VALUE OF FORMAL PROJECT MANAGEMENT TO AUTOMOTIVE EMPLOYEES

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Abstract

Formal project management is now an essential part of major automotive companies. Researchers report project management maturity in the automotive industry and reference several studies about the advantages and value added by project management. Most research shows the value that project management brings to an organization. In this current study, the objective was to determine the value that project management provides to employees. Eight Detroit automotive companies were surveyed. Using principal component analysis and descriptive statistics, it was found that when formal project management is applied, both companies and their employees benefit, though the values they gain are different. Employees gained value in terms of higher job satisfaction, better employment options and greater visibility within their company, including promotions. The study also outlines essential aspects for project managers and company leadership to encourage creativity and innovation among automotive employees.

Introduction

The continued survival and profitability of a corporation is dependent upon the ability to meet its economic and social purpose, most often to develop and distribute sufficient wealth or value to ensure that each group—customers, employees, suppliers, community residents and the environment—continues as part of the corporation's stakeholder system. The emphasis is on the value that can be created by interactions between firms and primary stakeholders. This interaction is generally relational rather than transactional, since transactional interactions can be easily duplicated and thus offer little advantage over the competition. In order to develop a relationship, both parties must invest time [1]. There have been several studies that indicating that a company's effectiveness depends upon the success of its projects and implementation of project management [2], [3]. These studies outlined, in detail, the tangible and intangible value that project management brings to organizations. These outcomes show a direct impact on the organization, but fail to describe how stakeholders benefit from such project management initiatives.

The United States automotive industry plays a significant role in the nation's overall Gross Domestic Product (GDP). From World War II until the present, the development of project management has radically changed structures and processes within the domestic automotive industry. Formal project management techniques have now been implemented at OEM (Original Equipment Manufacturers) and supplier levels, with some suggesting that techniques have reached maturity levels [2]. Studies directed towards the value of project management within the automotive sector are completed with no references directed to stakeholders. Thus, it is important to study how stakeholders benefit from interactions due to the implementation of formal project management. The automotive industry has a complex product development and manufacturing process which makes it one of the most knowledge-intensive industries. Similarly, the automotive supply chain stretches through various levels of suppliers to OEMs.

Given the significance of the automotive industry, this study identifies the benefits to automotive companies and, by extension, employees from the implementation of formalized project management systems. The benefit that the workforce obtains from this implementation can be more subjective and, therefore, is often overlooked. Too many times the company as a whole is treated as the primary beneficiary of any project management improvements, and the value to employees is ignored.

Project Management in the Automotive Industry

Similar to the invention of the airplane, the emergence of automobiles has had a profound effect on everyday lives. The design and manufacturing of an automobile is a complicated process. It not only must satisfy engineering criteria, but also needs to fulfill environmental, social and political aims such as minimizing waste and deposition, satisfying recycling targets, respecting health and safety regulations, reducing emissions and saving resources. Thus, the automotive industry is considered to be a highly capital- and labor-intensive industry [4].

The United States automotive industry is a critical component for economic growth, with extensive interconnec-

tions across the industrial and cultural fabric of the nation. The industry has historically contributed 3–3.5 percent of the overall GDP, while employing over 1.7 million people [5]. Not surprisingly, it is the subject of a great deal of study, largely due to its importance as the single largest industrial sector in the world economy. A typical automobile has 15,000 to 20,000 parts/components and currently takes around 18 months to design and develop. Production of these large numbers of differentiated parts, from design to marketing, is a direct result of following some systematic processes. Almost every automotive OEM has a product development process with milestones and quality gates. These development processes utilize techniques such as simultaneous engineering, robust engineering, Design for Manufacturing (DFM), Design for Assembly (DFA), Design Failure Mode and Effects Analysis (DFMEA) and Process Failure Mode and Effects Analysis (PFMEA). The assimilation of managerial techniques by the automotive industry—Total Quality Management (TQM) and Just-In-Time (JIT), for example—has certainly transformed the way in which production is managed in car plants [5].

