Framework for Implementing ERP Integrating Client-Consultant Agency Management within Moroccan SMEs

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***Abstract*—Nowadays, Enterprise Resource Planning (ERP) is a preferred solution for Small and Medium-sized Enterprises (SMEs) wishing to modernize and integrate their information Systems (IS). However, implementing an ERP remains a complex process due to the organizational constraints specific to SMEs and the difficulties associated with the implementation process. In the context of Moroccan SMEs, the lack of a structured implementation framework and conflicts between the client and the consultant are major factors affecting the success of ERP projects. Furthermore, most of the theoretical frameworks presented in the literature are structured around similar phases, do not take into account the client-consultant agency management, and were developed in contexts different from that of Morocco. This research aims to develop an ERP implementation framework that integrates client-consultant agency management, specifically adapted to Moroccan SMEs. To achieve this objective, a mixed-methods approach was adopted. We opted for a quantitative research method using the PLS-SEM statistical technique, with the aid of SmartPLS software, to examine how client–consultant agency management affects the success of ERP implementation within Moroccan SMEs. Next, we used the action research method to develop a framework for ERP implementation that integrates client–consultant agency management within Moroccan SMEs. The proposed framework is based on five phases, each defining the objectives, inputs, processes, outputs, critical success factors (CSF), and associated risks. The integration of client-consultant agency management makes it possible to anticipate and manage organizational, technical, and human conflicts, particularly through the contract and conflict resolution strategies. This study contributes to both academic research and professional practice by offering consultants and Moroccan SMEs a structured framework aimed at improving the success of ERP projects.**

Keywords*—ERP; ERP implementation; client-consultant; Moroccan SMEs; IS success; system benefits

I. Introduction

Nowadays, adopting an ERPS has become a key choice for SMEs looking to modernize their IS and implement integrated management [1]. A successful ERP project brings many benefits, such as process automation, cost reduction, improved production quality, improved customer service, and better coordination between departments [2,3,4,5]. However, despite the advantages of adopting an ERPS, the implementation process faces a number of challenges related to the organizational nature of SMEs, as well as the process of implementing this type of technological solution. This makes the implementation of an ERPS a complex process and a challenge for SMEs.

In Morocco, as a technical and functional consultant involved in implementing ERP in various types of companies, including SMEs, and as a member of a research team with over 20 years of experience in implementing ERP in various contexts—large companies, universities, and Moroccan SMEs—we have been able to identify the main challenges facing the latter. These include the lack of an ERP implementation framework and conflicts between the client and the consultant, which impact the success of ERP implementation within Moroccan SMEs.

Following several literature reviews and according to [6], consultants play a very important role in the successful implementation of ERP in SMEs. However, the failure of ERP projects is sometimes due to conflicts between the client and the consultants. According to [7], conflicts between the client and consultants can be managed using a framework called the client-consultant agency. This concept refers to actions or decisions taken by the client or consultant to anticipate and manage conflicts that may arise during ERP implementation. This indicates that client-consultant agency management can play a crucial role in the successful implementation of ERP in Moroccan SMEs.

On the other hand, according to several studies in the literature [8,9,10], using an ERP implementation framework makes it possible to:

- Provide clear direction
- Plan the phases
- Facilitate communication
- Control costs, deadlines, and quality
- Promote adoption by users

This indicates that the use of an ERP implementation framework plays a crucial role in the successful implementation of ERP within Moroccan SMEs.

It is in this sense that this study aims to develop a framework for implementing ERP that integrates client-consultant agency management within Moroccan SMEs.

We will present a review of the literature on frameworks developed for implementing ERP within SMEs. By identifying

the limitations of existing work, this research aims to fill the gaps identified in the literature by proposing a framework for implementing ERP that integrates client-consultant agency management within Moroccan SMEs.

II. Literature Review

The implementation of an ERP is a complex and strategic undertaking within companies. To ensure its success, a clearly defined methodological framework is essential. This framework provides an organized structure that guides the ERP implementation process, facilitating the coordination of various aspects of the project from initial planning to full system integration. Numerous frameworks have been developed for ERP implementation in SMEs. Below is an overview of the frameworks examined in the literature (see Table I):

TABLE. I. Frameworks Developed for Implementing ERP in SMEs

Authors, year	Country	Phases
Danang et al. (2023) [11]	Indonesia	- The assessment - Implementation
Alaskari et al. (2021) [12]	Angleterre	- Process analysis - Preparation of specifications - Creation of a project plan - Creation of the system - Creation of a data migration plan - User acceptance testing - User training - Commissioning
Carmela and P. Perez (2019) [13]	Philippines	- Inspiration - Conceptualization - Implementation
Jagoda et al. (2017) [14]	Not defined	- Partner selection - Preparation of the implementation - Implementation - Evaluation
Sahran et al. (2010) [15]	Malaysia	- Initiation - Planning and selection - Implementation - Deployment and support

Most of these frameworks follow similar phases, do not account for client-consultant agency management, and were developed in contexts different from that of Morocco.

