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أثر إدارة التغيير على التحول الرقمي في قطاع الاتصالات في اليمن

The Impact of Change Management on Digital Transformation in The Yemeni Telecom Sector

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الملخص:

الهدف من هذه الدراسة هو تحديد أثر إدارة التغيير على مبادرات التحول الرقمي في قطاع الاتصالات اليمني. تم اعتماد منهج كمي بأساليب تحليلية واستنتاجية لدراسة العلاقة وتحديد التأثير بين إدارة التغيير والتحول الرقمي. استهدفت الدراسة 902 من المديرين وقادة الفرق في هذا القطاع. تم تطوير استبيان وتوزيعه على عينة طبقية من 226 مستجيباً. كانت العينة العشوائية 25٪ من كل طبقة. تم تصميم بنود الاستبيان لقياس أبعاد إدارة التغيير (الحاجة الملحّة للتغيير، تحالف أو فريق ذو رؤية، التمكين وأخيراً الاستدامة) وأبعاد التحول الرقمي (التكنولوجيا والعمليات والأفراد والثقافة ونموذج الأعمال). تظهر النتائج علاقة إيجابية ذات دلالة إحصائية عالية بين ممارسات إدارة التغيير الفعالة والتنفيذ الناجح لمبادرات التحول الرقمي (معامل إيجابي كبير B يبلغ 0.786، وقيمة R^2 تبلغ 0.62، وقيمة t عالية تبلغ 29.34، وقيمة p منخفضة للغاية أقل من 0.001). في الختام، تشير هذه الدراسة إلى أن مبادرات التحول الرقمي تتطلب ممارسات إدارة التغيير المناسبة والهيكلية.

الكلمات المفتاحية: التحول الرقمي، إدارة التغيير، تكنولوجيا، نموذج كوتر.

Abstract:

The objective of this study is to determine the impact of change management on digital transformation initiatives in Yemeni telecom sector. A quantitative approach with analytical and deductive methods was adopted to examine the relationship and determine the impact between change management and digital transformation. The study targeted a population of 902 managers and team leaders in the sector. A questionnaire was developed and distributed to a stratified sample of 226 respondents. The random sample was 25% of each stratum. The questionnaire items were designed to measure the change management dimensions (Change Urgency, Visionary Coalition, Empowerment and Sustainability) and digital transformation dimensions (Technology, Processes, People, Culture and Business Model). The results generated show a highly significant positive relationship between effective change management practices and the successful implementation of digital transformation initiatives (substantial positive coefficient B of 0.786, R^2 of 0.62 and high t-value of 29.34, and the extremely low p-value below 0.001). In conclusion, this study indicates that digital transformation initiatives require practicing proper and structural change management practices.

Keywords: Digital Transformation, Change Management, Technology, Kotter's Eight-Step Model.

1. Introduction:

Organizations worldwide distinguish themselves competitively by identifying advantageous factors that contribute to the creation of value (Aboiron & Aboiron, 2022). With the advent of technology, maintaining competitive advantages through conventional business models has become increasingly challenging (Oh, Kho, Choi, & Lee, 2022). Existing business models need to be evaluated and reconsidered as they face threats from new digital players; otherwise, they will be unable to compete in the digital economy (Gimpel et al., 2018). The reinvention of business models through digital technologies helps organizations to maintain their competitive advantages (Mitroulis & Kitsios, 2019; Verhoef & Bijmolt, 2019). Significantly, organizations that neglect to adapt to technological advancements will gradually fade away. Consequently, the adoption of digital technologies for business transformation is no longer a choice but an essential requirement in order to meet customer

expectations and address emerging demands (Oh et al., 2022). This research argues that the concept of digital transformation lacks a universally agreed-upon definition and is described differently from various perspectives. There is no consensus on the framework to be employed. Nevertheless, the study aligns with the notion that digital transformation is crucial for all organizations across industries.

The concept of digital transformation is currently being perceived as a favorable circumstance for expansion. The monetary investments made towards digital transformation have reached a substantial sum of 2 trillion USD as of the year 2022. Additionally, it is projected that the implementation of advanced digital technology will generate a noteworthy return to the global economy, estimated to be around 15.7 trillion USD by the year 2030 (Oh et al., 2022). By the culmination of 2022, digital technologies contributed to approximately 60% of the Gross Domestic Product (GDP). However, it is concerning to note that a significant 70% of transformation endeavors result in failure, with 39% of these failures attributed to the employees resistance to embrace change, as stated by McKinsey (Bekmukhambetova, 2021).