In 1996, Keenan [6] wrote, "Program Management, (PM) is the way automotive components and systems will be developed from now on, picking up where simultaneous and robust engineering leave off. The PM trend is spawning a new management specialty, one that requires less engineering knowledge and more organization, communications and people skills." In the past, suppliers were mostly independent and have only recently formed strategic alliances and partnerships. Recently, car producers are increasingly turning to their first-tier suppliers to develop standardized components [7]. Midler & Navarre [4] traced the evolution of auto industry project management through four stages:

> 1. From the postwar period up to the 1970s, when there was no differentiation between the ''product strategies'' of carmakers in North America and Europe. Disciplined management of projects was not a core component in competitive strategy.
> 2. During the 1970s and 1980s, the gradual saturation of markets changed the competitive environment radically. Japanese carmakers succeeded in breaking into the North American market using (novel) product proliferation strategies, and the direct consequence of this business model was an explosive increase in the number of projects to be managed. The management of projects for new vehicles now assumed strategic importance.
> 3. In the late 1980s and early 1990s, manufacturers radically reorganized their approach to the management of projects for new products in order to develop more quickly and at lower cost, a greater number of products of increasingly high quality.
> 4. By the late 1990s, to 2003, the effects of the reorganization in the industry along with the second wave of reorganization of manufacturers made the new vehicle project management more complex. The issue was however, worsened by new challenges, namely: alliances, market globalization, and innovation. To find new values for differentiation, firms went down the road of innovation policies that were far more radical in terms of both engineering and styling. (pp. 1369-1370)

By the end of the 1990s, a formal approach towards project management began making its way into industry. Ellison et al. [8] demonstrated that Western carmakers had very much caught up with the Japanese, according to various metrics they had defined as being most indicative of project management performance levels, including product launch time, quality, etc. [4].

However, at the start of the new millennium, the automotive industry chose to implement innovation policies that were far more radical in terms of both engineering and styling. This high-risk process was not suited for ''heavyweight'' types of automotive project organization, with no cross-functional and cross-product project existing to address, coordinate and control these learning tracks on radical innovative features and technologies [4], [9]. By the early 2000s, a new form of project organization was gradually being put in place to guide exploration upstream of vehicle projects [9]. The climate of acquisition and partnership that followed included pairings such as Renault-GM, GM-Fiat and Daimler-Chrysler. It also created a cooperative project culture with its own problems, as compared to traditional automotive culture [4], [10].

In the future, networked organizational structures, decentralized product development and virtual development teams will form an increasingly significant part of product development in the automotive industry. This change will result in the shift of interfaces in the product development process and an increase in integration complexity [4]. The new forms of collaboration between project partners are necessary. The OEM will have a new function as a network manager linking internal processes with those of suppliers, in order to efficiently coordinate collaboration activities [11].

Project management, thus, plays a vital role in the innovation, design and development of automobiles. Although the auto industry was a latecomer to project management, compared to military equipment or the construction business,

these sectors are now working to transform their project management traditions and adopt the practices developed in the late 1980s and 1990s in the automotive sector [4].

Problem Identification

In today's competitive industry, project management is a proven tool to streamline projects and add value to the company's portfolio. Project and product success are kept aligned with the performance criteria set by individual stakeholders. It is, therefore, important to define the "value" of project management: What is valuable to organizations, and how is it measured? The application of the Value Focused Thinking (VFT) technique includes some important steps for achieving this measurement, including: i) the identification of key stakeholders; ii) the identification of stakeholder values; and, iii) converting values to objectives. An objective is thus characterized by three features, a decision context, an object and a direction of preference. This means explaining the objective within its context based on the nature of the problem, and finding out exactly what the stakeholder is trying to achieve [12].

