

## **DRAFTING A DIGITAL TRANSFORMATION STRATEGY FOR PROJECT MANAGEMENT SECTOR – EMPIRICAL STUDY ON UAE**

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**Abstract.** It is without a doubt that the impact of digital transformation and disruptive technologies has impacted all industries globally. There is hardly any sector that is left untouched by this form of innovation. This is also true for the power sector, which is the industry targeted for this study. The power sector is crucial for human existence, and hence, it is the use of different kinds of technology that must be employed at the helm of its operations. These different kinds of technology are related to AI, Robotics, IoT, and Big Data. The major intention behind these technologies should be to pace up different projects managed in the industry. Therefore, the company selected for this project is Dubai Electricity and Water Authority (DEWA). It is a company that is involved with various technological projects ranging from smart grids to digital meters to managing customer data. By interviewing thirteen key people from the company, the study highlights the current status of technology and how it is being employed by different power sector companies. In the end, it has been deduced that the future of the power industry relies on its adaption of green energy generation, and hence, all the efforts of the companies should be directed toward producing green energy with the help of modern technology. Also, it was found that the use of AI can enhance the efficiency of the projects, making them less risky. Therefore, the use of AI ensures that the projects are less prone to risks and have a higher chance of success..

**Keywords:** project management; digital transformation; digital disruption; disruptive technologies; machine learning; artificial intelligence

**JEL:** *L, M, O*

### **1. Introduction**

Digital transformation is gaining momentum across industries, driven by a wave of disruptive technologies influencing companies and businesses to get used to

innovative working. As organizations strive to secure the benefits of digital disruption, the importance of strategic and robust practices of project management continues to increase (Nuseibah 2021). In the field of project management, disruptive technology is significantly evolving, forcing project managers to be proactive in honing and developing technical skills to meet future, increasing demands (Ganzarain 2021). According to Si and Chen (2020), disruptive technologies are being used by innovation to enhance the role of project management within the organization by boosting automation and higher efficiency. Cloud technology, for instance, provides flexibility and speed, IoT connects to data more efficiently, AI drives intelligence, and the resulting technological trio can make a significant transformation in project management (Ageron, Bentahar, and Gunasekaran 2020).

It is anticipated that organizations are planning to adopt or have adopted a digital-first strategy with key technologies like APIs, cloud, mobile, and big data/analytics driving their digital transformation (Alt 2019). Likewise, non-IT companies are changing their services and products around digital capabilities bringing new technologies, undergoing cultural changes, and adapting agile workforce to excel in new changing digital reality (Templeton et al. 2019). Besides, digital transformation through collaborative work management software is aiding teams across departments to interact, connect and engage in real-time, reducing email clutter and time needed in the process. It is automating workflows and increasing coordination of project management tasks such as scheduling, helping project managers to focus on project delivery and strategy optimization. Lastly, it provides managers with the analytical techniques for making data-driven decisions to improve project outcomes (Leimstoll et al. 2018; Ahmed et al. 2020). Overall, the focus of this study is on the effects of AI and machine learning and other digital technologies in managing project risks and analyzes key digital transformations across different dimensions, with a focus on the project management industry.

## **2. Literature Review**

The focus of this section is on the following key factors, business, technology, society, and industry, discussing how digital transformation initiatives have an effect on improving organization efficiency, and help in the management of the project.

At present, digital transformation is taking place across the industry, and disruptive innovations, including the internet of things (IoT), artificial intelligence (AI), and cloud solutions, are emerging in business sectors while displacing other technologies. This significant change in business stimulates innovation in project management. AI is found to aid digital channels helping both consumers and companies and is planning an important role in project management. In the context of pricing models, fixed pricing contracts estimate the amount of pending work to be completed. Emphasizing changing technology can help project managers predict the pricing

planned beforehand, as it is convenient for managers to predict if assigned work is completed on a set deadline (Müller & Turner 2010; Harold 2021). Likewise, the milestone model of pricing help in reducing the chances of fraud between the client and service provider. However, with digital transformation, a milestone in project management can help to measure the progress toward the final goal and is used for signaling posts for the start or end of the project date (Kerzner 2019; Barthel and Hess 2019). In project management, it is found that digitalization has helped businesses to create products and services using innovation and effective management of resources, which help to unnecessary product costs (Pratt, 2020). Moreover, it has been discussed that efficient project management, including tools, tactics, and strategies supported by technologies, is significant in the delivery mechanisms of products and services (Ding et al. 2014).

