Benefits and Limitations of Appian- Business Process Model(BPM) Tool: Systematic Literature Review and Research Survey

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Abstract - *The business automation technologies are provided with an experience that allows companies and their personnel to better serve and come across the needs of their customers, set of connections with human associations, and makes stronger client communications.A low-code application platform is an application platform that wires up rapid application development, single step deployment, implementation and organization, high level programming concepts, for instance, metadata and model driven based programming languages.*

This paper uphold the exactness of user interfaces, company logics and data services, and advanced productivity at the charge of portability all the way through vendors, as compared with the other application platforms. The low code application platforms suggest undeniable productivity gain for specific and individuals development, also the speed of delivery exploit.This paper also provides features, differences, strengths and cautions, and compares with the other BPM tools like Pega and IBM.

***Key Words*: low-code application platform (LCAP), Business Process Management(BPM), Robotic Process Automation(RPA), Enterprise Resource Planning (ERP), Total Cost of Ownership (TCO)**

1.INTRODUCTION

Application platform provides runtime environment for business logics. Application platforms handles the life cycle of an application or application component, and it also makes sure the accessibility, reliability, scalability, security and monitoring of business logic.

The digital technology ensures transformational modernization and viable differentiation for automotive people. The peak solution design of the former period is not a permissible for today's venture requirements. In order to boost up and stay in front, the businesses have to go along with the existing structure reserves without overheads.

The development of an application on Appian is 10 times faster than other traditional methods of development. The reason is because of Appian has low-code platform approach, that is build up by the visual tools and it also has drag and drop functionality. The IT companies can swiftly build and deploy native applications and allow business users and developers to do the same. What really matters for automotive organization is less time to market for their critical applications.

This robustness makes the organization to effortlessly spin and progress to meet up market and the customer requirements, allowing realizing the flexibility and the business agility.

Appian make operational agility across the supply chain. By using greatly developed automation and the connection capability to improve the end to end supply chain associations.

Appian makes sure of unification of data and assets all throughout the processes and also streamlining processes with the client efficiency in mind, and extension of visibility throughout to associates and clients across the digital supply cycle.

The main advantages of using Appian are as follows:
• Minimizes the cost and invests in the future state capability
• Improves the legacy/old processes
• Achieves and maintains the regulatory compliance
• Reduces the trading errors
• Documents the records which have high risks with efficient and modernized workflows.

2. METHODOLOGY

The Low Code Development Platforms symbolizes the up-coming software category which allows application development through the design of GUI based tools rather than general "hard coding" involved with technical languages and command-line programming.

This paper compares with the traditional BPM environments, which in general influence the more

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declarative approach of process model definition. The research identifies the differences between low-code platforms like Appian compared with IBM or Pega, which is more traditional programming and introduced better architectural density. The results demonstrate a separating line between low code platforms. Running on low-code platforms like Appian has constantly cited advantages which includes easier UI design and the capability to build and sustain a library of reusable business things, and on the whole quicker application delivery. The considerable contrasts across the platforms are used. Those running Appian cited both faster overall delivery, and also significantly larger amount of releases per year. The Average Number of Weeks for accomplishment across all the three leading Vendor Customers and All Respondents.

The output is that the Appian customers reports an average 3 times quicker application delivery compared to that with the overall market, and particularly 3-5 times quicker than IBM or Pega customers have reported. These outcome support Appian's positioning as a low-code platform, which promote quicker time to market than platforms that demand wide-range coding, customization, and incorporation efforts.

	Average No. of Weeks			
	Overall	Appian	IBM	Pega
Translation of Design Models to Run-time	13	5	8	30
Data Modelling and Data Structure Design	6	3	7	2
Software/Service Integration	15	4	15	19
UX/UI Design and Implementation	6	2	9	19
All Testing (Function to Regression)	11	3	7	13
Total Weeks Involved With Core Development	51	17	46	83

Fig -1: Average number of weeks for implementation across all three leading vendor customers and all respondents

A low-code application platform (LCAP) provides swift application development and deployment using low code or no-code techniques such as declarative, model-driven application design and development jointly with the simplified one click deployment of applications. A low-code application platform (LCAP) characteristically creates metadata and interpret that the metadata at runtime and abstract the underlying essential server infrastructure for the ease of use. It also allows elective procedural programming extension. LCAP also supports:

- UI capabilities via web applications and mobile applications.

- Management of documents, business process, and decision or business or expression rules.

- It has Built-in database.

- "One Click" deployment of applications.

2.1 PRIORITIES FOR MANUFACTURING ORGANIZATIONS

The increase in competitive environment, the manufacturers are under constant worry to modernize their technology so that they can improve the quality of their products and their communications with suppliers, associates, and customers. However, the rigidity of outdated systems and profoundly customized applications creates block on the path towards the modernization.

