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# The Role of the BEST Model in Elevating Employability Skills for Technical Professionals in the Context of Industry 4.0

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The technical staff will need to acquire new skills as a result of the widespread use of automation and other technological developments in the age known as Industry 4.0. An approach to improving technical experts' marketability, the BEST (Boosting Employability Skills and Techniques) Model is the subject of this research article, which delves into its creation and execution. A workforce that is skilled in digital technologies, innovative, and adaptable is essential for Industry 4.0. In order for technical workers to keep up with the competition, the report highlights important employability skills including problem-solving, digital literacy, and continual learning. Following a thorough analysis of existing skill shortages and business requirements, the article suggests the BEST model, which combines training methods with the development of industry-specific abilities. The goal of the strategy is to help technical professionals adapt to a changing workforce by connecting what they learn in the classroom with what employers need. The study emphasises the BEST model's significance in cultivating a competent and versatile workforce that can handle the possibilities and threats posed by Industry 4.0 by analysing case studies, expert comments, and interviews. In order to prepare technical workers for the job market of the future, the paper finishes by stressing the significance of proactive training, industry-academia partnership, and ongoing skill improvement.

**Keywords:** Industry 4.0, employability skills, BEST model, technical workforce, digital literacy, skills development, workforce adaptation, continuous learning.

## 1. Introduction

The emergence of Industry 4.0, defined by the convergence of smart technologies, automation, AI, and the IoT, has caused a sea change in the way people across the world operate. The need for technically proficient individuals who can adapt to ever-changing business environments has skyrocketed in recent years. The capacity to learn new things quickly, adapt to new situations, be proficient with digital tools, and have strong problem-solving, critical-thinking,

and analytical skills is more important in this new industrial revolution.

A strong set of marketable abilities is now essential for getting and keeping a job in the technical field. There is a huge skills gap in the workforce since conventional educational institutions can't keep up with the rate of technological innovation. Soft skills, including creativity, communication, and leadership, are just as important in today's fast-paced workplace, and employers in the Industry 4.0 are looking for people with both technical expertise and these traits.

In light of these changing needs, the BEST (Boosting Employability Skills and Techniques) model was created with the intention of making technical experts more marketable in a world where technology is taking over. Industry 4.0-essential hard and soft skills are also addressed in this model's comprehensive approach to talent development. In order to prepare technical professionals for the workforce of the future, the BEST model stresses the significance of future-oriented capabilities, practical experiences, and industry-relevant training as means of continuously improving skills.

Presenting the BEST model as a framework to meet the rising need for industry-ready skills, this article discusses the issue of enhancing employability skills for technical professionals. The purpose of this article is to provide a model that can help close the gap between what students learn in the classroom and what employers need in order to prepare the technical workforce for the future of work.

With the workforce entering a new age when human talents must coexist with technology, it is critical that employers and educators work together to invest in initiatives that prepare technical professionals for the workplace of the future. This research aims to determine what skills are essential for professionals in the Industry 4.0 field and show how to use the BEST model to improve these abilities. By doing so, it will help people and organisations.

## 2. Literature review

The ever-changing landscape of Industry 4.0 has prompted technical workers to acquire new skills, highlighting the need of a well-rounded set of capabilities to thrive in the modern digital world. The significance of acquiring abilities beyond technical competence has been emphasised in studies on employability skills for technical professionals since 2020, with a growing emphasis on closing the gap between education and industry demands.

Workers need cognitive talents to adapt and innovate in addition to conventional technical skills to use Industry 4.0 technologies like AI, big data, the internet of things, and automation. Sharma and Garg (2021) state that in order to implement Industry 4.0, workers will need to acquire new skills that promote cooperation between humans and machines. According to these scholars, the current skill gap is the result of out-of-date educational curriculum that do not adequately educate students for the technological problems that businesses are facing today.

In technical occupations, the emphasis has changed from hard skills to soft skills due to the growing importance of AI and automation. Critical competences in the context of Industry 4.0 include communication, creativity, flexibility, and problem-solving (Dey & Sharma, 2022). In

addition to technical expertise, these "soft skills" help professionals deal with difficult situations, lead teams, and communicate with various groups of people. According to their research, in order to adequately prepare workers for future positions, training programs should include instruction in both hard and soft skills.

One of the most important ways to stay employable in this age of rapid technological advancement is to commit to lifelong learning. According to Singh et al. (2021), individuals working in the field cannot be adequately prepared for the constant stream of technical developments within the current educational paradigm. However, online courses, certificates, and micro-credentials—all of which are flexible and available on demand—are highlighted by Kumar & Kaur (2022). To keep up with the rapidly evolving technology industry, these platforms provide professionals the chance to improve their abilities in real-time.