Likewise, technology is also an important construct in the business world and provides the organization with a much-needed competitive advantage. Project management has a significant link in aligning business strategy with technology management. In project management, the application of technology can help ensure success and may reduce risk related to the project (San Cristóbal et al. 2018). The study by Lundin and Lund (2016) showed that the use of technology in managing projects has been positive for the project managers with respect to cost management, scheduling, project strategy, and project structure. Additionally, technological innovation helps in projects with new processes and services and makes improvements and necessary adjustments (Walker 2016). Similarly, the use of technology is found to be linked with quick access and friendly user experiences providing convenience for both client and the user. For instance, software like Proofhub is a scalable solution for managing the activities of a project, as it is simple and easy to use. With the help of this software, the project team can log in to the single tool of project management for their project needs. Moreover, it is significantly helpful in terms of project planning and timeline to measure the planning process of the project. Besides using technological tools, the management of tasks can be made easy in a more organized and detailed way (Kashyap 2022). In a similar context, it is found that collaboration tools, project tracking, information-gathering tools, software scheduling, and workflow automation are viewed to be useful in improving project management, lowering risks, bringing efficiency to work, and helping improve project development with synchronicity, making it simpler for project managers to manage their tasks (Sajad et al. 2016). Moreover, with increased automation and the transformation of technology, together with the introduction of cloud and AI, managing projects will be easy, efficient, quicker, and risk-free. Nevertheless, new technologies bring new risks; hence managers will need understanding and knowledge on dealing with those issues (Wamba-Taguimdje et al. 2020).

Relating to the challenges, it is observed that project leaders need awareness and sensitivity to multicultural preferences. Globally, distributed and diverse teams

usually work on complex projects with different time zones, geography, and strict deadlines and therefore need resources and time, along with a collaborative culture to perform efficiently (Alkhlaifat, Abdullah & Magassouba 2019). A supportive culture and interactive environment boost the morale of the project team, thus helping to ensure project success. Moreover, closed groups and connecting team members are pivotal in developing a sound collaborative working environment that may help ensure the tracking, record, and scheduling of the project and may help to identify the risk factors and challenges that may arise in the projects. Moreover, it will also help in reducing the chances of project delay if team members and groups are well connected through communicative technological tools. Likewise, it is noted that the role of project leaders or managers is transforming significantly, and the traditional role of a team leader is changing to project influencer. The organizations are early adopters and forward-thinking of new technologies, and thus project managers are increasingly playing a role in influencing people to adapt to new ideas and technologies and bring easiness and flexibility in managing projects (Rowland 2020). In project management, people leveraging on leadership skills can significantly develop professional networks beyond and within their organization can be persuaded and influence others. Although influencer as a term is linked with digital media and marketing, however in projects, it can now be becoming popular, where leadership with skills in influencing team members in the management of tasks, service delivery, and outperform (Pace 2019). Overall, the organizational culture, environment, team cohesiveness, collaboration, and communication, along with leadership influence, can play an important role in the management of the project and thus contribute to organizational success.

In terms of industries, the reliance on the management of the project is linked with new technologies, which can aid in the production, supplies, and management of complex tasks. Disruptive technologies are also pivotal in relation to privacy and security and help ensure that there are minimal risks involved in project failure or delays (O'Reilly and Binns, 2019). Moreover, the transformation of technologies is revolutionizing industries, like cloud computing, IoT, robotics, AI, and other cutting-edge technologies developing opportunities to work, employees to manage projects, and business to thrive more differently. It is noted that in an industrial setting where there are increased concerns related to safety, security, and privacy, project leaders will require a thorough combination of project management, and technical skills, along with business management, strategic, and leadership skills, which are key element project management triangle. People who have skills in managing projects usually support and embrace quick changes and position themselves to compete and excel in disruptive and fast-paced business environments (Cozzolino et al. 2018). Besides, there is a need for continuous changes considering the increasing development and changes in technology. It is found that organizations are upgrading the skills and technical knowledge of their people to adapt

to increasingly growing demand from clients, efficiently in addressing challenges related to project failures, disruptions, etc., and find ways for reducing the gap between the clients and the organization. It is identified that project management is changing together with technologies and increasing demand of industries, and therefore, more trained, skilled project managers are required to deal with forthcoming challenges (Antony and Gupta 2018).

### 3. Questionnaire

This questionnaire consists of the below 9 steps (questions) and sequence:

#### 3.1. Step 1

List of top 10 digital transformations in the organization and a SWOT analysis.

