SAP User Experience Management for Manufacturing

New Technologies to Enhance Operations and Strengthen Compliance in the Manufacturing Business Sector

IdealNet, Inc.

Table of Contents

Executive Summary

Abstract

Today, Manufacturing companies are faced with several major challenges with compliance, operations and the information technology systems that serve as the backbone for these companies. These challenges remain unresolved using current approaches and cost Manufacturing companies many millions to tens of millions of dollars every year. For some, these numbers are in the hundreds of millions in legal costs and opportunities lost.

It is our view, based upon the review of available data, that a very significant opportunity may exist to mitigate these losses by utilizing new technology, which is available to monitor user experience, and then address identified issues.

This IdealNet report will examine the challenges, reveal the significant points of pain, and share a view for how specific new technologies in application performance management, particularly enterprise-class user experience management, can provide solutions for these challenges. We address both compliance and the optimization of user performance and believe that these technology sets can help deliver strong return on investment on a short-term basis. This is the first study that we are aware of that attempts to segment the user experience management (monitoring) market by specific use case for potential consumers of the technology.

IdealNet estimates that perhaps 25% of the potential return on investment has been realized by manufacturing companies (and the global 300,000 companies as a group) by optimizing infrastructure in support of major enterprise backbone applications and their underlying infrastructure. This leaves as much as 75% of the potential return on investment unrealized where a significant path to gaining access to this benefit is through the deployment of enterprise-class user experience management analytics. In the final analysis, the real determinant for the typical Manufacturing organization would be to identify those use cases for the technology that are applicable and then model the return on investment potential for the organization. This opportunity is particularly compelling for Manufacturing companies on a global basis. This would include the top 10,000 manufacturing firms by scope and revenue.

There is a very substantial incremental opportunity for the top 500 to 1,000 global manufacturing partner firms that service the Manufacturing ecosystem. For these companies the operational benefits seem very compelling, often with a return on investment in well under one year, with the potential savings of tens of millions of dollars and yet the risk of implementation is virtually non existent. There are very few such opportunities for the CIO to consider of similar benefit yet with low attendant risk. We believe that this opportunity is particularly compelling for manufacturing companies and that it should merit their immediate investigation.

IdealNet, Inc. regularly consults to some of the largest companies worldwide. Please refer to our "About" statement at the back of this study for more information about the firm.

Manufacturing in Context

Information technology has focused for many years primarily on the efficiency and effectiveness of the infrastructure – the major enterprise applications, networks, storage and processors that enable organizations on a broad scale. Most of the technology within information technology is focused on these components from a systems point of view, not a user point of view. Further, very little attention is paid to the user. The user is, in fact, the most important system-level component. The user makes decisions about compliance, best practice, process and implementation every day and every hour they use the system. Yet, we know so little about their performance.

This raises many questions that, if we knew the answers, would enable a baseline for key performance indicators. If you can measure it, then you can improve it. You can compare it to industry metrics. You can determine what level is acceptable and what needs to be improved.

How effective are your users at utilizing your major enterprise applications? What problems are they having following best practice? How quickly and effectively can you remediate these problems? Are they following compliant behavior and how can you validate this? What is the view to every user's effectiveness and what levers does management have to optimize and improve this performance? Who should be

trained and when? Do you know what your key performance indicators are for your major enterprise applications? Do you understand if these numbers should be improved? Could be improved? In context, it must be understood that Manufacturing is faced with a regulated environment, with unique concerns and requirements which differ from other industries. The mandate of legislation that wraps manufacturing companies in a heavy and cumbersome burden of compliance seems to be increasing. In addition, these regulations vary across geographic regions. This compliance burden increases internal costs significantly for manufacturing companies. This includes the effects of legislation on both a global and local basis.

The other significant challenge centers on the information technology and infrastructure those Manufacturing companies have already put in place to automate a very difficult and complex supply chain, and to create protective barriers and reporting to deal with the compliance burden. Not only must manufacturing companies, for example, implement heavily customized ERP and financial systems, but they also require extensive additional software systems for managing production facilities, warehousing, federal and state compliance and associated reporting.

Few other industries have the need for so many complex additional systems just to run the baseline business. Few other industries have the need for such massive and complex software system deployments across hundreds, thousands, and even tens of thousands of seats of administrative, operations, marketing and sales personnel. Manufacturing is unique in many respects and these distinctions, in part, create the challenges, which we will seek to better understand.