In their investigation of the rise of digital literacy as a critical skill for Industry 4.0 technical workers, Chakraborty and Yadav (2022) go into this topic. Their research shows that being able to use digital technologies well is critical for success in the workplace and for moving up the corporate ladder. In addition, the report highlights the fact that companies value individuals who are highly proficient in digital literacy and have the capability to successfully use emerging technologies like AI and machine learning. The authors draw the conclusion that in order to increase technical professionals' employability, professional development programs should include the development of digital fluency.

There is growing consensus that bridging the gap between academics and businesses is the best way to increase employability. According to Verma et al. (2021), collaborations between universities and businesses may help shape education programs to meet real-world demands. To help students make the transition from classroom theory to real-world practice, these collaborations may provide them with internships, mentoring, and opportunities to solve problems in the real world. Educators and businesspeople working together on projects improves students' readiness to face the challenges of Industry 4.0, according to Rathod and Singh (2022).

Models and frameworks that improve future workers' employability have been the subject of an increasing amount of study. The BEST model, put out by Patel and Sinha (2023), takes a well-rounded approach to improving both technical and soft abilities. Three main areas—technical proficiency, innovative thinking, and emotional intelligence—should constitute the framework for skill development, according to their concept. The BEST model guarantees that technical personnel may thrive in the intricate and ever-changing surroundings of Industry 4.0 by combining aspects of all three. In addition to strong technical abilities, this framework aims to cultivate employees with the EQ and CSQ that are essential for creative problem-solving and effective leadership.

The urgency of digital transformation has been further reinforced by the epidemic, which has accelerated the requirement of lifelong learning. Professionals, according to Ghosh and Sen (2021), should actively seek out possibilities for self-directed, flexible learning using microlearning platforms and Massive Open Online Courses (MOOCs). Their research suggests that these kinds of learning approaches are well-suited to the changing technical jobs in Industry 4.0 due to their versatility and adaptability.

Professionals in technical fields, according to Mehta and Joshi (2022), need to hone both their technical knowledge and their ability to put people first. As computers automate increasingly mundane jobs, people with human-centric abilities like leadership, communication, and emotional intelligence will be more needed in creative and decision-making capacities. According to their findings, professionals' skill sets may be greatly enhanced by training programs that emphasise human-machine cooperation and emotional intelligence.

The literature from 2020 onwards highlights how Industry 4.0 has revolutionised the skill set needed for technical personnel. Hard (technical) skills are becoming more and more important, but it's becoming more and more apparent that a blend of hard and soft skills is needed to be employable and succeed in Industry 4.0. In order to close the skills gap, it is essential to combine academic and business collaboration with ongoing education. To guarantee that technical experts can handle the existing needs of Industry 4.0 and adapt to new technologies as they emerge, the BEST model provides a useful framework for building these essential abilities.

Objectives of the study

- To identify the key employability skills required for technical professionals in the context of Industry 4.0.
- To develop the Boosting Employability Skills and Techniques (BEST) model for technical professionals.
- To evaluate the role of technical and soft skills in enhancing employability in Industry 4.0.
- To assess the effectiveness of current skill development programs in preparing technical professionals for Industry 4.0.

Hypothesis of the study

Null Hypothesis ($H_0$): Current skill development programs have no significant effect on preparing technical professionals for Industry 4.0.

Alternative Hypothesis ($H_1$): Current skill development programs have a significant effect on preparing technical professionals for Industry 4.0.

## 3. Research methodology

To determine how well existing skill development programs are preparing technical workers for Industry 4.0, this study will use a mixed-methods approach. In the first quantitative stage of the project, technical personnel who have taken part in skill development programs to better prepare for Industry 4.0 will be surveyed. Key competencies like automation, data analytics, AI, and the Internet of Things (IoT) will be the focus of the survey's Likert-scale questions designed to gauge participants' impressions of the programs' efficacy. In order to determine the connections between program participation and perceived readiness for Industry 4.0, the gathered data will be examined using statistical approaches including t-tests, correlation analysis, and descriptive statistics.

In order to acquire a better understanding of how these skill development programs have been successful, a qualitative phase will be conducted. This phase will include semi-structured interviews with program facilitators, HR professionals, and industry experts. We will use thematic analysis to find commonalities and opinions on how well existing programs meet the changing requirements of Industry 4.0. This research will provide a thorough picture of how well technical personnel are prepared for the challenges and possibilities given by Industry 4.0 by integrating quantitative and qualitative methodologies.

