

# Building a Future-Ready Viksit Bharat 2047 through Digital Innovations in Commerce and Management Education

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## ABSTRACT

The advent of the digital era has revolutionized various sectors, including education. In commerce and management education, digital innovations offer the transformative potential to align with India's vision of Viksit Bharat 2047—a developed and self-reliant nation by its centennial year of independence. This article investigates how digital technology could transform management education and commerce, therefore arming graduates with the tools required for a worldwide economy. Key topics of attention include including into curricula artificial intelligence, machine learning, big data analytics, and blockchain technologies; these technologies can improve learning opportunities, provide interactive, customized education, and offer real-time industry insights. The study looks at present developments and case studies showing an effective application of digital tools in educational environments. It also covers infrastructure constraints, the digital divide—that is, the discrepancy between those who have access to digital technology and those who do not—as well as the need for faculty training. Ensuring teachers possess the required skills and expertise to properly include digital tools in their curricula depends on faculty training. Emphasizing the need for government assistance, public-private partnerships, and investment in digital infrastructure, policy proposals are suggested to handle these difficulties. Using digital advances will help commerce and management education change to satisfy future needs, producing a trained and flexible workforce and reassuring the audience about education's direction. Achieving Viksit Bharat 2047, guaranteeing India's competitive edge in the world market, and promoting sustainable economic development depend on this change.

**Keywords:** *Digital Innovations, Commerce Education, Management Education, Viksit Bharat 2047, Educational Technology, Future-Ready Workforce.*

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## 1. INTRODUCTION

To achieve India's goal of being a developed nation by 2047, it is crucial to strategically adopt digital advances, especially in the fields of commerce and management education, in response to the fast-changing landscape of the 21st century. Stakeholders are also aware of the difficulties posed by Industry 4.0; the country needs to have a workforce that is ready for the future and has the right attitude and skills.

The student generation of the twenty-first century has a great responsibility in the development of education and the economic growth of the country. As such, the educational system must be flexible to accommodate these peculiar characteristics and meet the needs of these generations in preparation for the complexities of the modern world.

Technological advancement and changes in societal demands have impacted modern fields, particularly in the commercial and managerial areas, as noted by (Wong et al., 2020). The three interlinked domains of physical, digital and biological forms have brought forth a new age

of metamorphosis in schooling. The term Industry 4.0, which deals with automation integration and data interchange within manufacturing technologies, has impacted education in a very big way. The emergence of digital skills and flexibility in education is expected to call for radical changes in its content, delivery, and structure.

As highlighted in the study by Rujira et al. (2020), vocational education colleges play a crucial role in preparing a competent workforce for the digital economy. These institutions require a transition whereby they are transformed into digital organizations that can effectively and efficiently support the high demands of the 21st century.

Furthermore, as refuted in the study by Dutta et al. (2020), the strategic priorities of SMEs for digital transformation in the discrete manufacturing sector in India reveal that the educational system must align with the industry requirements. A proactive stance to skill development is expected to come out of digitalization and new employment opportunities will be offered. This will be helpful not just for the wider agricultural community but

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also for economically vulnerable people (Dutta et al., 2020).

India can set an example to follow for a future-ready nation, Viksit Bharat 2047, by embracing digital changes and integrating the course of commercial and management sciences with Industry 4.0. This would empower the country to incorporate technology for positive economic and social change. The digital revolution has greatly impacted the way organizations work by altering their functioning. There is, therefore, the need to transform the education system to produce a competent workforce that enables one to thrive in this current world. Modern trends such as intelligent communication networks, virtual reality, and digital textbooks provide a new perspective on education delivery. With the structure of today's society's economy undergoing a process of digitization, it follows that the system of education is faced with new demands from employers. We are experiencing the shift towards the VUCA (volatility, uncertainty, complexity, and ambiguity) world, and this state has become the characteristic of the modern business environment, which radically changes the approaches to education.

