Employee Factors and Degree of Relationship to Digital Transformation with Special Reference to MIT ADT University, Pune

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Abstract:- This research is aimed at evaluating employee factors and their relationship to digital transformation. Employee factors are described in the current literature but are restricted to very few factors. The study was untaken in the context of digital transformation at MIT ADT University Pune (India) and employee and student (Customer experience)

This study involved constructing a structural equation modelling consisting of employee& student experience factors and their degree of relationship to digital transformation.After the initial hypothetical construct, a data set of 30 samples is taken from the targeted audience and subjected tostatistical tests including Cronbachalpha, Factor loading and average variance extracted,convergent and divergent validity and test of normality.

The main sample consisted of analysing 288 respondents out of 300 and subjected to same statistical test as those of Pilot data. The hypothesis testing was done, and it is found that almost all null hypotheses are rejected, thus proving that employee factors are positively correlated to digital transformation.

I. REVIEW OF LITERATURE

Human factors and technology compatibility is to be ensured for smooth organizational change management including technology adoption (Ohali Yousef et tal (2019). There are three main Pillars of digital initiatives are technologies, processes, management, and the people. (Verina Natalija et tal (2019).

Employee training and usage practice is most important in digital initiatives (Dorve Marvic et tal (2019) while K. Schwertner (2017) argued that cultural changes in an organization are a very important part of digital transformation,
Bauer W et tal (2017 argue that work objectives, working tasks, work equipment, workspace as well as new challenges for the organization, qualification, employment and are important from digital transformation perspectives.Thathsarani Hewavitharana et tal (2021) emphasized that Personal Benefits, Perceived Usefulness, Perceived Risk, Facility Conditions, Attitudes, and Subjective Norms are some of the employee characteristics that are the backboneof digital transformation.

Imran Faisal et tal (2020)argued leader and employee participation is important for digital transformation.Richard Baskerville et tal (2023) argued that duality between digitization and the human factor is important and must have a synergy. Sascha&Johannes Habel (2021) in their research paper pointed out that a better understanding of the human side in digital transformation is necessary.

Jorge Fernandez-Vidal et tal (2022) argue that talent management and individual employee plays a vital role in digital transformation.Phyllis Messalina Gilch et tal (2021) argues that the recruitment function for digital initiative or transformation deals with organizations' absorption capacity and it acts as a mediator between external and internal groups.Le Dang Lang et tal (2022)stress that human capital (HC) has been identified as a strategic resource for small and medium-sized enterprises (SMEs).

Mahmut Demir et tal (2020) have concluded that innovations mediated the relationship between DigiTr and HR planning. While Anton Florijan Barišić et tal (2022) summarized in their research paper that the critical components of a digital transformation strategy are human capital, intellectual capital, and knowledge.

Bansal Anjali et tal (2023) present a new framework human resource digital transformation (HRDT) for the successful integration of digital and individual factors into the innovation capability of organizations. While Vera G. Goulart et tal (2023) have observed that change in required skills and competencies has led to a gap between what companies need and the professional profiles that are available.

Anna Chwiłkowska-Kubala et Tal (2023) in their study observed that achieving an appropriate level of digital transformation requires reconfiguration of an organization's resources. While Bennett, E. E., & McWhorter, R. R. (2021) has argued that learning, adaptation, cultural, workplace, and economic implications are important for digital initiatives or transformation in the post-pandemic area.

N. K. Betchoo (2016) analyzed the importance of digital transformation within public organizations and its impact on related human resource factors while Tran Nha Ghi et tal (2022) pointed out that in SME Sector resource competency and availability is one of the critical factors for digital initiatives or transformation.

B. Weber, J. Butschan and S. Heidenreich (2017) have summarized that the highly developed cognitive and processual competencies of individuals support the digital transformation of a firm. While Michaela Wrede, Vivek K. Velamuri, Tobias Dauth (2020) emphasize that top management team support is essential in firms' digital transformation.

