

Digital Transformation Process of the Manufacturing Firms in Taiwan: An Awareness-Motivation-Capability Perspective

abstract

In the context of global environmental changes and rapid technological advancements, digital transformation has emerged as a prevailing trend across industries worldwide. The success of digital transformation depends on whether key stakeholders in a firm embrace such changes. This study explores how a firm drives its top executives and employees to engage in digital transformation. Drawing on the Awareness-Motivation-Capability (AMC) perspective, this study revealed the driving forces influencing top executives and employees at various stages of digital transformation. Utilizing a qualitative approach with single-case analysis, the study centers on a manufacturing firm in Taiwan during the early (initiation of digital projects), middle (Digitization, Digitalization), and later (digital transformation) phases. The study found that for top executives, firms should emphasize enhancing their motivations during the early phase, developing their capability during the middle phase, and cultivating their awareness in the later phase of digital transformation. For employees, cultivating their awareness throughout the digital transformation process is crucial. For the firm, capability development is a key focus during the early and middle phases of the digital transformation. This study contributes theoretical insights and practical implications to the field of digital transformation.

Keywords : Digital transformation 、 Awareness-Motivation-Capability perspective 、 pre-digital transformation 、 mid-digital transformation 、 post-digital transformation

I. Introduction

The rapid development and ever-changing nature of digital technology not only have altered consumer behaviors and industry boundaries but also serve as a crucial factor for businesses to undertake organizational adjustments and reforms. Especially in the era of the pandemic, this has accelerated the transformation steps of enterprises, with digital technology as a key driving force. This drives continuous innovation in value and business models through digital transformation, which has become an important issue for the development of governments and industries around the world in recent years. Digital transformation has indeed become a global trend, and the manufacturing industry in Taiwan must also actively undergo digital transformation. Facing the rapid changes in digital technology, how small and medium-sized enterprises can grasp and make good use of it is considered an important issue.

Digital transformation, as a global industry trend, has become an urgent issue for enterprises. However, in the process of digital transformation, the role and importance of "participants" (people) are crucial (Bansal et al., 2023). To achieve successful digital transformation, the key lies in understanding the motivations of executives and employees in different positions within the company during the transformation process. This study is based on the three major behavioral driving factors of Awareness-Motivation-Capability (AMC), aiming to deeply deconstruct the motivations and capabilities of executives and employees in participating in the transformation at different stages of digital transformation. This research will take a manufacturing company in Taiwan as a case study, using a single case study method, focusing on the analysis of the enterprise in three different stages of digital transformation: "pre-digital transformation (initiation of digital projects)", "mid-digital transformation (digitization, digital optimization)", and "post-digital transformation". The main focus is to understand how enterprises can effectively motivate executives and employees to participate in the process of digital transformation at these key stages, and the impact of these driving forces on the overall transformation effectiveness.

Through in-depth case analysis, this study aims to provide theoretical insights and practical suggestions. The results of this study can enrich the understanding of digital transformation behaviors, offering substantial contributions to academic research in related fields. Additionally, the findings of this study help enterprises more effectively address the challenges at various stages of their digital transformation journey. The following will sequentially explain the literature review, research methods, research findings, and present related discussions and propositions, concluding with the theoretical contributions and practical management implications of this study.

II. Theoretical Background

1. Digital transformation

Digital transformation is "a fundamental change process that, through the innovative use of digital technology, alongside key corporate resources and capabilities, fundamentally improves an entity and redefines its value proposition for its stakeholders" (Gong, Cheng, & Vincent Ribiere, 2021). Digital Transformation is a comprehensive and strategic change aimed at redefining an organization's business models, processes, products, services, and culture through the full adoption of digital technologies. This phase goes beyond mere technological application to comprehensively reshape the structure and operational methods of businesses to address the rapidly changing digital age (Westerman, Tannou, Bonnet, Ferraris, & McAfee, 2012).

Scholars divide the process of digital transformation into three stages. The first stage, pre-transformation (initiation of digital projects), is where organizations typically begin to recognize the necessity of digital transformation, possibly due to market changes, competitive pressures, or the emergence of new technologies. At this stage, organizations start digital projects, ascertain the necessity of digital transformation, and establish a basic direction. The second stage, mid-digital transformation (Digitization, Digitalization), focuses on the actual work of digital transformation. Organizations begin digitization and digital optimization efforts, which may include technology updates, adoption of new digital technologies, and enhancement of digital skills. The third stage, post-digital transformation, marks the point where organizations have achieved basic digitization and optimization and enter the true phase of digital transformation (Verhoef, Broekhuizen, Bart, Bhattacharya, Dong, Fabian, & Haenlein, 2021). This includes deeper organizational structure changes, information communication and circulation methods, human resource adjustments, cultural transformation, and broader digital integration. The strategic imperative of digital transformation includes leveraging digital resources, implementing digital practices in organizational structures, growth strategies through digital transformation, and setting indicators and goals (Verhoef, Broekhuizen, Bart, Bhattacharya, Dong, Fabian, & Haenlein, 2021). This phased approach helps organizations more clearly understand and plan their digital transformation process, ensuring the objectives and challenges of each stage are effectively addressed.