## 2. LITERATURE REVIEW

When the entire world is going digital, and none of the sectors can afford to remain aloof, the education sector of India also needs to progress towards that path. The use and incorporation of Industry 4.0 technologies, including the Internet of Things and artificial intelligence, have therefore emerged as core to the future of academia. The importance of digital innovation in Commerce and Management education to develop Viksit Bharat 2047 is the focus of this paper (Toorajipour et al., 2021).

The Fourth Industrial Revolution has altered education at various levels in its principles of learning (Ilori & Ajagunna, 2020). The transition from Education 1.0 to Education 4.0. Similarly to the study mentioned above by Butt et al., the transition to 4.0 has brought about not only the reconsideration of the overall structuring of the academic process but, predictably, of the activities included in the teaching and learning process as well. Modern students must be ready to face the sophisticated and constantly changing environment of the global economy requiring such skills as critical thinking, problem-solving, and flexibility (Srivastava, 2023).

This issue can be a turning point in Commerce and Management education with the help of digital innovation. Smart communication systems, virtual reality, and digital textbooks can transform the way students interact with course materials (Ilori & Ajagunna, 2020). Furthermore, the integration of advanced technologies like artificial intelligence and cloud computing in developing and implementing educational content boosts the delivery of educational content, Personalized Learning Instruction, and collaborative learning (Butt et al., 2020).

Moreover, a focus on global perspectives for students and active lifelong learning is necessary to be ready for the

21st-century profession (Srivastava, 2023, p. 150). Incorporating best practices of global standards and focusing on the overall professional development of Commerce and Management graduates to empower them to contribute effectively to Viksit Bharat 2047 vision. Thus, it can be concluded that the inclusion of digital innovations in the Commerce and Management education system is crucial going forward towards Viksit Bharat 2047. This way, educational institutions can use technology to develop administrations of creative and innovative thinkers who are ready to help drive the nation's economic and social development forward.

Besides curricular reforms, other areas need to be addressed in the education system to equip students with competencies sought after in the modern world. These competencies consist of innovation, critical evaluation skills, problem-solving skills, as well as the ability to adapt to change within a fast-evolving environment, which remains essential to the learning process in today's competitive business landscape (Rasskazova et al., 2020). Thus, the skills themselves are ones that commerce and management education could foster to create a workforce ready for the career rigors of the emergent age.

## 3. RESEARCH METHODOLOGY

This study will examine how technological changes have impacted modern commerce and management education to build a Viksit Bharat 2047 ready for the future through Quantitative research methods. The purpose of this approach is to obtain an exhaustive knowledge of the subject under study using data collection and analysis.

### 3.1 Research objectives

1. Using Digital Innovations to Enhance Student Engagement and Learning.
2. To prepare students for the dynamic nature of the modern labor market.
3. To Boost the Availability of Management Education and Business Knowledge.

### 3.2 Research design

The study will include a quantitative component and use quantitative measures, such as structured questionnaires, and conduct a quantitative analysis of the data. This technique aims at arriving at pattern matching and trend analysis regarding the integration of information advances in Commerce and Management education.

**3.2.1 Survey Design:** The target market comprises teachers, students, and business experts enrolled in Commerce and Management courses at several Chhattisgarh educational institutions.

**3.2.2 Sample Method:** To ensure representation across various locations and types of institutions (public, private, vocational), a stratified random sample approach was employed.

**3.2.3 Data Collection:** The respondents receive online surveys. The poll was encompassing inquiries regarding

the present utilization of digital technology, perceived advantages, difficulties, and readiness for Industry 4.0.

**3.2.4 Data analysis:**

Survey responses was summarized using descriptive statistics. Statistical inference techniques, such as analysis of variance, will be used to investigate the connections between variables, such as the level of digital innovation adoption and the perceived efficacy in education.

