceptions of alignment of QR-related skills training based on their educational attainment. This method is typically used to compare means across more than two groups, and in this case, it seems the groups represent different levels of educational attainment.

DOI: https://doi.org/10.54443/sibatik.v3i6.2004

Is there a significant relationship between the level of efficiency of the implementation of QR codes and the extent of alignment of QR-related skills training of the respondents in the participating companies?

Table 16

Relationship between the level of efficiency of the implementation of QR codes and the extent of alignment of QR-related skills training of the respondents in the participating companies

Sources of Variation	r Value	Interpretation	Sig.	Decision	Remarks
Administrative Management	0.670	Moderate Correlation	.000	Reject Ho	Significant
Operations and Communications	0.583	Moderate Correlation	.000	Reject Ho	Significant
Sales and Marketing Strategies	0.658	Moderate Correlation	.000	Reject Ho	Significant
Day-to-Day Store Operations	0.800	High Correlation	.000	Reject Ho	Significant

Table 16 highlights the correlation analysis conducted between the efficiency of QR code implementation and the extent of alignment in QR-related skills training among respondents in the participating companies. Correlation analysis allows us to understand the strength and direction of a linear relationship between two variables. The results are presented for different operational aspects of the companies.

For "Administrative Management," a correlation coefficient (r value) of 0.670 signifies a moderate positive relationship between the efficiency of QR code implementation and the alignment of QR-related skills training. With a significance level (Sig.) of .000, which is below the conventional threshold of 0.05, the null hypothesis (Ho) is rejected, indicating that this correlation is statistically significant.

Similarly, "Operations and Communications" and "Sales and Marketing Strategies" both exhibit moderate correlations with r values of 0.583 and 0.658, respectively. In both cases, the significance level is .000, leading to a rejection of the null hypothesis, suggesting that there's a significant relationship between the efficiency of QR code implementations and the alignment of related skill training in these domains.

Most prominently, "Day-to-Day Store Operations" shows an r value of 0.800, which indicates a high positive correlation. This means that the alignment of QR- related skills training and the efficiency of QR code implementation are strongly associated in the context of day-to-day operations. Again, with a significance level of .000, the relationship is found to be statistically significant.

In summary, for all aspects of the companies analyzed, there is a statistically significant positive correlation between the efficiency of QR code implementation and the alignment of QR-related skills training. This underscores the importance of aligning skill training with implementation needs, especially in the context of day-to- day operations where the correlation is the strongest.

What Business Development Plan Model may be proposed?

The proposed business development plan model focuses on enhancing QR code implementation and security.

CONCLUSION

The following conclusions are drawn, based on the findings of this study:

1. Most of the participants in the survey are younger individuals, with a slight male dominance. They primarily hold regular employment roles and have completed their education up to high school.
2. According to feedback from participants, QR codes have significantly improved administrative efficiency, with consistent "Very Efficient" ratings. Participants believe that QR codes boost operational and communication efficiencies, particularly in sales and marketing and daily store operations. Furthermore, older customers are not left out, as QR codes complement traditional methods.
3. Perceptions of QR code effectiveness remain consistent across different age brackets, gender, and job positions within the company. Educational background also does not significantly influence these perspectives.
4. In Indonesia, and similar rapidly digitizing contexts, it's crucial for skills training to be in sync with the operational demands, especially when it comes to integrating newer technologies like QR codes.
5. According to the study, age, gender, hierarchical position in the company, and educational achievements do not significantly influence opinions on the alignment of QR-related skills training among participants. Therefore, it can be inferred that QR-related skills training is equally effective for all participants, regardless of their age, gender, position in the company, or educational background.
6. There's a clear and significant positive relationship between how efficiently QR codes are implemented and the alignment of associated skill training. The strongest correlation emerges in the daily operations context, underlining the need for properly aligned training for optimal use of QR codes.

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