In the process of digital transformation, the role and importance of "participants" (people) are crucial (Bansal et al., 2023). Tabrizi et al. (2019) in the Harvard Business Review article "Digital Transformation Is Not About Technology" mention that if the "people" within an organization lack the correct mindset for change and cannot fully utilize internal talent, digital transformation is difficult to succeed. Senior executives play

a key role in digital transformation (Porfirio, Carrilho, Felício, & Jardim, 2021; Feliciano-Cestero et al., 2023). The vision and commitment of these leaders are crucial to whether an organization can successfully undergo digital transformation. Whether they recognize the need for digital transformation, understand the application of technology and systems within the company, and are willing to invest resources in digital transformation (AlNuaimi et al., 2022). Additionally, employee participation is another focus of digital transformation. Digital transformation requires organizational members to possess new digital skills and knowledge, motivating and engaging employees in digital transformation and reducing their insecurities. For example, when employees feel that digital transformation may threaten their jobs, they may consciously or unconsciously resist digital transformation (Tabrizi et al., 2019). Recognizing the importance of "participants" in digital transformation, this study focuses on the "people" in digital transformation, analyzing the digital transformation process at different stages and how to motivate different "people" (including senior executives and employees) to engage in digital transformation.

2. Awareness-Motivation-Capability Perspective

The "Awareness-Motivation-Capability" (AMC) three major driving factors are based on the "Expectancy-Valence Theory" (Chen & Miller, 1994) and were initially used in the analysis at the firm level to explore the driving factors of a firm's competitive behavior (Chen, 1996). Simply put, a response will only occur when competitors are aware of their own actions, have the motivation to respond, and have the capability to respond, and all three conditions ferment together (Chen et al., 2007). Therefore, this perspective is beneficial for predicting and evaluating competitors' responses, as well as identifying competitive response barriers (Chen and Miller, 2012).

Later, scholars began to apply "Awareness, Motivation, Capability" in different contexts. For example, Hou Shengzong and Lian Wanqian (2017) used this analytical framework in the context of cooperation to discuss the dynamic competition and cooperation management of R&D alliances, because collaborators can be seen as "the other" appearing in different forms in a competitive relationship, thus it is beneficial for identifying and analyzing joint ventures, alliances, or merger and acquisition relationships. Chen and Miller (2012) also suggested that "Awareness, Motivation, Capability" can be used for analysis at different levels, as shown in Table 1, integrating both micro (individual, team) and macro (within organization, outside organization).

Therefore, in order to understand the driving factors that motivate "people" to undertake digital transformation within organizations, this study adopts the "Awareness, Motivation, Capability" perspective to deconstruct and understand the behaviors and

decisions of individuals or organizations in the process of digital transformation. This model emphasizes the interaction between awareness (cognition of digital transformation), motivation (motivation and willingness for digital transformation), and capability (the actual ability required for implementing digital transformation), playing a crucial role in successfully promoting the process of digital transformation.

table1. AMC the logic of the model

	Micro-factors		Macro-factors	
	<i>Individual</i>	<i>Group</i>	<i>Organizational</i>	<i>Extra-organizational</i>
Awareness	Actor experience Actor tenure Cognitive biases	Information-sharing within groups TMT or group diversity	Top team heterogeneity Scanning routines and information systems Collaborative and coordinative devices	Network connections -- bonding vs. bridging ties with stakeholders
Motivation	Actor personality. need structure, position and career stage, wealth, role identity, risk profile	Group cohesion and morale Group identities	Reporting structure, accountabilities Reward systems Organizational culture and turf definitions	History of competitive engagements Institutional context
Capability	Actor training, connections, relationships, expertise, skills	Group stability and tacit knowledge Intra-group communication	Firm resources and capabilities Dynamic capabilities and path-dependent capacities	Alliances, state wealth, infrastructure development Strengths of competitors

Sources: : Chen, & Miller, 2012

III. Research Methods

This study employs the single-case study method, analyzing a manufacturing company in Taiwan through the three stages of digital transformation: "pre-digital transformation (initiation of digital projects)", " mid-digital transformation (digitization, digital optimization)", and "post-digital transformation (digital transformation)" to explore the driving forces behind

digital transformation among senior executives and employees, with the aim of constructing a theory. This study refers to the four principles of case study research by Yin (1994): using multiple sources of data, establishing a case study database, maintaining a chain of evidence, and cautious use of internet data. In terms of data collection, a variety of secondary data collection methods are adopted (for example: company meeting materials, external media reports), actual observations (such as educational training), and interviews with different members (including executive members, employees, system developers, etc.) to repeatedly conduct triangulation verification. The process is illustrated in Figure 1 and detailed as follows:

1. Data Collection Methods

(1) Secondary Data Collection

In the initial stage of the research, the researcher collected media reports and data related to the industry and the case company, and participated multiple times in the company's educational training, digital courses, and system development meetings to understand the company's transformation practices. In the middle stage of the research, the researcher collected internal documents related to the company, such as meeting records related to digital transformation, data and performance of the company's digital transformation system, and the company's internal decision-making directions and processes. Finally, primary data from interviews were used for confirmation and audit.

