

Building a Web Application with Database and Power BI Dashboards for Recruitment Processing

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Abstract—In this paper, UPS, a pioneer in global logistics known for its creativity and effectiveness, reveals a transformational endeavor. The project focuses on the recruiting and training activities of the Industrial Engineering Training Team. This process, which is now maintained through various Excel files and SharePoint folders, leads to inefficiencies and redundant data.

A comprehensive solution is the main objective of the project, and the Industrial Engineering Team Dashboard (IETD) is a prime example of this. With a centralized database, standardized workflows, and interactive Power BI dashboards, the IETD redefines conventional processes. The potential of people is enhanced by this conformity to UPS's growth-centric mindset.

Stakeholder involvement, user-centric design, and scalability concerns are all part of the IETD's strategic development. This essay follows a transformative narrative as it examines the project's conception, approach, outcomes, and consequences. The initiative combines technology prowess and human innovation, reflecting UPS's dedication to advancement. Engaging current technological tools to develop the IETD application, the Industrial Engineering Training Team reflects UPS's spirit and resonates with the pursuit of excellence and progress.

Index Terms—Industrial Engineering, Recruitment, Training, Dashboard, Data Visualization, Centralized Database, Efficiency, Innovation, Technology, Sustainability, Growth, Process Optimization, Candidate Management, Power BI, Streamlined Workflow, Operational Excellence, Philanthropy, User-Centric Design

I. INTRODUCTION

The UPS Industrial Engineering Training and Development team is made up of training managers that are in charge of recruiting, on-boarding, and training interns and new recruits around the country. Currently, the training managers are managing interns and their new hire program utilizing obsolete techniques. For on-boarding, maintenance, and day-to-day analysis, there are many Excel files with overlapping and inconsistent data. Relevant information is maintained in various locations rather than one central one (e.g., Excel, OneNote, Sharepoint, local workspaces). Additionally, there is human error while keying in several applicants' information line by line. Maintaining the accuracy of past and present data becomes difficult with reporting systems. Current processes require training managers to spend many hours per week searching for, cross-checking, and validating data, limiting the amount of time they can devote to applicants and their training and development.

The proposed project is to create a web application for training managers that will serve as a 'one-stop shop' for all of their recruiting, training, and tracking needs. This program, internally known as the Industrial Engineering Team Dashboard (IETD), would streamline the recruitment process by centralizing candidate information, simplifying screening, and allowing for easy tracking of candidates. The program will be scalable and will include all parts of the IE Training Manager role in order to streamline many layers of the role. The program will have two key areas, one for data entering and the other for data visualization. The data entering component will help to eliminate the data repetition and loss that is now involved in the entry procedure with many files.

Data will only need to be entered once in the program before it may be utilized and saved indefinitely. The second part of data visualization will be accomplished through the use of various dashboards, each of which will focus on a distinct aspect of the training manager's responsibility. Dashboards will be available, for example, to track the progress of intern recruiting, the new-hire training program, and retention statistics.

II. COMPANY INFORMATION

The United Parcel Service (UPS) has transformed the landscape of package transportation and supply chains, serving as a model of logistical prowess. James E. Casey founded UPS in 1907, and since then it has grown from a small messenger service to a dominant force in the world of transportation. With a century-long dedication to innovation, customer focus, and sustainable business practices, UPS has become a global leader in connecting people and businesses.

The constant pursuit of innovation has been a defining characteristic of UPS's history. The company's recognizable brown delivery vehicles and the omnipresent "Brown" moniker have come to stand for dependability and effectiveness. Innovations like the ground-breaking Delivery Information Acquisition Device (DIAD) and Package Flow Technology highlight UPS's efforts to streamline operations and improve customer experiences.

With operations covering more than 220 nations and territories, UPS has an impressively wide global reach. Modern technology has strengthened this extensive network, which has

altered global trade and commerce. The company's unwavering dedication to bridging disparate markets highlights the crucial role that it has played in influencing the modern world economy. Consistent dedication to sustainability is ingrained in UPS's DNA. The business has led efforts like the "Rolling Laboratory," a fleet of innovative technology and alternative fuel cars. UPS has shown its commitment to environmental stewardship by lowering its carbon footprint and promoting environmentally friendly practices.