Referring to the literature, we noticed a lack of framework for implementing ERP that integrates client-consultant agency management within Moroccan SMEs.

It is in this sense that our research focused on two main and complementary areas:

- Examine how client-consultant agency management affects the successful implementation of ERP within Moroccan SMEs.
- Propose a framework for the implementation of ERP within Moroccan SMEs.

III. Research Questions

Given this gap in the literature, this research aims to answer the following research question: How can a framework that integrates client-consultant agency management promote the successful implementation of ERP in Moroccan SMEs?

We will attempt to answer this central question through the following research questions:

1) How does client-consultant agency management affect the successful implementation of ERP in Moroccan SMEs?

2) What are the essential phases to follow to ensure the successful implementation of ERP in Moroccan SMEs?

3) How can these different phases be structured to ensure the successful implementation of ERP in Moroccan SMEs?

IV. Research Methodology

To answer these research questions, we adopted a mixed research method.

To answer the first question, we opted for the quantitative research method using the PLS-SEM statistical method with SmartPLS software.

We chose this method to measure the impact of the client-consultant agency on the successful implementation of ERP within Moroccan SMEs. This impact is quantifiable, i.e., either positive or negative. To do this, we based our research on an existing model in the literature that studies this impact, and we used it in our research to test our hypotheses.

The quantitative research method is a method that involves collecting numerical data for analysis [16,17].

In this study, a questionnaire was distributed via email to collect data from employees who had previously participated in the implementation of an ERPS, as well as from consultants who had previously led ERP implementation projects within Moroccan SMEs. We then analyzed the data using the PLS-SEM model, which allows us to explain the relationships between one or more explanatory variables and one or more dependent variables, either directly or indirectly [18].

The analysis was performed using SmartPLS software, which is used for structural equation modeling [19].

To answer the second and third questions, we used the action research method.

We chose this method because we could not find any work on this subject in Morocco using the action research method. Furthermore, this method places the researcher within the company, allowing for close observation.

The action research method is a type of case study in which the author, usually the researcher, actively participates in the implementation of the system [20]. It aims to solve problems while generating knowledge [21].

The action research cycle follows a cyclical process comprising a preliminary stage aimed at defining the context and objective, as well as four main stages: constructing, planning action, taking action, and evaluating action.

Constructing: Based on the context and the defined objective, the action researcher develops hypotheses drawing on the state-of-the-art and their expertise in the field.

Planning action: The action researcher plans all stages of the project based on the established hypotheses and in collaboration with the project team.

Taking action: The action researcher implements the planned actions with the participation of all project stakeholders.

Evaluating action: The action researcher carries out the necessary checks to evaluate the achievement of results in relation to the hypotheses formulated.

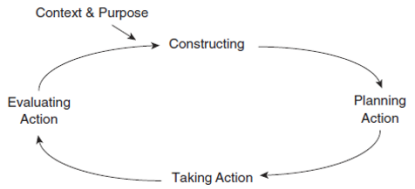

Fig. 1. Action research cycle.

In our study, the action research method was used in two Moroccan SMEs operating in the service sector (see Fig. 1). I had the opportunity to work on both projects as project manager. In this capacity, I was responsible for directing and supervising the implementation of the respective projects. As project manager, my role included strategic planning, team coordination, and supervision of the various phases of project implementation. This experience as a manager directly involved in these initiatives gave me an in-depth perspective on the challenges and successes encountered during these complex ERPI processes. Table I presents the cases studied.

TABLE. II. DESCRIPTION OF THE CASE STUDIES

	Company A	Company B
Year	2014	2013
Specialty	Coaching, leadership and management	Consulting, audit and support
ERP	Odoo Version 11	Odoo Version 12
Modules	Purchasing, Sales, CRM, Inventory, Billing, Accounting, Document, Project, Human Resources	Purchasing, Sales, CRM, Inventory, Billing, Accounting, Document, Project, Human Resources, Signature

V. FRAME DESIGN

To develop our framework, we combined:

- Quantitative research methods to examine the impact of client-consultant agency management on the successful implementation of ERP in Moroccan SMEs;
- Action research methods to identify the phases and structure of each phase of the ERP implementation framework in Moroccan SMEs;
- Scientific literature;
- The experience of the research team, which has more than 20 years of experience in ERP implementation.

A. Examining how Client-Consultant Agency Management Affects the Successful Implementation of ERP in Moroccan SMEs

To examine how client-consultant agency management affects the successful implementation of ERP in Moroccan SMEs, we used the model proposed by [7], based on the client-consultant agency, the dimensions of CSF for ERP, and the IS success model. Fig. 2 shows the theoretical model.