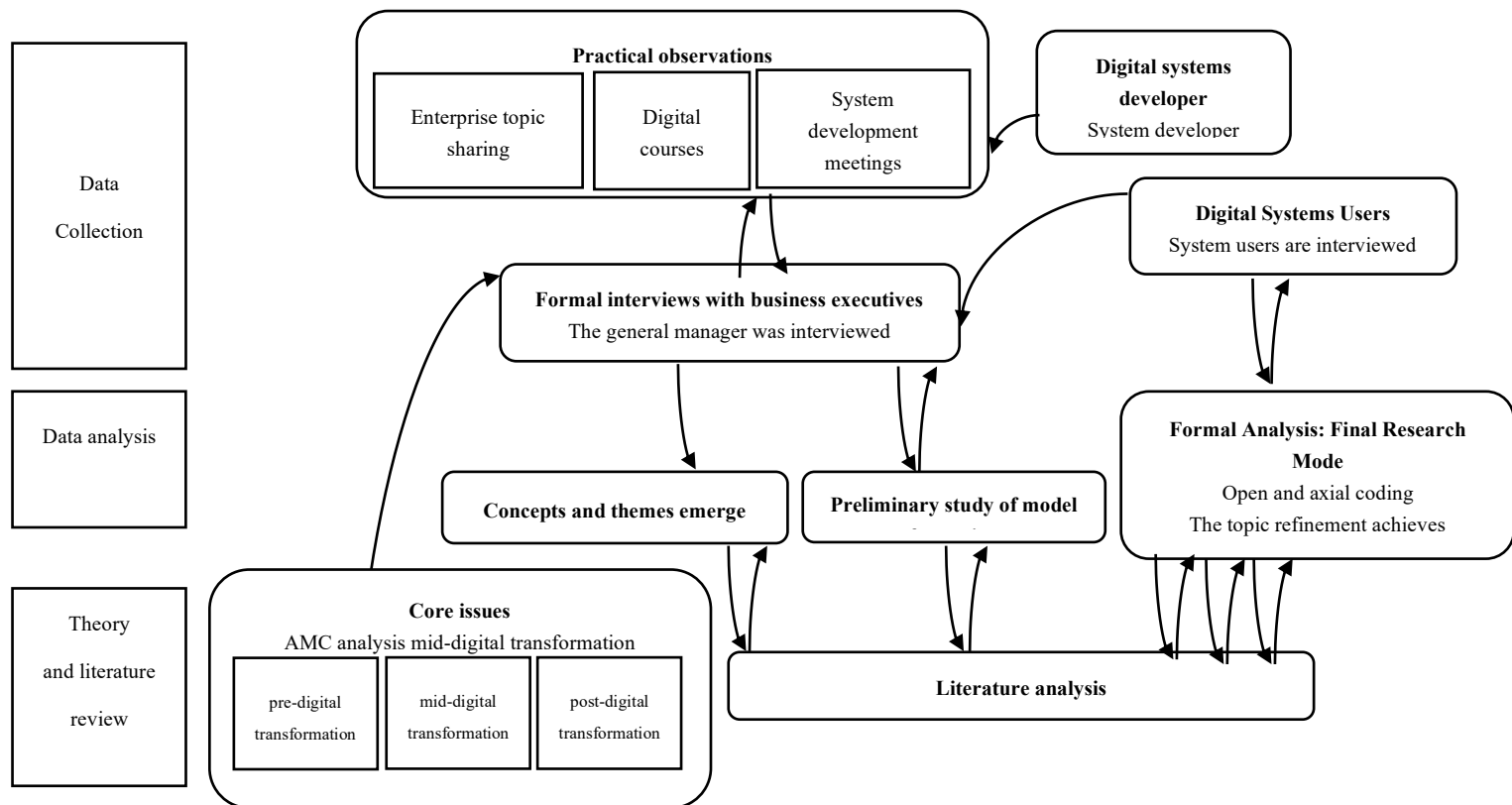


fig1.Data analysis flowchart

(2) In-depth Interviews

In the later stages of the research, the author conducted a series of in-depth interviews. In-depth interviews are one of the qualitative research data collection methods, which involve eliciting people's opinions, feelings, experiences, and knowledge through face-to-face verbal conversations to obtain the interviewees' subjective views on a case or phenomenon (Patton, 1995). This study employed the general interview guide approach, also known as semi-structured interviews, where the interviewer provides some guiding topics, allowing the interviewees to express themselves freely within a limited time. The interviewees in this study include corporate executives, senior managers, and internal operators of the digital transformation system within the company. The total number of interviews is expected to exceed 10, with each interview lasting between 1-2 hours. The interviews were recorded, and transcripts were made simultaneously to facilitate subsequent data analysis and typology comparison. For details on the interview data, please refer to Table 2.