On the legislative side, laws with associated penalties continue to increase annually, both civil and criminal, with associated costs and risks to leading manufacturing companies. It is very clear that expenses for manufacturing companies continue to skyrocket, and at a time when increasing production is more difficult.

In response to all of this, the focus in Manufacturing now combines innovation in producing new, innovative products with driving and delivering operating excellence. A better balance must be maintained between the two.

The leaders need to be efficient and effective in managing their existing business. Major traditional manufacturing companies must now compete with a barrage of other, niche firms as well.

Challenges face companies providing products and services which support manufacturing firms as well. Manufacturing is a very broad domain and includes many information technology and software infrastructure components on a global basis so the positive impact to operations can be very significant. These opportunity benefits potentially include reduction of risk, implementation of best compliant practice and a very substantial and rapid return on investment.

New technology sets such as enterprise-class user experience management offer very significant and positive opportunities for manufacturing companies. They present these opportunities across a broad front of use cases, each presenting qualitative and highly strategic benefits, with the concurrent benefits of enhanced operational efficiency.

The Manufacturing Market

All aspects of Manufacturing are heavily regulated. There are unique considerations that affect the infrastructure that must be managed. At the same time, these firms must be able to react rapidly and on a large scale to rapidly shifting external elements worldwide including political and environmental changes. Multiple studies in the Manufacturing industry show that managing those assets on demand, in real-time; can attain a significant increase in asset value. “On demand” manufacturing companies have integrated their business processes end- to-end across the company and with key partners, distributors and suppliers. With an on demand business strategy, these companies are designed to have the ability to respond quickly to change, whether to customer demand, a market opportunity or an external threat. A key element to succeed in these endeavors is the efficient utilization of an installed enterprise wide SAP suite throughout the organization.

Manufacturing Industry

According to a report on global competitiveness by Deloitte: "Manufacturing is proven to be a key driver for economic growth—attracting investments, spurring innovation, and creating high-value jobs."

At the same time, the Manufacturing business sector faces a series of ever changing, yet constant, risks and challenges. These companies must operate in a wide array of global regulatory and tax structures. At the same time, they simultaneously have large investment needs which are coupled by a significant uncertainty regarding the ultimate outcome and return on these investments.

Adding to this are factors in the environmental, supply chain, raw materials, Manufacturing related competitive pricing activities, and complex volatile business relationships throughout the supply chain.

The risks associated with this endeavor are huge. They are made overly complex by legislation and regulation that affects Manufacturing companies on a massive, worldwide scale.

As an example, below is a partial list of United States Federal statutes that affect the Manufacturing industry and hence directly impact information technology operations and business best practice. The complexity of these statutes and regulations is immense and it directly affects the information technology infrastructure, compliant best practice and day-to-day operations on a broad scale.

Manufacturing Law and related Entities in the United States:

- Bonded Manufacturing Warehouses
- Chapter 85 – Air Pollution Prevention and Control – Clean Air Act
- Clean Water Act
- EPA – Inspections and Evaluations
- EPA – Toxic Substances Control Act (TSCA)
- FDA – Good Manufacturing Practices (CGMPs)
- Food Quality Protection Act (FQPC)
- Manufacturing - Definition
- Office of Manufacturing and Services (MAS)
- Manufacturing Law Center
- Mercury Export Ban Act
- OSHA Regulations (Standards – 29 CFR)
- Pollution Prevention Act
- United States Manufacturing Enhancement Act

Manufacturing Law Organizations:

- American National Standards Institute (ANSI)
- American Society for Testing and Materials (ASTM)
- FDA – Manufacturer and User Facility Device Experience (MAUDE):
- International Organization for Standardization (ISO)
- National Association of Manufacturers (NAM)
- National Council for Advanced Manufacturing – Sustainable Manufacturing
- NSF – Public Health and Safety

EPA (Environmental Protection Agency) Laws and Regulations:

- Furniture Manufacturing
  - Formaldehyde Emissions from Pressed Wood Products
  - Greenhouse Gas Reporting Program
  - National Emission Standards for Hazardous Air Pollutants (NESHAP):
    - Metal Furniture (surface coating)
    - Wood Furniture (surface coating)
  - Significant New Alternatives Policy (SNAP) Program: EPA's program to evaluate and regulate substitutes for the ozone-depleting chemicals that are being phased out under the stratospheric ozone protection provisions of the Clean Air Act (CAA).

