

## Communication Dynamics on WhatsApp Business and Their Impact on Patient Purchase Intention: An SEM-PLS Study (Case study from Edelweiss Hospital Bandung – Indonesia)

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### ABSTRACT

This study investigates how three communication stimuli on WhatsApp Business visibility, interactivity, and authenticity affect purchase intention toward Edelweiss Hospital, with perceived value and perceived trust as mediating variables. A quantitative survey was conducted with 480 respondents who had interacted with Edelweiss Hospital through WhatsApp Business. Data were analyzed using Partial Least Squares Structural Equation Modeling (SEM-PLS). The results show that interactivity is the strongest predictor of perceived value, while authenticity is the main driver of perceived trust. Visibility shows a dual pattern: it increases perceived value but reduces trust and, through trust, weakens purchase intention. Perceived trust emerges as the strongest determinant of purchase intention, followed by perceived value. The findings extend the *Stimulus Organism Response* (S-O-R) framework into the digital healthcare context and offer practical guidance for hospitals on how to design and manage WhatsApp Business communication that truly supports patient decision-making.

## INTRODUCTION

Over the last decade, mobile instant messaging has reshaped how people communicate, including in healthcare. In Indonesia, WhatsApp Business (WA Business) is now a primary channel for hospitals to answer inquiries, share information, and support administrative processes. Edelweiss Hospital in Bandung is one of the hospitals that has integrated WA Business deeply into its service ecosystem it is used for asking about services, scheduling appointments, confirming payments, and even receiving basic health-related information.

Although WA Business is widely used, questions remain: What exactly makes communication on this channel effective from the patient's point of view? Is it simply being visible and available? Or does it depend more on how interactive, empathetic, and authentic the conversation feels?

Most prior studies on digital communication and messaging apps have focused on commerce and general services. Healthcare, however, is a different context. Patients often face uncertainty, anxiety, and perceived risk, which makes trust and perceived value particularly important. Understanding how WA Business communication contributes to these internal evaluations can help hospitals design more meaningful digital journeys, rather than just "answering chats faster".

This study applies the Stimulus–Organism–Response (S–O–R) framework to examine how communication attributes on WhatsApp Business act as stimuli that shape patients' internal states (perceived value and perceived trust) and ultimately drive their purchase intention toward Edelweiss Hospital.

The main research questions are:

- a. How do visibility, interactivity, and authenticity of WhatsApp Business communication influence perceived value and perceived trust?
- b. How do perceived value and perceived trust influence purchase intention?
- c. To what extent do perceived value and perceived trust mediate the relationship between communication stimuli and purchase intention?

The answers to these questions are expected to contribute both theoretically and practically. Theoretically, this research extends the S–O–R model into the digital healthcare domain. Practically, it offers concrete insights for hospitals on how to refine their WhatsApp Business strategies.

## LITERATURE REVIEW

### *WhatsApp Business in Healthcare Communication*

WhatsApp Business offers features such as quick replies, labels, catalogues, and automated greetings, which allow organizations to streamline communication while keeping it conversational. In healthcare, these features are used to handle patient questions, share clinic schedules, and assist with administrative steps. However, if not managed carefully, digital communication may feel impersonal or overwhelming.

Studies on messaging apps in healthcare highlight that real-time response and clarity of information can improve patient satisfaction and perceived service quality. Yet, there is still limited work specifically connecting communication attributes on WA Business with patients' purchase intention toward hospital services.

#### S-O-R Framework

The Stimulus-Organism-Response model posits that environmental stimuli (S) trigger cognitive and emotional states within individuals (O), leading to behavioral responses (R). In digital contexts, features such as interface design, responsiveness, and tone of messages have been treated as stimuli. Internal appraisals like perceived value and trust are seen as the organism, while outcomes such as purchase, reuse, or recommendation intentions form the response. In this study, communication characteristics on WA Business (visibility, interactivity, and authenticity) are conceptualized as stimuli. Perceived value and perceived trust represent the organism, and purchase intention is the response.

#### *Visibility, Interactivity, Authenticity*

- a. Visibility refers to how easily a patient can find and recognize the hospital's WhatsApp Business channel, and how frequently messages or notifications appear.
- b. Interactivity captures the degree to which communication is two-way, responsive, and allows patients to ask questions and receive tailored answers.
- c. Authenticity reflects how genuine, honest, and humane the communication feels. In a hospital setting, authenticity includes empathy in wording, transparency in information, and consistency between what is promised and what is delivered.