2. Data Analysis

This study uses a longitudinal data analysis process to focus on the changes in the AMC perspective during the pre-digital, mid-digital, and post-digital transformation phases of traditional industries in Taiwan, aiming to understand the digital transformation process. The data analysis is divided into three stages. The primary data collection mainly involves formal interviews with corporate executives and digital system users, supplemented by secondary data including thematic sharing content of corporate exchanges, digital course content, and data from digital system development meetings with system developers. Throughout the data collection process, concepts and themes are developed, literature collection is continuously conducted, and interview data are coded, themes refined, and theoretical relevancies explored and analyzed, all in order to understand the digital transformation implementation model.

table2. Who and how to collect data

1.Primary information			
Interviewees	job title	Job description	Number of interviews
Mr. W	managing director	Introduction of digital resources and formulation of digital transformation goals	3
Mr. C	commissioner	Digital system introduction, digital system implementation, digital system education and training	3
Miss Lin	commissioner	field service personnel	1

2. Observation and participation			
type	object	Job description	Number of participants
Enterprise sharing	Mr. W	Description of the digital transformation process	15
Digital courses	Consultants	Educational training in the use of digital systems	5
Conference on the Development of Digital Systems	Consultants	Digital system introduction meeting, production process automation, production situation system description	5

3. Field Study Description

Company A, established in 1989, is recognized as a premium tourist factory in Zhushan (awarded one of the top ten excellent tourist factories by the Ministry of Economic Affairs in 2010), combining innovative research and development, tourism, technology, and leisure. Its primary business focuses on the sale of bedding products, managing the manufacturing, processing, and trading of sheets, duvet covers, bedding sets, cotton quilts, silk quilts, down quilts, wool quilts, and cool quilts, among other bedding supplies. It also acts as an agent for and manufactures and sells products from well-known brands both domestically and internationally.

To meet domestic market demands, Company A has continually integrated automated equipment, including automatic cutting machines, carding machines, quilt machine control consoles, and automatic sewing machines. With a stable and solid management philosophy over the past decade and the concerted effort of all colleagues, the company has recently under the development of digital transformation, introduced an ERP management system to achieve digital production management goals, realizing the vision of strategic planning and winning from afar.

table3. Basic information of the research subject

item	pre-digital transformation	mid-digital transformation	post-digital transformation
year	2018	2019	2020
Revenue Proportional distribution	Gifts 50% ODM 40% Sightseeing factory 10%	Gifts 50% ODM 40% Sightseeing factory 10%	Gifts 20% ODM 15% Sightseeing factory 15%

			Project ordering 50%
Net sales	90,010,720	97,016,854	102,009,101
Gross margin	42.60%	38.67%	20.37%
Expense ratio	39.37%	35.27%	17.69%
Number of senior executives	4 人	0 人	0 人
Digital Sector	no	yes	yes

IV. Research Findings

This study found that the awareness of senior executives before, during, and after digital transformation can be divided into three aspects: environmental, systemic, and organizational levels. In the early stage, the environmental level focuses on industry development, the systemic level concerns the inadequacy of old system functions, excessive systems, reports not being timely, and user unfriendliness, while the organizational level focuses on the lack of manpower. During the mid-stage, the environmental level compares digital systems with industry applications, the systemic level focuses on the relatively large engineering effort involved in the digital transformation process, and the organizational level focuses on the incompatibility between the organization and the system, resistance from the manpower, and the demand for professional personnel. After the transformation, there is less focus on the environmental level, the system level focuses on automation needs and subsequent development, and the organizational level notices that management has become easier, production processes can still improve, and there are fewer problems in the production process.

"We are a bedding manufacturing factory. In 2005, the shareholders changed, and I took over the management of the company alone. At that time, the management system was cobbled together. I was very dissatisfied with the old system, plus every feature required an additional fee. The German system was very expensive, and the service was not timely enough. After switching to a system my classmate recommended, we encountered many problems. A lot of data had to be keyed in, and there was pushback from the employees (resignation being the biggest form of pushback). But now, the problems have become increasingly minor." (General Manager W)

During the digital transformation period, the motivation of senior executives can be divided into three parts: improving operational efficiency, responding to customer needs, and system upgrades. Therefore, in the early stage of transformation, managers primarily hoped

to understand the real-time operational status and reduce management pressure by completing orders. Customers also wished to be informed of the real-time production status at this time, aiming for the replacement of old digital systems with upgrades. The mid-stage of digital transformation aimed to reduce the error rate in the production process to increase productivity and gradually correct data information, with hopes to fully implement the system. Therefore, the focus in the later stages of transformation was on automating management to save labor costs and use data to evaluate future investment strategies, thereby improving operational efficiency.

