# "EMPOWERING INDIA THROUGH DIGITAL TRANSFORMATION : A SUSTAINABLE APPROACH"

Volume - II


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Dr. B. Indira Priyadharshini

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*Editorial Committee*

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**Dr. M.V. Sathiyabama**

*Associate Professor and Head, Department of Commerce (E-Commerce)*
*Nallamuthu Gounder Mahalingam College*

**Dr. B. Indira Priyadharshini**

*Assistant Professor, Department of Commerce (E-Commerce)*
*Nallamuthu Gounder Mahalingam College*

**Dr. T. Kiruthika**

*Assistant Professor, Department of Commerce (E-Commerce)*
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*Editorial Committee*

**Ms. M. Sudha**

*Assistant Professor, Department of Commerce (E-Commerce)*
*Nallamuthu Gounder Mahalingam College*

**Ms. P. Anu Shruthi**

*Research Scholar, PG & Research Department of Commerce,*
*Nallamuthu Gounder Mahalingam College*

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Ph : 04259 – 221734
E-Mail : cauveritech@gmail.com

# Impact of Digital Transformation in Select Sectors (Agriculture; Healthcare; Education; Finance & Governance)

**Dr. G. VIGNESH,**
Associate Professor and Head, M.Com. IB Department

**Ms. R. MADHUMITHA & Mr. T. GOKUL PRASANTH**
II M. Com. IB Scholar, Nallamuthu Gounder Mahalingam College, Pollachi

## 1.1 Introduction

Digital Transformation (DT) is the process of adoption and implementation of digital technology by an organization in order to create new or modify existing products, services and operations by the means of translating business processes into a digital format. This paper inclines to attempt the impact of digital transformation in selected sectors like Agriculture, Healthcare, Education, Finance and Governance. For better clarity on the impacts, firstly the positive impacts are derived for all the above mentioned sectors and followed by the adverse comments is presented sector wise.

## 1.2 Positive Impact of Digital Transformation

### A) Agriculture

- **Crop Yield Optimisation**

One of the most significant impacts of digital transformation in agriculture, or "digital agriculture" as it's otherwise known is its unlimited ability to boost efficiency on your farm or ineyard/winery and positively impact crop yields – when you know how to capture data and then access it! With the power of low-code/no-code app builders and digital forms, farmers can now access real-time data, enabling them to make informed decisions about their crops anytime, anywhere.

- **Cattle Health Management**

The health of your livestock is crucial – we know this because we help farmers create digital transformation in agriculture every day with our low-code/no-code app building platform and digital forms. With a mobile data capture app for agriculture built with forms, farmers can keep detailed health records for each animal or group of animals right on their mobile devices. You can track vaccinations, illnesses, treatments, and breeding patterns over time and use automation to set up automatic reminders, ensuring that each animal receives the attention and veterinary care they need when they need it.

- **Irrigation Management**

Any agriculture professional developing a strategy on their farm knows that proper irrigation is vital for healthy crops. But it's also a laborious process when it comes to testing, analysing and setting up irrigation schedules. Are you using too much water? Not enough? Are you watering too early? Too late? Is the weather affecting water usage? Fortunately, with the forms low-code/no-code app building platform, farmers can build an agriculture data capture app to track soil moisture levels based on their collected data, and then adjust their strategy thanks to weather forecasts pulled from an API, anywhere in the world. If you have multiple sites, you can also deliver alerts to those sites thanks to push notifications, alerting your team that it's going to rain.

- **Pest and Disease Monitoring**

Keeping up to date and informed of any pests or diseases in the agriculture and vineyard industry is vital. The health of your crops and livestock means everything. Digital agriculture and data capture apps for farms and vineyards make this 10x easier to keep ahead of. By building apps with a reliable low-code/no-code platform, such as forms, farmers, agriculture analysts and vineyard managers can monitor and record the occurrence of pests or diseases

in the field, and track what's going on. By using an API to access real-time data and connecting your tech stack data capture apps can be pivotal in early identification of outbreaks or potential outbreaks.

**b) Healthcare**

- It optimizes workflows by eliminating paperwork, making data more accessible, and reducing the time needed for patient examination
- It allows for more effective remote communication between doctors and patients
- It enables efficient communication and data exchange between medical staff
- It creates a secure database for electronic medical records
- Patients can gain access to personalized healthcare services
- They can track important health metrics in real-time
- They get easier access to their personal health records
- Digital healthcare solutions make scheduling appointments convenient

**c) Education Industry**

- **Impact in Attitude**

Technical solutions impact their attitudes and make them more invested in discussions, interactions, collaboration, research, and learning. Educational games and other digital materials and tools inspire students to solve problems, spend more time on their studies, and improve their comprehension of the material.