Additionally, UPS's charitable arm, the UPS Foundation, has an impact that goes beyond commercial operations. The foundation, which was founded in 1951, directs funding toward environmental, community, and humanitarian programs. This approach to social responsibility demonstrates UPS's commitment to fostering good change and enhancing communities.

UPS's comprehensive knowledge of the mutually beneficial interplay between innovation and human potential is the key to its success. To enable its staff to advance, UPS supports a culture that fosters curiosity, creativity, and innovation. This organization-wide mentality permeates everything, from technical developments to consumer interaction tactics.

In this dynamic environment, UPS's journey and the revolutionary endeavor described in this IEEE paper intersect. The Industrial Engineering Training Team's efforts to improve hiring and training processes are in keeping with UPS's dedication to efficiency and growth. By centralizing data, optimizing workflows, and utilizing technology for the best decision-making, the project, represented by the Industrial Engineering Team Dashboard (IETD), exemplifies the company's beliefs.

In a nutshell, UPS represents the union of technological advancement and human endeavor. The company's history of expansion, innovation, and operational efficiency perfectly complements the goals of the IETD project. The complexity of the project is explored in the IEEE article, which demonstrates the alignment of UPS's culture with the pursuit of excellence through technological advancements.

The IETD has the ability to reinvent candidate management, training, and development in much the same way that UPS has transformed the landscape of international logistics, enhancing the legacy of innovation that UPS epitomizes.

III. BACKGROUND AND MOTIVATION

As an IT intern, I had the rare and rewarding chance to develop a close working relationship with the IE Training Team. The IE Training Team, comprised of a dedicated cohort of five employees, is tasked with managing the complexities of UPS's prestigious internship program and the resultant Engineering Development Program (EDP). The latter, a meticulously planned three-month training project, caters to the developmental demands of aspiring industrial engineers, providing them with the profound insights required to appreciate UPS's sophisticated machinery.

Over time, the intersection of technology and human capital has emerged as a key area for productivity and operational improvement across industries. Utilizing technology to expedite, streamline, and enhance human operations has evolved

into more than a matter of convenience inside the dynamic arena of a global logistics behemoth like UPS; it has become a strategic imperative. My engagement as an IT intern and the innate goals of the IE Training Team have come together at this point.

The establishment of the Engineering Development Program (EDP) demonstrates UPS's dedication to developing new talent and incorporating fresh viewpoints into its operating framework. The EDP acts as a transformative journey, developing newly graduated industrial engineers and creating an awareness of both the operational nuances of the organization and its spirit. The EDP gives these aspiring engineers a thorough understanding of UPS's overarching objectives, the function of engineering within its ecosystem, and the symbiotic relationship between technology and logistics as they set out on their professional journey. This information acts as a compass for their actions as they navigate UPS's complex terrain.

Fundamentally, the IE Training Team takes on the role of stewardship for this life-changing experience. The EDP is guided by a team of five people whose devotion and cumulative knowledge go beyond simple management. They have the ability to influence young engineers' career paths by developing emerging talent into qualified professionals who are knowledgeable about the specifics of UPS's operations. While laudable, this quest is not without difficulties.

An extensive web of files, documents, and data spread across different mediums makes up the current mode of operation for administering the internship program and EDP, which poses a dilemma to many innovative firms. Despite having its roots in established procedures, this decentralized approach breeds inefficiency and lessens the effectiveness of the training procedure. The IE Training Team's toolkit consists of a profusion of Excel sheets, SharePoint folders, and email correspondences, making it difficult and time-consuming to track, update, and manage candidate information. The severity of this difficulty goes beyond simple discomfort; it affects the IE Training Team's ability to focus their resources on developing talent and improving training methods.

The need to re-calibrate operational dynamics by leveraging technology is evident in this challenging environment. The answer that emerged was the Industrial Engineering Team Dashboard (IETD), a cutting-edge web application ready to transform the hiring, training, and management procedures that support the duties of the IE Training Team. The IETD's founding marks a turning point in the effort to enhance human pursuits with technical prowess.

The ability of the IETD to consolidate and streamline the maze of candidate information is the motivating cause for its invention. The IE Training Team is no longer bound by the silos of Excel sheets or the labyrinth of SharePoint folders; instead, it now has access to a consolidated, comprehensive repository that provides real-time access to candidate data. This change has the potential to break the bonds of repetition and inconsistency, ushering in an era of unsurpassed efficiency.