No	Key Digital Transformations
1	Digital Bill Payment
2	Digital Management of electricity and water
3	Customer Data service
4	Consumption Verification
5	Customer Account Service
6	Green Charger Cards
7	Customer Dashboards
8	Smart Consumption
9	Internet of Things
10	Digital Bills

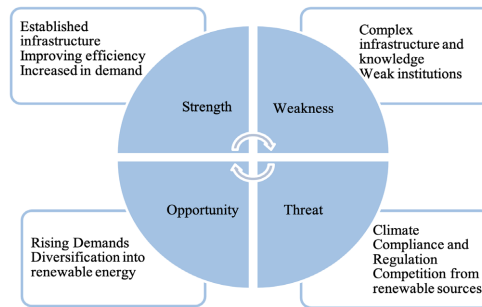


Figure 1. SWOT analysis

#### 3.2. Step 2

A list of top 10 digital initiatives by digital native disruptors most relevant to the organization. Using a what, how, and outcome framework to brainstorm the information.

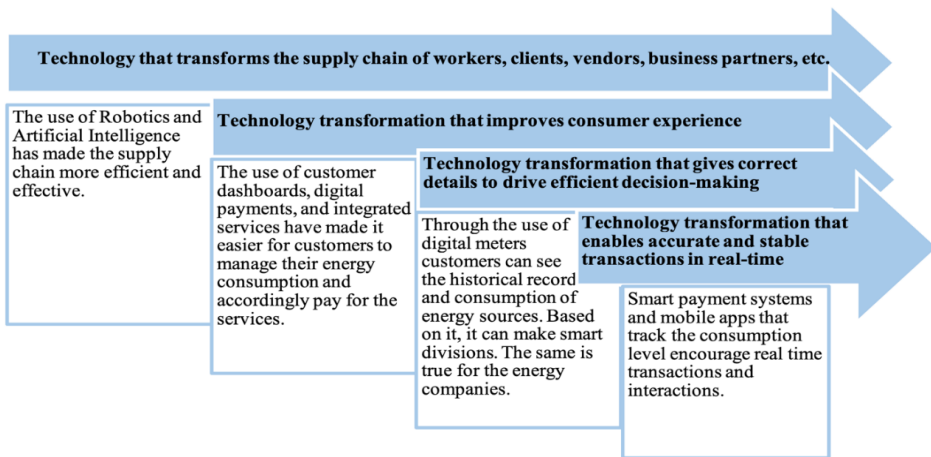
No	Key Digital Transformation Initiatives			
1	Smart Meters		6	Interconnectedness
2	Digital Billing		7	Reskilling Employees
3	Payment Gateways		8	Consumer Awareness
4	Customer Dashboards		9	Grid Optimization
5	Robotics in Power Plants		10	Integrated Customer Services

#### 3.3. Step 3

A list of top three digital disruptions across all four elements – business, technology, industry, and society – most relevant to the organization.

№	Elements of Digital Disruption	Impact of the Element Relevant to your organization	№	Elements of Digital Disruption	Impact of the Element Relevant to your organization
1	Business	Digital Marketing	7	Industry	Cloud Computing
2		Upgradation of Employee Skills	8		Big Data
3		Service Integration	9		Robotics in Grids
4	Technology	Grid Optimization	10	Society	Investment in Renewable Energy
5		Waste Reduction	11		Awareness on Energy Waste
6		Cybersecurity	12		Batteries for Energy Storage

While looking at the technology dimension, the following framework used to identify key initiatives (Figure 2):



**Figure 2.** A framework to identify key initiatives

### 3.4. Step 4

A list of top three digital initiatives by the competitors.

№	Competitors	Key Digital Transformation Initiatives	№	Competitors	Key Digital Transformation Initiatives
1	Dubai Electricity and Water Authority (DEWA)	Smart Apps	7	ExxonMobil	New Payment Options
2		Digital Marketing for Consumer Awareness	8		Detecting Methane Emissions
3		Digital Bill Payment	9		Quantum Computing

4	Total Energies	Customer Data Service	10	Schneider Electric	Edge Computing
5		Consumption Verification	11		Cybersecurity Protocols
6		Digital Factory	12		Pay as you go subscription-based model

### 1.5. Step 5

A list of top three digital disruptions across all the five key areas of disruption that are most relevant to the organization.

We are making progress with our understanding of the digital initiatives. Now how about getting some ideas going? Let's look at each of the key areas of digital disruption one by one using the trend-benefit framework:

#### Trend 1 Smart Meters

Smart meters help the users to track their energy consumption.

#### Trend 2 Payment Options

This helps users to pay for the bills in any payment option such as debit cards, paypal, cryptocurrency, etc.

