

Impact of Digitalization on Select Industrial units in Thrissur District

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ABSTRACT

Digitalization has been identified as one of the major trends changing society and business. Digitalization causes changes for companies due to the adoption of digital technologies in the organization or in the operation environment. This paper discusses digitalization from the viewpoint of diverse case studies carried out to collect data from several companies, and a literature study to complement the data. This paper describes the first version of the digital transformation model, derived from synthesis of these industrial cases, explaining a starting point for a systematic approach to tackle digital transformation.

INTRODUCTION

One of the major trends influencing society and business is digitalization. Because of the adoption of digital technologies in the organisation or in the operating environment, digitalization causes changes for businesses. This paper discusses digitalization from the viewpoint of diverse case studies carried out to collect data from several companies, and a literature study to complement the data. This paper describes the first version of the digital transformation model, which was derived from the synthesis of these industrial cases, and explains a starting point for a systematic approach to dealing with digital transformation.

The model is aimed to help companies systematically handle the changes associated with digitalization. The model consists of four main steps, starting with positioning the company in digitalization and defining goals for the company, and then analysing the company's current state with respect to digitalization goals. Next, a roadmap for reaching the goals is defined and implemented in the company. These steps are iterative and can be repeated several times. Although company situations vary, these steps will help to systematically approach digitalization and to take the steps necessary to benefit from it.

Organizations are racing globally to shift towards the virtual business model, and to maintain a position in the cyberspace of their competitors, in line with the digital hurricane happening to the economic and social organizations. This rabid and vicious race is leading organizations to shift from digitization to digital transformation to digital organization without the need for a traditional physical presence to meet the requirements of digital customers and their needs around the clock.

On the way to achieve superiority and market control with what is known as strategic supremacy; such sovereignty cannot be attained without the human resources department keeping pace with the global transformations in digitization.

Review of Literature: - Brennen and Kreiss (2014) Digitalization refers to “the adoption or increase in use of digital or computer technology by an organization, industry, country, etc. The potential benefits of digitalization are high; already by digitizing information-intensive processes, costs can be cut by up to 90 percent and turnaround times improved by several orders of magnitude.

Markovitch and Willmott. (2014). Real-time reports and dashboards on digital-process performance permit managers to address problems before they become critical. Sabbagh et al. (2012) Digitalization offers incremental economic growth; countries at the most advanced stage of digitalization derive 20 percent more in economic benefits than those at the initial stage. Digitalization has a proven impact on reducing unemployment, improving quality of life, and boosting citizen access to public services.

Henriette et al. (2015) A digital transformation project involves implementing digital capabilities to support business model transformations impacting entire organizations, especially operational processes, resources, internal and external users. Sabbagh et al (2012)

This study found that 76% of respondents felt that digital technologies are important to their organizations, and 92% believed that digitalization would be important in three years.

Makridakis, 2017) With the introduction of digital technology and the likes of artificial intelligence

(AI) and machine learning (ML), the HRM function possesses the ability to leapfrog other support functions and is progressively becoming more digitalised. (Kashyape, 2018) These process changes are affecting all areas of HR, with AI leading to rapid process acceleration and efficiencies in recruitment, replacing manual curriculum vitae (CV) screening by automated bots that complete such tasks in seconds.

Verma & Munjal (2003) identified the major factors in making a brand choice decision namely quality, price, availability, packaging and advertisement. The brand loyalty is a function of woman behavioural and cognitive patterns of a customer. Dunne, Lawlor & Rowley (2010) Young people's use of online social networking sites-a uses and gratifications perspective have made an attempt to find out the reason behind young people's use of social networking site with special reference to bebo.

Sur (2017) if the organization proved reliable to the consumers, there will be a great bond between consumer and organization and that can lead to effective and healthy customer relationship management. Parasuraman (2002) firms delivering services must broaden their examination of productivity from the conventional company-oriented perspective to a dual company-customer perspective. This broadened approach can help reconcile conflicts or leverage synergies between improving service quality and boosting service productivity.

Dessler (2012), Organizational performance involves analyzing the performance of a company by comparing its set standards against its actual achievements. Performance can be defined as a collection of work activities, operational efficiency and effectiveness. Akinyi, 2012 Organization performance in Kenya Power for supplier digitization is measured by various impact dimension that is attributed to the steady growth of the organizational business function since its implementation.