Return on Investment (ROI) is one of the most widely used value-driven measures. Several researchers demonstrate significant challenges with the availability, reliability and defensibility of data, to perform the calculations of financial value that would be required to arrive at an ROI measure [13]. Thomas & Mullaly [14] point out that limiting ROI to financial "value" ignores all of the intangible benefits of a particular topic of discussion. The idea of value has been discussed at length in the work of the "Researching the Value of Project Management" project [14]. Researchers outline the value framework for project management; the value is organized into two major categories, tangible and intangible.

Tangible values consist of cost savings, revenue increases, customer retention, increased customer share, greater market share and reduced write-offs or rework. Intangible values include improved competitiveness, new product/ service streams, greater social good, improved quality of life, more effective human resources, higher staff retention, superior reputation, better overall management, enhanced corporate culture and improved regulatory compliance [14].

Hurt & Thomas [15] identify three main ideas for determining the value of project management. First, they discuss how the Project Management Office (PMO) created a center for knowledge of all the projects that a company has completed, are in process and are for the future. Next, they focus on the importance of having the proper leadership and staff within the PMO to ensure that all projects run according to the businesses goals and objectives. Finally, they focus on the importance of formal project management for creating an overall culture of discipline within the company.

Within automotive project management there is much research related to case studies, team/cross-cultural teams and innovation efforts [16]. Global mergers and acquisitions in the automotive industry have left fewer companies offering a greater variety of brands. Shorter product lifecycles have increased the number of product launches for each brand, raising the number of new product projects for companies. Automotive companies apply innovative management methodologies, such as project management, in order to achieve rapid and continuous improvements in their operation [17]. Beaume [18] argues that within automotive firms, innovation management no longer deals with introducing radically and totally new products, but rather with applying innovative features within a regular stream of products and platforms. He outlines an analytical framework that addresses the resulting interplay between innovative features and new products.

Methods aimed at improving the project management performance of automotive cross-company projects have been developed. Collaborative strategy maps and integrated measures for project control based on key performance indicators (KPIs) are identified as an essential step for successful project management with a collaborative project scorecard [11]. Without specifically targeting the value of project management, researchers suggest that the platform strategy adopted by automotive firms in a multi-project context reduces lead-time and development costs, enhances reliability, allows mass customization and increases manufacturing flexibility [19].

From the above research, it is easy to show how a company's bottom line is increased through the implementation of a formalized project management plan. However, the benefits that employees obtain from this implementation can be more subjective and therefore overlooked. Too often, the company as a whole is viewed as the primary beneficiary of any project management improvements, and the value to employees is outright ignored.

Problem Statement

This study suggests that one reason a company benefits so heavily from the implementation of a formalized project management system is directly related to the value that the employees obtain, thus creating a win-win situation. However, there is little research solely devoted to this conclusion. Therefore, the objective of this study was to demonstrate that the benefit companies obtain from the reorganiza-

tion of their project management system is directly related to the increased value their employees obtain from such efforts. This study was intended to target the automotive industry in general, and provide insight about the value project management offers.

Nature and Significance of the Problem

When organizations implement a formalized plan, they are taking a decisive approach to run their project management portfolio to reflect the best interests of the company's overall business goals and objectives. This decision can have a direct effect on the bottom line, including increased market share and expanded product lines. However, implementing these changes has a much further reaching effect than just the company's profit. When choosing to proceed with a formalized project management system, employees are also directly impacted. This study explored the benefits received by the automotive industry's workforce from this implementation.

To understand this issue, one must understand the difference between formal and informal project management systems. Formal project management involves project planning as well as implementation and control [20]. When formal project management is followed, the company uses proven processes and lessons learned to leverage internal strengths and ensure the best possible results. It also utilizes project management software or techniques to ensure that company resources are applied in an efficient manner. Larger aspects of formal project management include assessing where the money has been spent, and comparing the data to the work that has been completed in order to gauge whether the project will finish on schedule and within budget or not.