Change management is widely recognized as an integral component of the process of digital transformation. As posited by Vial (2019), digital transformation is predicated upon a series of alterations founded upon digital technologies. Within the context of digital transformation, these changes necessitate attention and oversight. The absence of a suitable change management model may result in the failure of digital transformation (Alkhamery, Zainol, & Al-Nashmi, 2020). Leaders frequently neglect to instill a sense of compelling urgency among managers, thereby impeding their commitment to aligning with the transformation. Implementing a well-structured change management model enhances stakeholders' engagement and fosters their endorsement of the transformation (Mann, Cerotti, & Bruno, 2017). The support provided by change management in fostering stakeholders' endorsement and facilitating the dissemination of the vision represents a pivotal tool in affecting a cultural shift towards digital transformation. (Hartl, 2019).

All of the change management models that were examined in the prior literature were found to be of a generic nature. This signifies that there is a lack of a specific change model that is designed for digital transformation purposes. The present research posits that, in the realm of digital transformation, any change management model can be applied but it must be customized in order to successfully facilitate the digital transformation of an organization's culture, structure, and business models.

In conclusion, the change management model will expeditiously aid organizations during this transition. Hence, this research ascertains the role of change management in influencing the new state of the organization as induced by digital transformation.

2. Problem Statement

Only 30% of digital transformation initiatives have achieved success on a global scale (Oh et al., 2022). Surveys indicated that a range of 16% to 34% of organizations experienced significant improvement as a result of their digital transformation efforts (Al-Ali, 2020). Yemen, along with Iraq, Syria, Sudan, Somalia, and Palestine, is considered one of the countries that lack digital maturity and require digital development, as stated by AVDE (2022, p. 30). The report considered five strategic dimensions of digital economy: Digital Innovation, Digital Pillars, Digital Citizen, Digital Business, and E-Government. Yemen was ranked 13, 13, 13, 14, and 15 respectively for each dimension out of 22 countries (AVDE, 2022, p. 213) . Globally, Yemen was ranked 131 out of 132 countries in the Global Innovation Index (GII) for 2021(WIPO, 2021, p. 4). This index is assumed to capture the performance of a particular country innovation ecosystem.

Four mobile operators are in competition in Yemen telecom market. These four companies utilize the same Internet Service Provider (ISP), which is owned by the Public Telecommunication Corporation (PTC). Furthermore, Teleyemen company serves as

the international gateway for all operators (including PTC) for international calls ~~and~~ provides the necessary international cables for Internet traffic. Each mobile operator holds a varying market share, with Yemen Mobile leading the market with a 49% share, followed by YOU with 32%, SabaFon with 18%, and Y company with only 1% (CSO, 2020).

PTC, Teleyemen, and the mobile operators have initiated digital projects since their establishment. However, most of these projects were executed as isolated IT initiatives and were not aligned with the overall digital transformation strategy. In other words, these projects were implemented within the IT strategy to either automate internal processes or meet customer demands. Examples of such projects include Enterprise Resource Planning (ERP), Digital marketing, social networking, Mobile money, and electronic vouchers. As mentioned earlier, the success rate of digital transformation initiatives is only 30%. Although there are no specific statistics available for Yemen, it is evident that the success rate is likely to be below 30% due to its status as a digitally immature country.

The concept of structured change management in digital transformation projects remains unclear. Prior to the implementation of digital projects, employees in Yemen's telecom sector were not fully aware of the transformative nature of these projects. Despite extensive training provided to end-users for each project, the issue of resistance to change was not effectively addressed. To ensure successful digital transformation, a structured change management model should be adopted to engage and gain support from stakeholders. It is crucial to communicate a compelling vision to all stakeholders in order to align their efforts towards the transformation process (Hartl, 2019; Mann et al., 2017).

3. Research Questions

In order to determine the impact of change management on digital transformation, the researcher developed the following research question and sub-questions that need to be answered through this research:

Q1: What is the impact of change management on digital transformation in telecom sector in Yemen?