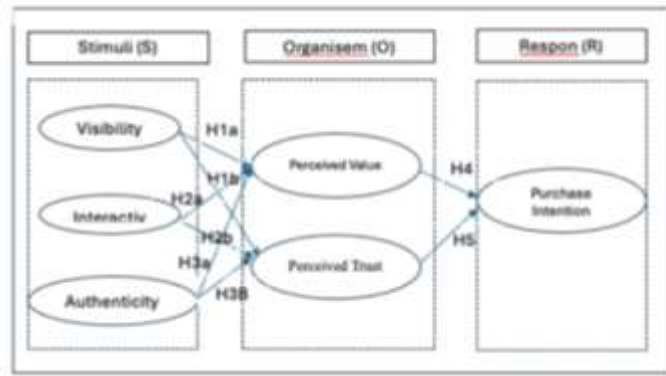
#### *Perceived Value, Perceived Trust, and Purchase Intention*

- a. Perceived value is the overall assessment of utility derived from a service, considering benefits and costs (time, effort, emotional burden).
- b. Perceived trust in healthcare relates to the belief that the hospital is competent, honest, and genuinely cares for the patient's wellbeing.
- c. Purchase intention in this context is the patient's intention to use or continue using Edelweiss Hospital's services after interacting via WhatsApp Business, including booking appointments, choosing Edelweiss over other hospitals, or recommending it to others.

#### *Research Framework and Hypotheses*

Based on the S-O-R perspective and prior studies, we propose that:

- a. Visibility, interactivity, and authenticity act as stimuli.
- b. Perceived value and perceived trust act as organism variables.
- c. Purchase intention is the response.



**Figure 1. Conceptual Framework**

Source: Adapted from Wang et.al., 2022

The main hypotheses (H1-H8) can be summarized as:

H1-H2: Authenticity influences perceived trust and perceived value.

H3-H4: Interactivity influences perceived trust and perceived value.

H5-H6: Visibility influences perceived trust and perceived value.

H7-H8: Perceived value and perceived trust influence purchase intention.

Additional mediation hypotheses examine whether perceived value and trust mediate the relationships between communication stimuli and purchase intention.

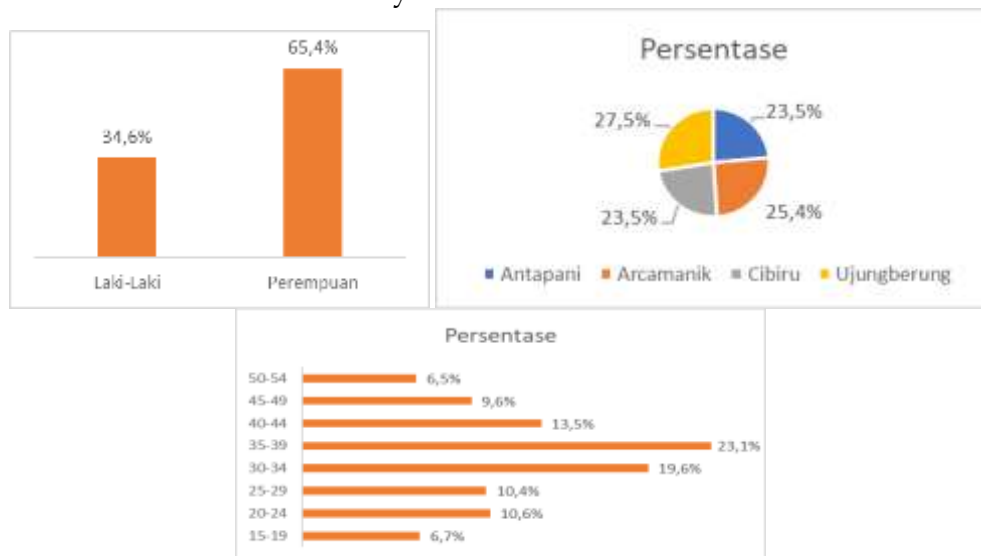
## METHODOLOGY

### Research Design

This research uses a quantitative, cross-sectional design. Data were collected through an online questionnaire distributed to individuals who had interacted with Edelweiss Hospital through its official WhatsApp Business account.