On the other hand, informal project management is concerned more with running projects based on intuitive judgments and relationships between individuals [21]. Informal project management relies heavily on the experience of company employees in order to plan, implement and control projects. This puts pressure on the project manager to ensure that he/she has the right people performing the correct roles. Most often, this placement is based on personal experience and best-judgment calls. This is all reliant on which individual the company has appointed to manage and organize the project portfolio.

Based on a literature search on the same topic, it was fairly clear that there is an increase in value to the company when adopting a formal project management approach. This study argues that companies often overlook the impact on employees when implementing project management plans because of the belief that anything that helps to improve the way projects are planned will be beneficial to all groups involved. To a large extent, this idea is true. When the projects are planned and implemented in a more organized manner, the effect on the employee should be mostly positive.

However, it is argued that there could be some negative repercussions if the company implements the plan without consulting employees on the improvement efforts. One such negative effect is the increase in paperwork that tends to come with formalized project management plans. If employees are not properly trained to handle this influx of paperwork, it could be cumbersome to handle and, ultimately, not be processed. A PMO's effectiveness and success depends on choosing which functions to implement, then adapting and adjusting them to fit the organization's needs [21].

Research

The research approach used in this study followed a five-step process including: identifying variables, reviewing assumptions, developing survey questions, collecting data and performing statistical analyses in order to achieve accurate results.

Step 1: Identify Variables

A literature review was performed to extract variables needed to define the value of project management for companies and employees. The purpose of this literature review was to build internal validity, raise theoretical levels and sharpen construct definitions. The collected data were used to developed hypotheses and questionnaires for steps two and three. Project management value is defined as process, organization, technology, metrics, culture and leadership, along with tangible and intangible values.

Step 2: Review Assumptions

- It was assumed that survey respondents would have a good understanding of formalized project management systems.
- It was also assumed that the respondents would respond fairly and honestly, without bias for the subject.
- It was further assumed that the responses would be based on a standard and error-free questionnaire.

Step 3: Develop Survey

Using variables collected in Step 1, hypotheses and survey questions were developed. The survey was tested by three senior automotive project managers and incorporated a list of questions that included demographic, gender and education. The remaining survey questions used the following Likert scale: 5 points = Strongly Agree; 4 points = Agree; 3 points = Undetermined; 2 points = Disagree; and, 1 point = Strongly Disagree.

There were two major subsets of questions. The first was based on the benefit/value that the employee receives, and the second focused on the benefit/value that the company receives from formalized project management. The survey questions were designed to collect data from a number of key stakeholder perspectives, including senior and junior project managers, project team members/organizational employees, and tier one and two suppliers. Senior project manager input was essential for capturing data regarding project cost, schedule and success. This type of data, in most cases, is sacred to an organization. Thus, the biggest concern was the accuracy of the information. Also, individuals tend to score higher when they critique themselves [22]. To avoid this and obtain accurate data, respondents were reminded about the importance of the survey and being a candidate. The survey for each stakeholder involved between 20 and 55 questions, and was expected to take approximately 30 minutes to complete.

Step 4: Data Collection

After being tested by five PM practitioners for clarity and to ensure construct validity, the questionnaire was piloted in an Advanced Project Management graduate class with 15 project managers as participants. Data were then collected through the online survey tool, LimeSurvey, from a group of project managers currently employed in two major Detroit automotive OEMs and six of their suppliers. The names of the companies are withheld for privacy. The primary utilization of projects within these companies focused on design, development and manufacturing. The survey was administered between October and December, 2011, and was distributed via Email to various managers, senior managers and vice presidents of the companies for their input. A target of 150 responses was set and by the end of the day 122 responses were received, out of which 106 were found valid.

Step 5: Statistical Analyses and Results

SPSS and Minitab were used to analyze the data. The two subsets of data were analyzed separately. Principal Component Analysis (PCA) was first used to identify components that showed the value of Project Management for the company and employees, followed by the descriptive statistics. PCA involves a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principle components. The first principle component accounts for as much of the variability in the data as possible, and each succeeding component accounts for as much of the remaining variability as possible. The objective of PCA is to discover or to reduce the dimensionality of the data set and to identify new and meaningful underlying variables.