From this main question, the following sub questions were developed:

a) What is the impact of *change urgency* on digital transformation in telecom sector in Yemen?
b) What is the impact of *visionary coalition* on digital transformation in telecom sector in Yemen?
c) What is the impact of *empowerment* on digital transformation in telecom sector in Yemen?
d) What is the impact of *sustainability* on digital transformation in telecom sector in Yemen?

4. Research Objectives

This research aims to examine the impact of change management on digital transformation. The scope of the study is the telecom sector in Yemen. From the introduction and the aforementioned problem, the objectives can be summed up as follows:

1. Determine the impact of applying structured change management practices on digital transformation initiatives in Yemeni telecom sector.
2. Understand and breakdown the digital transformation dimensions of Yemeni telecom sector
3. Identify the change management dimensions that contribute in successful digital transformation in Yemeni telecom sector.

5. Research Hypothesis

Studies of Bullock (2022), Hanelt, Bohnsack, Marz, and Antunes Marante (2021) Lugonja (2020) have directly addressed the relationship between change management and digital transformation. Bullock (2022) argued that digital transformation requires agile change management model. Hanelt et al. (2021) assumed digital transformation as an organizational change. While Lugonja (2020) determined the impact of change management on digital transformation. Mann et al. (2017) and Auguste (2013) investigated Kotter's

model impact on digital transformation and concluded its effectiveness. Therefore, the researcher has developed this main hypothesis to answer, in more detail, the research question:

- H1: There is a statistically significant impact of change management on digital transformation in telecom sector in Yemen.

From this main hypothesis, the following sub hypotheses were developed:

- H1a. Change urgency has a statistically significant impact on digital transformation in telecom sector in Yemen
- H1b. Visionary coalition has a statistically significant impact on digital transformation in telecom sector in Yemen
- H1c. Empowerment has a statistically significant impact on digital transformation in telecom sector in Yemen
- H1d. Sustainability has a statistically significant impact on digital transformation in telecom sector in Yemen

6. Research Importance

Digital transformation serves as the essential factor in attaining competitive advantages. It grants organizations the ability to expedite business processes and enhance efficiency. Executing digital transformation in the correct manner, employing the appropriate approach, will facilitate organizations in accomplishing successful transformation on either an organizational or a national scale. The objective of this research is to furnish leaders and decision makers in the telecom sector in Yemen with a framework or set of best practices for digital transformation. Furthermore, it will contribute to the existing body of literature in this field, thereby benefiting future research endeavors or studies. In summary, this research holds significance from both theoretical and practical standpoints due to the following key points.

1. On the Theoretical Perspective:

a. Since digital transformation is seen as a modern topic, one of the research objectives is to articulate and enrich the digital transformation concept.
b. Digital transformation is seen as new topic. To the best of the researcher's knowledge, insufficient literature and research studies were carried out in this field. The knowledge provided within this study will have significant contribution by articulating and enriching the digital transformation concept.

2. On the Practical Perspective:

a. Revealing the reasons behind unsuccessful digital transformation will save time and money for organizations planning to start their digital transformation journey.
b. The importance of this research is linked with the vast digital evolution in businesses. As Yemen is still lagging behind in digital economy and digital infrastructure, this research is expected to highlight the digital gap and will try to find remedies to proper digital transformation implementation in Yemen.
c. The knowledge of a structured change management model to implement the digital transformation will provide guidance for leaders in telecom sector in Yemen.

7. Scope of the Research

The scope of this research is limited to examining the impact of change management on digital transformation in Telecom sector in Yemen and so the unit of analysis in every company in the telecom sector in Yemen is detailed as follows:

- Public Telecommunication Corporation (PTC)
- Teleyemen
- SabaFon
- YOU
- Yemen Mobile
- Y Telecom (Hudhud)

The target respondents were leaders and decision makers of the digital transformation in the abovementioned organizations who work in the headquarters of every company in Sana'a (The capital of Yemen). Those targeted leaders are in the following level:

- C-Level Management
- IT Management
- Project Managers

- Middle Managers
- Team Leaders

All other impacts on digital transformation like war, blockade, inflation or political conflicts are out of the scope of this research.

8. Operational Definitions

Theoretical definitions usually give abstract notions that are hard to measure. To measure variables, they should be broken down into measurable characteristics. That is operationalizing, which is reducing the abstract concepts in order to make them measurable (Bougie & Sekaran, 2019).