"My customers need to clearly understand the status of their manufacturing orders after they have placed them. I want to meet this demand of my customers. Moreover, I used to have shareholders, but now I am the only one. I don't have a third of the time to manage, so I must make it automated." (General Manager W)

The analysis of the capabilities of senior executives during the digital transformation period focuses on three aspects: technology and knowledge, financial investment, and management ability. Therefore, in the initial stage of transformation, executives will analyze the human resources that can assist in digital transformation and evaluate the financial investment and determination to face organizational changes. During the mid-stage of digital transformation, there is an emphasis on consulting resources that can continue to assist during the transformation period, and in the management aspect, an inventory of human resources is taken for organizational adjustments. Thus, in the later stages of transformation, the main focus is on the capability of digital application and understanding the company's operating status through visualized information, continuing to develop effective strategies.

"Our digital system implementation was successful mainly because of our system consultant. He made a point to understand me; he first came to understand our manufacturing processes, knew what we were lacking, and then assisted us." (General Manager W)

"We now also have digital talents. The key is that this talent is capable and enjoys the work. Previously, his main focus was on graphic design, but now he is gradually being introduced to the profession." (General Manager W)

During the pre-digital, mid-digital, and post-digital transformation phases, employees' awareness can also be divided into environmental, systemic, and organizational levels. In the pre-transformation phase, the environmental observation is that external vendors can directly produce reports. The concern at the system level is the lack of connectivity and the difficulty in identifying problems. Thus, during the mid-transformation phase, the focus is on the process of using digital systems, including issues such as difficulty in converting item numbers, one-dimensional barcodes changing to two-dimensional barcodes, and the inability

to sell in the absence of inventory. This period is characterized by practical testing, observation of online replacing paper-based processes, and smoother checkout processes. At the organizational level, it was found that individuals without basic digital skills found the transition challenging, adjustments began to be made on-site, and some personnel did not adapt well. Therefore, in the post-transformation phase, the focus is on the system level, with attention to the need for system adjustments, real-time dashboards that show the overall production status, and the importance of choosing the right system. At the organizational level, it was discovered that the company makes work adjustments based on data.

"Previously, all approvals had to rely on paper. Now, the shipping progress of orders can be checked online. Before the transformation, cash registers couldn't summarize the daily reports, requiring more time to reconcile each transaction individually. After implementation, many approval processes have been digitalized, and the amount of paperwork for job tasks has been reduced as much as possible." (Officer C)

During the digital transformation period, employees' motivations are divided into improving operational efficiency and upgrading system technology. In the early stages of transformation, employees expressed the motivation to enhance work efficiency and quickly solve problems. In the mid-stage of digital transformation, the motivation came from making the checkout process faster and completing work tasks to improve efficiency, and understanding that the upgrade of technical systems requires the full implementation of digital systems. In the later stages of digital transformation, the motivation is to increase the speed of data retrieval and optimize the system.

"The system integration between departments was not good enough, so they wanted to improve it to enhance its efficiency. At that time, the checkout process was really troublesome, as it required reconciling each transaction individually without any reports." (Officer C)

During the digital transformation period, employees' discussions about capabilities mainly focused on system technology and knowledge, emphasizing individual professional skills throughout the beginning, middle, and end stages. This includes abilities acquired after receiving education and training from external consultants during the digital transformation process, as well as digital skills developed through self-directed learning while using the system.

"Our consulting company will provide training on the systems used in the production and manufacturing processes. We require them to take the necessary courses and attend training sessions tailored to their needs." (Consultant L)

"I used to work as a web designer, and after the system was implemented, I started assisting in designing reports. Where I didn't know how to design, I would ask the consulting company. Perhaps because of my IT background, I understood it after attending the training, and everyone would come to ask me. I was responsible for teaching, and I mostly converted the operating processes into PDFs." (Officer C)

For the pre-digital, mid-digital, and post-digital transformation periods, the company proposed various implementation strategies. In the pre-digital transformation phase, the main approach was to trial the production process with a free system while looking for a suitable ERP system. The primary reason for the introduction of this system was to meet the main customers' needs, which was the main motivation for the system implementation. The person in charge continuously assessed the cost and timing of the system implementation during the process.

During the mid-digital transformation phase, the company began to inventory human resources and reorganize the organization. It also introduced external consultants to provide ongoing coaching and classes. During this process, staff received system operation training through physical or video means and replaced employees who were not suitable for the new system. After a trial period of six months, the company moved into formal implementation.

