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BUSINESS PROCESS IMPROVEMENT: A KEY TO EQUIPMENT FINANCING COMPANY COMPETITIVENESS

By Charles R. Gowen III, PhD, and James M. Johnson, PhD

Business process improvement tools can help an equipment financing company to work smarter and more efficiently and to drive down its costs of doing business. Interviews with executives in 30 firms show how these tools improve three stages of organizational change: diagnosis, improvement, and learning.

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Business Process Improvement: A Key to Equipment Financing Company Competitiveness

By Charles R. Gowen III, PhD, and James M. Johnson, PhD

Business process improvement (BPI) tools can enable an equipment financing company to work smarter and more efficiently and to drive down its costs of doing business. Interest in BPI has increased in recent times, when top-line growth has been hard to come by. To determine the extent and type of BPI usage among equipment financing companies, executives of 30 firms were interviewed. The executives' responses were related to use of BPI tools for the three stages of organizational change: diagnosis, improvement, and learning.

The study finds the most often deployed BPI practices are customer satisfaction measures, process mapping, process improvement teams, and employee recognition/rewards for BPI success. For the interviewed companies, those four tools are generally not a source of differentiation with other firms. However, competitive advantage can be achieved by some of the less often used, yet overall more effective, BPI tools when implemented by our interviewed companies.

In terms of three stages of organizational change, this study examines the extent and success of deploy-

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ment of BPI tools at each stage. Most of the studied BPI tools are used by financing companies in the diagnosis stage, requiring process definition and analysis. Slightly fewer BPI tools are implemented for the improvement stage of changing work processes. Finally, the fewest BPI tools are deployed in the learning stage of process adoption for all employees and units. The findings suggest that companies devote most resources to identifying problems and opportunities, but adopt fewer BPI tools in the more advanced phases. Therefore, increased competitive advantage might result for the firms taking greater advantage of enhanced deployment of BPI tools in the improvement and learning phases.

An equipment finance transaction consists of many business processes that require updating, coordinating, and streamlining for the company to sustain its competitiveness. BPI initiatives can enhance competitiveness by improving service quality, productivity, cost savings, error reduction, and delivery time, as reported in previous research by Gowen and Johnson (2009) for equipment finance firms. That study de-

scribed a sequence of steps to get started on BPI, as summarized below.

- Assess manager and employee readiness for change.
- Build commitment throughout the organization.
- Train managers and employees in the BPI tool(s).
- Select initial projects for quick wins.
- Expand BPI knowledge by training more employees as needed.
- Engage employees at lower levels with new projects.
- Recognize managers and employees of successful projects.
- Build BPI into the company culture.
- Monitor BPI results and be more selective of BPI projects and teams.

However, the previous study did not assess which tools are more advantageous.

BPI AND STAGES OF ORGANIZATIONAL CHANGE

Appropriate implementation of BPI initiatives at financing firms for each stage of organizational change can enhance company

competitiveness. According to Kurt Lewin, an early leader in the action research approach, three stages of organizational change are (1) unfreezing, (2) moving, and (3) refreezing behavior (Burnes, 2004). In the context of BPI practices, *unfreezing* corresponds to the diagnosis stage of process definition and analysis, *moving* relates

to the improvement stage of changing work processes, and *refreezing* means the learning stage of process adoption for all employees and units as a consequence of institutionalizing the new behavior and improvement gains.

The company's competitive advantage improves with the progression from the lowest level of the diagnosis stage to the intermediate level of the improvement stage, and then to the highest level of the learning stage, as diagrammed in Figure 1. The greatest advantage results from the learning stage due to improving common legacy business processes; training employees in the new efficient methods; developing new services or types of business;

and completely enhancing quality, cost reduction, revenues, profitability, and error elimination.

The four principal BPI program types are (1) general, (2) customer-supplier, (3) Six Sigma, and (4) lean management categories. As presented in Figure 2, gen-

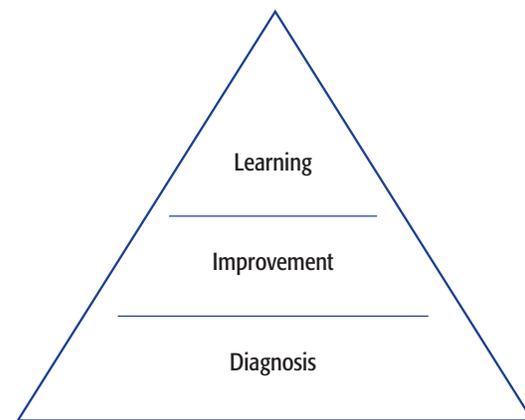
The company's competitive advantage improves with the progression from the lowest level of the diagnosis stage to the intermediate level of the improvement stage, and then to the highest level of the learning stage.