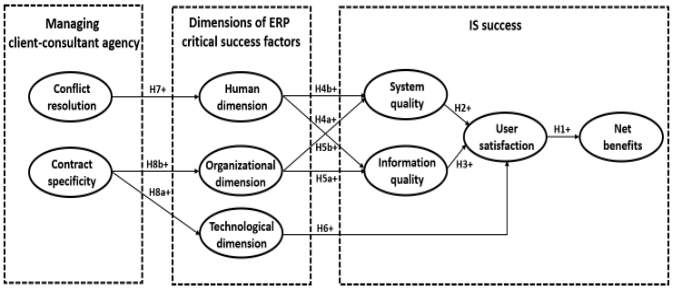

Fig. 2. Theoretical model.

The objective is to explain net benefits through conflict resolution and the contract specificity.

The model is based on assumptions, which we used to develop a questionnaire that we distributed to employees of SMEs who had already participated in the implementation of ERP and to consultants who had already implemented ERP in Moroccan SMEs.

H1. User satisfaction (US) has a positive influence on the net benefits generated by ERPS.

H2. System quality has a positive impact on user satisfaction.

H3. Information quality has a positive impact on user satisfaction.

H4a. The human dimension of ERPP has a positive impact on information quality.

H4b. The human dimension of ERPP has a positive impact on system quality.

H5a. The organizational dimension of ERPP has a positive impact on information quality.

H5b. The organizational dimension of ERPP has a positive impact on system quality.

H6. The technological dimension of ERPP has a positive impact on user satisfaction.

H7. Conflict resolution measures have a positive impact on the human dimension of ERPP.

H8a. Contract Specificity has a positive impact on the technological dimension of ERPP.

H8b. Contract specificity has a positive impact on the organizational dimension of ERPP.

1) Descriptive statistics: In this study, a questionnaire was distributed via email to collect data from employees who had previously participated in the implementation of an ERPS, as well as from consultants who had previously led ERP implementation projects within Moroccan SMEs. We collected 93 responses to our survey. Of the respondents, 56% were men. In terms of age distribution, 80% were in the 26 to 45 age brackets. In addition, 70% of participants held a Master's

degree, and had between 6- and 10-years' experience in the use of ERPS.

2) Measurement model

a) Construct reliability and validity

Net Benefits (NB)

User satisfaction (US)

System Quality (SQ)

Information Quality (IQ)

Human Dimension (HD)

Organizational Dimension (OD)

Technological Dimension (TD)

Conflict resolution (CR)

Contract Specificity (CS)

The results presented in Table III below indicate that the tests exceed the established thresholds, with Cronbach's alpha (> 0.7), rho_A (> 0.7), composite reliability (> 0.7) and average variance extracted (AVE > 0.5), except for contract specification, human dimension and organizational dimension, which have values below the thresholds but are acceptable. This indicates good internal consistency, suggesting that the indicators within each variable are highly correlated, effectively measuring the underlying concept. Consequently, these results also indicate a convergence of items towards their respective latent constructs.

TABLE. III. CONSTRUCT RELIABILITY AND VALIDITY

	Cronbach 's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CR	0.781	0.766	0.875	0.781
CS	0.628	0.726	0.800	0.509
HD	0.730	0.719	0.769	0.456
IQ	0.879	0.879	0.925	0.805
NB	0.957	0.959	0.967	0.855
OD	0.680	0.702	0.805	0.512
SQ	0.929	0.940	0.949	0.825
TD	0.791	0.792	0.905	0.827
US	0.913	0.918	0.939	0.792

b) Discriminant validity: Examination of Table IV presented reveals that the square root of the AVE of each construct exceeds the highest correlation with any other construct. Consequently, the scales used in the study demonstrate discriminant validity, confirming that the constructs do indeed measure distinct concepts without exhibiting excessive overlap. This finding reinforces confidence in the use of these scales to measure variables of interest in research.

TABLE. IV. DISCRIMINANT VALIDITY: FORNELL-LARCKER CRITERION

	CR	CS	HD	IQ	NB	OD	SQ	TD	US
CR	0.884								
CS	0.709	0.713							
HD	0.601	0.612	0.676						
IQ	0.732	0.601	0.661	0.897					
NB	0.548	0.495	0.470	0.671	0.925				
OD	0.679	0.682	0.618	0.702	0.706	0.716			
SQ	0.601	0.528	0.654	0.872	0.898	0.707	0.908		
TD	0.595	0.514	0.629	0.893	0.664	0.698	0.880	0.909	
US	0.736	0.654	0.637	0.870	0.768	0.711	0.880	0.883	0.890

c) Factor loading: The results of the factor loadings analysis in Table V reveal that majority of values exceed the 0.7 threshold, indicating a strong correlation with the factors studied, which is considered positive. On the other hand, loadings below 0.7 are also noteworthy, though considered acceptable, testifying to a more moderate association with the factors analyzed.