Chemical Manufacturing Laws and Regulations:

- Air:
  - Greenhouse Gas Reporting Program
  - National Emission Standards for Hazardous Air Pollutants (NESHAP):
  - Benzene Waste Operations
  - Cellulose Products Manufacturing
  - Commercial Sterilizers
  - Ferromanganese and Silicomanganese Production (Ferroalloys, Major Sources)
  - Generic MACT (Acetal Resins, Hydrogen Floride Polycarbonates Production, Acrylic/Modacrylic Fibers, Spandex Production, Carbon Black, and Ethylene Processes)
  - Hazardous Waste Combustion

The point of this data is to show that delivering information technology infrastructure and specific implementation business practice in a compliant way is essential to the survival and growth of any Manufacturing company. This regulatory environment creates tremendous challenges both to the information technology infrastructure and to managing the behavior of the human capital in the organization.

Technology Trends in Manufacturing

If you are a leading Manufacturing company, your SAP suite forms the critical core of technology on which all facets of your business depends. In addition, numerous integration points between SAP and other applications or data sources exist as well. Your relationships with trusted advisors such as, Accenture®, Deloitte®, PwC® and others are critical to your business as complex integrations are a cornerstone of any operational deployment.

The requirements for regional government compliance are a core risk area for any CIO in Manufacturing. Operational requirements for systems to support reporting for legal compliance are exacting and which must be managed 100% of the time to compliant practice. There is no room for error at any time. Anything below the acceptable threshold may result in the assessment of massive fines, penalties, and sometimes even criminal penalties. There are no shortcuts and errors at any level of scale can be career defining moments. All it takes is one person to initiate a decision outside of, to produce a potential penalty which could be unbounded and perhaps in excess of $500 million or more.

Movement to the cloud certainly complicates the issue in the future – but this has not been a significant force for manufacturing companies. The Manufacturing Sector is globally highly regulated and has been very slow to move into the cloud, if at all. The need to support complex compliance requirements, intellectual property and difficult supply chains has resulted in large data centers with very complex system integrations and a multitude of highly customized ETL interconnections. These are not easily unwound anytime soon.

Penetration continues but albeit at a very slow pace. The bulk of the systems in these organizations are customized, heavily integrated and not yet well suited to cloud deployment.

The opportunity for benefit from new technology such as enterprise-class user experience management certainly easily reaches the top 10,000 manufacturing and related supply companies on a global basis. These firms have many thousands of employees using SAP to drive their business from end to end and are massive companies.

Application Performance Management Market Overview

Market Size and Overview

The application performance management (APM) market is a market with about two billion in annual revenue. Industry analysts vary but in general the growth rate has increased recently from high single digits to very low double digits as of late. The tools are well established and most major analyst firms are concerned on reporting on the status quo – not the areas for innovation. The market is also sometimes referred to as application performance monitoring.

The APM market is characterized by legacy products. This is a legacy market. Most of the products have been around for a long time and are considered quite mature. They are regularly purchased by global 5,000 organizations to complete the dashboard to the performance of information technology infrastructure and reporting.

The CIO very often uses these systems to establish baseline reporting back to the line of business with a focus on system performance.

Most of these are scripted and manually implemented. There is not much out of the box that provides other than very basic value as a dashboard to the technology infrastructure and perhaps an alert structure to manage it more successfully. There is some buzz around extending these legacy products to mobility, big data and more but mostly this is blocking

and tackling for these vendors. Extending reports, primitive analytics and alerts to iPads and iPhones is just basic evolution, albeit welcome, but definitely not significant innovation. Many of these legacy products have been around for years and started with support for client server architectures.

We are addressing the overall APM as many analysts include basic user experience management in this market segment. The space is very confused and the definitions of user experience management have been polluted by very basic entries. In fact, there are so many basic entries that it confuses and sometimes diminishes the value of the enterprise-class user experience management products. The basic market for APM has always addressed infrastructure and the not the user!

The APM market today is best characterized roughly by several core capabilities wrapped around an information technology dashboard including the presentation of status, in a multitude of forms, of the hardware, network and software resources in an organization. Early on, the market valued the notion of alerts. These were console messages, emails, pager notifications (in the early days), SMS and phone calls notification when the performance off a targeted entity went below thresholds. Everything was about the infrastructure – the equipment, the resources and the software.

These software applications track the execution of the components of software applications, report on the utilization of the hardware and software that are used by these software applications, determine if error conditions have happened and try to report on why the application has failed to execute properly.

User experience management, at a very basic level, is bundled in by analysts who really don't want to take the time to understand it. They see two billion in expense for APM products and find order for their late adopter mainstream clients by aggregating it all together. Unfortunately, this view hides potential value for customers and fails to recognize the huge benefits associated with user experience management.