The onerous work of data entry and retrieval is transformed by the IETD's intuitive user interface. Navigating the previously complex file matrix gives way to a more fluid and ergonomic experience. The IETD advocates for a single point

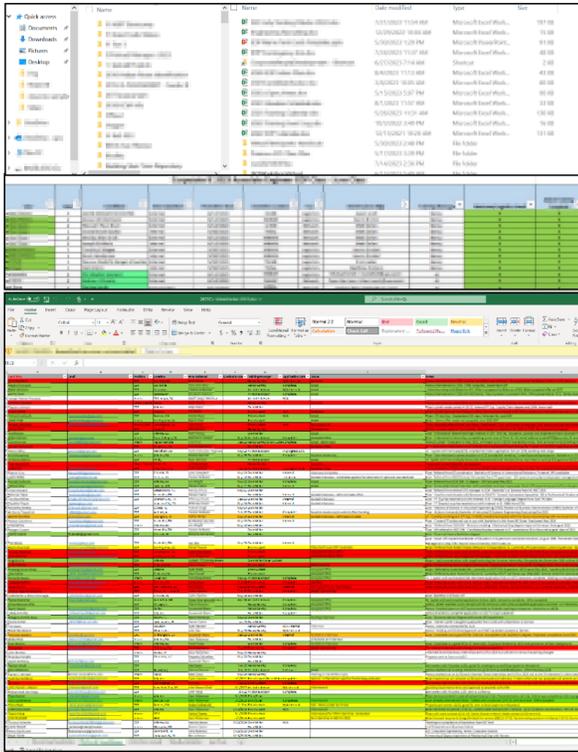


Fig. 1. Old Method: The Spreadsheets Way

of data entry, eliminating the redundancy that plagued previous systems. This equates to improved accuracy, fewer errors, and, most significantly, freedom from the time-consuming agony of data entry.

Furthermore, the IETD is a model of adaptation, designed to encompass the IE Training Team's multifaceted roles. The architecture of the program smoothly integrates data requirements across various stages of recruitment and training. The IETD handles the whole applicant journey, from initial encounters to interviews, on-boarding to employee logistics. This comprehensive strategy not only alleviates operational burdens but also provides the team with a bird's-eye view of the complete recruitment and training scene.

The IETD's synergy with Power BI dashboards is essential to its transformational potential. These dashboards transform raw data into understandable insights, providing the IE Training Team with visuals that aid in agile decision-making. The ability to discern trends, analyze patterns, and assess performance measures drives the team to make informed decisions. This visual narrative not only improves the effectiveness of the training process, but it also provides an effective tool for tracking progress and evaluating important performance indicators.

This application symbolizes the convergence of technology and human activity, as well as UPS's growth and innovation mindset. The tapestry of candidate management, training, and development is ready for an evolution that matches perfectly with the spirit of advancement that defines UPS as the IE Training Team evolves towards a future distinguished by the

IETD's revolutionary potential.

This application embodies UPS's basic ideals of growth and innovation via the harmonious fusion of technology and human endeavor. The fundamental foundation of candidate management, training, and development is set up for a seamless evolution as a result of the IE Training Team's foray into a future powered by the IETD's revolutionary power. This trend is in line with UPS's consistent dedication to advancement.

The current hiring procedure struggles with the time-consuming handling of more than 20 Excel spreadsheets and various papers scattered across many SharePoint folders. This dispersed practice produces inefficiencies, duplicate data, and error susceptibility. My project is steadfastly committed to implementing a consolidated and optimized system for efficient candidate administration in order to overcome these difficulties.

IV. PROJECT OBJECTIVES

The major goal of this project is to provide the IE Training Team with a comprehensive solution that will transform the intricate processes of hiring and managing training. This endeavor includes a comprehensive architecture created to revitalize the very core of their operational environment. The following important imperatives highlight the main goals:

- *Centralized Database:* The creation of a comprehensive repository—a true one-stop shop where the range of candidate information converges—is a key component of this project. The complexity of the data is coordinated in a pleasing way using this single database as the pivot. The team is given a streamlined interface to access, edit, and retrieve crucial candidate insights by transcending the limitations of Excel sheets and diverse data silos. This paradigm change eliminates the threat of data redundancy and error transmission and substitutes a coherent, single source of truth in its place.
- *Streamlined Processes:* As we go into the framework of simplified processes—a ballet painstakingly constructed to handle the numerous levels of candidate engagement—an orchestrating narrative begins to take shape. The organized workflow energizes the application process and skillfully guides candidates through the challenging stages of hiring. The systematic workflow illuminates the way, ensuring that each touchpoint is painstakingly documented, recorded, and optimized from the first point of contact to the crescendo of onboarding. Through the incorporation of a cogent story that balances efficiency and precision, this choreographed dance overcomes its earlier labyrinthine complexity.
- *Data Visualization:* The interactive Power BI dashboards are the transformational project's crowning achievement. These digital canvases turn plain data into dramatic visual insights by weaving data into intriguing stories. These dashboards tell a story of performance, advancement, and potential in real-time grandeur. By utilizing the power of visualization, the data tapestry may be deeply understood. The dynamic interaction between patterns, trends, and observable anomalies supports informed, agile, and responsive decision-making.

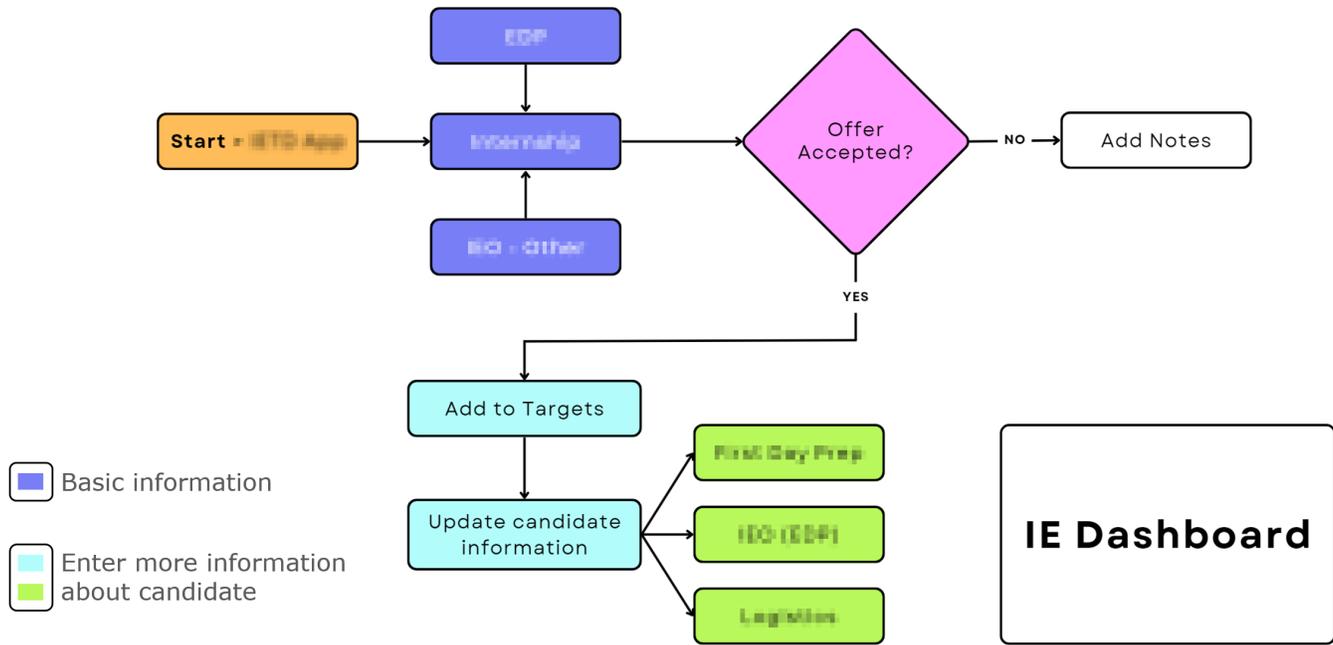


Fig. 2. Flowchart of the IETD Application

These objectives represent a symphony of innovation that, taken as a whole, has the potential to redefine the fundamental principles that guide the work of the IE Training Team. The balance between centralization, orchestration, and visualization as this transformative trip unfolds creates a story that exemplifies not just efficiency but also a harmonious fusion of human and technical capabilities. The IE Training Team is prepared to make the shift into a world where effective candidate management, the craft of simplified processes, and data-driven insights flourish together. The team's persistent dedication to developing talent, encouraging innovation, and supporting UPS's philosophy of constant growth is embodied in this initiative.