TABLE. V. FACTOR LOADING

CR1	0.983	**IQ1**	0.891	**OD4**	0.654
CR2	0.772	**IQ2**	0.886	**SQ1**	0.933
CS1	0.869	**IQ3**	0.914	**SQ2**	0.913
CS2	0.858	**NB1**	0.937	**SQ3**	0.872
CS3	0.892	**NB2**	0.970	**SQ4**	0.913
CS4	0.766	**NB3**	0.839	**TD1**	0.913
CS5	0.605	**NB4**	0.920	**TD2**	0.906
HD1	0.731	**NB5**	0.953	**US1**	0.868
HD2	0.752	**OD1**	0.727	**US2**	0.891
HD3	0.651	**OD2**	0.806	**US3**	0.903
HD4	0.665	**OD3**	0.751	**US4**	0.898

3) Structural model: In order to test the significance of the relationship between variables, we used a bootstrapping procedure of 10000 samples. Table VI below shows that all the path relationships are significant except the impact of human dimension on system quality and technological dimension on user satisfaction. Fig. 3 presents the path coefficients.

TABLE. VI. DIRECT EFFECTS

	Original sample (O)	Standard deviation (STDEV)	P values
CR -> HD	0.719	0.055	0.000
CS -> OD	0.882	0.038	0.000
CS -> TD	0.514	0.095	0.000
HD -> IQ	0.677	0.115	0.000

HD -> SQ	0.199	0.199	0.318
IQ -> US	0.594	0.139	0.000
OD -> IQ	0.256	0.121	0.035
OD -> SQ	0.634	0.171	0.000
SQ -> US	0.259	0.105	0.013
TD -> US	0.154	0.108	0.153
US -> NB	0.768	0.062	0.000

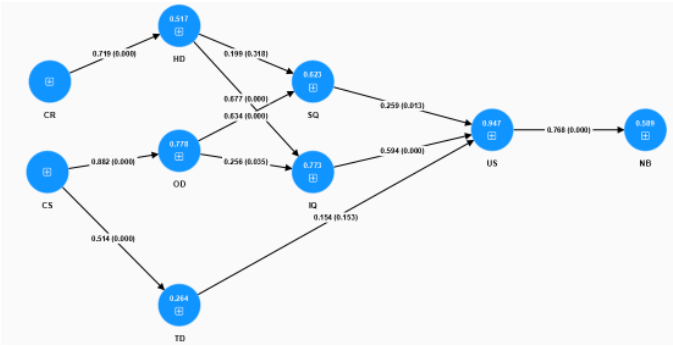

Fig. 3. Path coefficients.

Table VII presents the four paths that link client consultant agency management to the realization of benefits. All paths are significant.

TABLE. VII. INDIRECT EFFECTS

	Original sample (O)	Standard deviation (STDEV)	P values
CR -> HD -> IQ -> US -> NB	0.222	0.065	0,001
CS -> OD -> IQ -> US -> NB	0.123	0.055	0,033
CS -> OD -> SQ -> US -> NB	0.119	0.058	0,047
CS -> TD -> US -> NB	0.161	0.052	0,039

The model's suitability for the sample was assessed using R2 values in Table VIII. All endogenous concepts have R2 values above 0.5, with the exception of the technological dimension concept, which has an R2 value of 0.264. These values indicate that the predictive power of the proposed model is high given its complexity. The main dependent variable in this study is net profit, with an R2 value of 0.589. Thus, the proposed model explains 58.9% of the variance in net profit.

TABLE. VIII. R-SQUARE

	R-square
HD	0.517
IQ	0.773
NB	0.589
OD	0.778
SQ	0.623
TD	0.264
US	0.947

Empirically, this study reveals that conflict resolution significantly explains the human dimension of the ERPP, representing 51.7% of this dimension. Complementarily, contract specification emerges as a major explanatory factor for the organizational and technological dimensions, contributing 77.8% and 26.4%, respectively. These results highlight the critical importance of conflict resolution and contract specification in the successful implementation of ERPP, underscoring their crucial role in human, organizational and technological aspects.

After analyzing the data, our study identified four paths in which client-consultant agency management affects the successful implementation of ERP in Moroccan SMEs, through the contract and the implementation of conflict resolution strategies.

The first and second paths involve using the contract to anticipate and manage conflicts between the client and consultants that may arise from organizational factors. The contract must include:

- Financial and legal aspects:

Defines the budget, payment terms, and legal obligations to ensure both parties understand their commitments and liabilities.

- The company's objectives:

Clearly states the strategic goals of the company that the project aims to achieve.

- The company's needs:

Specifies the operational and organizational requirements that the ERP project must fulfill.

- The expected results:

Outlines the deliverables and measurable outcomes expected.

- The structure of the project team:

Describes the composition of the team, including roles and hierarchy, to ensure effective collaboration.

- The roles and responsibilities of each member:

Assigns clear responsibilities to each team member to avoid overlaps and conflicts.

- Clear timelines and deadlines for the completion of the project:

Establishes project milestones and deadlines to ensure timely delivery.