Abbreviations Used in This Article

- BPI – business process improvement
- CTQ – critical-to-quality (metrics)
- DOE – design of experiments (testing method)
- DMAIC – Define, Measure, Analyze, Improve, and Control
- FASTER – Flow, Analyze, Solve, Target, Execute, and Review (variation on DMAIC)
- 5S Principle – Sort for necessity, Simplify the workplace, Shine for cleanliness, Standardize processes, and Sustain standard processes
- FMEA – failure modes and effects analysis
- JIT – just-in-time (process management)
- PDCA/PDSA – Plan, Do, Check/Study, and Act (cycle)
- QFD – quality function deployment
- SIPOC – Suppliers, Inputs, Processes, Outputs, and Customers (technique)
- SPC – statistical process control
- SQE – supplier quality evaluation
- VOC – voice of the customer
- VSM – value stream mapping

Figure 1.

Competitive Advantage Increases With Higher Stage of Organizational Change



Source: The authors.

eral BPI tools are basic and internally oriented, customer-supplier tools are basic and externally oriented, Six Sigma tools are advanced and externally oriented, and lean tools are advanced and internally oriented. Each of the BPI tools relates predominantly to one of the stages of organizational change. This study assesses the extent of the implementation and the success of each BPI tool as deployed at one of the three change stages for equipment financing companies.

Diagnosis Stage of Change

BPI practices at the diagnosis stage consist of several analytical BPI tools. Originating and servicing an equipment finance transaction involves many business processes. These processes can become inefficient, poorly coordinated, and often outdated if they are not evaluated and improved periodically. For a financing company, the diagnosis stage involves examining reasons for customer, productivity, and supplier problems or opportunities. Empirical results have shown that diagnosis-stage practices contribute to process enhancements, quality improvements, customer satisfaction, and competitiveness (Evans and Lindsay, 2011).

Originating and servicing an equipment finance transaction involves many business processes. These processes can become inefficient, poorly coordinated, and often outdated if they are not evaluated and improved periodically.

The diagnosis stage BPI initiatives can involve several tools, such as *customer satisfaction assessment*, critical-to-quality metrics, competitive benchmarking, supplier quality evaluation, process mapping, value stream mapping, SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers), statistical process control, failure modes and effects analysis, and design of experiments .

Customer-supplier diagnosis tools include *customer satisfaction assessment*, which consists of utilizing measures that examine customer preferences, identify causes of dissatisfaction, determine business processes that optimize satisfaction and loyalty, and follow trends to assess how well process improvements enhance customer satisfaction and retention (Evans and Lindsay, 2011). Customer satisfaction methods, such as surveys and focus groups, reveal the “voice of the customer” (VOC).

At Wachovia Corp., the application of the VOC technique drove the customer satisfaction rating up by 20%, customer loyalty up 26%, and the customer attrition rate down from 20% to 12%, with 16% annual earnings growth over five years (Hayler and Nichols, 2007). Then determining critical-to-quality (CTQ) metrics, which are vital for customer satisfac-

Figure 2.

BPI Tools for Each of Four Types of BPI Initiatives

	Basic initiatives	Advanced initiatives
External orientation	<p>Customer-supplier tools Customer satisfaction measures Critical-to-quality metric Quality function deployment Supplier quality evaluation Competitive benchmarking</p>	<p>Six Sigma initiative Statistical process control DMAIC Black or Green Belt training Project reviews and closure</p>
Internal orientation	<p>General BPI tools Plan, Do, Check/Study, and Act Process improvement teams Employee recognition Failure modes and effects analysis Andon Poka-yoke Design of experiments</p>	<p>Lean management 5S principle Process mapping Kaizen or Kaizen event Value stream mapping Redesign for one-piece flow SIPOC Just-in-time</p>

Source: The authors.

tion, the company can track how well CTQs are fulfilled. In this study, an equipment financing VP at Wachovia stated they measure 300 CTQ metrics and display the monthly updates of the top 65 metrics.