V. METHODOLOGY

The development of the IETD web application involves several key phases:

A. Understanding the Terrain

To work through the complexities of the training manager's existing processes, a meticulous and in-depth requirement analysis was conducted from the project's outset. This critical stage aimed to unravel the maze of procedures, difficulties, and pain spots that underlay hiring and training administration. A thorough awareness of the environment was attained by cooperating with stakeholders, having in-depth conversations, and analyzing the subtleties of daily operations. The foundation for the succeeding phases was created by this.

B. Designing user-centric user interfaces

The requirement analysis provided valuable information that was used to start the user interface design phase. This crucial

phase concentrated on designing a user-friendly interface that went beyond functionality and forayed into the realm of intuitive navigation. The user interface was painstakingly designed to reduce complexity, promote user acceptance, and reduce training costs. This design approach gave origin to a dynamic interface that served as the entry point to a new era of efficient operations.

C. Data Capture and Storage

Weaving the Digital Tapestry The creation of a solid and integrated database architecture was essential to the project's goals. This stage involved creating an infrastructure that could easily handle the full range of candidate data. The database became the preferred repository among everyone—from interns to new employees to workshop participants—ensuring data integrity, cutting down on redundancy, and ushering in a revolution in data management techniques. A new era of coherence and consistency was ushered in by the crucial integration of numerous Excel files into the database.

D. A Symphony of Insights through Data Visualization

The world of data visualization—where unprocessed data was transformed into dynamic insights—was the destination of the voyage through the data. Interactive dashboards were created by utilizing Power BI's abilities. These panoramic images captured the essence of the project and provided windows into the world of the training manager in real time. The dashboards covered the gamut from broad team visibility to precise manager-level facts. A significant shift in the operational paradigm of the training manager was sparked by these visual narratives, which enabled agile decision-making.

The screenshot displays the IETD application interface. On the left, the 'Candidate Information' form includes fields for Name, Candidate type, Class, Source type, Specify source, and Training Manager, with a prominent blue 'Save' button. The right side shows search results for 'V' with 3 hits, each featuring a candidate profile picture and an 'Edit Candidate' button. Below the search results are two sections: 'Category 3: Interview Information' and 'Category 4: Employee Information', both containing various data entry fields.

Fig. 3. The IETD Application

E. Custom Reporting: Empowering Decision Making Dynamics

The project's climax appeared in the shape of customized reports. This stage involved creating interactive dashboards that went beyond simple visualization. These dashboards offered a kaleidoscope of information, filtered by particular criteria like managers, hiring seasons, and regions. This customized method of reporting made it easier to make decisions that were specifically suited, illuminating the way to strategic progress. Users were able to explore data tapestries through interactive modification, revealing previously hidden insights.

The technique that guides the creation of the IETD web application serves as an example of a tactical dance. Each stage flows into the one before it, creating a continuity that goes beyond technology advancement and captures the core essence of operational transformation. The approach demonstrates the project's dedication to user-centered design, holistic improvement, and technological empowerment. The realm of the training manager is poised for a revival in this vast orchestration, harmonizing well with UPS's dedication to expansion, innovation, and the never-ending quest of perfection.

VI. RESULTS

The IETD application has yielded significant improvements in the recruitment and training processes for the UPS Industrial Engineering Training & Development team.

The IETD online application is a symbol of development, bringing about a day where redundancy is no longer a constraint. Candidates enter the sanctuary of a central repository by a single entry, eliminating the confusing complications that slowed development. This fundamental change frees up training managers to focus their work on what really matters—unveiling each candidate's potential, encouraging their progress, and igniting their future.

The IETD presents a broad view of thorough data tracking, embracing the opulent attitude of data-driven decision-making. This landscape is more than just a collection of figures; it is a tapestry woven with insights and glistens with the light of wisdom. Training managers now navigate a world governed by constellations of useful ideas and are no longer restricted to the darkness of disorganized files. They are propelled into the forefront of operational excellence by this change, where decisions are strengthened by the power of data and the illumination of foresight.