Analysis of the Demographical Factors of Employees

Objectives of the study: -

- To analyze the impact of digitalization of human resource functions on organizational performance.
- To analyze the impact of digitalization of marketing functions on organizational performance.
- To analyze the impact of digitalization of production functions on organizational performance.
- To analyze the impact of digitalization of contract functions on organizational performance.
- To analyze the impact of digitalization of CRM functions on organizational performance.
- To analyze the impact of digitalization of functions on organizational performance.

Research Methodology

Based on the review of previous literature, observation and personal discussion with experts the study identified variables in relation to impact of digitalization in organizations. After identifying the variables, the questionnaire was sectioned for easiness and clarity. The same was discussed with fellow researchers and experts again to have more clarity before administering the test.

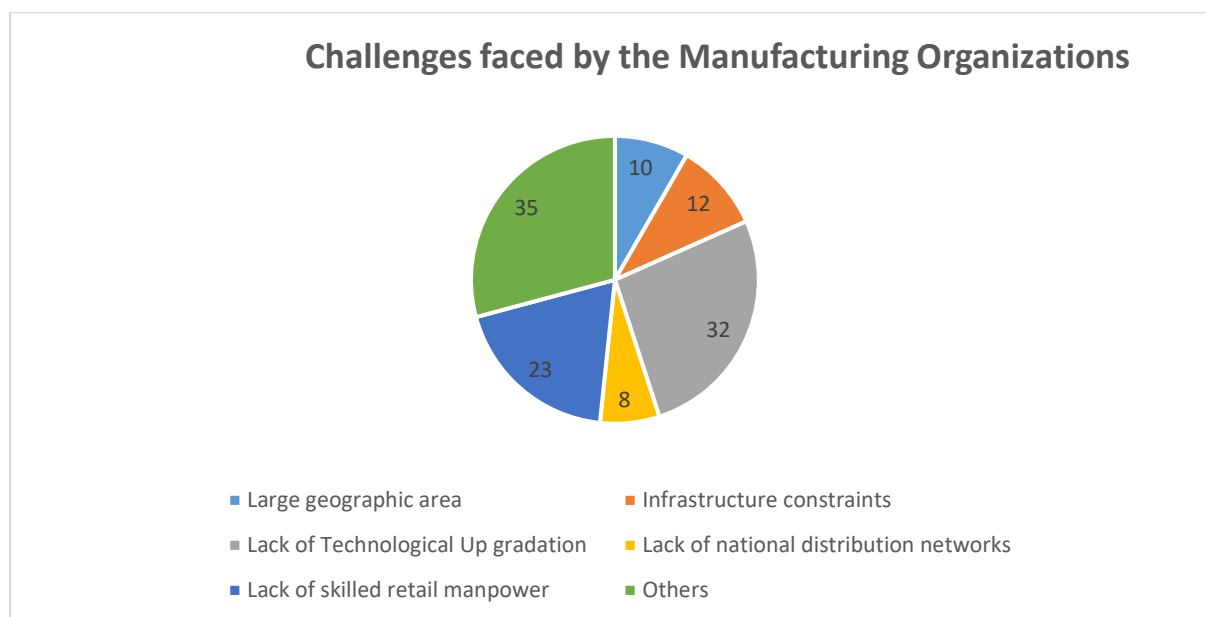
For the study opinion was collected from 120 sample respondents from employees of organizations located in Trissur district. To achieve the research objectives, collected data was analyzed by using different set of statistical tools and techniques. Respondents' profile was analyzed and presented by descriptive analysis including frequency and percentages. Methods like reliability test, correlation, and regression analysis has been adopted to assess the impact of digitalization in organizations at Trissur District. Bar chart and pie charts are used to present data in a graphical form

Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	13	10.8	10.8	10.8
26-35	29	24.2	24.2	35.0
36-45	35	29.2	29.2	64.2
46-55	43	35.8	35.8	100.0
Total	120	100.0	100.0	
Gender				
Male	49	40.8	40.8	40.8
Female	71	59.2	59.2	100.0
Total	120	100.0	100.0	