Competitive benchmarking entails evaluating a company's processes against those that are best-in-class at other firms. For our studied firms, CEOs and SVPs reported the use of Equipment Leasing and Finance Foundation industry reports, JD Powers surveys, and Greenwich Associates survey reports to realize breakthrough process improvement by adopting innovative industry leading practices, especially for a new market. Similarly, *supplier quality evaluation* (SQE) consists of assessing errors of services provided by a company's suppliers. SQE is critical for a supplier startup, as a financing firm president remarked.

A common lean management diagnosis practice involves *process mapping*, which requires the analysis of individual steps and leads to potential efficiencies by redesigning the process to eliminate nonessential elements. A leasing company SVP reported this diagnosis might involve looking for bottlenecks for a new account boarding process, delinquencies, closures, or credit review in a mid-market. To improve the customer experience, a financing CEO applies value stream mapping (VSM) to visually display the process flow, distinguish between value-added and non-value-added activities, assist in pointing out root causes of waste, identify problems and opportunities for improving workflow, and show how the future workflow would look (George et al., 2005). More comprehensively, a few financing firms use the SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers) technique for assessing the entire flow of a business in order to detect opportunities for improving efficiency.

The most common Six Sigma diagnosis practice is *statistical process control* (SPC), using a control chart, Pareto chart, or fishbone diagram that plots the time-based progress of some key metric, for example, loan delinquencies to detect out-of-control issues (Summers, 2007). A survey reveals that Six Sigma is used by more

than 50 of the top 100 financial service firms (Hayler and Nichols, 2007) because it enhances transaction accuracy and speed while reducing costs, such as search, information technology, decision, and monitoring costs (Arthur, 2011). The firms in our survey apply SPC either somewhat or "to the max," as an SVP reported, for improving turnaround times to raise awareness, to demonstrate process improvement, and to contrast with customer anecdotal beliefs about financing issues.

General quality diagnosis initiatives consist of two error-reduction tools. *Failure modes and effects analysis* (FMEA) assesses the modes or ways a process can fail, examines the likelihood and severity of the effect on customers, seeks possible causes of failures, and establishes corrective action and controls. FMEA can reduce errors, costs, and cycle times (Evans and Lindsay, 2011). To further reduce process errors, *design of experiments* (DOE) is a testing method that establishes a test or series of tests to determine which process provides superior results and fewer errors. A VP of operations in our study remarked that DOE allows his financing firm to try different methods of new applications until

they find the best solution and then to test each implementation phase.

Improvement Stage of Change

BPI practices at the improvement stage consist of several deployment BPI tools. For a financing company, the improvement stage means changing work processes through the use of employee teams, improvement events, and other practices. The *PDCA/PDSA* (Plan, Do, Check/Study, and Act) cycle was popularized by W. Edwards Deming (Evans and Lindsay, 2011). A financing firm VP of operations described the use of PDCA for startup operations and new projects. The Plan step includes examining the current state of a process and then formulating potential solutions to problems. The Do step is a pilot test of a proposed process improvement. The Check/Study step assesses whether the trial intervention is successful and adjusts the process improvement plan accordingly. Finally, the Act step standardizes the final

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process method and informs others about it for deployment by other units.

The purpose of the PDCA/PDSA cycle is to continuously update business processes and provide new best practices for all units of an organization. Usually, the PDCA/PDSA cycle is implemented by employee teams for process improvement so they can take advantage of a diversity of team member skills, experience, and knowledge in defining a problem and arriving at a solution superior to any individual idea. Financing firm SVPs reported the deployment of teams for new business practices, redesign of an operating system, a warehouse enhancement project, and origination and payment processing practices for consistency across all accounting units.

Other general improvement initiatives include *fail-safing* (*poka-yoke*, or mistake proofing), a proactive control method for process design to avoid errors, for error identification system to stop an error from occurring, and for detecting input and exit errors. Similarly, *Andon* is a real-time process control system that provides visual signs so employees can take immediate corrective action. Our surveyed firms use it in the form of email alerts and pop-up messages to inform workers to stop a process and fix it right away. A COO reported applying Andon for ongoing audit processes, customer complaints, and loss occurrences.