**3.3 Research Limitations**

The research acknowledges many limitations, such as the low survey response rate and the restricted generalizability of findings due to the specific sample demographic, which only includes a sample size from Chhattisgarh. To overcome these restrictions, we shall intentionally ensure that the sample is diverse and inclusive. In addition, we will collect data from many sources to verify the accuracy of our conclusions.

**3.4 Research hypothesis**

**H<sub>1</sub>:** There in no significance difference between interactive platforms, virtual reality, smart technologies, and Industry 4.0 tools in Commerce and Management education qualification improves student engagement and academic performance relative to conventional methods.

**H<sub>2</sub>:** There is no significant difference between educational institute in rating online courses and virtual classrooms

make Commerce and Management education more accessible to remote and underserved areas.

**4. DATA ANALYSIS AND INTERPRETATION**

**4.1 Analysis of Descriptive Statistics**

The descriptive statistics provide valuable insights into the effectiveness of digital technologies in enhancing communication, learning outcomes, and overall student engagement in commerce and management education. The highest mean score, **4.46**, with a standard deviation of **0.744**, highlights the strong agreement among respondents that advanced communication technologies have significantly improved relational communication between students and instructors. Similarly, with a mean of **4.03** (Std. Deviation: **0.771**), students feel that their education adequately prepares them for the technologies required in the current workforce, underscoring the alignment between academic training and industry needs.

In terms of balancing academic and personal responsibilities, online education has been perceived as quite convenient, with a mean score of **3.90** (Std. Deviation: **0.780**). This suggests that digital platforms offer flexibility, allowing students to manage their time more effectively. Additionally, the ability to apply learned skills in an uncertain business world received a mean score of **3.83** (Std. Deviation: **0.933**), indicating that students recognize the relevance of these technologies in preparing for real-world challenges.

Descriptive Statistics			
S.No.	Characteristics	Mean	Std. Deviation
1	Advanced technologies in communication help students and instructors to experience improved relational communication.	4.46	0.744
2	The technologies which the current workforce requires have been met by my education.	4.03	0.771
3	Students noticed that online education has been quite convenient when it comes to balancing between study and other activities.	3.90	0.780
4	This precisely made me understand that the skills students learned can well be applied in a business world that is often characterized by uncertainty.	3.83	0.933
5	These Industry 4. 0 equipped courses are important in preparation for career in today’s world.	3.80	0.954
6	Students from different backgrounds are now able to access devices and internet hence making them in a level playing ground.	3.72	0.637
7	It is noted enhanced learning outcomes, especially of students who earlier used to have very minimal access to technology.	3.70	0.927
8	One advantage of online education is that students can enroll to a number of courses and get more resources.	3.64	1.000
9	Modern technologies in learning has enhanced my performance in school in the course of learning.	3.05	1.513
10	In business for instance, a trained problem-solver is able to solve complex problems that they encounter in their workplace.	2.86	1.223
11	Students got more engaged when the course has elements that involve interaction and the use of virtual environment.	1.76	0.698
12	Technology integrated learning promote higher involvement in class activity participation as compared to the normal practices.	1.14	0.349

Industry 4.0-equipped courses, essential for preparing students for modern careers, had a mean score of **3.80** (Std. Deviation: **0.954**), showing that students acknowledge the importance of these courses. Furthermore, technology has enabled students from diverse backgrounds to access education more equitably, reflected in a mean score of **3.72** (Std. Deviation: **0.637**), which indicates the leveling of the playing field due to increased access to devices and the internet. Students enhanced learning outcomes as per need of market demand with very minimal access to technology, reflected in a mean score of **3.70** (Std. Deviation: **0.927**), which shows students' learning ratio increases with very minimal uses of technology. This shows that students can be enrolled in more than one course at a time and can get more knowledge as per market demand, reflected in a mean score of 3.64 (Std. Deviation: 1.000), indicating students can improve their skills by joining more courses at the time.