Breaking down of blocks requires:

- **Rapidity-** To swiftly get products to market and impel organizational changes, manufacturers require the strategies, technologies and agile approaches that enable them to connect information across the systems, coordinate critical workflows, and deliver insightful applications to employees.

- **Technology.** For stronger decision-making and greater insights, manufacturers want technologies that leverage significant data and permit digital tracking for process enhancements, monitoring of performance and risk mitigation. It also help from solutions like artificial intelligence, Internet of Things (IoT), and automation for decreasing resource needs and operational costs.

- **Developing business models-**Manufacturers must develop how they collaborate with suppliers, designing the new products, bringing the products to market, and meet the set of laws. They also have an opportunity to create new revenue streams during manufacturing as a service, remanufacturing, straight to customers, and new partnerships. Yet the supply chain improvements and evolving business models have to be supported by the accurate processes and technologies.

As manufacturers in all places seek ways to improve customer engagement while mitigating risk, increasing effectiveness, and improving partnership, one insightful solution can do all of this and more, and it is flexible and scalable

2.2 MANUFACTURING IN LOW-CODE WAY WITH THE APPIAN

Appian's low-code automation platforms empower the manufacturers to bring modern applications that widen the existing systems. Robust automation capabilities modernize the most of the complex processes, while insightful, ready apps put information at employees' fingertips for improved productivity and service.

Appian combines Artificial Intelligence(AI), Machine Learning(ML), Data Analytics, Internet of Things(IoT) and Robotic Process Automation(RPA) to drive innovation for enhanced decision-making, equipped visibility, and customer engagement.

Appian's advantages include:

• **Simple Design.** Speed up the app development with drag-and-drop functionality, reusability of components and the ability to access data anywhere.

• **Insightful Experience.** Improve employee experiences and make adoption and organizational change with modern, enhanced interfaces.

• **Automated Work.** Swiftly collaborate among the people, robots, and technology while maintaining control over the process.

• **Future evidence of Applications.** Effortlessly adapt applications to meet up altering market demands, operation, and design necessities.

• **Ease of Development.** Maintain customer and business data safe with the most safe, secure, reliable, and scalable venture cloud platform.

According to the belief that companies need a simpler way to make powerful software, Appian pioneered in the low-code market. The low-code automation platform(LCAP) allows organizations to deliver present applications 20 times more rapidly only with fewer resources.

2.3 THE APPIAN DIFFERENCE

Enlarge enterprise and legacy systems. Easy and faster to configure integrations allow manufacturers to unite and enlarge virtually any system and can take action on it. This includes (Enterprise Resource Planning) ERP, Product Lifecycle Management, manufacturing execution, CRM, ware house management and other systems.

• **coordinate across the supply chain network.** Carry out critical logistics visibility and communicate, accomplish and validate in real time by automating the processes and workflows across organizations and external business associates.

• **Improve audit ability and compliance.** Achieve control and visibility with better traceability, continuous tracking, and real-time insight. Regulatory compliance, quality improvements, risk mitigation all these are actionable through automated workflows.

• **Speed up digital innovation.** Quick delivery of the applications where needed to drive effectiveness and

responsiveness. It takes less time to modernize areas such as materials planning, field services, preventative maintenances, and engineering and product designs.

2.4 STRENGTHS AND CAUTIONS

Appian is a Leading in the BPM market and focuses on composite business processes and other applications requiring complicated automation, rules and analytics capabilities. Its technological differentiators include in built no-code integration with a variety of AI services and support to DevOps with automated continuous integration/continuous delivery (CI/CD) for IT companies.

2.4.1 Strengths

Product: Intelligent Business Process Management Suite (iBPMS) market is the main background for Appian's LCAP. Customers prefer Appian's support because of its business process automation and modernization of applications. Another main difference is Appian is capable of handling complex business rules, workflow and decision making.

Innovation: Appian continues to provide innovative low-code technology which also includes chatbots and Progressive Web Application (PWA) among its various experience capabilities.

Market awareness: Appian shows enterprise value throughout the scale of its deployments, which in general span whole organizations and various projects. Appian also invests greatly in security certifications and audit and has one of the most comprehensive sets of certifications for high security government requirements.

Overall feasibility: In a packed market with a lot of small, privately owned vendors, Appian stand out as a stable, openly traded company with a focus on low code technology. Even though it is not as big as the largest enterprise software vendors but Appian has many customers and government agencies running its platform which should ensure its long-term feasibility in this current market.

2.4.2 Cautions

Sales execution: One of the major challenges faced by Appian and its clients are the company's sales execution. Appian's reference clients reported average satisfaction with its contract estimate and compromise, as well as its contract flexibility. Appian has recently changed its licensing model to help address this issue, but the effect of the change is not yet known. Overall reference customers articulated a average level of satisfaction with its sales process.

Pricing strategy: Appian focus on larger deals and its pricing strategy means its rate of customer expansion is less than that of other competitors. Appian's customers reported below average satisfaction with the pricing.