Improvement stage lean management practices focus on *Kaizen process* (continuous improvement) or *Kaizen event* projects that are implemented by a team or an entire small department, with the assistance of process improvement experts (Arthur, 2011). Many surveyed financing firms redesigned workflow process for an area with a two- to five-day initiative. The full Kaizen event consists of the first day to train team members and define the problem(s); the second day to measure and analyze workflows, cycle times, and value stream maps; the third day to generate and test improvement alternatives; the fourth day to simulate and deploy the selected solution; and the fifth day to evaluate and report out to management. For example, Bank One's National Enterprise Op-

eration (NEO) launched lean management based on the Kaizen event approach. NEO encouraged voluntary employee participation in 2002 and fully implemented it by 2004, when it was acquired and became a division of JPMorgan Chase (George, 2003). The results include cycle time reductions of 30% to 70%, improved revenue, and decreased costs of thousands of dollars for each process improvement event.

Another lean management implementation tool is *redesign for one-piece flow* (cell design), involving the assembly of all necessary work activities for a process into a cell layout, used by our surveyed companies to streamline financing application steps to reduce errors and duplication of effort (Arthur, 2011). Similarly, *just-in-time* (JIT) was reported by a financing firm's director of business planning for improving each deal to eliminate waste and streamline operations through reduction in waiting time delays, inventories, employee motion, and transportation. Finally, the *5S principle* reduces waste by observing inefficient processes and then deploys five steps: (1) Sort for necessity, (2) Simplify the workplace, (3) Shine for cleanliness, (4) Standardize processes, and (5) Sustain standard processes (George et al., 2005).

A Six Sigma implementation practice is a methodology called DMAIC (Define, Measure, Analyze, Improve, and Control). It incorporates a wide variety of statistical tools and process improvement techniques. Started in 2001, Bank of America's Six Sigma program resulted in decreasing errors by 24% in all customer channels and by 88% in electronic channels, reducing transaction cycle times by more than half, adding \$2 billion in profit, and increasing "customer delight" (defined as a rating of 9 or 10 out of 10) by 30% (Cox and Bossert, 2005).

To implement DMAIC, Six Sigma teams consist of employees who receive highly developed training, especially for statistical techniques, and there is a certification program typically referred to as *Black Belt and Green Belt training*. During the first year, employee volunteers are trained as Black Belts in advanced statistical techniques,

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team-building, and project-selection skills, and they are committed full time as the leaders of a Six Sigma team. Green Belts are usually staff workers who are trained in basic quality tools and are assigned to teams on a part-time basis. For financing companies, executives report that training for noncertified employees is important to engage workers for a more successful bottom-up approach to BPI. An extensive training program at Capital One provided dramatic results from 2005 to 2007, such as a 39% reduction in the cost of a new account, 54% lower servicing cost in existing accounts, and customer satisfaction improvement of 10% (Immaneni et al., 2007).

A customer-oriented implementation practice is *quality function deployment* (QFD), which is an analytical tool that plots the relationships between customer service requirements and technical requirements on a chart resembling a house (with a “roof” of interrelationships, hence often referred to as a “house of quality”).

Learning Stage of Change

BPI practices at the learning stage consist of two frequently adopted BPI feedback tools. For a financing company, the learning stage means implementing the new work process for all employees and units as a consequence of institutionalizing the new behavior and improvement gains. As a result of process improvement efforts, employee recognition and rewards for BPI program success (on an individual, team, or unit basis) can be implemented to promote individual, team, and organizational performance. Financing company executives have observed that rewards and recognition are critical for reinforcing employee behavior in a successful BPI program (Gowen and Johnson, 2009).

Our current survey of financing firms reveals many applications, such as quarterly and annual service awards, monthly recognition and incentives, improvement-based yearly bonuses, achievement certificates, and BPI success awards. Likewise, BPI practice evaluation requires project reviews and project closure to determine the success of each project and to be able to communicate the resulting best practices throughout the company. For

the Six Sigma program initiated in 2001 at HSBC, N.A., project reviews and closure demonstrated that customer complaint projects saved \$1.6 billion annually, training guideline improvements reduced turnover by 10%, and sales-lead priorities projects produced \$9.5 billion in annual savings (Gordon, 2006).

STUDY METHODS

To examine the efficacy of BPI tools for the three organizational change stages, an executive was interviewed at each of 30 firms in the U.S. financing services industry. Executives were identified and recruited with the assistance of the Equipment Leasing and Finance Foundation. A structured telephone interview methodology was chosen to yield richness of information for these issues.