However, some areas, such as online education's ability to promote higher engagement and the impact of modern technologies on student performance, received lower mean scores. For instance, modern technologies enhancing performance had a mean score of **3.05** (Std. Deviation: **1.513**), and problem-solving in business scored **2.86** (Std.

Deviation: **1.223**). The lowest scores were observed in technology-integrated learning promoting higher class participation (**1.14**, Std. Deviation: **0.349**) and student engagement through interactive courses (**1.76**, Std. Deviation: **0.698**), signaling areas that require improvement to realize the potential of digital tools in education fully.

In conclusion, while digital innovations in commerce and management education show great promise in improving communication, accessibility, and workforce readiness, there are still gaps in engaging students and fostering participation that need to be addressed for more effective learning outcomes.

**4.2 ANOVA Interpretation: Educational Qualification**

The ANOVA analysis reveals significant differences in how postgraduate (PG) and PhD students perceive various aspects of technology-integrated learning in commerce and management education. Starting with technology-integrated learning promoting higher class participation, the results show no statistically significant difference between PG and PhD students ( $F = 0.847, p = 0.360$ ), indicating that both groups generally hold similar views on whether technology enhances class involvement compared to traditional methods.

S. No	ANOVA	F	Sig.
1	Technology integrated learning promote higher involvement in class activity participation as compared to the normal practices.	.847	.360
2	Students got more engaged when the course has elements that involve interaction and the use of virtual environment.	8.174	.005
3	Advanced technologies in communication help students and instructors to experience improved relational communication.	2.822	.096
4	Modern technologies in learning has enhanced my performance in school in the course of learning.	1.296	.258
5	These Industry 4. 0 equipped courses are important in preparation for career in today’s world.	.926	.338
6	The technologies which the current workforce requires have been met by my education.	.465	.497
7	In business for instance, a trained problem-solver is able to solve complex problems that they encounter in their workplace.	.743	.391
8	This precisely made me understand that the skills students learned can well be applied in a business world that is often characterized by uncertainty.	19.000	.000
9	Students noticed that online education has been quite convenient when it comes to balancing between study and other activities.	33.302	.000
10	One advantage of online education is that students can enroll to a number of courses and get more resources.	12.136	.001
11	Students from different backgrounds are now able to access devices and internet hence making them in a level playing ground.	1.333	.251
12	It is noted enhanced learning outcomes, especially of students who earlier used to have very minimal access to technology.	.549	.460

However, a significant difference emerges in terms of student engagement when courses involve interaction and the use of virtual environments, with an F value of 8.174 and a p-value of 0.005. This suggests that PhD students perceive interactive and virtual elements in courses as more effective in fostering engagement compared to their PG counterparts. Similarly, the application of learned skills in a business world characterized by uncertainty shows a highly significant difference (F = 19.000, p = 0.000), with PhD students likely valuing this aspect more than PG students.

Another notable difference is observed in how students perceive the convenience of online education in balancing study and other activities, with a highly significant F value of 33.302 and a p-value of 0.000. This indicates that PhD and PG students differ greatly in their views on the flexibility offered by online education, with PhD students possibly finding it more beneficial. The same pattern holds true for the advantage of enrolling in multiple online courses and accessing resources, which also shows a significant difference (F = 12.136, p = 0.001).

In contrast, aspects such as advanced communication technologies improving relational communication (F = 2.822, p = 0.096) and modern technologies enhancing

performance in school (F = 1.296, p = 0.258) did not yield significant differences between PG and PhD students, suggesting that both groups view these aspects similarly. Overall, while there are key areas where educational qualifications affect perceptions, particularly around engagement and flexibility, there are also areas where PG and PhD students share common views on technology's role in education.

**4.3 Analysis of variance (ANOVA): Educational Institute**

The ANOVA results offer valuable insights into the influence of technology on various educational factors within commerce and management education. One of the key findings is related to technology-integrated learning promoting higher class participation, which yielded an F value of 0.447 and a p-value of 0.506. This indicates that there is no statistically significant evidence that technology-enhanced learning leads to higher class involvement compared to traditional methods. However, student engagement showed a significant result when courses involved interaction and virtual environments, with an F value of 6.247 and a p-value of 0.014. This suggests that incorporating interactive elements and virtual environments positively influences student engagement.