According to the literature reviewed, theoretical definitions were given for each variable and dimension. The researcher has provided the research operational definitions within the review above. These definitions are listed as below.

Digital transformation: A strategic transformation in processes, business model and culture, enabled by technology, that creates value to an organization.

Technology: The information systems that are integrated, connected and configured in order to transform business of an organization.

Process: The business process that is subject to be replaced, improved or created by digital transformation

Workforce (People): The digitally skilled employees of an organization who are responsible of implementing the digital transformation initiatives.

Culture: The collection of common expectations, behavior and experience of digital technologies within organization's individuals.

Business Model: The organization's business plan on how it will provide value and get revenue by using digital technologies.

Change Management: The structured steps that leaders practice to sustain the new digitally transformed organization's structure, culture, operations and business model.

Change Urgency: The compelling desire to transform processes or business models using new digital technologies.

Visionary Coalition: The guiding group of individuals across the organizations who create and communicate digital transformation vision and strategy.

Empowerment: The ability to identify and remove barriers of change and encourage short-term wins across the organization.

Sustainability: The process of integrating deployed digital technologies into organizational structure, culture, operation and business model.

9. Research Methodology

Research Approach:

According to Creswell and Creswell (2017) the research approach is the plan of the research that contains the steps needed to collect, analyze and interpret data. There are three main approaches: (a) qualitative, (b) quantitative and (c) mixture of both. The qualitative approach aims at exploring or understanding the meaning of individual or groups that react to a particular social issue. The researches with qualitative approaches are usually inductive style researches. Questions are open-ended and the findings can be plotted through texts and pictures, while the quantitative approach aims at examining relationships among variables. Those variables can be measured through data collection tools and then statistically analyzed. Researches with quantitation approach are usually deductive style researches and the questions are instrument-based. Because this research aims at examining the relationships and impacts among change management and digital transformation, it has adopted the quantitative approach with analytical and deductive methods (Bougie & Sekaran, 2019; Nasiri, 2021).

Unit of Analysis:

The unit of analysis represents the level of aggregation whereby data collected will be analyzed. This research has investigated the impact of the variables within the Yemeni telecom sector. The operators of the telecom sector are not homogenous and they vary in terms of size, revenue, age, services provided and number of employees. Therefore, the unit of analysis for each telecom operator within the telecom sector in Yemen is likely to vary.

Population and Sampling:

While population refers to the group of people that are of interest the researcher wishes to investigate, a sample is a subset of the population that represents population. Sampling is the process of selecting an number of elements from the population (Bougie & Sekaran, 2019). Sampling of population is either a single stage or multistage (cluster). Cluster sampling is suitable when it is not practical to compile heterogenous elements in the population (Creswell & Creswell, 2017). According to Fry, Groebner, and Shannon (2017) random sampling can be simple, cluster, systematic or stratified. Unlike cluster sampling, stratified sampling is a statistical sampling where population is divided into subgroups called strata. Each stratum shares different values of interest. The sample is then taken from each stratum using simple random sampling. As per the scope of this research, the population includes respondents from all operators in the Yemeni telecom sector in different managerial levels. The population was 902 members. As per scope of research, the population of the research include respondent from different levels. Each level has members with different interests and powers in the decision making. Therefore, the stratified sampling was considered in this research. A random sample of 25% was chosen from each stratum. All targeted respondents were 226 respondents. Table (1) summarize population and targeted sample for each operator.

Table 1: Population and Sample

Operator	C Level	IT Management	Middle Managers	Team Leaders	Total
PTC	20	0	71	165	256
Teleyemen	5	0	17	45	67
SabaFon	6	9	62	137	214
YOU	10	11	73	123	217
Yemen Mobile	4	6	9	62	81
Y Telecom	5	0	17	45	67
Total	50	26	249	577	902
Random Sample (25%)	13	7	62	144	**226**

Source: The research

Note: There were some difficulties in determining the number of each segment in Y Telecom (Hud Hud). Therefore, the researcher assumed the same number of Teleyemen as the latter has the minimum number in population.