Giorgio Bongiorno, et tal (2017) in the book point out that employees and key stakeholders is key to a successful digital initiative or transformation. While Minh-Nhat, H., Nguyen, HL., Mondal, S.R. (2022) in their research article on digital initiatives point that while most leaders intend to extend their tech abilities in the future, the subtle strategy lies in the human element.

Ashutosh Jani, Ashutosh Muduli, Kaushal Kishore (2023) argues importance of the mediating role of various HR roles while D. Cetindamar, B. Abedin and K. Shirahada, (2021) argue that the role of employees and their digital skills in the process is, to a large extent, neglected.

D. Cetindamar, B. Abedin and K. Shirahada, (2021) argue that the role of employees and their digital skills in the process is, to a large extent, neglected. While Dilek Cetindamar Kozanoglu, Babak Abedin(2020) argue that employees are overlooked in digital transformation.

Christine Blanka, Barbara Krumay, David Rueckel (2022) found that employee competencies function as triggers to reach the next level of digital transformation. While Álvaro Nicolás-Agustin et tal (2022) found that human resource practices partially mediate the relationship between strategic alignment and digital transformation.

Zhang X, Xu Y, Ma L & Liang Ma (2022) summarized in their research paper that employee skills positively moderate the relationship between organizational capabilities and the success of digital initiative or transformation. While Horlacher and T. Hess (2016) pointed out that CDO (Chief digital officer) needs to have a critical management issue and requires new ways of managerial thinking considering organisation, technology, and people.

Marcella M. Bonanomi et tal (2020) point that formal. Informal and network; roles and relationships create an informal social network. Which can be leveraged while implementing a digital initiative. While Deepanjana Varshney (2020) argues that most of the companies have their workforce to upgrade their digital awareness and capabilities to make the digital initiatives or transformation into a successful one.

Jestine Philip (2021) feels that leadership angle should be considered in digital transformation. While Lucija Ivančić, Vesna Bosilj Vukšić, Mario Spermic (2019) argued that the internal education and transfer their knowledge to the rest of the company is important in digital transformation,

Karen Osmundsen (2022) argues that employee skills, knowledge, and expertise necessary for a successful DT. While Ellen Weber, Marion Büttgen & Silke Bartsch (2022) point out that digital transformation–oriented leadership behaviour, which is mandatory to stay competitive in the digital era.

Wei Wei Cheryl Leo, Gaurangi Laud, Cindy Yunhsin Chou (2023) found that that employees with high and medium experience can have a more significant relationship in the time of crisis or emergency, While Sonali Narbariya, Mohammad Abdul Nayeem, Ritu Gupta (2022) : in their research found that employee training ,apprisals,participation and flexible works helps in digital transformation.

Mahmut Demir, Emre Yaşar, Şirvan Şen Demir (2022). Has emphasized that the findings indicate that employers and employees need to be aware of developments while Elizabeth Solberg at tal (2020) found that Employees' beliefs about technological change, their "digital mindsets," are likely to influence their engagement in, or withdrawal from, their company's digital transformation initiatives.

Martin Kupiek (2021) in his book pointed that digitization drastically changes the way employees work with each other as well as how executives play their roles. While Jedynak, M., Czakon, W., Kuźniarska, A. and Mania, K. (2021) find a blind spot which is not covered in depth and details and that is of organizations itself as unit covering stakeholders including employees.

Christine Blanka, Barbara Krumay, David Rueckel (2022) points that employee competency is crucial in enabling an organization's transformation toward digitalization. Álvaro Nicolás-Agustín, Daniel Jiménez-Jiménez, Francisco Maeso-Fernandez (2022) found that human resource practices partially mediate the relationship between strategic alignment and digital transformation.

Karimi, Jahangir & Walter, Zhiping. (2015) argue that the role of leadership and employees is very important in digital transformation while Hartl, Eva & Hess, Thomas. (2017) argue emphasizing values that foster innovation and concern for people.

Gerald C. Kane, et al (2016) in their study argue that in digitally matured organization talent and employee acumen is important. While Ntandoyethu S.M. Mhlungu, Jeff Y.J. Chen, Peter Alkema (2018) in research concluded that 4 important factors for a digital initiave or transformation and includes customer centricity, governance, innovation, and resource attainment.