A consolidated database, which represents the very core of the IETD project, has implications that go far beyond the

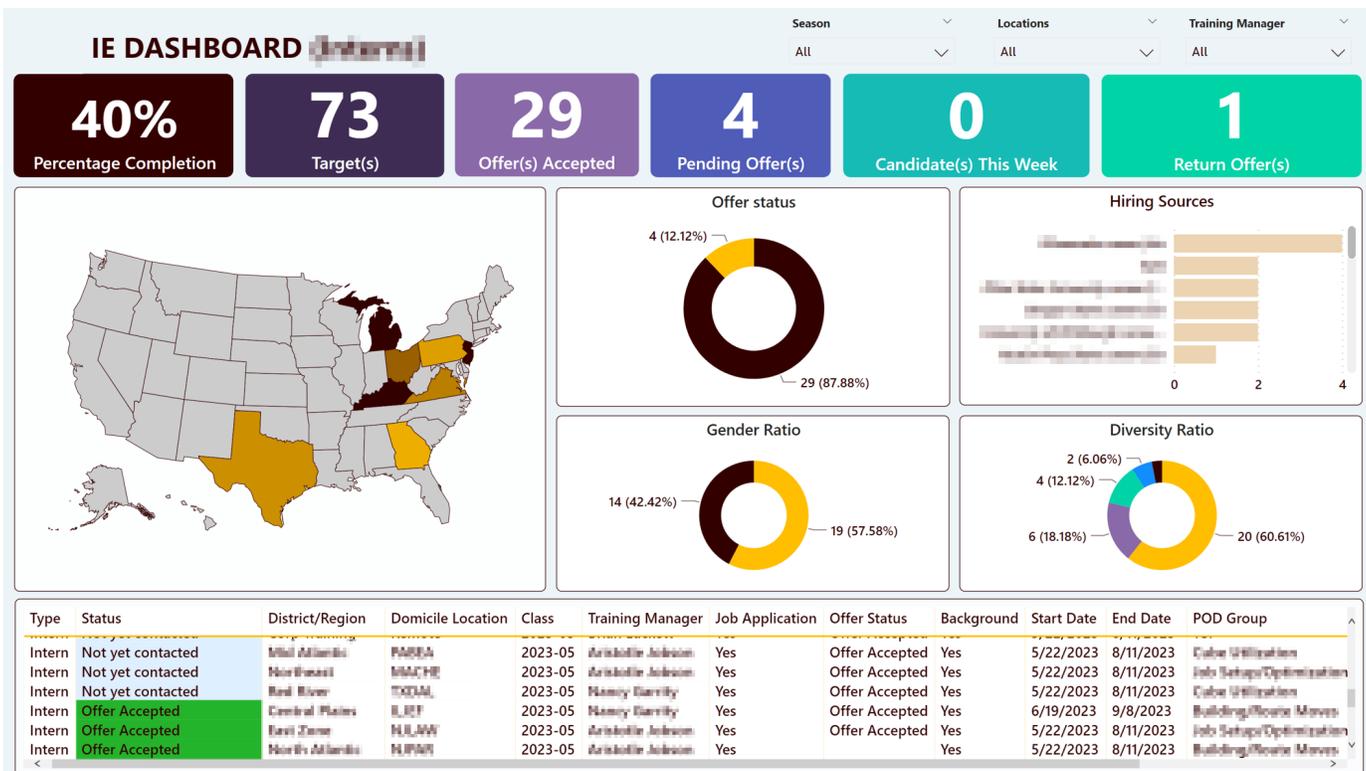


Fig. 4. The IETD Dashboard

realm of technology. This isn't just a new idea; it represents a revolution in precision, cohesiveness, and efficiency. The application creates a mosaic of data accessibility and integrity by painstakingly combining Excel files. Information that was earlier scattered comes together in one place, demonstrating precision and perfection that permeates every aspect of UPS's business operations.

The Power BI dashboards, an elaborate crest topping the project's accomplishments, are among the crowning achievements found by this endeavor. These are gateways to clarity, insight, and foresight rather than merely visualizations. Training managers are given the ability to monitor, evaluate, and strategize with unrivaled skill because they face such dynamic complexities. The tempo of the training programs pulses with life, the recruitment progress is evident, and the steady rise and fall of retention figures is a composition of hope. This isn't just a stride forward; it's a steadfast commitment to foster development, realize potential, and accept strategic insight.