#### Trend 3 Robotics

Installation of robotic technology helps in reducing the energy waste

**Figure 3.** Trend-benefit framework for the 3 key areas of digital disruption

Finally, A list the top three initiatives across all five areas of digital disruption is provided in the table below:

Nº	Key areas of disruption	Digital initiatives	Nº	Key areas of disruption	Digital initiatives
1	Marketing and distribution	Marketing on social media platforms	9	Processes	Cloud Computing
2		CSR activities related to environment	10	Ecosystems	Renewable Energy
3		Distribution based on data	11		Investment in green initiatives
4	Product and service	Robotics in smart grid	12		Employee Capacity
5		Smart Energy	13	Supply chains	Detecting Methane Emissions
6		Smart Meters	14		Quantum Computing
7	Processes	Payment models	15		Edge Computing
8		Lowering Energy Consumption			

### 1.1. Step 6

A list of top three transformations across the following key technologies that are most relevant to the industry.

Nº	Key Technology Areas	Top 3 Digital Opportunity for your industry	Nº	Key Technology Areas	Top 3 Digital Opportunity for your industry
1	Platforms	Customer Dashboards	15	IOT	Connectivity
2		Supplier Dashboards	16	RPA	Improvement in Supply Chain
3		Consumption Database	17		Improvement in distribution
4	Customer Network	Customer Data Network	18		Automated Distribution
5		Integrated Customer Channels	19	XR	Virtual Experience
6		Data Centers	20		Zero Carbon Future
7	Big Data	Smart Consumption	21		Increased Efficiency
8		Consumer Data Base	22	Edge Computing	Higher Computation
9		Reduction in Energy Wastage	23		Increase in Speed
10	AI	Efficiency	24		Reduction in Cost
11		Connectivity	25	Drones	Short time to repair power damages
12		Smart Payment Systems	26		Monitoring of smart grids
13	IOT	Centralized mobile connection	27		Accessibility of services
14		Cybersecurity			

### 1.7. Step 7

Based on the previous steps, a list of all key transformations compiled.

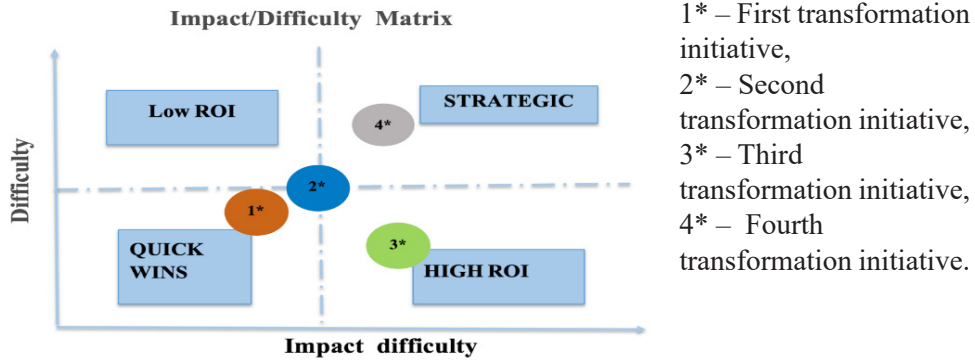
Nº	Key Transformations	Nº	Key Transformations
1	Service Integration	16	Connectivity
2	Customer Dashboards	17	Improvement in Supply Chain
3	Supplier Dashboards	18	Improvement in distribution
4	Consumption Database	19	Automated Distribution
5	Customer Data Network	20	Virtual Experience
6	Integrated Customer Channels	21	Zero Carbon Future
7	Data Centers	22	Increased Efficiency
8	Smart Consumption	23	Higher Computation
9	Consumer Data Base	24	Increase in Speed
10	Reduction in Energy Wastage	25	Reduction in Cost
11	Efficiency	26	Short time to repair power damages
12	Connectivity	27	Monitoring of smart grids
13	Smart Payment Systems	28	Accessibility of services



14	Centralized mobile connection	29	Digital Marketing
15	Cybersecurity	30	Upgradation of Employee Skills

### Step 8

A list of transformations made across the impact/difficulty matrix.