"The consulting company will teach them the necessary courses, tailored to their needs." (General Manager W)

"In fact, we moved quickly with our implementation, it took about half a year, in total around 10 months. After half a year, we started the actual implementation. We had a six-month trial and then went live, prepared for six months, and then began the implementation, trialing the operations." (General Manager W)

So, in the later stages of the transformation, we began to use data for strategic analysis and investment recommendations, maintained a close cooperative relationship with the management consulting company, and planned the subsequent introduction of other digital systems. Currently, after the introduction of the digital system, we can significantly reduce the manpower and time required for inventory management.

"Now I can even clearly foresee the next five years, so I'm telling you it's useful here. We understand all this quite easily, including land planning. I can even tell you our budget for a year, and I can say here what our projected EPS is each year." (General Manager W)

Analysis of AMC view of digital transformation of company A						
Analytical Unit/AMC/Focus			pre-digital transformation (2018)	mid-digital transformation (2019)	post-digital transformation (2020)	
Executives	become aware of	environment	– Traditional business methods will be eliminated by the industry	– No other competitors have introduced the ERP system		
		System level	– The existing system has only some functions, the reports are not timely enough, and the service is poor – Each department uses a different system – Other ERP systems are expensive and difficult to operate	– The equipment is old and cannot be automated – The data encoding project is huge	– The production line needs to be automated – The foundation of automation and intelligence – Understand the future direction through data	
		Organizational level	– There is no other helper at the top – Insufficient digital competence of employees	– The organization is not compatible with the system – Supervisors are resistant to system introduction – There is a shortage of manpower in some departments – Several professional manpower is required	– Company management made easy – The production process can also be improved – The problem is getting smaller – Inventory is no longer a big deal	

	motivation	Operational efficiency improvement	– Need to know what's going on in real time – I hope to complete the order shipment step by step – I want to reduce the pressure of management	– Reduce the error rate of the production process and increase the production capacity – Gradual correction of the data	– Implement data-based management – More labor cost saving – Evaluate future investment strategies through data
		Respond to customer needs	– Customers need to keep track of the production progress		
		System technology upgrade	– We want to replace the hard-to-use digital system	– Implement ERP system	
	ability	System technology and knowledge	– Acquaintances already have an ERP system	– Systems & Consultant Resources	– Digital Capabilities – Visualize information to understand the company's operating status
		Funds are injected	– Provision for system investment		
		Managing power	– Determination to face organizational transformation	– Manpower inventory capabilities – Organizational restructuring	– Establishment of development strategies
member work	become aware of	Environmental dimension	– External vendors can directly produce reports		
		System level	– Lack of connectivity between systems	– Difficulty in converting article numbers	– The new system needs to be adjusted

			– It's hard to find the cause of a problem on the system – The old system lacked connectivity and functionality	– A 1D barcode becomes a two-dimensional code – The system is out of stock and cannot be sold – Test it with practice – Online sign-off replaces paper – Checkout becomes smooth	– Databases that are not open cannot participate in system adjustments – You can see the production status through the billboard – It's important to choose the right system
		Organizational level		– It is not easy for countless employees with basic competencies to change – Adjustments to the production site – Some employees are not adapting	– The company will make business adjustments through data information in meetings
	motivation	Operational efficiency improvement	– Boost productivity – Resolve issues quickly	– Make checkout faster – Help employees complete their work tasks	– Find data faster
		System technology upgrade		– Improve ERP import	– Optimize your system
	ability	System technology and knowledge	– Web Artist – Website Setting – Execution of production management – Foundational digital competencies	– Product code design – Audio-visual shooting capabilities – Teaching of digital systems – Programming skills	– Understand database logic – Database design capabilities – Server setup/management, SQL interactive website production

Corporate decision-making	⇒ Start by picking free software to try out ⇒ At the same time, look for the right ERP system ⇒ Find the right system based on your needs ⇒ Imported ERP system for comprehensive connection ⇒ Evaluate the amount and time of investment in the introduction of the system	⇒ Inventory of the company's manpower ⇒ The system consultant continues to tutor the start of the course ⇒ Hands-on training through physical and audio-visual training ⇒ Organizational reengineering dismisses unfit employees ⇒ Half a year of training followed by a trial run	⇒ Continuously understand the database structure with the system vendor ⇒ Invest in stages with data ⇒ Maintain cooperation with management consultants to optimize processes ⇒ Imported MES system ⇒ Accurate inventory of projects that often make mistakes, have a large number of shipments, a high amount of money, and a large number of inventories
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V. Analysis and discussion

1. Proposition Induction

This paper uses the process model of digital transformation, consisting of three stages: "Pre-Digital Transformation (Initiation of Digital Projects)", "Mid-digital transformation (Digitization, Digital Optimization)", and "Post-Digital Transformation (Digital Transformation)" (Verhoef et al., 2021), combined with the Awareness-Motivation-Capability (AMC) perspective to conduct research and propose the propositions of this study.