- Penalties for unsatisfactory results:

Defines consequences and corrective measures in case project outcomes do not meet agreed standards.

The third path is to detail the technical requirements that the client expects from the ERP in the contract. The contract must include:

- All modules, features, interfaces, and processes to be implemented:

Defines the complete ERP scope, specifying every module, functionality, interface, and business process to ensure the project meets the client's expectations.

- Specify that the consultant must have experience with the modules to be implemented:

Ensures that consultants have the necessary expertise for the specific ERP modules, reducing risk and increasing the likelihood of successful implementation.

The fourth path is to use conflict resolution strategies to manage issues between the client and consultants that cannot be addressed in the contract:

- Management involvement:

Engages leadership to provide guidance, make decisions, and resolve escalated conflicts.

- User involvement:

Includes end-users in discussions and decisions to ensure their needs are met and to reduce resistance.

- Proactive communication:

Maintains clear, regular, and transparent communication to prevent misunderstandings and address issues early.

- Consultant skills:

Relies on the expertise and problem-solving abilities of consultants to handle challenges effectively.

- Change management:

Applies structured approaches to manage organizational change, helping users adapt and ensuring project success.

Fig. 4 shows how client-consultant agency management is handled in Moroccan SMEs through the contract and conflict resolution strategies.

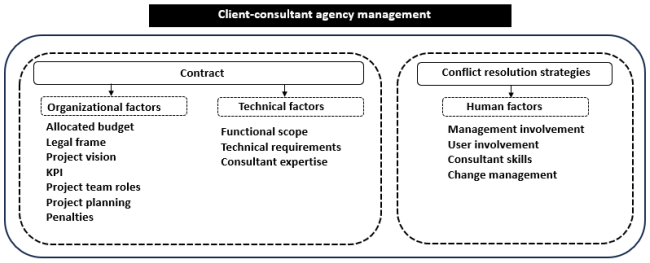

Fig. 4. Management of the client-consultant agency within Moroccan SMEs.

B. Phases and Structure of each Phase of the ERP Implementation Framework in Moroccan SMEs

In our research, we propose a systematic and easy-to-understand framework structured in five phases: the analysis phase, the design phase, the implementation phase, the final preparation phase, and the commissioning and support phase.

Each phase includes objectives, inputs, processes, and outputs, as well as CSF and risks. In addition, the outputs of each phase are used as inputs for the next phase, ensuring a smooth transition between phases.

Certain criteria were taken into account when developing the framework, including a simple, systematic, and easy-to-understand structure, clarity between phases, and a roadmap and planning tools for implementation.

The design of our framework is shown in Fig. 5.

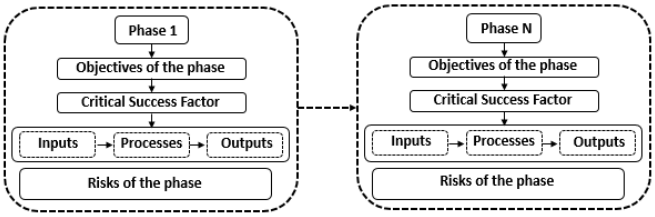

Fig. 5. Framework design.

1) Analysis phase: The analysis phase is a key step in the implementation of the ERP, as it aims to build a thorough and shared understanding of the project between the client and the consultant. Based on the contract between the two parties, this phase allows the scope of the project, the strategic objectives, and the terms of collaboration to be defined. It involves organizing the project kick-off meeting, structuring the project team, analyzing existing documents and processes, and conducting interviews with key users. These activities enable the functional requirements of the organization to be identified, formalized, and validated. The main deliverables of this phase are the project plan, the process modeling document, and the functional requirements document, which are essential references for guiding the subsequent phases and reducing the risk of misunderstanding or disagreement between stakeholders.

The CSF for the analysis phase is mainly based on organizational and human alignment around the ERP project. The support and involvement of senior management are essential for making decisions, ensuring the availability of resources, resolving issues, and supporting employees in accepting the new ERP. The active involvement of end users and key stakeholders makes it possible to gather precise and realistic requirements, while promoting buy-in for the project from its earliest stages. Rigorous project management helps to structure the analysis work, coordinate the various players, and control deadlines and risks. Process reengineering is a key factor, as it allows existing business practices to be aligned with ERP standards and best practices. The project team's functional and technical expertise guarantees the quality of the analyses and the relevance of the choices made. Finally, proactive change management from the analysis phase onwards prepares the organization for the transformations brought about by ERP and reduces resistance that could compromise the success of the project.

We have identified the risks associated with each phase in order to highlight the potential consequences of failing to apply CSF, with the aim of preventing the failure of the phase and the project as a whole (see Table IX).