**Figure 4.** The impact/difficulty matrix for the 4 initiatives

№	Key Transformations		№	Key Transformations	
1	Service Integration	3 <sup>rd</sup>	16	Connectivity	3 <sup>rd</sup>
2	Customer Dashboards	3 <sup>rd</sup>	17	Improvement in Supply Chain	4 <sup>th</sup>
3	Supplier Dashboards	3 <sup>rd</sup>	18	Improvement in distribution	3 <sup>rd</sup>
4	Consumption Database	4 <sup>th</sup>	19	Automated Distribution	2 <sup>nd</sup>
5	Customer Data Network	1 <sup>st</sup>	20	Virtual Experience	1 <sup>st</sup>
6	Integrated Customer Channels	1 <sup>st</sup>	21	Zero Carbon Future	3 <sup>rd</sup>
7	Data Centers	2 <sup>nd</sup>	22	Increased Efficiency	1 <sup>st</sup>
8	Smart Consumption	3 <sup>rd</sup>	23	Higher Computation	3 <sup>rd</sup>
9	Consumer Data Base	1 <sup>st</sup>	24	Increase in Speed	1 <sup>st</sup>
10	Reduction in Energy Wastage	2 <sup>nd</sup>	25	Reduction in Cost	1 <sup>st</sup>
11	Efficiency	4 <sup>th</sup>	26	Short time to repair power damages	3 <sup>rd</sup>
12	Connectivity	3 <sup>rd</sup>	27	Monitoring of smart grids	4 <sup>th</sup>
13	Smart Payment Systems	1 <sup>st</sup>	28	Accessibility of services	2 <sup>nd</sup>
14	Centralized mobile connection	1 <sup>st</sup>	29	Digital Marketing	3 <sup>rd</sup>
15	Cybersecurity	2 <sup>nd</sup>	30	Upgradation of Employee Skills	3 <sup>rd</sup>

### 1.9. Step 9

The most relevant digital transformation plans identified.

№	Final List of Digital Transformation Strategies	Priority	№	Final List of Digital Transformation Strategies	Priority
1	Installation of Digital Meters	1	6	Use of VR for Marketing	6
2	Digital Payment Systems	2	7	Service Integration	7
3	Integration into Mobile App	3	8	Green Energy Awareness	8
4	Dashboards for Customers	4	9	Smart Consumption	9
5	Robotics in Grid System	5	10	Cybersecurity	10

### 4. Analysis

The questionnaire was asked to several respondents who had a working experience in the power sector. The template was very helpful in determining the direction taken by the industry as a whole. For instance, the first question pertained to the key digital transformations that were underway in the power sector. One of the responses that were received is as follows:

*“In my opinion, the key digital transformation that is currently underway is related to Digital Bill Payment. We are working on a technology that allows customers to pay the bills through the use of mobile apps”.*

Such a system would be a breakthrough for the consumers as well as for the companies. This is further explained by Andrew et al. (2020), where it is highlighted that electricity consumers are often faced with problems of delayed billing, and this is primarily because of the sheer size of the consumers. Therefore, with the use of a base programming language, web services are being developed where users will be given a unique identification number, and this will help in retrieving digital bills. It will be extremely helpful for both the company and consumer as it would reduce the cost of paper billing from the end of the consumer and customer. They can access the bill whenever they need it. Similar to this, another respondent noted the use of digital apps for the use of electricity and other utility services. These apps would help track the consumption level of the consumers, and they could keep a real-time track of the consumption patterns. These apps will also be able to alert the users if the consumption increases the specified target, and hence, this would be the first time customers would be alerted of their usage. Consider the below response:

*“The development of Digital Apps would bring entire services into one centralized hub. This would enable customers to access their consumption patterns, past billing history, and lots of other services. That’s truly an innovation as it had never been carried out before”.*

Regarding the strengths and weaknesses of the power sector, respondents were quick to note the importance of infrastructure. This makes sense because, without infrastructure, there is hardly any use of electricity, and all the companies rely on infrastructure as it is their biggest strength for the provision of services. However, the complexity and

lack of knowledge regarding the same infrastructure is also a shortcoming as not every employee in the team is aware of these technicalities, and often these companies have to rely on a third-party agency if there is a problem related to infrastructure quality. Furthermore, rising demands and consumption was quoted as the biggest opportunity for power sector company. It is also stated by Cialani and Mortazavi (2018), where the authors have mentioned that due to urbanization and globalization, the power demand has increased ten folds, and hence, there is a great opportunity for the power sector companies to meet these demands and increase their revenues. On the contrary, the biggest threat was recorded to be renewable energy. For this factor to understand, consider the below response:

*“It is without a doubt that the biggest threat to the power sector companies comes in the form of the environment. The climate is degrading, and there must be a clean and renewable source that must be developed which is in the interest of everyone on this planet. Otherwise, it is possible that the power companies may be sanctioned soon and are replaced by companies that provide energy through environmentally safe solutions”.*

From the above response, it is clear that the future of power sector companies lies in the direction of renewable sources. If they are not able to switch to a renewable form of energy, then they may fall out of favor with the government as well as with the consumers who are looking forward to a greener solution.