Segmentation

Our target segment, enterprise user experience management for Manufacturing, is at most today a $150 to $250 million dollar segment and hence under the radar of most large analyst firms. They cover this segment under the fold of APM. Yet, we believe that this segment presents more than five to ten times the opportunity for return on investment; far more than the other 90% of the software sold in the APM market. Each Manufacturing information technology team prior to implementation can validate this fairly easily, but in general we are very enthusiastic about the potential we have identified by use case.

Most important, and we will raise this point more than once in this report, is that key features, which define as "enterprise-class," are offered by the vendor. Without these features and "basic" user experience management, you miss many of the opportunities to improve operations and compliance within your organization with the attendant return on investment. This is an even smaller segment yet offers the most potential value for Manufacturing customers.

Hence the notion of user experience management. It is the idea that by better understanding the performance of each user, and how the user experiences the performance of the infrastructure, we can provide a new set of business optimization by improving the user experience and targeting the problems they face. Now we can be more methodical in bringing the organization closer to best practice business process using the infrastructure that information technology and the line of business has provided. As a by-product, we enhance user satisfaction, provide dramatic reductions in expense and deliver strong return on investment.

User experience management (or monitoring) has emerged as a new segment in APM that has left the early adopters and clearly moved into the early mainstream. Thousands of customers have used the technology, certainly at a basic level and have derived very good results for their investment.

User experience management (UEM) has been segmented by IdealNet into several tiers of technology. The greatest opportunity for strategic benefits and the broadest set of use cases come from what we define as Enterprise-class UEM.

Targeted Enterprise Applications for Manufacturing

In a typical large enterprise there are many applications. IdealNet would estimate between 150 to 500 applications may exist in various states of use in the global 5,000 enterprise. There are likely some companies with thousands of applications. However, in general a few hundred receive most of the attention. This includes various browsers, applications purchased by department or section, and more than half of these applications are used by a small handful of people a small percentage of the time. Many are dormant, live on desktop systems and are eventually purged off due to disuse.

The core set of Enterprise Applications that form the backbone of an enterprise, are often easily counted on one to two hands by the CIO. Backbone applications are those that involve 500 to typically 5,000 to as many as 50,000 or even as many as 100,000 seats. These include enterprise resource planning (ERP), financials, customer relationship management (sales, marketing, customer support), Desktop PCs, business intelligence and more. Applications like master data management (MDM) are really only IT centric in nature but still core to enterprise activity.

In Manufacturing it is clear that SAP owns the enterprise backbone for ERP and financials in virtually all of the leading manufacturing firms on a worldwide basis.

New technology such as SAP HANA® seems as if it is riding a new wave of innovation, especially for large manufacturing companies. We expect SAP HANA to rapidly deploy and dominate the manufacturing companies. SAP HANA clearly brings tremendous potential benefits to existing SAP customers and seems a likely addition for them.

In Manufacturing, based upon informal outreach, it is estimated that 60% to 75% or more of the existing SAP customers will move to SAP HANA. SAP HANA is a production ready platform and a mature product in a leading edge market.

SAP has done a good job evolving their core legacy applications with the addition of new ones, adding one at a time in a more thoughtful and well-integrated way. Web portals have been thoughtfully integrated and all of it allows customers to maintain their massive legacy data sets, the complex and fragile integrations that drive them yet get the benefits of the browser based world. SAP's mid tier cloud strategies have floundered a bit, but this is not an issue for most leading Manufacturing companies.

SAP BusinessObjects®, now part of SAP, is also fairly ubiquitous in Manufacturing as in other industries.

Other Manufacturing companies have made significant commitments to manufacturing R&D systems. These use a variety of different database platforms. There are significant commitments to regulatory compliance systems; many are custom but there are standard platforms available from several vendors.

In conclusion, if you are a CIO in Manufacturing, we've told you what you already know. The largest enterprise is still very much run by major legacy applications that translate to CIO mindshare. If you successfully address compliance problems and identify user experience management opportunities in these 5 to 10 large applications, you have covered more than 80 to 90% of the available benefit for these corporations.

Market Trends

We believe, in summary, that enterprise-class user experience management and other ascending products in the same broad family (basic and advanced user experience management) will grow at a rate faster than the legacy APM market from 2013 through 2016. Penetration in the global 5000, now between 5% to 10%, will perhaps reach up to 50% at that time for one or more core enterprise backbone applications within such an enterprise.