TABLE. IX. GUIDELINES FOR THE ANALYSIS PHASE

Analysis phase	**Objectives**		
	- Define the scope, goals, and objectives of the project - Model the processes - Define the project team		
	Critical success factors		
	- Support and involvement from senior management - Involvement of end users and stakeholders - Project management - Process reengineering - Project team competence - Change management		
	Inputs	**Processes**	**Outputs**
	- Contract between the client and the consultant	- Organizing and holding the project kick-off meeting - Defining the project team - Reviewing documents, reports, and processes - Conducting discussions with key users	- The project plan - The process modeling document - The functional requirements document
	Risks		
	- Lack of involvement from management and end users - Poor reengineering - Misunderstanding among project team members - Lack of expertise and competence within the project team - Resistance to change		

2) Design phase: The design phase aims to translate the functional requirements validated during the analysis phase into operational solutions adapted to the ERP. It is based primarily on the functional requirements document and consists of designing the target processes in detail through the preparation and presentation of prototypes of the various ERP modules to be implemented. Workshops are organized with stakeholders to define management and customization rules and any additional features. This phase also allows the data migration strategy and methods to be defined. The key deliverables of this phase are the detailed functional specifications document and the data collection and migration models, which form an essential basis for the implementation phase and help to control the technical and organizational risks of the ERP project.

The CSF for the design phase is based on effective governance and close collaboration between the various stakeholders in the ERP project. The support and involvement of senior management remain essential for validating structural choices, arbitrating priorities, and ensuring that the solution is consistent with the company's strategy. The involvement of end users and key stakeholders helps to understand requirements, needs, management rules, customizations, and new features to be developed. Rigorous project management is necessary to coordinate design workshops, control deadlines, and ensure the traceability of decisions made. The competence of the project team, both functionally and technically, determines the quality of the detailed specifications and the relevance of the configuration and customization choices. Finally, effective change management during this phase promotes stakeholder buy-in, prepares users for future developments, and limits the risk of rejection during later implementation phases.

We have identified the risks associated with each phase in order to highlight the potential consequences of failing to apply CSF, with the aim of preventing the failure of the phase and the project as a whole (see Table X).

TABLE. X. GUIDELINES FOR THE DESIGN PHASE

Design phase	**Objectives**		
	- Create and present prototypes for each module - Validate business rules, customizations, and specific developments with stakeholders - Establish the framework for data migration		
	Critical success factors		
	- Support and involvement from senior management - Involvement of end users and stakeholders - Project management - Competence of the project team - Change management		
	Inputs	**Processes**	**Outputs**
	- The functional requirements document	- Preparation and presentation of module prototypes - Organization of workshops to define management rules, customizations, and new features required - Determination of the data migration method	- Detailed functional specifications document - Data collection and migration models
	Risks		
	- Lack of involvement from management and end users - Misunderstandings among project team members - Lack of expertise and skills within the project team - Resistance to change		

3) Realization phase: The realization phase involves the practical implementation of the solutions defined during the design phase. It is based on detailed functional specifications and data collection and migration models. This phase includes configuring the various ERP modules, developing customizations and specific functionalities identified, and preparing and executing data migration in the test environment. Test campaigns are then carried out to verify the system's compliance with functional and technical requirements. Any anomalies detected are analyzed and corrected iteratively to ensure the stability and quality of the solution. The main deliverables of this phase include data ready to be migrated to the production environment, training materials for users, and the test catalog, which serves as a reference for the final preparation phase and the ERP's release into production.

The CSF for the realization phase are mainly related to the efficient execution of technical work and the management of changes brought about by the ERP. The support and involvement of senior management remain essential to maintain stakeholder commitment, arbitrate critical decisions,

and ensure the availability of necessary resources. Rigorous project management allows for the coordination of configuration, development, and testing activities, while meeting deadlines, staying within budget, and ensuring the expected quality. The expertise of the project team, both functionally and technically, is crucial to ensuring the correct configuration of the system, the implementation of specific developments, and the effective resolution of anomalies. Change management plays a key role in supporting users in the face of new developments and reducing organizational resistance. Limiting customizations to what is strictly necessary is also a critical factor, as it promotes system stability, facilitates version upgrades, and reduces technical risks. Finally, an adequate configuration aligned with business needs ensures the consistency of the ERP and its ability to effectively support business processes.

We have identified the risks associated with each phase in order to highlight the potential consequences of failing to apply CSF, with the aim of preventing the failure of the phase and the project as a whole (see Table XI).