10. Materials And Methods

To collect data, a questionnaire was designed to measure all dimensions of digital transformation and change management. The questionnaire was distributed in papers and as electronic format. The number of distributed paper-based questionnaires was increased to 350 in order to reach successful 226 respondents and avoid any data loss. Table (2) shows more details of total distributed and collected per each operator. It is clear that successful responses exceed 100% of the targeted sample.

Table (2): Collected Questionnaires

Operator	PTC	Teleyemen	SabaFon	YOU	Yemen Mobile	Y	Total
Target	64	17	54	54	20	17	226
Distributed	90	40	60	80	40	40	350
Collected Paper	76	33	77	47	28	38	299
Collected Online	24	10	8	11	35	6	94
All Collected	100	43	85	58	63	44	393
Incomplete	10	2	3	0	3	4	22
Ready for Analysis	90	41	82	58	60	40	371

Source: The research

11. Results

Data Cleaning

Data was first cleaned and all those responses that had missing values were excluded (22 responses). Further, the anomalous data analysis was carried out and 36 responses were excluded due to the presence of extreme values (exhibited standardized z-scores greater than -2). This exclusion was done to mitigate the impact of outliers on the normal distribution of the data which will enhance accuracy. Therefore, the rest of 335 cases were analyzed.

Normality Assessment

As displayed in table (3), skewness and kurtosis values fall within an acceptable range which is below 2 for skewness and below 7 for kurtosis. This indicates normality of the data.

Table (3): Normality

	Skewness	Kurtosis
Digital Transformation	-.411-	.229
Change Management	-.462	-.265

Sample characteristics

Out of a total of 335 individuals, 20 or 6.0% identify as female, while 315 or 94.0% identify as male. This breakdown gives an understanding of the distribution of gender within the sample.

As shown in figure (1), the majority of the respondents (201 respondents or 60%) are in between 40 and 49 years old.

For education, and as displayed in Table (4), out of a total of 335 individuals, 0.9%, have a secondary education or less. 3.3%, have a diploma, 67.2%, have a bachelor's degree, 26%, have a master's degree. 2.4%, have a PhD.

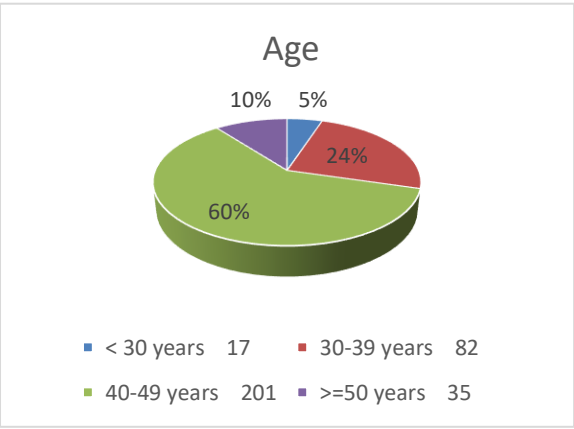

Figure (1)

Table (4): Education

	Frequency	Percent
Secondary or less	3	1%
Diploma	11	3%
Bachelor	226	67%
Master	87	26%
PHD	8	2%
Total	335	100%

The respondents from PTC registered the highest contribution with 25%, followed by SabaFon with 23%, then Yemen Mobile and YOU with 18% and 17% respectively. Y telecom registered the lowest value with only 5%. See figure (2).

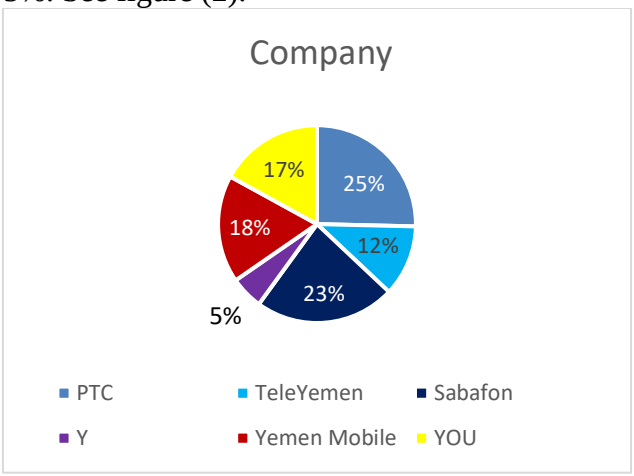

Figure (2)

Finally, as displayed in table (5), out of a total of 335 individuals, 32.5%, have less than 5 years of experience, 25.7%, have between 5 and 10 years of experience, 20.9%, have between 11 and 15 years of experience, 20.9%, have more than 15 years of experience.