Ultimately the feature sets required to compete will mandate full workflow capture and automated technologies that do not require legacy scripting techniques, either for out-of-the-box functionality or for the accommodation of custom functionality. Mobility will be integrated, not for the executive dashboard within your firm, but more to extend the supply chain to your customer and this will create compelling incentives for enterprise-class user experience management.

Finally, we believe the true roadmap for innovation is to invest in the integration of new technologies that focuses on the closed loop process for the remediation of user driven error. This is the automation of techniques that both detect trends in user error and non-compliant behavior and then provide remediation, through software, to address and correct this behavior. This is the vision for the industry. This takes the current reactive state using actionable analytics to a proactive future state in which close loop process brings takes the user almost immediately to improved performance.

User Experience Management Overview

Enterprise-class User Experience Management

IdealNet has defined our view of how to classify vendor capabilities in the user experience management space. In sorting out the benefits for manufacturing companies, we have crisply categorized user experience management. The importance of this definition rests in the number and depth of use cases supported. Enterprise-class user experience management clearly supports the greatest number of use cases which ultimately delivers improved compliance and return on investment.

Chart – User Experience Management

Features by Tier

This chart provides an overview of the technical components and the essential capabilities they provide:

Enterprise-class	Auto Remediation
	Full Functionality for Major Backbone Enterprise Applications
	Auto Learning for Customizations
	Full Workflow Capture by User
	BI Based Analytics
Advanced	Desktop Agent
	Scalable
	Proprietary Analytics
	Offline Users
Basic	Scripted
	Simulated or Server Measurement
	Designated Transactions
	Pre-Packaged Reports
	Alerts
Platforms	Network
	Storage
	Servers
	Thin Client (Citrix)
	Client Server
	Web
	Windows
	Mobile Devices
	In-House Data Center
	3rd Party Cloud

Category Definitions

Platforms

Platforms identify the structures, which are both monitored and which are then used for delivery of user experience monitoring reporting and analytics. Global 5,000 legacy

environments are replete with thin clients (Citrix®) and often times this is an essential component. At the same time a broad tier of mobile devices is proliferating, usually driven not by monitoring, but for delivery of reports and analytics on the monitoring activity, certainly in 2012. Mobility is not an innovation, but merely evolutionary, as an extension to platform support for user experience management.

Basic User Experience Management

Basic user experience management includes the legacy scripted capability to identify and measure response for any portion of your key application. Your organization may define a few key transactions, end to end, and then script the system to monitor these and report on their status. To the extent these are not scripted, the data may be server-based and derive report data from the web based packets traffic. Reporting is usually prepackaged and may be customized, although you are using a proprietary interface. Alerts are an essential part of the mix usually delivered through email, pager or SMS interfaces.

Advanced User Experience Management

Advanced user experience management must include a desktop-based agent to truly experience and measure the user experience. These systems must exhibit large enterprise scale and often come with proprietary analytics in addition to canned reports. Some systems offer support for offline users in environments. This is a critical requirement in these environments given the extreme number of offline users in a typical Siebel implementation.

Enterprise-class User Experience Management

Enterprise-class user experience management enables the full compliment of potential use cases for user experience management technology. The capabilities of this set are only possessed by a very few vendors and represent the leading edge of innovation and potential for the industry. In this class all reporting and analytics are based upon standard BI platforms. Full workflow capture is available for every user, which shows system errors, user errors, and all activity, screen by screen, field by field, button by button. Deployment is done without scripting, out-of-the-box for the major enterprise applications and includes all functionality. The systems can auto learn your customizations and adapt and report on them – without further customization.

The vision for the future is wrapped around auto-remediation. Auto-remediation takes the notion of identified user error and immediately brings compliant best practice back to the user to correct the errors as the problem develops. This is the future of the industry – the volumes of return on investment possible will potentially drive user experience management, as a market segment, to an aggregate size larger than the rest of the application performance management space.

Use Cases in Manufacturing

We have identified the enterprise-class user experience management software capabilities. It is important now to understand the target use cases of importance in Manufacturing and tie them back to the functionality in the software.

First, we need to identify the departments that may participate in the various use cases. They include IT systems support and application development, user support and help desk, line of business management, center of excellence, and education/training.

Then we need to examine each use case, what user experience management functionality is required to support it, and the potential for economic benefit.

Clearly, with low risk, a rapid implementation, and an attendant review of the potential high rewards and return on investment potential prior to implementation, we feel the use cases become quite compelling.