• Product strategy: Appian's low-code development product is more appropriate for professional developers in terms of the usability of its proprietary expression and scripting language when compared with some vendors in this Magic Quadrant. In addition, reference customers overall rating for Appian's developer support was lower than the average for vendors.

• Customer experience: Appian's reference customers recommended it to others, but not unreservedly. Customers gave average scores for time to deployment, which could be the effect Appian customers choosing it for larger than average applications, and for the quality of Appian's community.

2.5. SCOPE AND SCALE

The greatest difference can be found in the IBM and Pega, Appian's customers are far more widely to use the platform to develop apps that are used across the enterprise. The final area focused on scope and scale by comparing. The below table is respondents to identify which of the categories best reflected in the project in their survey response. Not shockingly, very few (20%) cited that their projects were limited to a single application. Respondents running on Appian, IBM, or Pega all had multiple use cases for their platform. Even through the analysis of the responses as well as through follow up found the notable areas of contrast. All respondents running on IBM cited multi-departmental projects. This was verified in follow-ups, where IBM customers disclosed that the applications were used across multiple departments, but the IBM platform itself was not viewed as an enterprise standard. Respondents running on Pega cited similar results and focus. However, Pega customers cited using its platform for stand-alone, built-for-purpose applications, without the expectation of integration across interdepartmental data. Meanwhile, Appian customers were found to be the most likely to use the Appian platform for managing and automating processes across the enterprise, leveraging the same data across applications and delivering a "single version of the truth."

	Overall	Appian	IBM	Pega
Application Specific (introduce application or specific function)	20%	0%	0%	0%
Departmental (multiple processes, single department)	0%	8%	0%	0%
Enterprise Horizontal (few processes, but across the enterprise)	0%	33%	0%	0%
Enterprise Platform (used for a growing portfolio of processes)	40%	59%	0%	34%
Multi-Department, But Not Enterprise	40%	0%	100%	66%
Total	100%	100%	100%	100%

Fig -2: Project scope as reported by all respondents and specific to each platform vender

Appian customers also reported the lowest Total Cost of Ownership (TCO). Total Cost of Ownership (TCO) Varies significantly between Vendors Respondents running on Appian demonstrated a advantage on Total Cost of Ownership (TCO) over respondents running on IBM and Pega, as well as the overall market. Pega customers reported spending on average of 11 times more than Appian customers, and nearly twice that of IBM customers. In addition to higher upfront and ongoing costs, respondents reported that it takes an average of 4 years to deliver a project on Pega, over 2 years with IBM, and less than one year with Appian.

Overall, Appian was distinguished as the clear leader for lower TCO. This report with a summary of our key findings yielded in this research. Required Resources and Project Team Size Drive TCO Respondents citing higher figures for number of resources required and larger project team sizes also report higher overall TCO. Pega customers required the highest number of FTEs on average compared to the Appian, IBM, and the overall market. Particularly, Pega customers required about 5 times more FTEs on average than Appian customers (who cited the lowest TCO). The major constraints of the survey respondents were the challenge of finding the right services and employees to support their projects, particularly onshore resources. This stands out as an advantage for Appian customers, which indicates greater opportunity to build internal capabilities with less FTEs and less consultants.

According to the survey, the unified technology, Appian helps overcome challenges across virtually any product, department, or organization such as speedy development of data-centric applications , Real-time access to information across the systems, the process and case management, Quality and regulatory compliance , IT Operations and also Global security management

The future demands greater convenience and simplicity for providers, payers, and most importantly, members. To keep pace with the changing environment, they must adapt to three keys: the consumerization, the proliferation and focus on cost reduction. Appian is helping to lead digital transformation efforts that allow the organizations to address these keys. Quickly build applications that bring the data together, automate key processes and enable innovation and also give members access to the information which they need anytime and anywhere.

3. CONCLUSIONS

A Low-code application enables Time to Market / Speed of Application Delivery Enterprise-Wide Deployments. The results show that a low-code approach can faster time to market, and require only fewer resources. The benefits of a low-code platform in terms of quickness, developer productivity, and overall transformation results, differentiate Appian's low-code platform customers from the overall respondents, as well as between the two other leading BPM platform vendors like IBM and Pega.

Customers using low-code platforms constantly reported quicker application delivery. Particularly Appian customers reported delivery on average in $1/5^{th}$ the amount of time cited by Pega customers, and almost 3 times faster than IBM customers. Respondents who run on the Appian low-code platform also cited more releases per year, quicker sprint cycles, and less resources required for change management /delivery. Customers citing enterprise-wide deployments had the lowest overall TCO. Meanwhile, respondents reporting mostly departmental or other than enterprise-wide deployments also had the highest the majority of platforms covered in this survey were used for departmental or multi-departmental use. Nevertheless, Appian had the most responses for enterprise-wide deployments with 59% of all deployments.

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