Further to this, when the respondents were asked about the key digital transformations initiatives observed in the industry, the option of smart meters was prioritized. As per the study by Rausser, Strielkowski, and Štreimikienė (2018), smart meters in the power sector that are installed in place of analog meters have the capability of reducing energy consumption and, at the same time, can be useful for policymakers in devising energy efficiency policies for the future. Smart meters also offer a viable alternative for a cost-effective, stable, and reliable form of electricity metering. However, as one of the respondents noted, such a type of installation requires a change in the approach of both consumers and the companies. Concerns for the environment may be very valid in the west but not in Asian or middle eastern societies. Therefore, a large-scale installation of smart meters lacks the pull factors, and there is a bigger role from the government that should intervene and encourages smart metering of the households. Similarly, another breakthrough is installing robotics in power plants and electricity-generating farms. This was also a response that was gathered from all the respondents, and hence, it can be noted that the use of modern robotics is a game-changing technology. This is because the installation of robots at the power plants can increase the efficiency of the plants and prevent the wastage of energy which I the prime concern of the industry. A further explanation is provided by (Menendez et al. 2017). As per the researchers, the foremost challenge facing the power sector is related to sustainability, and this is adequately addressed by the use of robotics at power facilities. It can also be able to reduce dependency on labor and hence reduce the labor cost. On the contrary, customer dashboards for power usage and consumption are also considered to be a great new service that can provide

customers with the history of their consumption. This will rely on IoT that will see the users connect their mobile phone apps with appliances in the household. This dashboard can then not only be used to check the power consumption status but also used to control the electrical appliances.

Related to technology, there is grid optimization, waste reduction and cybersecurity that would play a key role in the shaping of the industry. Grid optimization is related to having robotics in power generating facilities. This is also illustrated in the below quote from the respondent:

*“Optimization of the griding system has become a top priority not only in Dubai or UAE but around the world. This is because a huge percentage of electricity is wasted due to inferior infrastructure and technology. This can be averted if there is the use of robotics that are equipped with AI and machine learning. This means that the current technology and equipment are replaced with more intelligent machines capable of sending and receiving signals”.*

From the above quote, it is clear that the installation of robotics-based on AI is of huge importance to power companies. The study of Wamba-Taguimdje et al. (2020), which is quoted in the literature review section, provides unique insights. As per the researchers, the use of AI makes a project quicker, reliable, and easier. These benefits are exactly the benefits that the power grids aim to realize through the installation of AI-driven robotics. Furthermore, the study of O'Reilly and Binns (2019) is also important to mention as the authors bring into consideration the importance of cloud computing and robotics to thrive in the modern world. Cloud computing is also listed as an impact that will affect the entire industry. This is because energy management, like project management, requires a flexible and scalable environment. Before cloud computing, companies were relying on huge data centers that were unacceptable for the current environment and, at the same time, were physically redundant. With cloud computing, this can be reduced and can provide a greater synergy between different stakeholders of a project, such as employees, managers, and customers. Hence, in this sense, the findings of the literature and the opinion of the respondent are coherent.

Furthermore, the respondents were also asked to classify technology that is able to increase the supply chain process, improve customer experiences, help inefficient decision-making, and encourage accurate and stable transactions. Within the power sector, it was noted that all these four key areas of project management are being alleviated by a different kind of technology: robotics and AI are used in the supply chain, Big Data for customer experiences, digital meters for efficient decision making, and smart payment systems for reliable information. This means that the application of technology in the power sector is multidimensional and can impact each and every stage of project management. This is also in line with the findings of Cozzolino et al. (2018) mentioned in the prior section, which state the importance of a dynamic

and fluid environment which can only be achieved with the use of technology. Antony and Gupta (2018) have based their study on how can the gap between customer and organization can be reduced in project management, which is discussed in the literature section. And it seems that in the power sector, this can be reduced through the integration of technology such as smart payment systems, customer dashboards, digital meters, etc. This would empower the customers and remove their dependency of customers on the organization.

Similar themes emerged when the respondents were asked about the underlying trends in the industry. These trends are related to smart meters, adding payment options, and the use of robotics and AI for increasing efficiency in the supply section. Once again, the concept of smart grids is important to discuss as it is a recurring theme in the responses from the respondents. In this gridding system, there are a variety of options and energy measurements units that can provide a foundation for both the company and customer regarding their habit of energy consumption. This is optimized through the use of robotics and AI. This type of innovation is among the most prioritized digital transformation plan affecting all the players in the industry.