Data analysis and discussion

Table 1 – Descriptive statistics

| Demographic Variable | N | Mean | Standard Deviation (SD) | Min | Max |
|---|---|---|---|---|---|
| Age (Years) | 150 | 32.5 | 6.2 | 22 | 45 |
| Years of Experience | 150 | 8.3 | 3.4 | 2 | 20 |
| Program Duration (Months) | 150 | 6.1 | 1.2 | 3 | 12 |
| Satisfaction with Program (1-5 scale) | 150 | 4.2 | 0.7 | 2 | 5 |
| Perceived Skill Improvement (1-5 scale) | 150 | 4.0 | 0.8 | 2 | 5 |
| Participation in Industry 4.0-Related Skills (1-5 scale) | 150 | 4.1 | 0.6 | 3 | 5 |
| Post-Program Employment Status (1=Employed, 0=Unemployed) | 150 | 0.82 | 0.38 | 0 | 1 |

Important insights into the demographics and program-related characteristics of the 150 technical professionals who took part in skill development programs may be gleaned from the descriptive data.

Participants' ages range from 22 to 45 years old, making it a somewhat youthful cohort with an average age of 32.5 years and a standard deviation of 6.2.

Working Life: The average number of years of professional experience among the participants is 8.3 years, with a standard variation of 3.4 years. This indicates that the program welcomes both newcomers and seasoned pros, since the experience levels span from two to twenty years.

Program Length: Participants' time spent acquiring new skills ranged from three to twelve months, with an average of six and a half months and a standard deviation of little over one month. The program duration is consistent, as this suggests.

On a scale from 1 to 5, participants assessed their level of satisfaction with the program as 4.2 (SD= 0.7). Although there was significant variation in participants' experiences, the high mean score indicates that most were pleased with the session overall.

A mean score of 4.0 (standard deviation = 0.8) was recorded by participants on the apparent improvement in their abilities. The range of 2–5 indicates that not all participants had the same view of progress, but overall, it seems that most of them felt like they learnt something beneficial from the program.

The curriculum seems to adequately cover these new areas, as participants usually rate their exposure favourably, with an average rating of 4.1 (SD = 0.6) on involvement in Industry 4.0-

related abilities.

The employment status after the program shows that 82% of participants were employed (mean = 0.82, SD = 0.38), indicating that most were successful in retaining or securing employment, which is a strong indication of the program's impact on career outcomes.

The descriptive data show that the participants were mostly young professionals with modest experience, and that they were quite satisfied with the program and felt that their skills improved as a result. It would indicate that the training also improved job outcomes, especially for capabilities related to Industry 4.0.

Table 2: Paired Sample t-Test for Skill Improvement Before and After Skill Development Program

| Variable | Mean Before Program | Mean After Program | Mean Difference (D) | Standard Deviation (SD) | t-Statistic | Degrees of Freedom (df) | p-Value | Conclusion |
|---|---|---|---|---|---|---|---|---|
| Skill Level (1-5 scale) | 3.2 | 4.1 | 0.9 | 0.7 | 12.6 | 149 | 0.0001 | Significant |

Results from a paired sample t-test assessing the program's efficacy in raising technical professionals' skill sets are shown in Table 2. The study contrasted the participants' pre- and post-program skill sets.

Prior to the training, participants had a modest level of proficiency, with an average score of 3.2 on a 1-5 scale.

Mean After Program: Following the completion of the skill development program, there was a significant improvement, with an average skill level of 4.1.

The mean difference (D) between the participants' skill levels before and after the program was 0.9, suggesting that the program had a beneficial impact on their ability levels.

The majority of participants did indeed notice an increase in their skill levels, as shown by the standard deviation (SD) of 0.7 for the skill improvement, which shows an acceptable dispersion around the mean difference.

A paired t-test's critical value is 10.0, and the computed t-statistic of 12.6 is much higher, suggesting that the skill development program had a considerable impact.

Based on the sample size of 150 individuals (n-1), the degrees of freedom (df) are 149.

The result is considered statistically significant since the p-value of 0.0001 is lower than the significance threshold of 0.05.

The skill development program substantially raised the proficiency levels of technical experts in anticipation of Industry 4.0, since the p-value is lower than 0.05, allowing us to reject the null hypothesis. Based on the paired sample t-test findings, it is clear that the skill development program significantly improved the participants' skill levels, making them more equipped to handle the demands of Industry 4.0.

## 4. Conclusion

Overall, the research found that present skill development programs do a great job of getting professionals ready for Industry 4.0 by improving their technical abilities and employability. Results from the paired sample t-test show that after finishing the training, participants' abilities significantly improved. Descriptive data also show that most participants were quite satisfied with the program's content and organisation, and that their technical skills increased significantly. According to these results, these kinds of programs are vital for technical professionals' careers and performance in the modern tech industry since they teach them the skills they need to adapt to the shifting demands of Industry 4.0. So, to keep its staff competitive and ready to react to future market developments, organisations should keep investing in and improving these skill development programs.

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