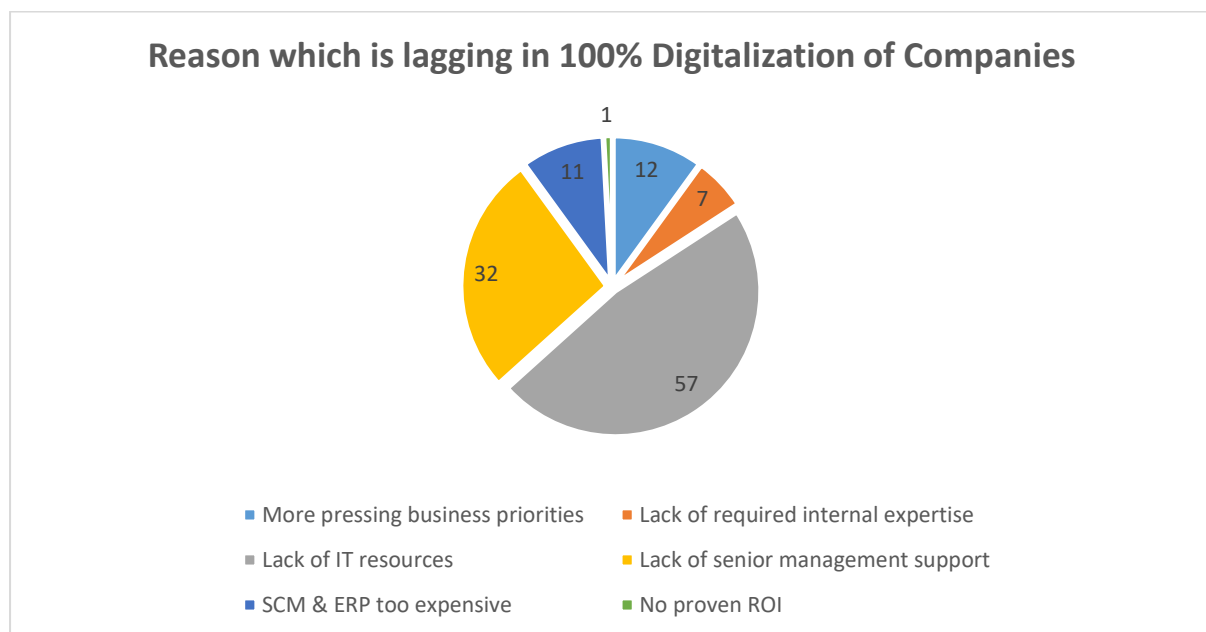
Educational level				
Under Graduate (e.g. H.S.C, S.S.C)	9	7.5	7.5	7.5
Graduate (e.g. B.A., B.Com, B.Sc.)	49	40.8	40.8	48.3
Post Graduate (e.g. M.com, M.A, M. Sc.)	41	34.2	34.2	82.5
Professionals (e.g. CA, CS, MBA, MBBS)	21	17.5	17.5	100.0
Total	120	100.0	100.0	
Primary role in your organization				
Purchasing and Procurement	12	10.0	10.0	10.0
Marketing and Sales	47	39.2	39.2	49.2
Supplies and Logistics	2	1.7	1.7	50.8
Supply Chain Management Material Management	12	10.0	10.0	60.8
HR Department	38	31.7	31.7	92.5
Other Senior Level	2	1.7	1.7	94.2
Others	7	5.8	5.8	100.0
Total	120	100.0	100.0	
Geographical area of operation				
Panchayat	32	26.7	26.7	26.7
Municipality	88	73.3	73.3	100.0
Total	120	100.0	100.0	
Manufacturing segment does your company belong to				
Engineering and Manufacturing	28	23.3	23.3	23.3
Pharmaceutical	31	25.8	25.8	49.2
Chemicals	12	10.0	10.0	59.2
Cattle feed	20	16.7	16.7	75.8
Tire/ Automobile Parts	18	15.0	15.0	90.8
Textile Mills/Apparels	11	9.2	9.2	100.0
Total	120	100.0	100.0	
Usage of website?				
Yes	110	91.7	91.7	91.7
No	10	8.3	8.3	100.0
Total	120	100.0	100.0	

Income level				
Less than 30 Thousand	17	14.2	14.2	14.2
30-50 Thousand	63	52.5	52.5	66.7
50-1 lakh	33	27.5	27.5	94.2
Above one lakh	7	5.8	5.8	100.0
Total	120	100.0	100.0	

Key challenges faced by the manufacturing organizations in Indian market



What is the one reason you believe which is lagging in 100% digitalization of companies?



