

FORM 2

THE PATENTS ACT, 1970

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The Patent Rules, 2003

COMPLETE SPECIFICATION

(See section 10 and rule 13)

TITLE OF THE INVENTION

**“DRIVING DIGITAL TRANSFORMATION IN TRADITIONAL BUSINESSES:
OVERCOMING CHALLENGES IN TRADITIONAL BUSINESS MODELS”**

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The following specification particularly describes the nature of the invention and the manner in which it is performed:

FIELD OF THE INVENTION

The present invention relates to the domain of enterprise digital transformation, particularly to systems and methodologies for enabling legacy or traditional businesses to transition from analog, semi-digital, or manual workflows to fully integrated digital ecosystems. The invention addresses technological, cultural, and operational challenges encountered during such transformations, offering a comprehensive framework that incorporates assessment tools, process reengineering modules, integration platforms, and change management mechanisms.

BACKGROUND OF THE INVENTION

The following description of related art is intended to provide background information pertaining to the field of the disclosure. This section may include certain aspects of the art that may be related to various features of the present disclosure. However, it should be appreciated that this section be used only to enhance the understanding of the reader with respect to the present disclosure, and not as admissions of prior art.

Traditional businesses, across industries such as manufacturing, retail, healthcare, and logistics, are often built upon legacy infrastructures that rely heavily on manual processes, siloed data repositories, and limited technological agility. While these models may have historically served their purpose, they now present significant constraints in an era increasingly dominated by digital tools, real-time analytics, and cloud-based platforms.

The rapid acceleration of digital-native competitors has placed immense pressure on legacy enterprises to adapt. However, such organizations frequently struggle to initiate or scale digital initiatives due to ingrained operational structures, lack of digital literacy, and resistance from stakeholders. The absence of a unified strategy to bridge traditional models with modern technology ecosystems exacerbates this problem.

Moreover, current digital solutions in the market tend to focus narrowly on software installation, such as ERP or CRM systems, without addressing deeper systemic

challenges. These include workforce alignment, data migration from legacy platforms, workflow redesign, and the preservation of business continuity during transformation.

Cultural inertia within traditional enterprises also presents a major barrier. Employees accustomed to long-standing routines may perceive digitization efforts as disruptive or threatening, which often results in underutilization of new systems or outright failure of transformation programs.

Furthermore, most traditional businesses lack the internal capability to assess their digital maturity or build a phased implementation plan. Without an objective diagnostic tool, digital transformation often becomes ad hoc, leading to poor resource allocation, cost overruns, or diminished returns on investment.

There exists a need for a holistic, modular, and intelligent system that not only enables digital technology integration but also embeds organizational change, process mapping, and real-time feedback mechanisms tailored to the nuanced needs of traditional businesses.

OBJECTIVE OF THE INVENTION

Some of the objects of the present disclosure, which at least one embodiment herein satisfies are listed herein below.

It is an object of the present invention to provide a unified system and method that supports traditional businesses in overcoming legacy barriers and embracing digital transformation in a structured, risk-mitigated manner.

Another object of the invention is to offer a digital readiness assessment engine that evaluates an organization's current maturity level and produces a tailored transformation roadmap based on sector-specific benchmarks and operational capabilities.

A further object of the invention is to enable seamless interoperability between existing analog or semi-digital systems and modern digital platforms through a middleware layer that handles data extraction, transformation, and synchronization.

The invention also aims to incorporate a dynamic workflow designer tool that allows organizations to digitize processes incrementally, customize automation pathways, and link operations with cloud-based analytics, CRM, or ERP platforms.

It is an additional object to embed change management practices directly into the system, facilitating organizational buy-in through training modules, stakeholder feedback loops, and behavioral nudging mechanisms.

Another key objective is to leverage artificial intelligence for continuous monitoring and refinement of digital workflows, thereby enabling agile improvements and insights-driven decisions throughout the transformation lifecycle.

Lastly, the invention seeks to provide a cost-effective, modular deployment structure that can be adapted across diverse industries with minimal disruption to existing business operations, ensuring scalability and long-term sustainability of the transformation.

SUMMARY OF THE INVENTION

This section is provided to introduce certain objects and aspects of the present disclosure in a simplified form that are further described below in the detailed description. This summary is not intended to identify the key features or the scope of the claimed subject matter.

The invention provides a comprehensive system and method for enabling digital transformation in traditional businesses, addressing both technical and organizational barriers. It comprises a Digital Readiness Assessment Engine for evaluating transformation potential, a Legacy Integration Middleware for bridging old and new systems, a Workflow Designer for digitizing operational processes, and a Change

Management Toolkit for cultural and procedural adaptation. The system is further enhanced by an AI-powered Monitoring Engine that supports iterative optimization and compliance.

This invention facilitates a phased and secure transition to digital platforms, allowing traditional enterprises to retain operational continuity while enhancing efficiency, scalability, and responsiveness. The modular architecture ensures broad applicability across various domains, from manufacturing and retail to healthcare and logistics.