II. DESIGN AND HYPOTHETICAL MODEL

The design of the research was based on structuralequation modelling. The exogenous variables (Nine) were related to employee and student and endogenous variables (Three) were related to digital transformation at MIT ADT University. The aim of the research was to establish a relationship between employee/Student or human factors with digital transformation resulting into customer experience.

Based on literature review, discussion with experts and guide, we have formulated a hypothetical construct as given below in fig, 1.
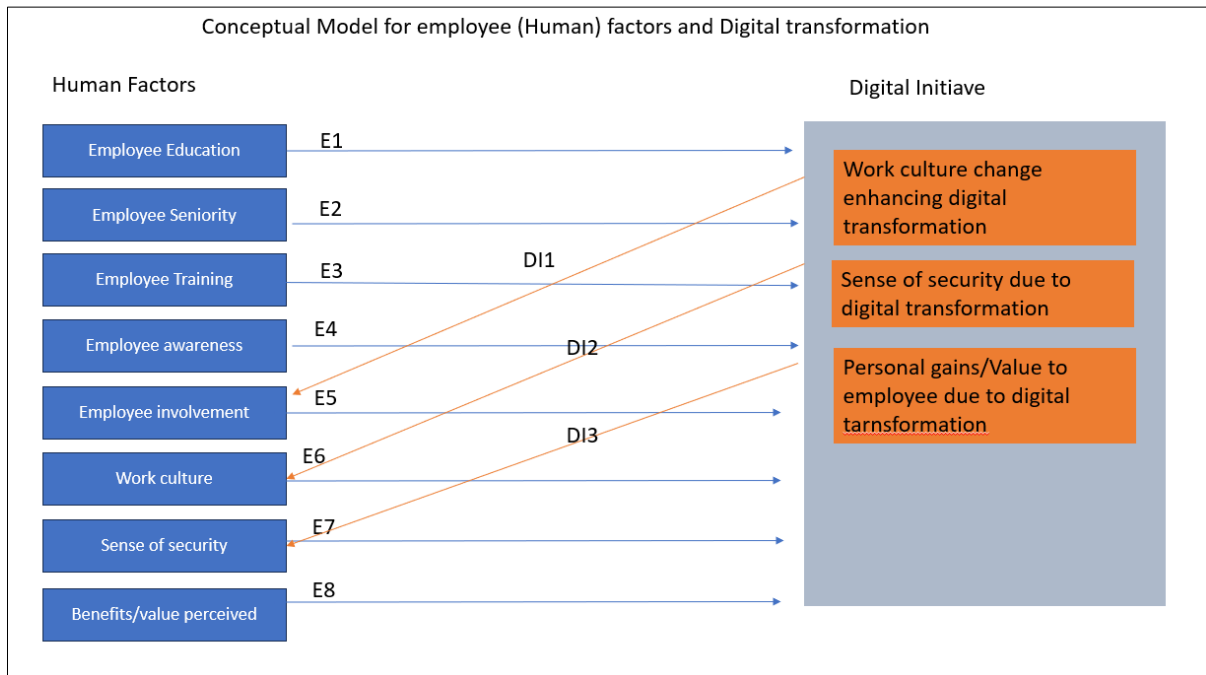
Fig. 1: Hypothetical construct employee/Human factors and digital transformation

Table 1: Exogenous and endogenous variables in the proposed hypothetical model

Variable	Code	Definition
Employee education	E1	Diploma, graduate, or industrial training
Employee seniority	E2	Number of years of service
Employee training	E3	Hours of training imparted to employee for digital transformation
Employee awareness	E4	Communication and addressing employees in digital initiave
Employee involvement	E5	Employee (%) involvement in digital transformation
Work culture	E6	Change in work culture required for digital transformation
Sense of security	E7	Employee to get sense of security for job and role
Benefits and value perceived	E8	Employee to know value and benefits of digital transformation
Digital work culture	DI1	A new productive and efficient digital work culture
Job security due to digital transformation	DI2	New role and security of job in new digital role
Personal benefits and value to employee due to digital transformation	DI3	Personal productivity and gains due to digital transformation for employee,