(1) The Impact of Executives' AMC on Decision-Making

In the initial stage of digital transformation, executives can fully perceive the deficiencies in the company's production process in their daily management. The motivation to initiate changes to address these deficiencies often stems from the demands of major customers. When these demands are not met, executives begin to assess their own capabilities and seek available resources around them, hoping that the introduction of such resources can also improve other deficiencies related to the production process. At this time, executives focus primarily on motivation, and the strategies to address related issues are mainly aimed at satisfying the main customers' needs, supplemented by on-site observations for subsequent action planning.

"As a transformer, I play the role of a decision-maker. Once you decide to do it, everyone else just goes ahead without considering anything else. Any noise is excluded, including the noise from personnel, even if it means letting go of senior executives." (General Manager W)

In the mid-term of digital transformation, the case begins to observe whether there are other similar industries with relevant experience to refer to and continues to monitor the problems and solutions that arise during the system implementation, attempting to establish the digital system. At this time, the focus of the executives is mainly on capability, locking on organizational ability and usable resources to supplement the basic capabilities required for the introduction of digital systems to facilitate implementation.

In the later stages of digital transformation, after the shocks and adjustments during the trial operation period, the digital system can go online smoothly, and the organization's personnel and processes can complete production actions efficiently. At this time, executives focus on observation, continuously monitoring the problems in the company's production process, and ensuring that issues are increasingly minimized and operations become smoother.

Therefore, we derive Proposition 1:

Proposition 1: The change in executives' AMC perspective mid-digital transformation directly influences the company's decision-making direction.

Proposition 1a: In the early stages of digital transformation, the main focus is on motivation, with decisions centered around developing capability.

Proposition 1b: In the mid-stage of digital transformation, the main focus is on capability, with decisions centered around developing capability.

Proposition 1c: In the later stages of digital transformation, the main focus is on awareness, with decisions centered around the recognition of issues.

(2) The Impact of Employees' AMC on Decision-Making

In the initial stage of digital transformation, employees observe that other external workplaces use digital systems to achieve smooth work processes and recognize deficiencies in connectivity or potential impacts on work efficiency within their own workflow. At this time, employees are primarily focused on awareness, with most concerns related to work behaviors.

During the mid-term of digital transformation, employees provide more detailed descriptions of difficulties that may be encountered during the transformation, including the conversion of item numbers, changes in barcodes, issues with inventory and sales, and changes in the approval process. This period is dominated by awareness, focusing mainly on changes in work content after the introduction of the digital system.

In the later stages of digital transformation, digital systems have been officially implemented, and employees are able to use them smoothly. At this stage, employees find that they can see the entire production process through dashboards or adjust work content during the job based on data. Here, employees' focus remains primarily on awareness, with most concerns on issues of system usage or the direct benefits that can be achieved.

Therefore, we derive Proposition 2:

Proposition 2: Changes in employees' AMC perspective mid-digital transformation are not directly related to the company's decision-making direction.

Proposition 2a: In the early stages of digital transformation, the primary focus is on awareness, with decisions centered around developing capability.

Proposition 2b: During the mid-term of digital transformation, the primary focus is on awareness, with decisions centered around developing capability.

Proposition 2c: In the later stages of digital transformation, the primary focus is on awareness, with decisions centered around the recognition of issues.

(3) Conflict of AMC between Executives and Employees

This study finds that there is a difference in the emphasis on AMC between executives and employees before, during, and after the digital transformation. In the pre-digital introduction phase, executives are mainly focused on motivation, while employees focus on awareness. With sufficient motivation, executives are driven to introduce digital systems; during the mid-term of digital transformation, executives shift their focus from motivation to capability, mainly focusing on what capabilities employees must possess for the digital system to be successfully implemented, while employees continue to focus on awareness; in the later stages of digital transformation, executives concentrate on the actual benefits brought about after the implementation of the digital systems, thus focusing on awareness, with concerns mainly on phenomena brought by the optimization of the production process and the future development visible through data. At this time, the focus of employees remains on awareness.

Therefore, we derive Proposition 3:

Proposition 3: There is a gap in focus between executives and employees before the completion of digital transformation.