Table (5): Years of Experience

	Frequency	Percent
<5 years	109	32.5%
5-10 years	86	25.7%
11-15 years	70	20.9%
>15 years	70	20.9%
Total	**335**	**100%**

Descriptive Statistics

The following section will present the descriptive statistics of the dependent variable (Digital Transformation) and the independent variable (Change Management) and all their dimensions.

1. Digital Transformation

As presented in Table (6), the analysis of dimension means and standard deviations provides insights into the level of agreement and consistency among respondents regarding the importance of various dimensions in the study. The Business Model dimension stands out with a mean of 5.830, showcasing a high level of agreement and consistency (standard deviation = 0.75796). Similarly, the Culture dimension (mean = 5.7630, standard deviation = 0.68522) and the Workforce dimension (mean = 5.6549, standard deviation = 0.82728) also exhibit high levels of agreement. The Process and Technology dimensions, while still considered important with means of 5.4048 and 5.4075, respectively, show slightly lower levels of agreement, with moderate variability in responses indicated by standard deviations of 0.94227 and 0.97596. Lastly, the Digital Transformation maintains a high level of agreement (mean = 5.6121, standard deviation = 0.71559). In summary, all dimensions are perceived as important, and the variation in responses is generally within an acceptable range, emphasizing the significance of these dimensions in the study context.

Table (6): Digital Transformation Statistics

	Mean	SD	RII
Business Model	5.83	0.76	83.3%
Culture	5.76	0.69	82.3%
Workforce	5.65	0.83	80.8%
Process	5.40	0.94	77.2%
Technology	5.41	0.98	77.3%
Digital Transformation	5.61	0.72	80.2%

2. Change Management

The analysis of sub-dimension means and standard deviations within the Change Management dimension provides a comprehensive understanding of the consensus and perceived importance among respondents. Urgency of Change, with a mean of 5.0890, and Visionary Coalition, with a mean of 5.2433, both demonstrate high levels of agreement. Although there is some variability in responses (standard deviations of 1.16325 and 1.07492, respectively), the overall consensus remains strong. Empowerment, with a mean of 5.0322, and Sustainability, with a mean of 5.0316, also exhibit high levels of agreement, and while there is some variability in responses (standard deviations of 1.10769 and 1.08046, respectively), the overall consensus is prominent. The Change Management sub-dimension, with a mean of 5.0990, shows high agreement, and the relatively low standard deviation of 1.01646 indicates a consistent level of importance among respondents. In summary, all sub-dimensions within Change Management are perceived as important, and despite some variability, there is a consistent and high level of agreement among respondents regarding their significance in the study context. See table (7).

Table (7): Change Management Statistics

	Mean	SD	RII
Urgency of Change	5.09	1.16	72.7%
Visionary Coalition	5.24	1.07	74.9%
Empowerment	5.03	1.11	71.9%
Sustainability	5.03	1.08	71.9%
Change Management	5.10	1.02	72.8%

Measurement Model Assessment

A measurement assessment was done for both constructs (digital transformation and change management) and their dimensions. That involved outer loading, Cronbach's alpha, composite reliability (CR), and Average Variance Extracted (AVE) for each indicator. Table (8) shows the results of all values for each variable and dimensions. For digital transformation, Business Model's indicators exhibit outer loadings ranging from 0.636 to 0.831, contributing to a strong level of internal consistency with a Cronbach's alpha of 0.850, high reliability (CR = 0.878), and a satisfactory AVE of 0.571. Similarly, Culture's indicators display strong outer loadings between 0.733 and 0.787, resulting in good internal consistency (Cronbach's alpha = 0.821), reliability (CR = 0.823), and an AVE of 0.583. Workforce's indicators (WF1 to WF5) display outer loadings ranging from 0.671 to 0.846, contributing to strong internal consistency (Cronbach's alpha = 0.809), reliability (CR = 0.841), and an AVE of 0.559. Process's indicators exhibit robust outer loadings

between 0.680 and 0.890, resulting in excellent internal consistency (Cronbach's alpha = 0.886), high reliability (CR = 0.894), and a satisfactory AVE of 0.692. Finally, Technology's indicators highlight strong outer loadings ranging from 0.786 to 0.892, contributing to high internal consistency (Cronbach's alpha =0.912), reliability (CR = 0.917), and a good AVE of 0.741. Overall, these findings underscore the reliability and validity of the measurement model for the first-order constructs within the Digital Transformation construct.