### Sample and Data Collection

A non-probability sampling method was used, focusing on users who had actually engaged with the hospital via WA Business. After cleaning, 480 valid responses were retained for analysis.



**Figure 2. Sample and Data Collection**

Most respondents live in the eastern part of Bandung (Ujungberung, Arcamanik, Antapani, and Cibiru). The majority are in the productive age group (30–44 years), and a large proportion have used Edelweiss services more than three times, meaning their assessments are based on repeated experiences rather than a single visit.

### ***Measurement and Instrument***

All items were measured using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Constructs and indicators were adapted from established scales in digital communication and service quality research, and then contextualized for WhatsApp Business and hospital services.

- a. Visibility (VIS): 4 items
- b. Interactivity (INT): 3 items
- c. Authenticity (AUT): 5 items
- d. Perceived Value (PV): 4 items
- e. Perceived Trust (PT): 4 items
- f. Purchase Intention (PI): 4 items

### ***Data Analysis***

Data were analyzed with SEM-PLS using SmartPLS. The analysis followed two stages:

Measurement model (outer model) evaluation:

- a. Indicator reliability (outer loadings).
- b. Internal consistency (Cronbach's alpha, Composite Reliability).
- c. Convergent validity (Average Variance Extracted, AVE).
- d. Discriminant validity (HTMT, Fornell-Larcker).

Structural model (inner model) evaluation:

- a. Collinearity (VIF).
- b. Explanatory power ( $R^2$  and adjusted  $R^2$ ).
- c. Effect size ( $f^2$ ).
- d. Path coefficients and significance (bootstrapping).
- e. Indirect (mediation) and total effects.

**RESEARCH RESULT****Measurement Model**

All indicators achieved outer loadings above 0.70. Composite Reliability values were generally above 0.90, and all AVE scores exceeded 0.50, indicating strong convergent validity.

**Table 1. Measurement Model**

Indikator	Mean	SD	Min	Max	N
VIS1	3,5375	0,676669	2	5	480
VIS2	3,552083	0,672604	2	5	480
VIS3	3,579167	0,688394	2	5	480
VIS4	3,595833	0,615716	2	5	480
INT1	3,335417	0,679245	2	5	480
INT2	3,470833	0,704284	2	5	480
INT3	3,433333	0,69274	2	5	480
AUT1	3,48125	0,645898	2	5	480
AUT2	3,479167	0,686572	2	5	480
AUT3	3,433333	0,683639	2	5	480
AUT4	3,41875	0,611018	2	5	480
AUT5	3,49375	0,60613	2	5	480
PV1	3,310417	0,553501	2	5	480
PV2	3,4625	0,569446	2	5	480
PV3	3,514583	0,528712	2	5	480
PV4	3,483333	0,574087	2	5	480
PT1	3,370833	0,62313	2	5	480
PT2	3,410417	0,581819	2	5	480
PT3	3,447917	0,614199	2	5	480
PT4	3,477083	0,573871	2	5	480
PI1	3,40625	0,616037	2	4	480
PI2	3,195833	0,602	2	4	480
PI3	3,120833	0,657368	2	4	480
PI4	2,977083	0,672682	2	4	480

**Table 2. Measurement Model: Outer Loadings, Cronbach's Alpha, CR, AVE for each construct)**

	AUT	INT	PI	PT	PV	VIS
AUT1	0.869					
AUT2	0.931					
AUT3	0.935					
AUT4	0.874					
AUT5	0.899					
INT1		0.953				
INT2		0.952				
INT3		0.947				
PI1			0.738			

PI2			0.819			
PI3			0.885			
PI4			0.866			
PT1				0.873		
PT2				0.887		
PT3				0.919		
PT4				0.897		
PV1					0.769	
PV2					0.798	
PV3					0.934	
PV4					0.915	
VIS1						0.955
VIS2						0.952
VIS3						0.951
VIS4						0.774
	Cronbach's alpha	Composite reliability (rho_c)		Average variance extracted (AVE)		
AUT	0.943	0.956		0.814		
INT	0.947	0.966		0.904		
PI	0.847	0.897		0.687		
PT	0.916	0.941		0.800		
PV	0.878	0.917		0.734		
VIS	0.937	0.951		0.830		

HTMT values were below 0.85, and Fornell-Larcker criteria were satisfied, indicating good discriminant validity. Although some indicators in authenticity and visibility showed relatively higher VIF (>5 but <8), they remained within acceptable bounds and were retained because of their theoretical relevance and strong loadings

### *Structural Model*

Collinearity assessment showed all inner VIF values below 1.4, suggesting no multicollinearity issues among latent constructs.