III. RESEARCH METHOD

Structural equation modelling (SEM) is chosen to represent and validate the hypothetical model with statistical testing and hypothesis testing,

Structural equation modelling is a multivariate statistical analysis technique that is used to analyse structural relationships. This technique is the combination of factor analysis and multiple regression analysis, and it is used to analyse the structural relationship between measured variables and latent constructs.
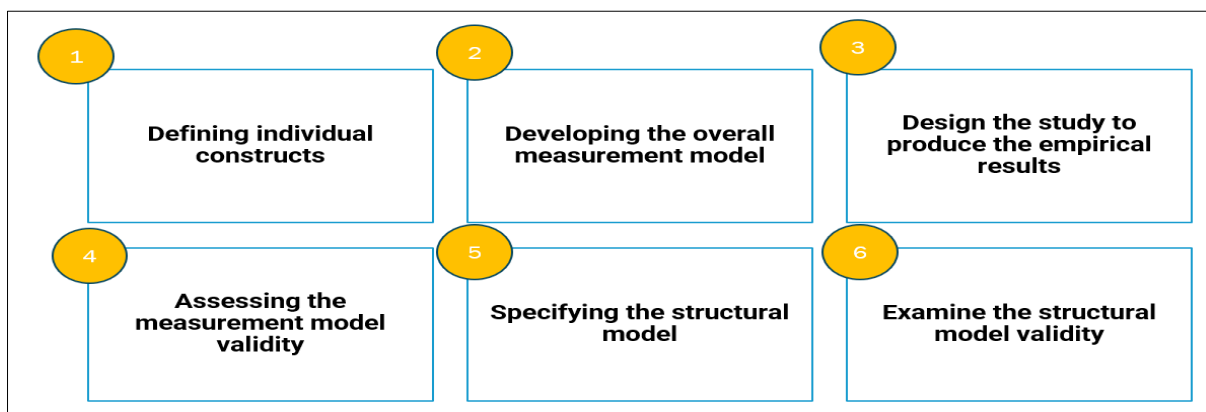

Fig. 2: Structural equation modeling steps

A. Sample Size

We have calculated the sample size using the mean. The MIT ADT University has many departments which have undergone digital transformation with an employee & student strength of overall 600 digital application users.

We have targeted to get at least 50 % responses (300 Numbers). Out of 300 questionnaires sent we got answers for 294. Barring 6 incomplete responses, we could get a sample size of 288 (48 % of total population under study)

B. Design of instrument& measurement scale

The questionnaire is designed in structured way with 1-5 Likert scale. The responses to questionnaire from google form is consolidated. Annexure for response data is represented in annexure-A.

C. Pilot design

We have taken a pilot sample size of 30 and validated it for the following reliability, validity, and normality with SPSS Statistical tool.

- **Cronbach alpha for pilot:** 0.96 (Excellent fit)
- **Convergent validityfor pilot:** Above 0.7
- **Discriminant validity for pilot:** As variance extracted between the construct is higher than correlations square, it means discriminant validity is established for pilot.

- **Normality:** data is normal as skewness is between -2 to +2 and kurtosis is between -7 to +7.
- **Factor loading:** For pilot data it is between 0.6 to 0.7.
- **Average variance extracted:** It is greater than 0.55.

The pilot is validated for internal consistency, reliability and factor loading and elements correlations.

D. Main sample analysis

Out of 600, we could get responses from 288 employees and students (48%) , which is sufficient to draw a conclusion about the overall population of 600.