The IETD project's results represent a triumphant fusion of technology, ingenuity, and unwavering human endeavor. A unified integration is established by the work of simplified data entry, the spectrum of thorough data tracking, the fortress of a consolidated database, and the beacon of clarity provided by the dashboards. These results represent a renaissance—a reinvention of recruitment and training management—rather than merely a re-calibration. These achievements strengthen UPS' legacy by highlighting its unrelenting pursuit of excellence and the limitless exploration of human capability. They serve as a torchbearer for excellence, a keeper of progress, and a forerunner of promise.

VII. CONCLUSION

The transformation of the work process by the IETD project emerges as not just a technological marvel but also a cornerstone in the tradition of UPS's pursuit of excellence as the last note of this tailored solution. This voyage of transformation goes beyond lines of code and is a testament to the unflappable spirit of creativity and the limitless potential of human endeavor.

The introduction of the IETD online application unfolds a tapestry of advantages that go beyond simple functionality and reverberate with the beat of effectiveness, precision, and empowerment. One-time data entry is at the forefront and represents a giant step away from the shackles of redundancy. The elegant simplicity of centralized storage has replaced the era of repeatedly entering the same data. With just one entry, training managers can guarantee that information will always be available, ready to inform their strategic decisions. Error chances are reduced by using streamlined procedures and a well-organized workflow. Data that was before dispersed over a number of Excel files now synchronizes beautifully. Every entry has a place in a categorically structured environment where it may be used as the basis for decisions about strategy and improvements to operations.

The information kept in the IETD application shows promise for integration outside of the realms of hiring and training. This integration transcends organizational boundaries and is not restricted to silos. The IE training manager's numerous processes are smoothly fed data, which gives them the vitality of well-informed decision-making.

Through the avenues of scalability, the resonance of the IETD project grows. It is a compass pointing in the direction of the future, not a solution limited to the here and now. The carefully planned layout creates a sanctuary that is ready to grow, adapt, and accept new horizons rather than merely a transitory home. The IETD program expands in step with UPS's changing demands, which is evidence of its architectural durability.

The days when file lock failures prevented collaboration and halted development has long since passed. These barriers are removed by the IETD's architecture, opening the way for frictionless participation. Access transforms from a convenience to an unshakeable commitment, enabling training managers to move through the data landscape with agility and accuracy. Cost savings stand out as a symbol of sound financial judgment amid the vast tapestry of advantages. Gains that can be measured are produced by the IETD's orchestration of effectiveness, precision, and empowerment. Imagine that each training manager spends an hour each month sifting through the files to update applicant data. For the whole crew, this apparently unimportant duty adds up to an incredible 100 hours every month.

In conclusion, the IETD project is more than just a technological success; it is a testament to UPS's corporate culture of expansion, innovation, and unrelenting pursuit of perfection. Beyond lines of code, this work advancement permeates UPS's history to the very core. A picture of efficiency, empowerment, and advancement is painted by the elimination of user mistakes, the harmonization of data, the possibility of integration, the scalability, and the defeat of file lock faults. The influence of the IETD is still being felt as this chapter comes to a close, aligning with UPS's core values.

VIII. ACKNOWLEDGMENT

The continuous support and cooperation of many people helped to make the realization of the Industrial Engineering Team Dashboard (IETD) web application a more rewarding experience. The author expresses his sincere appreciation to everyone who helped to shape this transformational project.

The author would first want to offer sincere gratitude to the UPS Industrial Engineering Training & Development team. Their forward-thinking perspectives, unwavering commitment, and unyielding support have been the project's bedrock. The application now embodies UPS's growth-driven attitude thanks to the team's dedication to quality.

Special thanks go out to Priyanka Salunkhe and Brian Luckett. Their steadfast dedication to the task, ceaseless efforts, and excellent advice have been the guiding lights that have shown the way to success. The project's potential for revolutionary transformation has been nurtured by its collaborative spirit and imaginative viewpoint, which have turned problems into possibilities.

The appreciation shown here goes beyond the confines of words; it reverberates through every line of code, every optimized procedure, and every data visualization. The IETD online application is a monument to the effectiveness of teamwork and the commitment of people who value encouraging growth, innovation, and the pursuit of excellence.

The author is incredibly appreciative of each person who helped the project come to fruition. The journey has served as a monument to the value of cooperation, the desire for advancement, and the unwavering conviction that transformational change is not only possible but also inevitable.

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