BRIEF DESCRIPTION OF DRAWINGS

The accompanying drawings, which are incorporated herein, and constitute a part of this invention, illustrate exemplary embodiments of the disclosed methods and systems in which like reference numerals refer to the same parts throughout the different drawings. Components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention. Some drawings may indicate the components using block diagrams and may not represent the internal circuitry of each component. It will be appreciated by those skilled in the art that invention of such drawings includes the invention of electrical components, electronic components or circuitry commonly used to implement such components.

FIG. 1 illustrates an exemplary system for enabling digital transformation in traditional businesses, in accordance with an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, for the purposes of explanation, various specific details are set forth in order to provide a thorough understanding of embodiments of the present disclosure. It will be apparent, however, that embodiments of the present disclosure may be practiced without these specific details. Several features described hereafter can each be used independently of one another or with any combination of other features. An individual feature may not address all of the problems discussed above or might address

only some of the problems discussed above. Some of the problems discussed above might not be fully addressed by any of the features described herein.

The ensuing description provides exemplary embodiments only and is not intended to limit the scope, applicability, or configuration of the disclosure. Rather, the ensuing description of the exemplary embodiments will provide those skilled in the art with an enabling description for implementing an exemplary embodiment. It should be understood that various changes may be made in the function and arrangement of elements without departing from the spirit and scope of the disclosure as set forth.

Specific details are given in the following description to provide a thorough understanding of the embodiments. However, it will be understood by one of ordinary skill in the art that the embodiments may be practiced without these specific details. For example, circuits, systems, networks, processes, and other components may be shown as components in block diagram form in order not to obscure the embodiments in unnecessary detail. In other instances, well-known circuits, processes, algorithms, structures, and techniques may be shown without unnecessary detail to avoid obscuring the embodiments.

Also, it is noted that individual embodiments may be described as a process that is depicted as a flowchart, a flow diagram, a data flow diagram, a structure diagram, or a block diagram. Although a flowchart may describe the operations as a sequential process, many of the operations can be performed in parallel or concurrently. In addition, the order of the operations may be re-arranged. A process is terminated when its operations are completed but could have additional steps not included in a figure. A process may correspond to a method, a function, a procedure, a subroutine, a subprogram, etc. When a process corresponds to a function, its termination can correspond to a return of the function to the calling function or the main function.

The word “exemplary” and/or “demonstrative” is used herein to mean serving as an example, instance, or illustration. For the avoidance of doubt, the subject matter disclosed herein is not limited by such examples. In addition, any aspect or design described herein

as “exemplary” and/or “demonstrative” is not necessarily to be construed as preferred or advantageous over other aspects or designs, nor is it meant to preclude equivalent exemplary structures and techniques known to those of ordinary skill in the art. Furthermore, to the extent that the terms “includes,” “has,” “contains,” and other similar words are used in either the detailed description or the claims, such terms are intended to be inclusive in a manner similar to the term “comprising” as an open transition word without precluding any additional or other elements.

Reference throughout this specification to “one embodiment” or “an embodiment” or “an instance” or “one instance” means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present disclosure. Thus, the appearances of the phrases “in one embodiment” or “in an embodiment” in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments.

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the disclosure. As used herein, the singular forms “a”, “an”, and “the” are intended to include the plural forms as well, unless the context indicates otherwise. It will be further understood that the terms “comprises” and/or “comprising,” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof. As used herein, the term “and/or” includes any and all combinations of one or more of the associated listed items.

The present invention discloses a modular and scalable system designed to assist traditional businesses in transitioning from legacy operations to digitally enabled ecosystems. The system is composed of several interconnected modules that collectively provide assessment, integration, automation, monitoring, and change management

functionalities. These modules are deployed through a cloud-based or hybrid architecture, ensuring flexibility, accessibility, and security.

A central component of the system is the Digital Readiness Assessment Engine (DRAE), which performs a diagnostic analysis of a business's current digital maturity. It evaluates dimensions such as infrastructure readiness, workforce digital literacy, process automation levels, data availability, and technology compatibility. Based on these evaluations, it generates a Digital Readiness Score (DRS) and recommends a tailored, stepwise digital transformation roadmap suited to the business's current state and industry context.

To enable backward compatibility with existing infrastructure, the system includes a Legacy Integration Middleware (LIM). This middleware interfaces with various analog systems, semi-digital tools (e.g., Excel, on-premise databases), and outdated software platforms. The LIM is capable of extracting and transforming legacy data using predefined schema mapping, API wrappers, and data cleaning pipelines. It acts as the bridge between the traditional operations and modern cloud-based platforms, including ERP, CRM, IoT dashboards, and analytics engines.

The Transformation Workflow Designer (TWD) enables users to model and automate business processes through a drag-and-drop interface. This tool supports process customization based on industry-specific templates and allows seamless linking to third-party services like robotic process automation (RPA) tools, inventory systems, digital payment platforms, or customer engagement apps. The TWD ensures that digitalization follows the operational logic of the legacy system while improving efficiency.

The Change Management Toolkit (CMT) ensures successful organizational adoption. It includes training dashboards, gamified learning modules, employee feedback forms, stakeholder alignment maps, and behavioral nudging notifications. This module allows businesses to reduce resistance, improve digital skills, and maintain employee morale during the transition period.