Use Case Area: Information Technology CIO Dashboard

(Includes Alerts, Application Development Deployment, Custom Application Development and Systems Support)

Information technology teams, both within centralized and the line of business organizations have been the earliest consumers of basic user experience management. The use case started early as one of many additional tools to provide visibility to the operation, performance and status of the vast array of networks, storage, servers and applications that must be supported for Manufacturing customers.

The array of legacy application performance management tools is quite daunting and the implicit business case was always that the IT team, and more specifically the CIO, needed to understand problems before they escalated, or at least diagnose and understand them as they escalated, as the soft cost to the business for lack of access to these systems was substantial. Further, the CIO needs to know more about problem states and potential solutions, all of the time, than any constituent organization. In the simple case, basic user experience management allows you to identify and prioritize some classes of application performance issues, on a broad scale. IT teams can identify root cause analysis for system errors, but not for user errors. This is a hugely important distinction which we discuss elsewhere.

Basic user experience management, in fact, rarely views the problem set from the real user perspective. Basic user experience management does not view the problem from the desktop, but from a simulation of a user or from an http server or other server perspective. Given this perspective IT teams have reasonable access to aggregate system level data, application problems and a simulated or server level view of what the average user is experiencing. The deployment and roll-out of new applications or new releases of major enterprise backbone releases is another area of opportunity. You can evaluate the performance, both of the applications and infrastructure (system errors and performance) as well as the user interaction (user error and user performance). This is most important during the HYPERCARE window for most organizations, the term HYPERCARE applies to the first 30 days of rollout to the user community. This is the time when you need visibility to both what is being reported as wrong, and what is actually wrong, before it is reported.

You can also use user experience management in the design of new customizations. Very often the user community, with tremendously good intentions, will design a new customization based upon their perceptions. Now you have the actual data and you can validate what you hear with empirical data before you design and implement. Further you can test these customizations afterwards to see how users actually interact with them. This sort of application development, called user experience driven design and validation, is a fairly hot new trend in Silicon Valley and getting quite a bit of momentum.

In addition, an excellent niche application for the IT team is in resource utilization and planning. Notwithstanding many of the tools in your existing application performance management arsenal, for your major Manufacturing applications, such as SAP, it is not always clear how much of what functionality you are using. For some IT organizations, user experience management is the best way to understand what in your SAP system is really being used, and what isn't. This can lead you to remove functionality from your system with resultant savings for storage, maintenance and support. CIO's know the economics of this can be amazing. This may be worth a look.

Finally, user experience management can do an amazing job of supporting service level agreements. It can tell you everything about each user's time on the system, system errors versus user errors (often a problem area) and much more. It is absolutely the best dashboard to use when presenting to your line of business.

Use Case Area: Help Desk Optimization

(Applies to User Support Functions / Help Desk / IT Service Desk / Center of Excellence)

This use case applies broadly and easily to most organizations. Generally, the larger the scale, the more impressive the results. Manufacturing companies have very complex application stacks and hence have a multitude of escalation issues and usually quite a few centers of excellence, or equivalent, where the "black belt" users for a given application help support the user community.

Every CIO knows that help desks, IT service desks and the development of the centers of excellence are a tremendously expensive process. The expenses can be distributed both within and without IT. The basic help desk lives in IT and the center of excellence for SAP may live within one or more lines of business. It varies by organization.

Most of the Manufacturing organizations we talk to deal with anywhere from a thousand to several tens of thousands of help desk calls on a monthly basis. The areas of opportunity include reduction in the number of calls to resolve a specific issue, reduction in the length of calls for any single issue.

In a typical call cycle, the user has experienced the problem 6 to 7 times before they call the help desk. Once on the help desk call, they have to explain the problem usually at least two times, go through the escalation, try to determine user satisfaction, perceptions of IT and much more. In the final analysis, neither the help desk nor the user understands how to provide "screen shots" or evidence of the problem and more in support of the help desk process. This process is replete with the necessity for "call back" as the evidence gathered is insufficient and requires additional work by the user. The user generally dislikes this process and because of avoidance, user errors are generally propagated for a long time with resultant reductions in operational efficiency, precisely, most of the time, what went wrong especially when it was the result of user error.

Enterprise-class user experience management fully captures 100% of the user workflow and interaction, without exception, for everything in the target application system. At the time of help desk call, this data is immediately visible to the help desk team. They can see system errors, user errors, field by field what happened, and then can direct the user immediately. Further, this data can be clipped and copied to the report should escalation be required. For major enterprise backbone applications, the impact to the help desk operations can be quite large. Most organizations are fairly excited about reductions on the order of .5% or perhaps 1%.