The sample included nine banks, five captive firms, eight independent companies, and eight multiline firms. The interviews were conducted mainly from mid-March to mid-May 2011. Each interview took about 15 to 45

minutes. As an incentive to participate, all respondents were promised (and have already received) a complimentary copy of the report. All executives requested to remain anonymous. All the interviews followed the order of the questions in the interview protocol, which is presented in the appendix to this article.

Measures

This study includes four independent variables, consisting of (1) BPI general management tools; (2) BPI customer, supplier, and competitive quality tools; (3) BPI Six Sigma quality tools; and (4) BPI lean management tools. The survey also incorporates five dependent effectiveness variables: (1) quality improvement, (2) customer satisfaction increase, (3) cost savings, (4) reduced frequency of errors, and (5) reduced severity of errors.

After all the interviews were conducted, the executive's description of each item (about the degree of adoption of the BPI tools and the degree of realizing results) was evaluated by independent raters on a 0-to-5 Likert scale (with 0 as “no extent” through 5 as “very high extent”). The reviewers' ratings were highly con-

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sistent so the ratings for each item were averaged. As a consequence of the use of this rating scale, the interview information can be analyzed quantitatively for the average degree of implementation and degree of results for each BPI tool.

FINDINGS

This study examines the extent and success of deployment by these 30 companies for a variety of BPI tools at each of the three process improvement phases. For the findings presented in Table 1, the five most often deployed BPI practices are customer satisfaction measures, process mapping, process improvement teams, employee recognition/rewards for BPI program success, and competitive benchmarking of best-in-class processes. At least 21 firms adopt each of these five BPI tools; however, the average degree of implementation for these tools falls in a range of 2.33 to 3.43 (which is only moderate on the 0-to-5 scale). These five practices include three diagnosis stage tools, two improvement stage tools, and one learning stage tool.

Another way to view these findings would be to analyze the top half based on the most often deployed practices. Of the 12 most frequently used BPI tools, six are associated with the diagnosis stage, four with the improvement stage, and two with the learning stage. These results suggest that financing companies implement many BPI tools, but only to a limited extent, and the most tools are used in the diagnosis phase.

The efficacy of each BPI tool is examined by the degree of association with the five BPI program effectiveness metrics. As shown in Table 2 (next page), there are 20 BPI tools that correlate positively with a specific result metric and 16 tools that correlate positively with overall program results. Some of the most commonly implemented BPI tools correlate with only one result (such as teams with quality improvement, rewards with net cost savings, and customer satisfaction measures with customer satisfaction increase) but do not significantly correlate with overall program results (which is a combination of the five result metrics). These basic BPI practices do achieve the goal of improving effectiveness – but only for the most relevant outcome.

In contrast, the BPI tools which correlate significantly with at least four of the five results metrics are some of the least deployed tools, such as FMEA, Black Belt or

Green Belt training, CTQ metrics, benchmarking, fail-safing, DMAIC, process mapping, and SQE. These BPI tools could be underutilized due to their complexity, lack of familiarity with the tools by managers and employees, high initial cost, and low immediate value (Arthur, 2011). Selective implementations of some these overlooked BPI tools could provide a competitive advantage for firms that do not now deploy them. Furthermore, the overlooked BPI tools would continue to produce a long-run payoff to justify the greater initial cost.

Table 1.

Number of Firms and Degree of BPI Tool Implementation for Three Stages of Change

Firms	Degree*	Process improvement tool
Diagnosis (unfreezing) stage		
29	3.43	Customer satisfaction measures by surveys, focus groups, etc.
27	3.27	Process mapping
21	2.33	Competitive benchmarking of best-in-class processes
10	1.17	Statistical process control (control chart, Pareto chart, fishbone diagram)
9	1.03	Critical-to-quality (CTQ) metrics
8	0.83	Failure modes and effects analysis (FMEA)
5	0.50	Supplier quality evaluation (SQE)
5	0.50	Value stream mapping (VSM)
4	0.40	SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers)
2	0.20	Design of experiments (DOE)
Improvement (moving) stage		
26	3.20	Process improvement teams of employees
12	1.23	PDCA (Plan, Do, Check, and Act) method
13	1.53	DMAIC (Define, Measure, Analyze, Improve, and Control) process
9	0.97	Kaizen or Kaizen blitzes (continuous improvement events)
7	0.90	Black Belt and Green Belt training
5	0.53	Redesign for one-piece flow
3	0.30	Fail-safing (poka-yoke)
2	0.27	Andon
2	0.23	Just-in-time (JIT) process management
2	0.20	Quality function deployment (QFD)
2	0.20	5S principles
Learning (refreezing) stage		
28	3.17	Employee recognition or rewards for BPI program success
16	1.87	Project reviews and project closure

* Degree of implementation is rated as 0 (none) to 5 (very high) for the extent of tool deployment.