Step 5.1: Principal Components Analysis Results

A PCA analysis of data representing the value of project management for companies yielded three PCA components that explained 66.7% of the variation. Table 1 illustrates the Minitab results.

Standardized Business Process was identified as the first component and explained 39.7% of the variation with an Eigen value of 11.36. This component involved the presence of a project management office, success of the project with respect to cost and timing, following standard processes, utilizing project management tools including quality and statistical tools like Six Sigma, collaboration, continual improvement, employee training, customer focus, problem-solving techniques, and having a well-defined goal and objectives.

Organization Culture was identified as the second component, and explained 18.3% of the variation with an Eigen value of 4.6. This component involved the presence of innovation appreciation, customer focus, professionalism, training, collaboration, well-defined goals and objectives, and employees benefiting from project success. There was a significant negative effect from employee workload, risk-takers and politically charged environments.

Project Manager Capabilities, or leadership, was identified as the third component and explained 8.7% of the variation with an Eigen value of 2.4. This component involved the presence of teamwork, conflict resolution, addressing customer needs, collaboration, professionalism, decision making and problem solving. A similar PCA analysis of data representing the value of project management for em-

ployees also yielded three PCA components that explained 57.1% of the variation. Table 2 illustrates the Minitab results.

Table 1. Principal Component Analysis Results for the Value Project Management Brings to Companies

Variable	PC1	PC2	PC3
Presence of project management office	0.386	0.002	0.001
Success of project	0.542	0.357	0.024
Follow standard process	0.468	0.000	0.084
Utilizing project management tools	0.369	0.002	0.024
Continual improvement	0256	0.001	0.011
Employee training	0.325	0.512	0.051
Customer focused	0.341	0.462	0.246
Using problem-solving techniques	0.398	0.017	0.354
Well-defined goals and objectives	0.215	0.586	0.036
Innovation appreciative	0.002	0.514	0.001
Professionalism	-0.003	0.458	0.458
Collaboration	0..472	0.358	0.472
Workload	0.002	-0.572	0.001
Risk-takers	0.003	-0.275	0.006
Politically charged environment	0.012	-0.324	0.001
Teamwork	0.004	0.016	0.471
Conflict resolution	0.005	0.021	0.527
Decision making	0.001	0..012	0.541

Personal Satisfaction was identified as the first component and explained 33.6% of the variation with an Eigen value of 10.46. The components defined employee satisfaction with the company based on the success of projects in which they participated. It was heavily weighted by job satisfaction, teamwork and availability of training/education funds. Other variables included years of service, education, project management experience, well-defined job responsibilities, use of project tools, management encouragement and ability to innovate. Having searched for a job in the previous six months was the only negative variable. Most of the factors in this component were intangibles, with the exception of promotion and cash incentives offered by certain tier-two suppliers.

Table 2. Principal Component Analysis Results for the Value Project Management Brings to Employees

Variable	PC1	PC2	PC3
Success of project	0.021	0.357	0.381
Follow standard process	0.004	0.267	0.024
Utilizing project management tools	0.219	0.002	0.034
Employee training/ educational funds	0.525	0.421	0.317
Well-defined job Responsibilities	0.215	0.001	0.016
Innovation appreciation	0.329	0.005	0.018
Collaboration	0.022	0.358	0.001
Workload	0.002	-0.332	-0.027
Risk-takers	0.033	0.015	0.286
Politically charged environment	0.017	-0.324	0.001
Teamwork	0.464	0.017	0.021
Conflict resolution	0.004	-0.321	0.009
Job satisfaction	0.658	0.001	0.005
Years of service	0.312	0.482	0.001
Employee education	0.284	0.002	0.007
Project management experience	0.347	0.007	0.421
Encouragement	0.365	0.001	0.047
Open communications	0.004	0.328	0.008
Looked for a job in last six months	-0.244	-0.324	0.421