These can bring major impact to short-term return on investment. User experience management can bring reductions of 5% to 20% to operational costs associated with the length of calls and the number of calls. The financial impact of this huge percentage is rather startling and this simple application becomes the easiest way to both build the financial model to acquire the technology, acquire the consultants to apply the best practice implementation, and then return investment within the first year of deployment. The rest of the use cases and all the attendant benefits can come along for the ride and usually add additional layers of return on investment.

Beyond the basic metrics for help desk infrastructure you have the ability to impact customer satisfaction (the help desk customers) and to attack problems on a pro-active basis, before they are reported. This is similar to the HYPERCARE window process in that you are reviewing the analytics to see clusters areas of user error, excessive times, or even system error.

There are also soft cost benefits we can also find beyond the hard cost benefits we have identified also. How much more productive is the user community and how does this improve the benefits to your organization? In conclusion, call times and volumes are reduced, time to resolution is improved, customer (line of business) satisfaction generally improves and the financial impact of this materially improves operational efficiency.

Use Case Area: Best Business Process / Compliance

This is a remarkable capability which can be derived from using the data stored by enterprise-class user experience management systems. It is far from the original dashboard capability of application performance management and may turn out to be the "killer application" for the technology, certainly in Manufacturing, in addition to IT service desk call time/frequency reduction.

As it turns out, if you look at software in the compliance space, there is almost no software available that takes the keystrokes, transactions, field, screens, movements from what your employees do in major modules of SAP. We found one vendor, Knoa Software®, which delivers this enterprise-class capability. It seems almost essential to several important use cases.

It is not always a question of what your users should be doing or what they say they are doing – Manufacturing liability in compliance question of exactly what they are doing. Most of the enterprise systems in place in manufacturing companies do not, and cannot enforce the best practice necessary to maintain compliance. They rely on training and expect the best outcomes with minimal enforcement. There are very large fines levied against manufacturing companies that indicate that the best outcomes did not happen and reinforce the conclusions that the systems in place are not yet adequate to drive the best and desired outcomes.

In the near term, this sort of capability allows you to build out rule sets or filters against the data and know, definitively, not only what people did in the system, field by field, but even what they viewed. This deep compliance machinery is exactly what Manufacturing requires – it is perhaps overkill for other industries but given the state of fines in

Manufacturing it is a timely and apt fit to bring the solution set at the hands of the CIO much closer to what is required.

Build out is required on a customized basis either as a standalone application or with an interface to perhaps a commercial compliance platform. Given the nature of the huge enterprise backbone applications, IdealNet submits that special implementations for SAP make much more sense as their transaction volumes define the bulk of the critical enterprise.

Deep compliance issues aside, there is always best practice for transaction and activity execution. There are many ways through an ERP or financial system to get the same or similar result, but one or two ways define best practice. User experience management provides a dashboard, by user, by group, by geography, by department or by almost any other measure to exactly how transactions and activities are being carried and the paths being used. Which of your users represent best practice? Which don't and why? How can this lead to non-compliant behavior?

Use Case Area: User Education and Training

The user education departments are often staffed around SAP applications. These major enterprise backbone applications are complex, often customized and map in fine detail to compliance and best practice in the Manufacturing industry.

The complexity cannot be emphasized enough. For example, it is extremely difficult to train users in administration of the supply and distribution chain. Areas like compliance, global operations and distribution make the manufacturing dashboard of required proficiency very difficult to master.

At the end of the quarter, adjustments need to be entered into the systems by various departments and there is no room for error. One mistake in price point in any transaction could result in massive financial impacts company wide and world wide. For this reason it takes many months for new users to come "up to speed" and compliant proficiency. To make matters more difficult, there is only a very subjective assessment on management's part as to this proficiency.

More often than not, given turnover, brand new users are trained with a set curriculum. There is little visibility to the proficiency of the users beyond "tests" which are designed for course support. But in terms of specific transaction implementation with live systems there is almost usually no data. Vendors and education teams implement tests which are more question and answer oriented, as opposed to measuring the correct path to success navigating specific tasks through the required application screens, modules, fields and buttons.