- **Progress Tracking**

It is sometimes difficult for teachers to see the reasons why a certain student is unable to keep up with the curriculum. This issue is addressed by tools that can track and analyse student performance in real time. Advanced solutions help identify the areas in which a student is struggling, their strengths and weaknesses, and if they are at risk of dropping out.

- **Personalization**

While the traditional teaching model requires students to follow one curriculum, which may result in some of them lagging behind or getting ahead of their peers, technology makes it possible for everyone to learn in a way that is most suitable for them and at a comfortable pace. Using digital tools, educators can develop personalized programs for students who are having trouble with a certain subject, who are running into obstacles, or who are particularly gifted. Digital technology can also help students adapt and gain control over certain aspects of their studies.

- **Future-Proofing**

Digital skills are essential for nearly all professions, and educational institutions should prepare students for entering the workforce. The Capgemini Research Institute conducted research in secondary schools across nine countries (Australia, Finland, France, Germany, Japan, the Netherlands, Singapore, the United Kingdom, and the United States) and discovered that students aged 16-18 are most confident with basic digital skills, such as using computer apps and finding information online. However, fewer of them believe they have the digital communication and data literacy skills required to succeed in the workplace. The necessary skills are developed by constantly working with the digital technologies and using them both in and outside the classroom.

**d) Finance**

- **Improved Operational Efficiency and Revenue Generation**

Deploying the right set of digital transformation tools streamlines operational processes by automating manual tasks and integrating data. Such initiatives help save time and costs, resulting in increased profits.

- **Easy Data Accessibility and Management**

Digital transformation efforts help in collecting, managing, and storing raw customer data that can be analysed to boost business intelligence and optimise growth.

- **Enhanced Customer Experience**

According to a survey, 76% of financial service executives believe customer experience is the top priority for digital transformation. Customers today are tech savvy and expect brands to be ahead of them.

- **Insight-Driven Decisions**

AI-based analyses enable faster trade decisions in capital markets. Business decisions and strategies can be now be based on calculative insights with a more customer-centric product or a service.

**e) Governance**

- **Increased Efficiency and Productivity**

Having a single source of truth, and clear oversight of documents and data can save valuable time when it comes to finding and

updating information. Accessible data means users have the information they need when they need it the most. Document management automation can also help cut out repetitive tasks and streamline workflows, removing the need for things like manual data entry.

- **Improved Understanding of Stakeholders**

In a world of 'Big Data', it's much easier to build a picture of both internal and external stakeholders and use this information to continuously improve. For example, with internal digital workflows, it's much easier to identify bottlenecks and take action to remove them. Externally, website data and analytics can reveal valuable insights into how citizens use the site and where improvements can be made or where additional content is needed.

- **Easier Collaboration Across the Organisation**

With documents and data accessible to everyone (with the correct authorization), every department has the latest version and the most accurate data. This reduces the likelihood of out-of-date information finding its way into a report, or the wrong details being held and duplicated across departments.

- **Better Decision-Making through Data-Driven Insights**

Real-time access to documents and data means you always have the latest version. Out in the field, case workers can use mobile devices to check and update information, ensuring data is not simply stored and forgotten about – it's actively used to inform better decision-making at every level.

## 1.3 Negative Impact of Digital Transformation

### a) Agriculture

- **Solve for Unpredictability**

This unpredictability can be in the form of weather, yield, or demand patterns. Farmers in India are more reactive to market sentiments or yield output. By collecting data around market demand, weather patterns, and other trends—they will be able to build a more proactive approach to production.

- **Build More Sustainable Agricultural Practices**

Agriculture is extremely dependent on natural resources which make it difficult to meet the rising demand to support the growing population. It gave birth to unsustainable practices like over-fertilization, over-irrigation, soil degradation, and more. With the advent of technology, farmers can employ more sustainable practices like smart irrigation, monitoring soil health, and using drones and AI to capture data on the health of the produce.

- **Practice Precision Farming**

Whether it understands planting patterns, or optimizing production, technology helps farmers adopt more precise techniques. The role of AI in agriculture is still in its exploratory stage but is still making huge headway in the West.