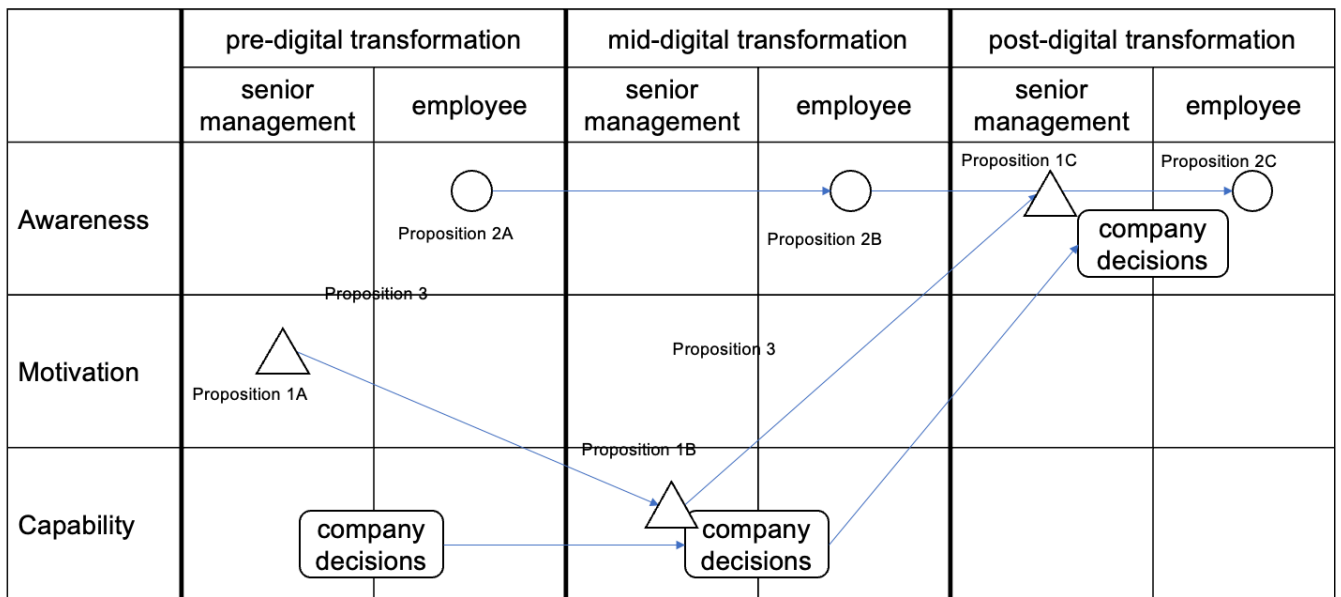


fig2. Proposition Arrangement

VI. Conclusion and Suggestions

1. Research Conclusions

The research found that the initiation of digital transformation actions often starts with top management. Therefore, the motivation for introducing digital transformation plays a very important role in the early stages, especially factors related to customer needs, as sufficient motivation is required to trigger subsequent digital transformation actions. In the mid-term of digital transformation, the insufficiency of company capabilities (whether organizational and departmental arrangements are suitable, whether personnel have enough digital skills, etc.) becomes apparent. Thus, the mid-term focus is mainly on capability development, with top managers focusing on capability in the AMC perspective. In the post-digital transformation phase, after the digital system has been introduced and capabilities developed through the transformation process, the focus is primarily on awareness, illustrating the state of the company after the introduction of the digital system, the changes in the production process brought about by digital systems, and the optimization phenomena in management.

Therefore, the study found that the AMC perspective of top management during Taiwan's traditional manufacturing industry's digital transformation directly affects the company's digital transformation decisions. In the early stages of digital transformation, sufficient motivation drives the company to initiate digital transformation and seek main digital capability solutions. In the early stages, a lack of organizational and process capability is discovered, and the organization continues to be restructured, introducing external resources to enhance capability. In the post-digital transformation phase, the digital system has been integrated into the company's production process, and benefits generated by the digital transformation are observed, with decisions focusing on demonstrating the effectiveness of digital transformation.

Furthermore, during the pre-, mid-, and post-digital transformation phases, employees primarily focus on the current state of the work process and adjust according to company decisions, having no direct impact on company decisions. With the successful introduction of digital systems, the AMC perspectives of top management and employees will gradually align, focusing on the phenomena of optimization of the production process and the ease of management brought about by the introduction of digital systems.

2. Research Recommendations and Practical Implications

Based on the research findings, this study proposes practical implications. Firstly, the study found that there is a difference in focus between top executives and employees at different stages of digital transformation. Therefore, it is recommended that when formulating digital transformation strategies, companies should consider the different needs of the pre-,

mid-, and post-stages to ensure the maximum mobilization of driving forces. For top executives, valuing motivation and capability development during the mid-term is key to successful digital transformation. Companies should provide corresponding training and resources to stimulate the interest and motivation of top executives while emphasizing the cultivation of the relevant capabilities they need during the mid-term. For employees, considering that their primary driving force is awareness, companies should establish effective internal communication mechanisms to ensure that employees' awareness of digital transformation is continuously enhanced. Transparent communication and information sharing help to stimulate employees' interest and participation. Finally, for organizations, in conjunction with capability development, companies should strive to establish a learning organizational culture, encouraging employees to continue learning and developing. This will help enhance employees' ability to cope with digital transformation and promote the organization's long-term competitiveness. Overall, practical digital transformation should be a comprehensive and sustained effort to ensure that all stakeholders can fully participate and realize their potential throughout the transformation process.

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