### *Coefficient of Determination (R<sup>2</sup>)*

- a. Purchase Intention (PI): R<sup>2</sup> = 0.423 → moderate.
- b. Perceived Trust (PT): R<sup>2</sup> = 0.342 → low to moderate.
- c. Perceived Value (PV): R<sup>2</sup> = 0.270 → low.

**Table 3. R<sup>2</sup> and Adjusted R<sup>2</sup> for PV, PT, and PI**

	R-square		R-square adjusted			
PI	0.423		0.421			
PT	0.342		0.338			
PV	0.270		0.265			
	AUT	INT	PI	PT	PV	VIS
AUT				0.401	-0.054	
INT				0.256	0.478	
PI						
PT			0.548			
PV			0.274			
VIS				-0.218	0.175	

These values indicate that the model explains a meaningful portion of patients' purchase intention, mainly through trust and value.

#### **Path Coefficients (Direct Effects)**

Key results from bootstrapping:

- AUT → PT: positive, significant.
- AUT → PV: negative, not significant.
- INT → PT: positive, significant.
- INT → PV: positive, strong, significant.
- VIS → PT: negative, significant.
- VIS → PV: positive, significant.
- PT → PI: positive, strongest effect.
- PV → PI: positive, medium effect.

**Table 4. Path Coefficients, t-values, p-values**

Relationship Pathway	Coeficin (O)	t-statistic	p-value	Conclusion
AUT → PT	0.401	8.825	0.000	Significant
AUT → PV	-0.054	1.248	0.212	Not significant
INT → PT	0.256	4.922	0.000	Significant
INT → PV	0.478	10.083	0.000	Significant
PT → PI	0.548	17.639	0.000	Significant
PV → PI	0.274	7.328	0.000	Significant
VIS → PT	-0.218	5.691	0.000	Significant
VIS → PV	0.175	4.538	0.000	Significant

#### **Effect Sizes (f<sup>2</sup>)**

The largest effect sizes were:

- PT → PI (large effect).
- INT → PV (medium effect).
- AUT → PT (medium effect).

While visibility showed small effect sizes on PV and PT, its directions were noteworthy: positive on PV and negative on PT.

**Table 5. Effect Sizes ( $f^2$ ) for Main Paths**

	f-square
AUT -> PT	0.188
AUT -> PV	0.003
INT -> PT	0.074
INT -> PV	0.232
PT -> PI	0.506
PV -> PI	0.127
VIS -> PT	0.069
VIS -> PV	0.040

**Mediation and Total Effects**

Perceived trust significantly mediated:

- a. AUT → PI.
- b. INT → PI.
- c. VIS → PI (with a negative sign for the VIS → PT → PI chain).

Perceived value mediated:

- a. INT → PI
- b. VIS → PI

The indirect path AUT → PV → PI was not significant.

Total effects confirmed that trust is the strongest overall predictor of purchase intention, while interactivity is the strongest overall predictor of perceived value.

**Table 6. Indirect and Total Effects**

	Original sample (O)	Sample mean (M)	T statistics ( O/STDEV )	P values
VIS -> PV -> PI	0.048	0.048	3.682	0.000
VIS -> PT -> PI	-0.120	-0.119	5.739	0.000
AUT -> PV -> PI	-0.015	-0.015	1.201	0.230
AUT -> PT -> PI	0.220	0.220	7.799	0.000
INT -> PV -> PI	0.131	0.132	5.470	0.000
INT -> PT -> PI	0.140	0.140	4.594	0.000