S.No.	ANOVA	F	Sig.
1	Technology integrated learning promote higher involvement in class activity participation as compared to the normal practices.	0.447	0.506
2	Students got more engaged when the course has elements that involve interaction and the use of virtual environment.	6.247	0.014
3	Advanced technologies in communication help students and instructors to experience improved relational communication.	1.671	0.199
4	Modern technologies in learning has enhanced my performance in school in the course of learning.	0.011	0.916
5	These Industry 4. 0 equipped courses are important in preparation for career in today’s world.	0.143	0.706
6	The technologies which the current workforce requires have been met by my education.	0.487	0.487
7	In business for instance, a trained problem-solver is able to solve complex problems that they encounter in their workplace.	1.03	0.313
8	This precisely made me understand that the skills students learned can well be applied in a business world that is often characterized by uncertainty.	0.101	0.751
9	Students noticed that online education has been quite convenient when it comes to balancing between study and other activities.	0.825	0.366
10	One advantage of online education is that students can enroll to a number of courses and get more resources.	0.403	0.527
11	Students from different backgrounds are now able to access devices and internet hence making them in a level playing ground.	0.536	0.466
12	It is noted enhanced learning outcomes, especially of students who earlier used to have very minimal access to technology.	1.282	0.26

Conversely, advanced communication technologies—which help improve relational communication between students and instructors—had an F value of 1.671 and a p-value of 0.199, indicating no significant statistical impact.

Similarly, modern technologies enhancing student performance in school showed no significant result (F value of 0.011, p-value of 0.916), suggesting that the

integration of these technologies has not had a notable effect on academic performance in this context.

Other factors, such as Industry 4.0-equipped courses and their importance in preparing students for careers, also showed no significant statistical influence (F value of 0.143, p-value of 0.706). Additionally, responses regarding whether current education meets the technological demands of the workforce yielded no significant result (F value of 0.487, p-value of 0.487), indicating that while students feel their education is aligned with industry needs, this alignment is not statistically significant.

Finally, the ability of students to solve complex problems in the business world also did not yield significant results (F value of 1.03, p-value of 0.313), nor did their ability to apply learned skills in uncertain business environments (F value of 0.101, p-value of 0.751). These findings suggest that while technology integration is seen as beneficial in some areas, such as interactive learning environments, its broader impact on participation, performance, and career readiness may not be as profound or widespread as expected.

## 5. CONCLUSION

The findings from the analysis highlight the significant role of digital innovations in reshaping commerce and management education, particularly in how higher education qualification perceive the integration of technology in their learning experiences. While both the groups recognize the advantages of technology in improving communication and facilitating access to educational resources, notable differences arise in their engagement with interactive elements and their perceptions of how these tools prepare them for real-world challenges. PhD faculties demonstrate a greater appreciation for the impact of interactive and virtual learning environments on their engagement, as well as the practical application of skills in uncertain business contexts. This indicates that students may benefit more from innovative teaching methods that incorporate technology, reflecting a trend toward experiential learning in modern education.

These insights align with broader trends in educational innovation, where the incorporation of technologies such as artificial intelligence, big data analytics, and blockchain is transforming traditional pedagogical approaches. As institutions aim to align with India's vision of Viksit Bharat 2047, it becomes essential to harness these innovations to create a more engaging and effective learning environment that meets the evolving needs of students. To achieve this, educational leaders must focus

on developing curricula that leverage these technologies while also addressing disparities in access and engagement among different student groups. By fostering an inclusive and innovative educational landscape, institutions can better prepare graduates to thrive in a competitive global economy, ultimately contributing to sustainable economic growth and development.

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