Loyalty was identified as the second component and explained 14.3% of the variation with an Eigen value of 8.32. This included seniority, direct benefit from project success, and availability of training/education funds, open communication, structured processes, and collaborative environments. The component showed a negative relationship with workload, politically charged environments, conflict resolution and not looking for a job. This was a surprising result. After 2008, financial collapse within Michigan's automotive industry resulted in layoffs of hundreds of thousands of engineers and related workers. Most of the engineers have since left the state and have acquired jobs in the medical

product industry, aerospace, etc. During mid and late 2011, the automotive industry in Michigan faced an acute shortage of product designers, manufacturing engineers and program managers. It was a common belief that those engineers would not come back to the automotive industry. Based on this perception, it was thought that employee loyalty towards a company would be low. The only negative effect came from the employees who paid for their own training or education.

Exposure and Employability was identified as the third component and explained 9.2% of the variation with an Eigen value of 3.12. This component explained how working on projects improved workforce employability in other industries and/or provided greater exposure within their current company. It is very common for a tier-one automotive project manager to receive offers from OEMs based on their work habits and project management experience. This component included training/education funding, project management experience, risk taking, searching for a job in the past six months and benefits from project successes. It was interesting to note that employee exposure with the company increased with high project success rates even though they may not have worked on many projects.

Step 5.2: Descriptive Statistics

This study concentrated on the value formal project management brings to an organization and employees. As shown under problem identification, several research studies exist on the value formal project management brings to companies. Thus, this study concentrated on the employee side, as outlined below.

Demography: There were 106 valid surveys, with 75.5% male and 24.5% female participation. Interestingly, this is consistent with the BLS population survey of 2011 that reported 25.9% of jobs in the motor vehicle and motor vehicle equipment manufacturing industry were held by women in 2011 [23]. Also from that study, 65% of responses were from OEMs and 35% were from suppliers. Additionally, 52.8% of the respondents had 4-year college degrees, 45.3% had graduate degrees, and 1.9% had a 2-year diploma. On average, respondents had managed 35-50 projects. Wright [24] reports that project managers in the North American automotive segment work on 17 projects a year. Lastly, 65% of the respondents had been with their company for 5-8 years, while only 26% had been with their company for more than 8 years. This suggests that employees need some motivation to remain loyal to their companies.

Formal Project Management: Since early 2000, it has been reported that the automotive industry is on its way to project management maturity [2]. Studies identified the presence of PMOs in the major automotive companies, and 73.6% of the survey respondents either agreed or strongly agreed with the presence of a formal PMO in their organization. Moving forward, the group of respondents who agree or strongly agree to a question will be referred to as group X in this study. There were five questions in the survey to specifically investigate the effect of PMOs within an organization. From group X, 84.9% reported that their company followed some sort of formal project management; 90.5% of the same group indicated that they did follow some systematic project management processes; and, 85.5% received some sort of project management training. From Table 3, it can be concluded that automotive companies have been following systematic/ formal project management, enabling them to adopt project planning and coordination in a uniform manner. Furthermore, automotive companies are taking initiatives to provide training to their employees, utilize definite monitoring processes, ensure effective team participation, and employ project managers to act as leaders in managing products and in conflict resolution.