Reliability Test

The response received from pilot were subjected to reliability test ie Cronbach's Alpha test and found all the sections in the questionnaire were reliable

and accepted for further analysis. The reliability statistics clearly show that Cronbach Alpha value of all items are above .70 which is considered to be very good means the built tool is highly reliable

Table -1		
Factors	Cronbach's Alpha	No. Of Items
Human Resource Management	.906	29
Marketing	.885	21
Production	.827	13
Contracts	.793	14
Customer Relation Management	.689	05
Impact of Digitalization and organization Performance.	.705	08

Correlation Analysis of Variables: A sort of statistical approach used to analyse the relationship between two continuous variables is Bivariate Correlation analysis. The relationship of dependent

variable (**Digital Impact on Performance**) and independent variables (**Production, Contract, Human Resource, Customer Care, Marketing**) were tested and the results are as follows.

Correlations							
		Human Resources	Customer care	Marketing	Contract	Production	Digital Impact on Performance
Human Resources	Pearson Correlation	1	.464**	.565**	.355**	.525**	.612**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	120	120	120	120	120	120
Customer care	Pearson Correlation	.464**	1	.528**	.424**	.561**	.594**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	120	120	120	120	120	120
Marketing	Pearson Correlation	.565**	.528**	1	.687**	.661**	.947**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	120	120	120	120	120	120
Contract	Pearson Correlation	.355**	.424**	.687**	1	.498**	.703**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	120	120	120	120	120	120
Production	Pearson Correlation	.525**	.561**	.661**	.498**	1	.721**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	120	120	120	120	120	120
Digital Impact on Performance	Pearson Correlation	.612**	.594**	.947**	.703**	.721**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	120	120	120	120	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

From the Table above, it is understood that correlation coefficient of independent variables ie Production, Contract, Human Resource, Customer care, Marketing with Digital Impact on Performance are 0.612, 0.594, 0.947, 0.703 and 0.721 respectively at 0.000 significant level. This shows that there is a distinct relationship which exists between the independent variables and Digital Impact on Performance of organizations

Regression Analysis: Regression analysis is a statistical tool for finding out the relationship

between one or more independent variables and a dependent variable. To build an estimated regression equation, a relationship model is theorised and parameter values are approximated. The model is then put through a series of testing to see if it satisfies the specifications. If the model is found to be satisfactory, the computed regression equation can be used to predict the value of the dependent variable if the independent variables' values are given.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962 ^a	.924	.921	.18937
a. Predictors: (Constant), Production, Contract, Human Resource, Customer care, Marketing				

Relationship model: The multiple R computed for the relationship between the independent variables (**Production, Contract, Human Resource, Customer care, Marketing**) and dependent variable (**Digital Impact on Performance**) is 0.92

which would be characterized as moderate. The model account for 92 percentage of variance (R square) in Digital Impact on Performance

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.056	5	10.011	279.176	.000 ^b
	Residual	4.088	114	.036		
	Total	54.144	119			
a. Dependent Variable: Digital Impact on Performance						
b. Predictors: (Constant), Production, Contract, Human Resource, Customer care, Marketing						

Analysis of Variance: Analysis of variance (ANOVA) can be applied to a regression to test the relative magnitude with their appropriate degree of freedom. The probability of the F Statistic (279.176) for the overall regression relationship is

<0.001, which is less than or equal to the level of significance specified of 0.05. Hence it is accepted that a relationship exists between **Production, Contract, Human Resource, Customer care, Marketing** and **Digital Impact on Performance**.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.286	.124		-2.299	.023
	Human Resource	.075	.033	.075	2.277	.025
	Customer Care	.068	.031	.072	2.189	.031
	Marketing	.738	.044	.731	16.718	.000
	Contract	.071	.029	.087	2.434	.017
	Production	.116	.037	.115	3.092	.002
a. Dependent Variable: Digital Impact on Performance						

The regression equation will be **Digital Impact on Performance = -.286c + .075hr + .068cc + .738m + .071c + .116p**

Findings of the study

Demographic data

- Among the respondents those in the age category 46-55 were the highest followed by 36-45 and 26-35

- Female respondents were almost 60%
- Most respondents were either graduate or post graduate.
- Their role in the organization was mostly Marketing or HR followed by Purchase

and Procurement and Supply chain management.