The main sample data is subjected to statistical testing including hypothesis testing. The results are summarized below :

- **Cronbach alpha :0.97** (High correlations/internal consistency in variables)
- **Composite reliability** : 0.66 (above 0.5 so reliability is established)
- **AVE(Average variance extracted)** =0.5 (0.5 or greater establishes correct variability)
- **Canonical correlations** : greater tha 0.515
- **Co-variance matrix is :**

Table 2: Co-variance matrix

| Variables	E1	E2	E3	E4	E5	E6	E7	E8	E9	DI1	DI2	DI3
Var1	**1.349344**	0.288	0.215	0.117	0.114	0.154	0.202	0.282	-0.019	1.349	0.282	1.336
Var2	0.288	**1.709189**	0.473	0.208	0.146	0.419	0.460	1.683	-0.040	0.288	1.654	0.278
Var3	0.215	0.473	**1.295898**	0.562	0.537	1.086	1.291	0.483	0.250	0.215	0.467	0.218
Var4	0.117	0.208	0.562	**0.964072**	0.792	0.552	0.569	0.211	0.099	0.117	0.189	0.118
Var5	0.114	0.146	0.537	0.792	**1.003364**	0.522	0.544	0.160	0.119	0.114	0.125	0.125
Var6	0.154	0.419	1.086	0.552	0.522	**1.212565**	1.085	0.431	0.175	0.154	0.407	0.163
Var7	0.202	0.460	1.291	0.569	0.544	1.085	**1.299756**	0.470	0.246	0.202	0.454	0.212
Var8	0.282	1.683	0.483	0.211	0.160	0.431	0.470	**1.6875**	-0.002	0.282	1.666	0.266
Var9	-0.019	-0.040	0.250	0.099	0.119	0.175	0.246	-0.002	**0.976804**	-0.019	0.017	-0.025
Var10	1.349	0.288	0.215	0.117	0.114	0.154	0.202	0.282	-0.019	**1.349344**	0.282	1.336
Var11	0.282	1.654	0.467	0.189	0.125	0.407	0.454	1.666	0.017	0.282	**1.688067**	0.262
Var12	1.336	0.278	0.218	0.118	0.125	0.163	0.212	0.266	-0.025	1.336	0.262	**1.344136**
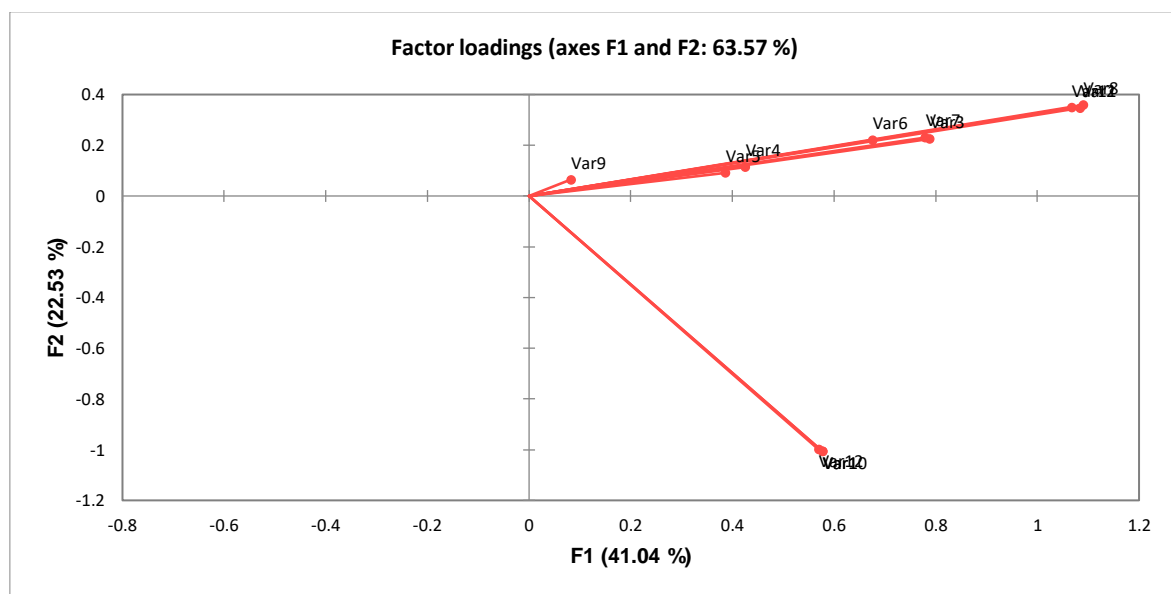
Fig. 3: Factor loading graph