Source: The authors.

Table 2.

Correlation of Degree of Implementation of 23 BPI Tools With Degree of Quality Improvement (QI), Customer Satisfaction Increase (CSI), Net Cost Savings (NCS), Reduced Frequency of Errors (RFE), Reduced Severity of Errors (RSE), and Overall BPI Results

Tool	QI	CSI	NCS	RFE	RSE	Overall
BPI tools for the diagnosis stage						
Customer satisfaction	.295	.488**	.139	.010	.123	.283
Process mapping	.458**	.140	.478**	.306*	.251	.499**
Benchmarking	.361*	-.034	.379*	.398*	.346*	.465**
SPC/SQC	.279	.112	.412*	.346*	.302	.452**
CTQ	.418*	.278	.380*	.345*	.373*	.543**
FMEA	.410*	.323*	.338*	.514**	.428**	.616***
SQE	.010	.053	.306*	.308*	.472**	.369*
VSM	.214	.000	.219	.334*	.239	.324*
SIPOC	.422*	.135	.201	.440**	.447**	.525**
DOE	.287	.271	.183	.261	.198	.358*
BPI tools for the improvement stage						
BPI teams	.385*	-.034	.284	.040	.040	.217
PDCA	.202	-.001	-.055	-.042	.312*	-.074
DMAIC	.461**	-.047	.570**	.449**	.289	.548**
Kaizen event	.093	.277	.351*	.215	.358*	.388*
BB/GB training	.308*	.083	.454**	.432**	.407*	.530**
One-piece flow	.214	.098	.236	.430**	.330*	.415*
Fail-safing	.398*	.239	.152	.485**	.634***	.594***
Andon	.100	.271	.183	-.046	-.141	.084
JIT	-.126	-.104	.181	.074	.543**	.195
QFD	.287	.151	.091	.415*	.536**	.467**
5S principle	.194	-.207	.183	.261	.198	.221
BPI tools for the learning stage						
Rewards	.141	.162	.372*	.022	-.115	.160
Project review	.284	-.009	.443**	.459**	.227	.450**

Each correlation coefficient, on a -1 (most negative) to 0 (none) to 1 (most positive) scale, is the degree of association between each BPI tool and each results measure, with the significance of the coefficient as * $p < .05$ (low), ** $p < .01$ (higher), or *** $p < .001$ (highest significance).

Source: The authors.

Lessons Learned

The executive responses to the open-ended question on lessons learned yielded advice about how to design a successful BPI program. Financing executives stressed that program success depends on a participative approach, management buy-in, employee training, and hands-on experience by assignment to a project team. Others advocated the adoption of a more formal structure with a director of process improvement, a small and dedicated BPI staff, managerial ownership of BPI projects, and a voluntary team approach.

Equipment finance company executives ascribed

high value to customer and employee satisfaction surveys, peer reviews, and frequent feedback as a primary driver of new BPI projects. About half of the financing firms conduct formal annual customer satisfaction surveys and focus groups of varying frequency. Another nearly universal practice is benchmarking best-in-class processes to track industry trends, research new markets, and review progress on vital metrics.

Lean management initiatives have been initiated or revived with greater focus today. One of our financing firms experimented with lean tools years ago, but recently has been successful by adding an executive as a com-

pany lean champion, delivering greater lean training for all types of employees, and securing active participation from middle- to low-level managers. Similarly, an overall theme expressed by several financing executives was the efficient improvement and competitive advantage of getting and staying lean through the adoption of BPI tools.

CONCLUSIONS

This study reveals significant missed opportunities for the financing sector by the observed underutilization of highly effective but seldom deployed BPI tools. BPI initiatives can effectively streamline financial processes in order to enhance service quality, productivity, cost savings, error reduction, and delivery time, as demonstrated by this study and previous research for equipment finance firms (Gowen and Johnson, 2009).