Table (8): Measurement Model Assessment

Construct	Outer loadings	Cronbach's Alpha	CR	(AVE)
Digital Transformation				
Business Model	0.636	0.850	0.878	0.571
Culture	0.765	0.821	0.823	0.583
Workforce	0.702	0.809	0.841	0.559
Process	0.680	0.886	0.894	0.692
Technology	0.883	0.912	0.917	0.741
Change Management				
Change Urgency	0.882	0.933	0.935	0.789
Visionary Coalition	0.926	0.927	0.931	0.822
Empowerment	0.907	0.906	0.908	0.781
Sustainability	0.840	0.933	0.934	0.750

For change management, Change Urgency's indicators demonstrate strong outer loadings ranging from 0.866 to 0.901. The construct exhibits excellent internal consistency with a Cronbach's alpha of 0.933, high reliability (CR = 0.935), and a satisfactory AVE of 0.789. Similarly, Visionary Coalition's indicators display robust outer loadings ranging from 0.850 to 0.935. The construct demonstrates high internal consistency (Cronbach's alpha = 0.927), reliability (CR = 0.931), and a good AVE of 0.822. Empowerment's indicators also exhibit strong outer loadings between 0.828 and 0.910, resulting in high internal consistency (Cronbach's alpha = 0.906), reliability (CR = 0.908), and a satisfactory AVE of 0.781. Lastly, Sustainability's indicators display outer loadings ranging from 0.840 to 0.897, contributing to excellent internal consistency (Cronbach's alpha = 0.933), reliability (CR = 0.934), and a good AVE of 0.750. Overall, these findings underscore the reliability and validity of the measurement model for the first-order constructs within the Change Management construct.

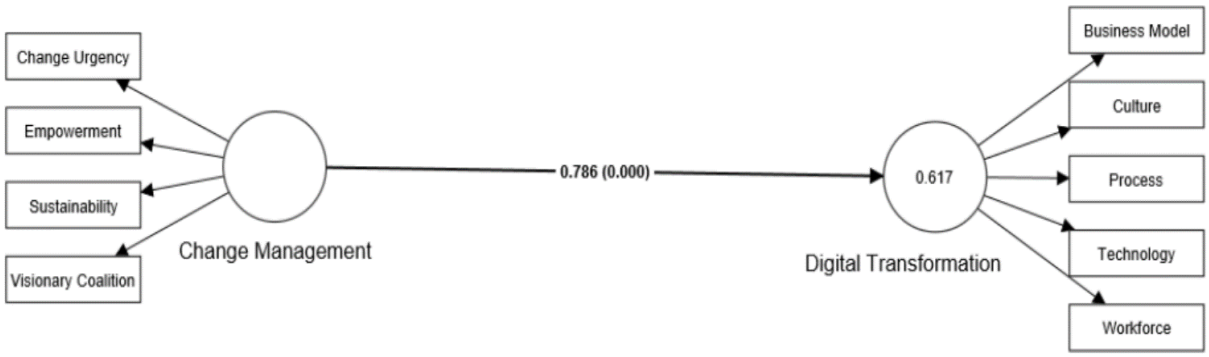

Figure (3): Research Model
Source: The research

Structural Model Assessment

To assess the structural model, Explanatory Power (R2) was used. The R2 ranges from 0 to 1, with higher values indicating a greater explanatory power. As a guideline, the R2 values of 0.75, 0.50, and 0.25 can be considered

substantial, moderate, and weak. R-squared value of 0.617 (Table 9), signifying that the change management variable collectively accounts for 61.7% of the variability in digital transformation. This contribution underscores the comprehensive nature of the model in capturing and explaining factors that drive variance in the dependent variable (digital transformation).