- More than 70% of the respondents were from the Muncipal area.
- The respondents were mainly from Pharma and Engineering and Manufacturing sector followed by Cattle feed and Tire and Automobile sectors.
- More than 90% of respondents use the website.
- Majority of the respondents were in the income category of Rs.30,000-50,000. Around 28% had between Rs.50,000 and 1 lakh salary.

Reliability test: All sections of the questionnaire were found to be reliable. Cronbach Alpha values were above .70

Key Challenges faced by manufacturing sector in India: Lack of technological knowledge (27%) comes first as per employees. Lack of skilled retail manpower (19%), Infrastructure constraints (10%), large geographical area (8%) and lack of national distribution network (7%) were all challenges faced by the manufacturing sector. There were a number of other reasons totaling to another 29%.

Reason for companies lagging in digitalization: Lack of IT resources is the major factor with 48% followed by lack of senior management support (27%) which are in fact interconnected. More pressing business priorities (10%), SCM and ERP being too expensive (9%) and lack of required internal expertise (6%) are also important reasons.

Correlation analysis: Correlation coefficient are all at significant levels and hence there is a distinct relationship between the independent variables and Digital Impact on Performance of organizations. Correlation coefficients of independent variables, Production (0.612), Contract (0.594), Human Resource (0.947), Customer Care (0.703), Marketing (0.721) with dependent variable Digital Impact on Performance being significant at 0.000 level.

Regression analysis: The multiple R computed for the relationship between the independent variables (Production, Contract, Human Resource, Customer care, Marketing) and dependent variable, Digital Impact on Performance is 0.92 which can be characterized as moderate. The model account for 92 percentage of variance (R square) in Digital Impact on Performance.

Analysis of Variance: The Analysis of variance (ANOVA) was applied to regression to test the relative magnitude with their appropriate degree of freedom. The probability of the F Statistic (279.176) for the overall regression relationship is <0.001, which is less than or equal to the level of significance specified of 0.05. Hence it is accepted

that a relationship exists between Production, Contract, Human Resource, Customer care, Marketing and Digital Impact on Performance.

Regression Equation Model: Based on the ANOVA the regression equation is Digital Impact on Performance = $-.286c + .075hr + .068cc + .738m + .071c + .116p$

Suggestions and Managerial Implications

•Organisational culture is an important aspect of success of digitalization in companies. MSMEs have to first come to a decision that digitalization is no more a luxury but a necessity.

•The problem seems to be the lack of proven ROI. But companies can no longer afford to neglect it.

•Once the management come on board senior management support as well as IT resources will naturally follow. Organisational strategy will also be tweaked and that makes a major difference in the success of digitalization. They will adjust the organizational structure accordingly also.

•Investment in infrastructure is very essential. Production design has to be digitally friendly. The companies have to do technological upgradation, bring in new staff with expertise as well as give training to their staff.

•Data security is another aspect which needs major focus. It not only is essential for the company but for the perception of safety among employees and by default the customers they deal with. Data governance is also important.

•The cost of SCM and ERP seems a constraint, but cheap versions as well as versions that handle only specific areas that are required by the companies are available.

•The good thing is that most employees are computer literate and computer savvy to an extent. They don't seem to have a block against it.

•Generally, irrespective of the demographics respondents had the same experience on different aspects of organizational performance post digitalization. But where the area of operations is – panchayats, municipalities or corporation makes a difference. Hence more focus is needed in rural areas to convince both employers and employees of the need for digitalization.

•Considering the key challenges faced by the manufacturing sector in India that are lack of distribution network, lack of skilled retail manpower as well as large geographical coverage these all can be taken care of by more digitalization.

CONCLUSION

The future is digital and if companies don't get into the digital bandwagon they are going to be left far behind. No company can afford to be an island. If

all others are accepting digitalization and going full-fledged, they will be left out of the loop.

Employees seem to understand the need for digitalization and its advantages. Most of them are internet savvy. These are positives even MSMEs have in their effort at digitalization

And it is of more importance to MSMEs than any big organization. As long as the top management is convinced of the need for digitalization the rest would fall in place.

Digitalisation is also part of cost effectiveness. The initial expenses seem to be a constraint. But in the long run the investment will pay off multi fold

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