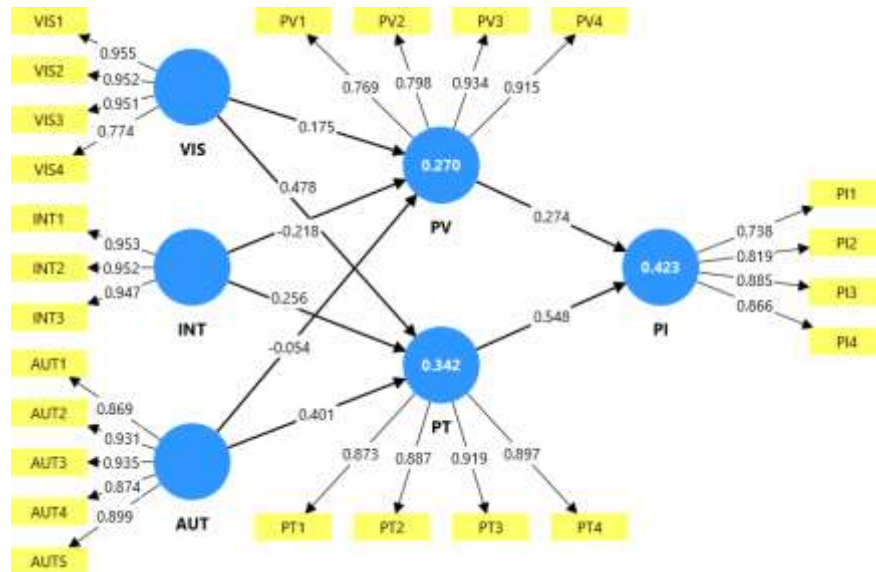


Figure 3. Path Diagram of the Influence of VIS, INT, AUT on PV, PT, and PI

## DISCUSSION

### *Communication Attributes as Digital Stimuli*

The findings highlight that WhatsApp Business is more than just a digital ticketing tool it is a communication space where tone, response speed, and message volume actively shape how patients feel about the hospital. Interactivity has the strongest impact on perceived value. When admin respond quickly, allow patients to ask follow-up questions, and provide clear guidance, patients feel that they save time, reduce confusion, and gain more control over their healthcare process. This is especially important in urban settings like Bandung, where people juggle busy schedules and seek efficiency.

Authenticity strongly predicts perceived trust. Patients respond positively when messages sound polite, honest, and genuinely caring—not robotic. Simple things such as greeting by name, acknowledging concerns, and avoiding overly scripted replies can make a meaningful difference in how patients perceive Edelweiss Hospital as an institution. The role of visibility is more complex. On the one hand, being easy to find (clear number, visible on social media, prompt replies) and frequently active can increase perceived value: patients know where to go and feel supported. On the other hand, excessive promotional messages or frequent broadcast content risk lowering trust, as patients might feel “chased” by marketing rather than supported as patients. This dual effect shows that visibility must be planned strategically, not just maximized.

### ***Trust and Value as Psychological Organisms***

- a. In alignment with the S-O-R framework, perceived value and perceived trust act as psychological mechanisms through which communication stimuli shape behavioral intention.
- b. Trust appears as the central pathway: patients decide to use Edelweiss services when they feel they can rely on the hospital's competence and integrity. Trust is built not only from medical outcomes but also from the way the hospital communicates through WA Business.
- c. Value plays a complementary role: when patients feel that WA Business helps them save time, understand procedures, and navigate the system more easily, they are more willing to choose Edelweiss over alternatives.

### ***Implications for Designing WhatsApp Business Strategies***

The patterns found here suggest several practical lessons:

- a. A hospital's WA Business account should be treated as a frontline service channel, not just a digital "call center".
- b. Training for admin should emphasize empathy, listening, and clarity, not only speed.
- c. Promotional broadcasts should be moderate, relevant, and well-timed, to avoid eroding trust.
- d. Scripts can be used for efficiency, but must be adapted and personalized, so they don't sound mechanical.

## **CONCLUSIONS AND RECOMMENDATIONS**

This study demonstrates that communication on WhatsApp Business significantly shapes patients' internal evaluations and behavioral intentions in a hospital setting. Interactivity and authenticity emerge as key communication qualities that enhance perceived value and trust, whereas visibility must be carefully managed to avoid negative effects on trust.

For Edelweiss Hospital, and potentially other hospitals with similar profiles, the main conclusion is straightforward: investing in humanized, responsive, and thoughtfully visible communication on WA Business can meaningfully influence patients' intention to choose and stay with the hospital.

From a theoretical perspective, the findings support the relevance of the S-O-R framework in digital healthcare, highlighting trust and value as central psychological mechanisms linking digital communication stimuli to behavior.

## **ADVANCED RESEARCH**

Future research may examine multi-channel patient journeys, incorporate perceived risk and satisfaction, and compare different hospital types or regions to deepen the understanding of digital communication in healthcare.

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