TABLE. XI. GUIDELINES FOR THE REALIZATION PHASE

Realization phase	**Objectives**		
	- Configure the standard solution - Perform customizations and specific developments - Migrate data - Test the system - Resolve any anomalies found during testing		
	Critical success factors		
	- Support and involvement from senior management - Project management - Project team expertise - Change management - Minimal customization - Configuration		
	Inputs	**Processes**	**Outputs**
	- Detailed functional specifications document - Data collection and migration models	- Module configuration - Implementation of customizations and specific developments - Data preparation and migration - Test execution - Analysis and correction of anomalies detected during testing	- Data to be migrated - Supports for formation - Test catalog
	Risks		
	- Lack of expertise and competence within the project team - Incorrect or excessive customization		

4) Final preparation phase: The final preparation phase is the transition stage between the technical implementation of the ERP and its actual rollout. It draws on the training materials developed and the test catalog produced during the previous phase. This phase includes organizing training sessions for end users to ensure they understand the system's features, as well as conducting user acceptance testing (UAT) to validate the ERP's compliance with functional and operational requirements. Any anomalies identified during UAT are analyzed and corrected, ensuring the quality and reliability of the system before it goes live. The main deliverables of this phase include user guides, the final configuration document, the final source code for specific and customized developments, the final data ready to be migrated to the production environment, and the detailed production plan, which constitutes the roadmap for the operational deployment of the ERP.

The CSF for the final preparation phase depends on the organization's ability to validate the ERP and effectively prepare for its implementation. The support and involvement of senior management are essential to legitimize this decisive phase, mobilize the necessary resources, and validate the transition to production. The active involvement of end users and key stakeholders ensures the relevance of acceptance tests and confirms that the system meets operational needs. Rigorous project management is essential to coordinate training, testing, and bug fixing activities within controlled timeframes. The competence of the project team guarantees the quality of the training provided, the effective resolution of identified problems, and the reliability of the final configuration. Effective change management promotes user acceptance of the system and reduces resistance at the time of deployment. Finally, user training is a major critical factor, as it determines their ability to use the ERP correctly and ensure a smooth transition to the new system.

We have identified the risks associated with each phase in order to highlight the potential consequences of failing to apply CSF, with the aim of preventing the failure of the phase and the project as a whole (see Table XII).

TABLE. XII. GUIDELINES FOR THE FINAL PREPARATION PHASE

Final preparation phase	**Objectives**		
	- Provide training for end users - Conduct user acceptance testing - Resolve any issues identified during acceptance testing - Prepare for the transition to the new ERP		
	Critical success factors		
	- Support and involvement from senior management - Involvement of end users and stakeholders - Project management - Competence of the project team - Change management - User training		
	Input	**Process**	**Output**
	- Supports for formation - Test catalog	- Organizing training sessions for users - Conducting user acceptance testing - Analyzing and correcting anomalies detected during acceptance testing	- User guides - Final configuration document - Final source code for specific and customized developments - Final data to be migrated - Production plan
	Risks		
	- Lack of involvement from management and end users - Lack of expertise and competence within the project team - Resistance to change - Inadequate training		

5) Commissioning and support phase: The commissioning and support phase is the final stage of the ERP project, where the system is deployed in the production environment and made available to end users. This phase is based on the final configuration of the system, the source code for specific and customized developments, the data ready for migration, and the production plan established during the previous phase. The main activities include configuring the production environment, installing the source code, migrating data to the production environment, conducting a production audit to verify system compliance and performance, and setting up post-production support to assist users and resolve any incidents. The main deliverable of this phase is the project closure report, which formalizes the end of the deployment and serves as a reference document for post-project evaluations and future improvements.

The CSF for the commissioning and support phase depends on the organization's ability to ensure stable and sustainable deployment of the ERP in the production environment. The support and involvement of senior management are essential to validate the operational start-up, remove any obstacles, and ensure the continuity of the project after going live. Rigorous project management allows for the coordination of deployment, data migration, production audit, and post-production support activities, while controlling risks and incidents. The technical and functional expertise of the project team is crucial to ensuring system stability, quickly resolving any issues that arise, and providing effective support to users. Finally, effective change management remains essential to support the adoption of the system, build user confidence, and ensure the ERP's long-term viability within the organization.

We have identified the risks associated with each phase in order to highlight the potential consequences of failing to apply CSF, with the aim of preventing the failure of the phase and the project as a whole (see Table XIII).

TABLE. XIII. GUIDELINES FOR THE COMMISSIONING AND SUPPORT PHASE

Commissioning and support phase	**Objectives**		
	- Ensure the new ERP is up and running - Provide user support		
	Critical success factors		
	- Support and involvement from senior management - Project management - Competence of the project team - Change management		
	Input	**Process**	**Output**
	- The final configuration document - The final source code for specific and customized developments - The final data to be migrated - The production plan	- Configuration of the production environment - Installation of source code for custom and specific developments - Migration of data to the production environment - Performance of a production audit - Implementation of post-production support	- Project closing report
	Risks		
	- Lack of involvement from management and end users - Lack of expertise and competence within the project team - Inadequate planning and resources - Discovery of new usage issues		

C. The Framework for Implementing ERP: Integrating the Management of Client Consulting Agencies within Moroccan SMEs

Fig. 6 presents our ERP implementation framework, which integrates client-consultant agency management within Moroccan SMEs.