Table (9): R Squared Value

R2	Change Management
Digital Transformation	0.617

Hypothesis Testing

The statistical analysis reveals a robust and highly significant positive relationship between effective Change Management practices and the successful implementation of Digital Transformation initiatives (See figure 3). This is evident from the substantial positive coefficient (B = 0.786), the exceptionally high t-value of 29.34, and the extremely low p-value ($p < 0.001$). These findings strongly support the hypothesis that effective Change Management is a critical factor in driving successful digital transformation journeys in Yemeni telecom sector. Therefore, the main hypothesis is supported. Table (10) illustrate all testing values.

Table (10)

	B	SE	T	P value
Change Management > Digital Transformation	0.786	0.027	29.34	0.00

Source: The research

Sub Hypothesis Testing

As shown in table (11), the analysis reveals a statistically significant positive relationship between change urgency and digital transformation (B = 0.386, t = 4.873, $p < 0.001$). This indicates that a heightened sense of urgency to change can drive and propel organizations towards a more digitally transformed state. Therefore, the sub hypothesis is supported.

	B	SE	T	P values
Change Urgency -> Digital Transformation	0.386	0.079	4.873	0.000
Empowerment -> Digital Transformation	0.085	0.11	0.773	0.220
Sustainability -> Digital Transformation	0.235	0.077	3.064	0.001
Visionary Coalition -> Digital Transformation	0.152	0.09	1.686	0.046

Adding to that, the analysis demonstrates a statistically significant positive correlation between sustainability initiatives and digital transformation efforts (B = 0.235, t = 3.064, $p < 0.001$). This implies that organizations prioritizing sustainability efforts are more likely to experience a successful digital transformation journey. Therefore, the sub hypothesis is supported.

Furthermore, the analysis provides moderate statistical evidence to support a positive relationship between the formation of a visionary coalition and successful digital transformation initiatives (B = 0.152, t = 1.686, p = 0.046). This suggests that organizations that effectively establish a driving group with a shared vision for digital transformation are more likely to achieve their desired outcomes. Therefore, the sub hypothesis is supported.

However, the analysis does not provide strong statistical evidence to support a direct relationship between empowerment and digital transformation. The modest coefficient (B = 0.085) and t-value of 0.773, which falls below the conventional threshold, indicate that the correlation between these two constructs may not be significant. Therefore, the sub hypothesis is not supported.

12. Discussion And Conclusion

Digital transformation initiatives and projects in the Yemeni Telcom sector were carried out during the last two decades. Nevertheless, no clear structured change management was adopted. The finding of the research proved the significant role of change management on digital transformation. Consequently, this demands the necessity of applying change management practices in order

to avoid change resistance and ensure participation of all individuals in the digital transformation projects.

The relationship between change management and digital transformation was also addressed in studies of Bullock (2022), Hanelt et al. (2021) Lugonja (2020). However, Bullock (2022) argued that digital transformation requires agile change management model. While Hanelt et al. (2021) assumed digital transformation as an organizational change. Mann et al. (2017) and Auguste (2013) investigated Kotter's model impact on digital transformation and concluded its effectiveness. Auguste (2013) findings are aligned with the research findings where applying structured change management model (Kotter's eight-step) has increased the adoption rate from 44% (pre-implementation) to 98% (post implementation).

Kotter's eight-step model was employed by the researcher to extract change management dimensions. *Making a sense of urgency* was proved to have a significant impact on digital transformation. Similarly, for *a guiding visionary team* and *change sustainability*. Nevertheless, *empowerment* the employees who implement the change did not play an important role in digital transformation as per research findings where sub hypothesis was not supported. This might be linked to two main reasons: The ability to breakdown the outcomes into short-term milestones. Or due to the rewards system or incentives for the team doing the change.

13. Recommendations

This research aimed to determine some of the reasons behind successful digital transformation projects which is change management. Other reasons might play more or less significant role on digital transformation. Therefore, it is highly recommended to look for those variables like agile project management and digital talents.

For the telecom sector in Yemen, it is highly recommened that they should have:

1. A practical framework for change management. Kotter's eight-step model is good enough. However there are plenty of models that can be applied.
2. Digital transformation is dynamic and requires adaptive capabilities to cope with change.
3. Big changes need to be broken down into short-term wins.
4. Empowerment of team carrying out the change is crucial.
5. Change anchering is not less important than doing the change itself. All the wins of change are subject to vanish if no actions were made to sustain the change.

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