Table 3. Project Management Office in Automotive Companies

Question	% Respondents agree (4) or strongly agree (5)
When working on projects, the projects goals and objectives are clearly defined at the start of the project	81%
When working on projects, project managers clearly establish team members' roles and responsibilities	78%
When working on projects, project managers have definite and structured project monitoring processes	78%
When working on multiple projects, I don't see any difference in the overall project management process followed by various project managers	82%
The project management team in my company has become more effective	84%
Project Managers in my company are well versed in managing projects	84%
Project Managers in my company provide leadership and conflict resolution	86%

Value for Employee: Most (79%) respondents reported gaining significant experience by participating in projects. Almost the same percentage (81%) agreed or strongly agreed that their experience in project management had increased their employability; 84% believed that working on projects had given them more visibility in the company;

and, 72% agreed that following standard project management tools and processes increased their chances for promotion. Employee loyalty towards their companies increased with the number of successful projects they participate in. Additionally, 85% of respondents agreed that every successful project increased their value within the company, and 85% valued any training or education funding their companies provided. The loyalty of this group of students was significantly higher (90%) than the respondents who self-financed their training or education.

The systematic and structured project management processes that automotive companies followed had helped in ensuring that the employees' roles and responsibilities were clearly identified, encouraged effective collaboration among team members, and that teams were led by managers who could safeguard them. This has led to increased job satisfaction. Of the respondents, 84.9% have their roles and responsibilities clearly defined; 79% appreciate the way their managers work with the teams to handle conflicts; and, 78% either agreed or strongly agreed on the question of job satisfaction which, in turn, had a positive relationship with retention.

Job security and developing professionalism are key factors for any employee. Of the respondents, 74% either agreed or strongly agreed on the question that there will be less job security in automotive companies in the future, and believed that gaining experience in project management will help them grow professionally; 87% either agreed or strongly agreed that having taught project management techniques had increased their employability; and, 81% believed that such experiences would help them advance within the company.

The automotive industry is product-driven and, therefore, heavily dependent on innovation. On occasion, innovation and project-based philosophies do not merge well, especially when cost and time are taken into consideration. This study shows that the problem can be addressed by a good project manager; one who is willing to provide encouragement and open communication. Effective conflict management can also help an organization's risk-takers and innovators to develop great ideas and solutions. Of the respondents, 73% either agreed or strongly agreed that their project managers encouraged open communication, and 79% agreed that they also effectively resolved conflicts.

The most obvious outcome from the survey was the fact that 91% of the respondents reported an increase in their workload. The increase in workload was directly related to the number of projects that the employees were working on. However, there are other variables that have some effect on the increase in workload. During the last five years, the domestic automotive industry has shrunk, and companies have laid off thousands of employees. As the industry reorganized and improved financially, companies failed to hire with the same pace. This led to an increase in the workload for their engineers; however, more research is being done on this topic to determine the actual root causes.

There is a specific group within these respondents, those who have supported their own training/education. From this group, 77% were dissatisfied with their job, and 88% reported that they had searched for other jobs in the last six months. However, there was no difference between this group and other respondents in relation to the value added by project management.

Conclusion

Advantages and value from project management in industries is very well documented. Project management had a late start in the automotive industry compared with military and construction management; however, it has reached maturity much quicker, while presenting new project management tools and techniques. This study concentrated on the value project management brings to one of the automotive industry's key stakeholders—the employees. The study highlighted the fact that when automotive companies gain value from project management, employees concurrently extract value, thus creating a win-win situation. Using PCA and descriptive statistics, it was concluded that value for companies may or may not be defined the same for employees. For companies, the value from project management is in the form of improved, well-structured business processes, stronger organizational culture and good leadership. Employees receive a different type of value when they are involved with projects and project management. Their value is more towards their personal satisfaction with their jobs, their loyalty towards their organization and, finally, exposure within their companies that increases their employability.

The study concentrated on automotive companies in Michigan and concluded that the majority were following formal project management processes. Automotive employees gain valuable experience from following project management within their companies, thereby increasing their chances of promotion within the company or gaining better employment elsewhere. It also improves job satisfaction, provides better relationships with management and encourages leadership. It should also be noted that employees who self-finance their training or education are more inclined to change companies and have less loyalty toward their current companies. An important finding was the fact that following

formal project management techniques has encouraged automotive employees to innovate in the product-driven industry by ensuring open communication and encouragement from trained project managers who help risk takers to innovate by effectively managing conflicts.

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Biography

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