Within the transformation plan, there is also the aspect of installing digital meters instead of the current meter system. Based on the information gathered from the respondents, this is a very important aspect of the industry and is in line with the needs and preferences of customers. These digital meters can then have the ability to connect with the mobile app on the user's smartphone giving access to the consumer's energy consumption, payment history, and other details on one centralized hub. Lastly, the investment in green and renewable sources of energy is also prioritized and constantly referred to by the respondents. This should also be communicated to the users in the form of digital marketing. This is because companies are actively investing in creating an awareness regarding the need for green electricity, which would be the future of the power sector. To this end, the industry is also tapping into the sources that can help in creating clean energy which will be effective using digital technology.

## **5. Conclusion**

Subjected to the above discussion, it can be stated that one of the most important industries for the survival of humanity is deeply embedded with technological progress. There are multiple sources of technology, such as Robotics, AI, Big Data, Mobile apps, etc., that are the key trends for the power sector and would be guiding the future of the companies. The provided analysis examined different aspects of technology use, including benefits, advantages, and changes in the industry that was introduced by the integration of disruptive technologies. The digital transformation shift improved all project management processes specifically risk management. In addition, digitalization provides a better environment and an enhanced experience for managers, employees, and customers.

### **5.1. Summary**

The key findings of this paper are listed below:

- Digital transformation utilizes the use of digital technologies including artificial intelligence, the IoT, big data, robotics, digital marketing, and other advanced technologies.
- Digital technologies have significantly impacted all sectors including business, society, industry, and technology. Leading to enhanced operations, experiences, and improved efficiency. It also creates new risks.
- Projects managers, engineers, and employees require to develop the appropriate level of skills to eliminate the risks associated with the implementation of new technologies.
- Dubai Electricity and Water Authority (DEWA) the organization subjected to this study, has effectively adopted digital initiatives across different areas of disruption such as marketing, distribution, process, products, and services.
- New strategies, applications, solutions, and services evolved across the various digital transformation initiatives.
- Power industry companies are competing in the process of implementing the latest technologies in alternative initiatives and projects.
- Promoting innovation by utilizing digital disruptive in managing projects delivers advanced solutions to deal with risks, threats, and opportunities. Specifically, the use of Artificial Intelligence (AI) which leads to an enhanced planning, execution, improved quality, and better decision making of projects.
- Integration of technologies in managing projects introduces numerous advantages of eliminating errors, reducing costs, effective management, customer satisfaction, enhanced operations, and project delivery.
- Interview results conclude that an effective risk management plan established by managers to deal with the digital environment risks is an optimal approach to benefit from the evolving technologies.

### **5.2. Recommendations**

Following a thorough review of the literature and addressing a questionnaire to several employees dealing with projects at Dubai Electricity and Water Authority, the paper presents a number of suggestions.

- Organizations must provide training sessions and workshops addressing the current evolving digital technologies for their employees to teach them how to incorporate digital transformations in managing projects and risks associated with them.
- Development of professional skills is required to support the use of digital transformations in projects.

- Industries should embrace change by adopting the use of digital technologies company-wide to open up opportunities for all departments including IT, marketing, and customer services to enhance their processes.
  - Introducing regulations and reforms on implementing digital transformations for the successful management of projects.
  - Corporation between organizations and industries will improve the process of adopting the latest digital transformations in managing project risks.
  - Proper research is required before integration with projects to unlock the benefits of using digital technologies.
- Organizations should focus on continuous innovation in managing projects to compete in the digitalized world.

## REFERENCES

- AGERON, B.; BENTAHAR, O. AND GUNASEKARAN, A., 2020, July. Digital supply chain: challenges and future directions. In: *Supply Chain Forum: An International Journal*, vol. 21, no. 3, pp. 133 – 138. Taylor & Francis.
- AHMED, A., ALSHURIDEH, M., KURDI, B.A. AND SALLOUM, S.A., 2020, October. Digital transformation and organizational operational decision making: a systematic review. In *International Conference on Advanced Intelligent Systems and Informatics*, pp. 708 – 719. Springer, Cham.
- ALKHLAIFAT, B.; ABDULLAH, A.A. AND MAGASSOUBA, S.M., 2019. Modeling Impact of Project Management Performance with Among Roles of Project Risk Management and Organizational Culture on Project Success. *European Journal of Business and*, vol. 11, no. 36. DOI:10.7176/EJBM/11-36-06.
- ALT, R., 2019. Electronic Markets on digital transformation methodologies. *Electronic Markets*, vol. 29, no. 3, pp. 307 – 313.
- ANDREW, A.; OKORIE, P.U.; ZARIA-NIGERIA, Z.; ABDU, A.I. AND ZARIA-NIGERIA, Z., 2020, June. DESIGN AND IMPLEMENTATION OF AN ELECTRICITY ON-LINE BILLING PAYMENT SYSTEM. *International Congress on Human-Computer Interaction*.
- ANTONY, J. AND GUPTA, S., 2018. Top ten reasons for process improvement project failures. *International Journal of Lean Six Sigma*.
- BARTHEL, P. AND HESS, T., 2019, July. Are digital transformation projects special?. *PACIS* (p. 30).
- CIALANI, C. AND MORTAZAVI, R., 2018. Household and industrial electricity demand in Europe. *Energy policy*, vol. 122, pp. 592 – 600.
- COZZOLINO, A., VERONA, G. AND ROTHARMEL, F.T., 2018. Unpacking the disruption process: New technology, business models, and incumbent adaptation. *Journal of Management Studies*, vol. 55, no. 7, pp. 1166 – 1202.