The present study also shows that some BPI practices, such as customer satisfaction measures, employee recognition or rewards, process mapping, improvement teams, and competitive benchmarking, are not a source of differentiation for financing companies because these tools are so commonplace. The most surprising finding is that competitive advantage can be achieved by the implementation of some of the least used yet effective BPI tools, such as FMEA, Black Belt or Green Belt training, CTQ metrics, benchmarking, fail-safing, DMAIC, process mapping, and SQE.

The key to a successful program for a company is choosing an appropriate set of BPI tools. As discussed previously, for getting started on a BPI program, a financing firm can begin by assessing company needs, determining the structure for a BPI program, and establishing direction for the implementation of BPI practices.

Overall, most BPI tools deployed by the 30 financing companies in this study are in the diagnosis stage, in contrast to fewer adopted tools in the improvement and learning stages. BPI tools in the diagnosis phase can be less complex and costly, as well as more immediate in value, for financing companies to implement. However, tools in the improvement and learning stages provide the opportunity for firms to engage employees with direct process improvement actions and lasting results. As suggested by the increasing competitiveness for the more advanced stages implied by Figure 1, enhanced deployment of BPI tools in the improvement and learning phases would promote better use of unique human resources

and produce greater competitive advantage.

APPENDIX: INTERVIEW PROTOCOL

A. BPI practices: Which of the following tools has your unit or organization implemented and to what extent?

General BPI management tools

1. PDCA/PDSA (Plan, Do, Check/Study, and Act) method
2. Process improvement teams of employees
3. Employee recognition, rewards, and promotion opportunity for BPI program success
4. Failure modes and effects analysis (FMEA)
5. Andon (visual signals to indicate a quality/process problem to management)
6. Poka-yoke (fail-safing or mistake-proofing)
7. Design of experiments (DOE)

Customer, supplier, and competitive BPI tools

8. Customer satisfaction measures (e.g., voice of the customer) by surveys, focus groups
9. Critical-to-quality (CTQ) metrics (e.g., prioritizing customer satisfaction metrics)
10. Quality function deployment (“house of quality”) methods
11. Supplier quality evaluation (SQE)
12. Competitive benchmarking of best-in-class processes

Process improvement Six Sigma tools

13. Statistical quality/process control (control chart, Pareto chart, fishbone diagram)
14. DMAIC (Define, Measure, Analyze, Improve, and Control) process
15. Green Belt or Black Belt training for Six Sigma change agents
16. Project reviews and project closure

Process improvement lean management tools

17. 5S principles: Sort, Simplify, Shine, Standardize, and Sustain
18. Process mapping
19. Value stream mapping
20. Kaizen or Kaizen blitzes (continuous improvement events)
21. Redesign for one-piece flow (cell design, pull system, etc.)

22. SIPOC (Suppliers, Inputs, Processes, Outputs, and Customers) method
23. Just-in-time (JIT) process management

B. BPI program results: To what extent have quantitative results been realized and about how much of each?

1. Quality improvement
2. Customer satisfaction increase
3. Net cost savings
4. Reduced frequency of errors
5. Reduction in the severity of errors

C. What specific technologies have you used as a means to deploy BPI tools?

1. Workflow tools
2. Leasing platforms
3. Business rules engines
4. Minitab, SASS, SPSS, etc.

D. What are your lessons learned, e.g., did you use the right BPI tools (if not, what would have been better)? Would you use the same mix of BPI tools in the future (if not, what would you use), etc.?

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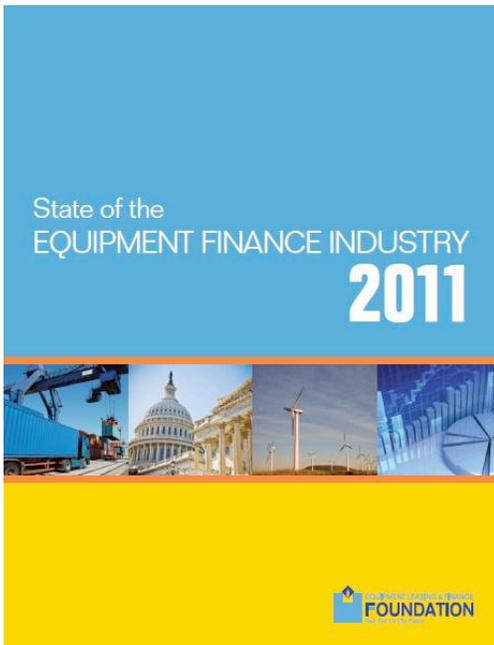


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