An AI-based Monitoring and Feedback Engine (MFE) constantly evaluates the performance of digitized processes, system uptime, employee interaction patterns, and customer satisfaction metrics. It identifies areas of underperformance or noncompliance and recommends corrective actions in real-time. Additionally, the engine provides visual dashboards and predictive insights to support strategic decision-making by business leaders.

Manufacturing Sector Transformation

A mid-sized automotive parts manufacturer operating with legacy procurement, inventory, and dispatch systems integrates the invention into its operations. The Digital Readiness Assessment Engine identifies that the enterprise has low automation and disconnected inventory systems. A phased transformation roadmap is generated.

The Legacy Integration Middleware connects the manufacturer's on-premise ERP and Excel-based procurement logs with cloud-hosted inventory and supply chain systems. The Workflow Designer is used to automate raw material procurement, supplier payments, and quality control checklists. The Change Management Toolkit provides video-based training for floor supervisors and inventory staff, helping them adapt to barcode scanning and digital dashboards. The AI Monitoring Engine later detects a delay in a supplier approval loop and recommends an automated RPA-based document validation process, significantly reducing the cycle time.

Retail Business Digitization

A traditional family-run apparel retail chain adopts the invention to transition into an omnichannel digital business. The DRAE evaluates the low digital footprint, lack of online presence, and non-digitized customer records. The system proposes a roadmap beginning with point-of-sale digitization and e-commerce platform onboarding.

The LIM extracts historical sales data from the POS system and integrates it with a cloud-based CRM. The TWD is used to design customer engagement workflows—offering

personalized emails, loyalty points, and restock alerts. The CMT is deployed to train sales staff to use tablets for order entry and customer interactions. Over time, the MFE tracks conversion rates, customer retention, and employee adoption, suggesting micro-campaigns for underperforming store locations.

Healthcare Services Optimization

A multi-clinic healthcare provider seeks to digitize patient intake, appointment scheduling, and diagnostics reporting. The DRAE identifies non-standard recordkeeping and dependence on manual appointment logs as key challenges.

The LIM module digitizes patient history through OCR and integrates it with a secure Electronic Health Record (EHR) platform. The TWD helps create appointment automation, billing workflows, and lab report notification systems. Doctors and administrative staff are introduced to the new system via the CMT, which includes multilingual tutorials and helpdesk simulations. The MFE ensures adherence to HIPAA compliance, identifies process lags in diagnostic result dispatch, and optimizes clinic-patient wait times using predictive queuing algorithms.

While considerable emphasis has been placed herein on the preferred embodiments, it will be appreciated that many embodiments can be made and that many changes can be made in the preferred embodiments without departing from the principles of the invention. These and other changes in the preferred embodiments of the invention will be apparent to those skilled in the art from the disclosure herein, whereby it is to be distinctly understood that the foregoing descriptive matter is to be implemented merely as illustrative of the invention and not as limitation.

We claim(s)

1. A system for enabling digital transformation in traditional businesses, comprising:
 - a Digital Readiness Assessment Engine configured to evaluate organizational maturity;
 - a Legacy Integration Middleware adapted to interface with existing analog or semi-digital systems;
 - a Transformation Workflow Designer for mapping and automating legacy processes;
 - a Change Management Toolkit providing training and feedback tools for users; and
 - an AI-based Monitoring and Feedback Engine to optimize digital adoption and performance.
2. The system of claim 1, wherein the Digital Readiness Assessment Engine outputs a digital maturity score and a customized roadmap.
3. The system of claim 1, wherein the Legacy Integration Middleware comprises API connectors and data format translators.
4. The system of claim 1, wherein the Transformation Workflow Designer includes a drag-and-drop graphical interface.
5. The system of claim 1, wherein the Change Management Toolkit includes behavioral nudging modules and multilingual training content.
6. The system of claim 1, wherein the Monitoring and Feedback Engine leverages machine learning algorithms to identify process bottlenecks and suggest optimization steps.
7. The system of claim 1, further comprising a secure cloud deployment infrastructure with role-based access control and regulatory compliance features.

Dated this 21st day of July 2025

A handwritten signature in blue ink, appearing to read 'Priya Shah', with a horizontal line underneath.

Signature:

Applicant(s)

Dr. Priya Shah et. al.

ABSTRACT

Driving Digital Transformation in Traditional Businesses: Overcoming Challenges in Traditional Business Models

The present invention discloses a modular and intelligent system for driving digital transformation in traditional businesses by overcoming technological, operational, and cultural challenges inherent in legacy models. The system comprises a digital readiness assessment engine, legacy integration middleware, transformation workflow designer, change management toolkit, and an AI-powered monitoring engine. Together, these modules enable phased digitization of business processes, seamless integration with modern platforms, real-time performance optimization, and stakeholder adaptation. The invention supports scalable and secure digital transition across various industries such as manufacturing, retail, and healthcare, ensuring long-term sustainability and operational excellence.

Dated this 21st day of July 2025



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