- DING, X., SHENG, Z., DU, J. AND LI, Q., 2014. Computational experiment study on selection mechanism of project delivery method based on complex factors. *Mathematical Problems in Engineering*. <https://doi.org/10.1155/2014/701652>.
- GANZARAIN EPELDE, J., 2021. Evaluating Disruptive Innovation Project Management Capabilities.
- KASHYAP, V., 2022. 54 Best Project Management Tools & Software for 2022. Retrieved from, <https://www.proofhub.com/articles/top-project-management-tools-list>.
- KERZNER, H., 2019. Using the project management maturity model: strategic planning for project management. John Wiley & Sons.
- KERZNER, H., 2021. *Project management: case studies*. John Wiley & Sons, Inc.
- LEIMSTOLL, U.; DANNECKER, A.; KNECHTLI, H.; QUADE, M.; TANNER, C. AND WÖLFLE, R., 2018. E-Business in the era of digital transformation. In: *Business Information Systems and Technology 4.0*, pp. 81 – 101. Springer, Cham.
- LUNDIN, J. AND LUND, A., 2016. How technology affects project management: A study within Swedish municipalities;
- MENENDEZ, O.; CHEEIN, F.A.A.; PEREZ, M. AND KOURO, S., 2017. Robotics in power systems: Enabling a more reliable and safe grid. *IEEE Industrial Electronics Magazine*, vol. 11, no. 2, pp. 22 – 34;
- MÜLLER, R. AND TURNER, R., 2010. Leadership competency profiles of successful project managers. *International Journal of project management*, vol. 28, no. 5, pp. 437 – 448.
- O'REILLY, C. AND BINNS, A.J., 2019. The three stages of disruptive innovation: Idea generation, incubation, and scaling. *California Management Review*, vol. 61, no 3, pp. 49 – 71.
- PACE, M., 2019. A correlational study on project management methodology and project success. *Journal of Engineering, Project, and Production Management*, vol. 9, no. 2, p. 56.
- PRATT, M. (2020). 10 digital transformation benefits for business. Retrieved from, <https://www.techtarget.com/searchcio/tip/Top-10-digital-transformation-benefits-for-business>;
- RAUSSER, G., STRIELKOWSKI, W. AND ŠTREIMIKIENĖ, D., 2018. Smart meters and household electricity consumption: A case study in Ireland. *Energy & environment*, vol. 29, no. 1, pp.131 – 146.
- ROWLAND, M., 2020. The PM as an influencer: how the project manager role is changing. Retrieved from, <https://www.apm.org.uk/blog/the-pm-as-influencer-how-the-project-manager-role-is-changing/>.
- SAJAD, M., SADIQ, M., NAVEED, K. AND IQBAL, M.S., 2016. Software Project Management: Tools assessment, Comparison and suggestions for



- future development. *International Journal of Computer Science and Network Security (IJCSNS)*, vol. 16, no. 1, p.31.
- SAN CRISTÓBAL, J.R.; CARRAL, L.; DIAZ, E.; FRAGUELA, J.A. AND IGLESIAS, G., 2018. Complexity and project management: A general overview. *Complexity*. <https://doi.org/10.1155/2018/4891286>.
- SI, S. AND CHEN, H., 2020. A literature review of disruptive innovation: What it is, how it works and where it goes. *Journal of Engineering and Technology Management*, vol. 56, p.101568. <https://doi.org/10.1016/j.jengtecman.2020.101568>.
- TEMPLETON, G.F., PETTER, S., FRENCH, A.M., LARSEN, K.R. AND PACE, B., 2019. Information technology firms: Creating value through digital disruption. *Communications of the Association for Information Systems*, vol. 44, no. 1, p. 35.
- WAMBA-TAGUIMDJÉ, S., WAMBA, S.F., KAMDJOU, J.R., & WANKO, C.E., 2020. Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects. *Bus. Process. Manag. J.*, vol. 26, pp. 1893 – 1924.

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