### b) Healthcare

- **Patient Data Security**

This is the biggest challenge for any healthcare service provider. It is a priority of every hospital to protect the patient's confidential health data while ensuring seamless sharing between patients and healthcare professionals. Digital transformation solution providers may use blockchain and AI-powered features to keep data security

at the highest level. Apart from this, healthcare service providers need to take certain preventive measures to stop any incidents of cyberattacks.

- **Resistance to Change**

Like other core industry sectors, the healthcare sector also witnesses resistance to transformation. The change may remain unwelcome at the initial level among paramedics and support staff. Automation of several administrative tasks can be gradually adopted by your staff. Simply put, digital transformation is about changing the work culture and transforming the way healthcare professionals work. Spreading awareness and giving proper training can however work wonders in neutralizing resistance.

- **Budget or Costing**

It is one of the reasons why many healthcare institutions postpone the implementation of digital transformation. Here, it is fair to mention that the digital transformation process is not about generating ROI but about increasing the value proposition. Also, as an ongoing and lengthy process, hospitals may have to spend a lot of money as an investment in digital transformation. However, digital transformation offers higher scalability and increased revenue over the period.

- **Distributed Workforce**

The rise of the telemedicine concept has made the entire healthcare sector highly dynamic and decentralized. In such diversified and distributed conditions, it is necessary for healthcare institutions to implement digital health strategies properly. Also, they need to ensure that distributed workforce can easily access the patient's data while preventing it from going into the wrong hands. In other words, healthcare organizations have to establish a secure network between providers and patients.

**c) Education Industry**

- **Lack of Clear Strategy**

A lack of strategy with adopting new technology can be a challenge. When a large school faces obstacles to completing tasks with the help of the latest technology, it can be challenging to learn and achieve a goal. Making robust strategies can help schools accomplish significant points and focus on achieving their objective.

- **Technology Infrastructure**

Digital transformation in the education industry needs new equipment and technology infrastructure for learners, direct instructors, and educational institutes. Choosing the platform that provides easy access, course creation, seamless integration is another obstacle educational institutes face. Therefore, Digital transformation requires technology infrastructure to develop an engaging learning culture.

- **Management and Thinking**

To operate such systems, instructors need the management and thinking ability of school administrators to change. They must find a way to analyze what is possible in virtual space and effectively exploit technology for this purpose. Educational institutes need to grasp knowledge and digital thinking to understand the limits and master technology.

**d) Finance**

- **Legacy Systems**

Shift from legacy to new technological infrastructure and digital expertise requires huge investments and transition costs.

- **Security and Compliance**

Unlike fintechs and other new financial players, banks and traditional FIs are subject to high security risks due to voluminous personal data and transaction records, which make it harder to execute changes while meeting compliance requirements.

- **Customer Expectation on User Experience (UX)**

The purpose of digital transformation is to offer customers improved efficiency and consistent user experience across platforms. Traditional banks and enterprises find this hard to achieve because it requires extensive research, time, strategy, and marketing to offer the right choices to customers.

- **Workplace Culture and Reskilling Workforce**

Changes in workforce and workplace culture are significant as the talent model switches and focuses on data scientists and analysts, thereby mandating upskilling among employees. Efforts here require time, strategy, and clear objectives and communication.

- **Competition**

Competition with fintechs and new online finance players like Amazon, Google, or Facebook leaves banks out of the process as customers transact directly. However, banks are more secure and regulated, giving them the edge if they go digital.

**e) Governance**

- **National Security Risks**

Governments handle sensitive and confidential information, which needs to be protected from cyber threats and other forms of attacks. As the government moves to digitize more information and services,

it becomes vulnerable to hacker attacks. Governments must invest in robust security measures to prevent unauthorized access to confidential data.

- **On-premise Technology**

Federal agencies typically rely on desktop, on-premise solutions to ensure their data is better protected from outside attacks. However, this presents challenges for federal digitalization projects, as most technology vendors have adopted cloud-based applications.

- **Politics and Stigmatization**

Digital transformation initiatives can be met with resistance from politicians and citizens, who may view the changes as threatening traditional government operations. Additionally, some groups may hesitate to use digital services due to stigmatization or mistrust.

- **Government Bloat**

Government agencies often have complex structures, bureaucratic processes, and redundant systems, which make it difficult to implement digital transformation initiatives. Streamlining and simplifying these processes may involve some painful steps, like reducing staff, closing departments, or reorganizing existing ones.

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