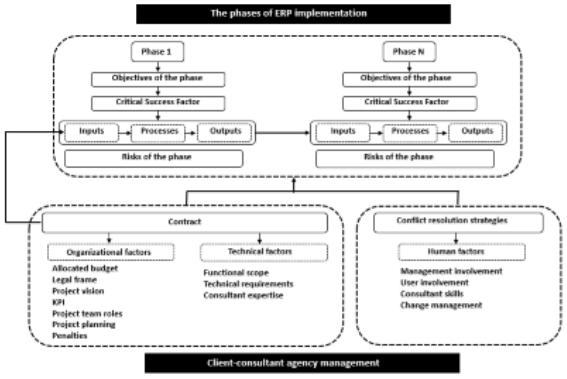

Fig. 6. The framework for implementing ERP that integrates client-consultant agency management within Moroccan SMEs.

A review of the literature reveals a lack of a framework for implementing ERP systems that integrate client-consultant agency management within Moroccan SMEs.

Most of the frameworks found in the literature:

- Use similar phases;
- Do not take into account client-consultant agency management;
- Were developed in contexts different from that of Morocco.

Our research fills the gaps identified in the literature by developing an ERP implementation framework that integrates client-consultant agency management within Moroccan SMEs.

The client-consultant agency plays a crucial role in ensuring effective collaboration between the client and consultants, acting as both supervisor and mediator to manage interactions, prevent misunderstandings, and resolve conflicts. The contract serves as the basis for the first phase of the project and remains a point of reference throughout the various phases, clarifying commitments, responsibilities, objectives, deadlines, and deliverables. To complement the contractual framework, conflict resolution strategies are applied at each phase, including user management and participation, proactive communication, leveraging consultant skills, and change management, in order to anticipate and manage conflicts that may arise during ERP implementation. The framework then integrates the various phases of ERP implementation, identifying the objectives, inputs, processes, outputs, CSF, and

risks for each phase, thus providing a structured approach that reduces uncertainty and increases the chances of project success.

VI. Research Contribution and Limitations

This work makes several contributions to both theory and practice.

From a theoretical perspective, this research:

- Fills gaps identified in the literature by developing an ERP implementation framework that integrates client-consultant agency management within Moroccan SMEs.
- Shows that using consultants does not guarantee the successful implementation of ERP. It explains how consultants contribute to the realization of benefits when implementing ERP.
- Enriches studies on conflicts between clients and consultants in ERP projects. It explains how client-consultant agency management affects the successful implementation of ERP in Moroccan SMEs through the contract and the implementation of conflict resolution strategies.
- Enriches studies on the challenges of ERP implementation and shows that conflicts between the client and the consultant and the lack of an ERP implementation framework, remain challenges when implementing an ERP.

From a practical standpoint, this research:

- Provides Moroccan SMEs and consultants with a clear roadmap for implementing ERP.
- Shows that the use of contracts and the implementation of conflict resolution strategies have an impact on the successful implementation of ERP within Moroccan SMEs.
- Recommends that Moroccan SMEs hire consultants with extensive experience in implementing ERP within Moroccan SMEs.
- Recommends that Moroccan SMEs hire consultants after implementing their ERP to resolve problems and provide user support.

Our research has certain limitations:

- It was limited to Moroccan SMEs operating in the service sector.
- The model used to explain how client–consultant agency management affects the successful implementation of ERP in Moroccan SMEs explains 58.9% of the variance (we did not identify all the factors explaining net profit).
- The use of self-reported questionnaire data may introduce potential biases, such as common method bias and subjective interpretation of responses.

VII. Conclusion

The relevance of ERP as a lever for supporting SMEs is widely recognized. However, in the context of Moroccan SMEs, the lack of a structured implementation framework and conflicts between the client and the consultant are major factors affecting the success of ERP projects. The objective of this study was to develop an ERP implementation framework that integrates client-consultant agency management within Moroccan SMEs.

The framework developed in this research comprises five phases, for each of which the objectives to be achieved, inputs, processes to be followed, outputs, CSF, and risks to be taken into account are defined. In addition, the integration of client-consultant agency management makes it possible to anticipate and manage conflicts between the client and consultants during the implementation of the ERP, whether organizational, technical, or human, particularly through the contract and conflict resolution strategies.

This research makes a significant contribution to the existing literature on ERP implementation and conflict management between clients and consultants in SMEs by proposing a framework specifically adapted to the Moroccan context. From a managerial perspective, this framework provides Moroccan SMEs and consultants with an operational tool that facilitates the planning, coordination, and management of ERP projects, while strengthening collaboration between stakeholders.

Nevertheless, this study has certain limitations, particularly those related to the specific context of Moroccan SMEs and the scope of the cases studied. Future research could extend this framework to other geographical or sectoral contexts, as well as enrich it with additional empirical studies aimed at validating its applicability and impact on the performance of ERP projects.

Ultimately, Moroccan SMEs that consider implementing an ERP can benefit from this framework by following the proposed phases, which constitute a structured and pragmatic roadmap likely to significantly increase their chances of success in ERP implementation.

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