The main sample is validated for internal consistency, reliability, validity, and normality. (Analysis enclosed in annexure B)

Table 3: Hypothesis formulation
Based on construct following hypotheses have been formulated

Null (HO)	Alternate (H1)
Employee/Student education is not related to education for digital transformation	Employee/Student education is related to education for digital transformation
Employee/Student seniority is not related to successful digital transformation	Employee/Student seniority isrelated to successful digital transformation
Employee/Student training is not related to successful digital transformation	Employee/Student training is related to successful digital transformation
Employee/Student awareness is not related to successful digital transformation	Employee/Studentawareness isrelated to successful digital transformation
Employee/Student involvement is not related to successful digital transformation	Employee/Student involvement is related to successful digital transformation
Employee/Studentsense of security is not related to successful digital transformation	Employee/Studentsense of security isrelated to successful digital transformation
Current work culture is not related to successful digital transformation	Current work culture isrelated to successful digital transformation
Personal benefits and value are not related to digital transformation	Personal benefits and value are related to digital transformation
Digital work culture is not related to a successful digital transformation	Digital work culture is related to a successful digital transformation
Personal Security to Employee/Student due to digital transformation is not related to a good digital transformation	Personal Security to Employee/Student due to digital transformation isrelated to a good digital transformation
Personal values and benefits are not related to a successful digital transformation	Personal values and benefits are related to a successful digital transformation

Table 4: Hypothesis testing results:

Employee education is **related** to **a** digital transformation
Employee **seniority** isrelated to **successful digita**l transformation
Employee **training** is related to **successful digital** transformation
Employee **awareness** isrelated to **successful digital** transformation
Employee **involvement i**s related to **successful digital** transformation
Employee **sense of security** isrelated to **successful digital** transformation
Current work culture isrelated to **successful digital** transformation
Personal benefits and valuearerelatedto**digital transformation**
Digital work culture is related to a **successful digital** transformation
Personal Security to employeesisrelated to **a good digital** transformation
Personal values and benefits are related to a **successful digital** transformation

E. Summary of Hypothesis testing

With p Value <0.001 and alpha<= -.05,all the null hypothesis has been rejected and alternate hypothesis is accepted. Thus, the alternative hypotheses are accepted that employee /Student education, seniority, Training, Awareness, Involvement, sense of security, current work culture, personal benefits and values, digital work culture, personal security, and persona; value add contribute to a successful digital transformation leading to a great customer experience.
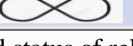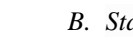
Employee/Human factors	Relationship to Digital transformation	
Employee education is related to education for digital transformation		Good
Employee seniority is related to successful digital transformation		Good
Employee training is related to successful digital transformation		Excellent
Employee awareness is related to successful digital transformation		Excellent
Employee involvement is related to successful digital transformation		Very good
Employee sense of security is related to successful digital transformation		Very good
Current work culture is related to successful digital transformation		Very good
Personal benefits and value is related to digital transformation		Very good
Digital work culture is related to a successful digital transformation		Very Good
Personal Security to employees due to digital transformation is related to a good digital transformation		Very good
Personal values and benefits are related to a successful digital transformation		Very good

Fig. 4: Factors and status of relationship

IV. SUMMARY OF THE RESEARCH

Employee /Student factors from education, involvement to participation is very important for successful digital transformation.

Most of the studies in digital transformation till now dealt with process and technology with less important to employee/Student angle. This study covers important employee aspects required for successful digital transformation in big university like MIT ADT university.

Digital transformation in turn affects the work culture, sense of participation from employee and seek to get from employee the benefits and value due to digitization.

Employees/Students training, education, involvement, and participation is important in successful digital transfer.

A. Annexures
- Sample and main data
- Questionnaire
- Responses
- Statisticalanalysis

research paper 5
consolidated data.xlsx

B. Statistical analysis

research paper 5
analysis of data.xlsx

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