Enterprise-class user experience management brings the full potential for measuring performance both during and after training. Because you can see the errors and delay, versus the rest of your population, you can zero in on the best areas for which you can target and optimize that user's performance. There are many paths sometimes to complete transactions. Your organization already has likely defined a best practice path either for reasons of efficiency, risk reduction, compliance or all of the above. So you have the unique ability to see immediately how your users map to these best practice executions, both in terms of how they navigated the system, as well as how quickly they did it. You can explicitly see immediately which groups of trained users represent your best users (your center of excellence) and which need remediation.

Advanced user experience management can define the categories of opportunity for training to target as these vendor platforms are agent based – they are taking the user's view of interaction and response. Unfortunately, without full automation (which nets out to full workflow capture and full application coverage) they cannot provide the captured workflow or metrics to understand the performance of a single user, only the users in aggregate.

Advanced user experience management tools can still be effective in targeting training, albeit without the full potential for return on investment.

Basic user experience management does provide a dashboard to basic application performance parameters, but doesn't really tell you about the actual user experience nor does it record any data at the desktop level, as experienced by the user. Further, these environments are often instrumented just for web-based server connection and cannot extract meaningful data from complex environments that use combinations of client server, thin clients like Citrix® and web-based clients nor can they handle offline users so typical of legacy installations. For these reasons, we believe the training use case is not materially available to users of legacy user experience management technology at all.

The hard cost return on investment vests around the

elimination of an endless repetition of training, sometimes by decree, for your entire user base. Now you can apply training strategically based upon clearly quantified need. There is soft cost return on investment around enhanced user efficiency in execution, which reduces time and cost for your work teams, and perhaps in other areas in which revenue is limited by timely execution of transactions and process on a daily basis.

Summary and Findings

The Opportunity For Manufacturing

This IdealNet report has overviewed the challenges, revealed the significant points of pain, and shown how enterprise-class user experience management can provide solutions for these challenges. We address compliance, the optimization user performance and believe that these technology sets can help deliver strong return on investment on a short term basis. As we mentioned earlier in this report, this is the first study that we are aware of that attempts to segment the user experience management (monitoring) market by specific use case for potential consumers of the technology.

This opportunity is particularly compelling for manufacturing companies on a global basis. This would include the top 10,000 manufacturing companies. There is a very substantial incremental opportunity for the top 500 to 1,000 global manufacturing partner supply chain firms. For these companies the operational benefits seem very compelling, often with a return on investment in well under one year, with the potential savings of tens of millions of dollars and yet the risk of implementation seems virtually non existent. There are very few such opportunities for the CIO to consider of similar benefit yet with low attendant risk. We believe that this opportunity is particular compelling for manufacturing companies and that it should merit their immediate investigation.

IdealNet believes that the call to action for manufacturing organizations would be to identify those use cases for the technology that are applicable to your organization and then model the return on investment potential for your organization. A proof of concept, pursuant to a strong economic analysis, provides a very low risk, potentially high reward way to proceed. We recommend identifying a vendor in the category that meets your needs although we do emphasize the use case benefits of enterprise-class user experience management.

Leading User Experience Management Vendors

SAP User Experience Management application by Knoa®, which is an enterprise- class user experience offering side by side with their other infrastructure products. This is discussed below.

Vendor Focus – Enterprise-class User Experience Management – Best in Class Product

We recommend a close look at Knoa Software®. The SAP User Experience Management application maps to our recommendations for an enterprise-class offering. They have several hundreds of licensees, a global reference base and a major channel through SAP.

Their automation is 100% complete for major enterprise applications out-of-the-box without any scripting. This capability, along with their full capture of all user workflow, sets them apart and enables use cases that other vendors cannot support.

Knoa also has single customers with as many as 70,000 licensed users – this places them successfully in the largest corporations in the world.

Knoa Software is a market visionary in the developing segment of user experience management. Their view of overall direction and capability sets them apart and positions them to continue success as the user experience market develops.

About IdealNet, Inc.

About

The IdealNet®, Inc. team provides expert business and technical strategy analysis for complex business processes.

We address a broad array of challenges to include operations, R&D, and ERP. This can include complete package selection and related analysis and support, definition and full documentation sets for commercial and regulatory compliance procedures and definition and implementation of best practices by product and across your entire portfolio of product lines.

On a broader scale, we can integrate your systems with a comprehensive data warehouse architecture, implementation and integration with an enterprise wide implementation of master data management and other internal complex supply chain, operational, compliance and planning systems. This includes the necessary data transformation, conversion and reporting to support compliant practices on a global basis.

Select Publications of Chris Biddle

Chief Executive Officer, IdealNet, Inc.

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