# INTERNATIONAL JOURNAL OF RESEARCH IN COMPUTER APPLICATION & MANAGEMENT

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We invite unpublished novel, original, empirical and high quality research work pertaining to recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

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   I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published elsewhere in any language fully or partly, nor is it under review for publication elsewhere.

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4.    **ABSTRACT:** Abstract should be in fully italicized text, not exceeding 250 words. The abstract must be informative and explain the background, aims, methods, results & conclusion in a single para. Abbreviations must be mentioned in full.

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9.    **MAIN TEXT**: The main text should follow the following sequence:

INTRODUCTION

REVIEW OF LITERATURE

NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

SCOPE FOR FURTHER RESEARCH

ACKNOWLEDGMENTS

REFERENCES

APPENDIX/ANNEXURE

It should be in a 8 point Calibri Font, single spaced and justified. The manuscript should preferably not exceed **5000 WORDS**.

10.    **FIGURES &TABLES:** These should be simple, crystal clear, centered, separately numbered &self explained, and **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. It should be ensured that the tables/figures are referred to from the main text.

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- All works cited in the text (including sources for tables and figures) should be listed alphabetically.
- Use (**ed.**) for one editor, and (**ed.s**) for multiple editors.
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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

**CONTRIBUTIONS TO BOOKS**

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

**JOURNAL AND OTHER ARTICLES**

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

**UNPUBLISHED DISSERTATIONS AND THESES**

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

- **ONLINE RESOURCES**

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**WEBSITES**

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

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# KEY PERFORMANCE INDICATORS TO EVALUATE SOFTWARE PROFESSIONALS

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## ABSTRACT

*Performance means the degree or extent with which an employee applies his skill, knowledge and efforts to a job assigned to him and the result of that application. Organizational growth and sustainability highly depend on the quality of performance of the employees. Performance management is an integrated process that sets objectives, appraises employees, translates objectives into organizational key performance areas, helps in compensation design and benefits the organization to achieve business goals and objectives. This article analyzes the performance indicators-KPI which represents the focal point that can make the transition from the development of individual activity to overall organizational performance in the software industry. It gives an overview based on currently used KPIs for measuring the efficiency of various software professionals like developers, testers, quality assurance personnel in software development projects. The most important KPIs are analyzed, and their usage in the process efficiency evaluation is discussed. The outcome of the measurement is used to initiate further process adjustments and improvements, to make correct decisions in other HR functions like training, promotion and to implement performance based compensation successfully.*

## KEYWORDS

IT industry, Key Performance Indicators, Performance Evaluation, Performance related pay, Software Professionals.

## 1. INTRODUCTION

The main aim of any business is to earn profits in a specified period of time. In this process of earning profits and taking the business to new heights, there are some methods and concepts to be implemented in the system. One of the most important concept that is adopted in companies nowadays is Key Performance Indicators (KPIs). They are the measurement of the health of business, such as company's total sales or gross profit margin. One can use KPIs to help monitor current performance, indicate when performance falls within alert ranges, and compare current performance to past performance. In most businesses, the employees represent both an organization's biggest expense, and its most valuable asset. This means the company's productivity, and ultimately, its profitability depend on making sure all of its workers perform up to, if not exceed their full potential. To survive and prosper in today's economic times, companies can no longer manage using financial measures alone. Businesses have to track non-financial measures such as speed of response and product quality; externally focused measures, such as customer satisfaction and brand preference; and forward looking measures, such as employee satisfaction, retention and succession planning.

Key Performance Indicators (KPIs) are company's measurable goals, typically tied to an organization's strategy, as revealed through performance management tools such as the Balanced Scorecard. Measuring employee performance can be a challenge for many organizations. Key performance indicators help change the way people do their jobs, approach their day, and deal with daily roadblocks in the following ways:

- Encourage people focus on the big picture
- Help people distinguish the important from the trivial
- Assist in differentiating between the "must be done" from the "could be done"
- Place greater emphasis on strategy and organizational results

All successful software organizations implement measurement as part of their day-to-day management and technical activities. Measurement provides the objective information they need to make informed decisions that positively impact their business and engineering performance. In successful software organizations, measurement-derived information is treated as an important resource and is made available to decision makers throughout all levels of management.

## 2. KEY PERFORMANCE INDICATORS

*Key Performance Indicators (KPIs) are quantitative and qualitative measures used to review an organization's progress against its goals. These are broken down and set as targets for achievement by departments and individuals. The achievement of these targets is reviewed at regular intervals.*

These are predetermined factors that are set to assess the performance and success rate of an entity. They are set in order to know how much development is done in a project, how employees are performing, and how much profits the firm is making. Key performance indicators differ from entity to entity, and are to be set considering the nature and type of business or a particular practice. For example, a school might use annual graduation rates as a KPI, whereas a business may consider its KPIs to be percentage of income or level of customer service and satisfaction.

A crucial point to note is that KPIs should have the ability to be measured. Being the most reputed company or generating repeated customers would not be thought of as good KPIs for a firm, since these factors cannot be measured. Instead, good KPIs can be number of new customers over old ones and the ranking or profits of an organization.

### 2.1 NECESSITY FOR KEY PERFORMANCE INDICATORS

There are many benefits of using key performance indicators in any organization. The very first advantage is that these measurable factors help the company to find out which practices are doing their job well and being effective. They can rule out unnecessary projects and use the resources somewhere else in the business. Another significant benefit for implementing KPIs is that they enable employers to determine if the change in process has really been effective.

KPIs also aid in data collection and recording for future reference. Process-based KPIs can even be used in the procedure of performance appraisal. Similarly, there are many other advantages of adopting KPIs according to the nature and type of entity.

KPIs can also be used in the following ways:

- To develop and monitor industry standards (benchmarks) for the organization.
- To monitor the implementation and ongoing management of strategic business plans.

- To assist with development of performance based payroll remuneration systems.
- To encourage employees to create a sense of 'ownership' over key aspects of the business.

## 2.2 TYPES OF KEY PERFORMANCE INDICATORS

The first of the types are quantitative indicators that include results which relate to numbers. The second of the types are performance indicators which are measured in terms of performance of an employee, a team, or a practice. Directional indicators help the company to find out if the processes are moving towards organizational goals.

For a marketing process; KPIs can be new leads generated, amount of customer attrition rate, collection of payments, and other aspects. On the other hand, in a manufacturing firm; KPIs can be the overall efficiency of the product and the rate of rejection in the testing process. In Information Technology (IT) or software development firms, a suitable key performance indicator can be the response rate at which deliverables are met before the deadline.

Deciding on KPIs is an essential task that has to be carried out by the management in order to evaluate the performance and success rate of a team, department, or the organization as a whole. Key performance indicators are closely concerned with performance management strategies in a business. Be it a company from any industry, KPIs are absolutely necessary.

## 2.3 CHARACTERISTICS OF KPIs

KPI characteristics identified in the literature are listed below. A KPI does not need to satisfy all of these characteristics to be useful to the agency and characteristics may overlap. A KPI should be:

- Relevant to and consistent with the specific agency's vision, strategy and objectives
- Focused on agency wide strategic value rather than non-critical local business
- Representative – appropriate to the agency together with its operational performance;
- Realistic – fits into the agency's constraints and cost effective;
- Specific – clear and focused to avoid misinterpretation or ambiguity;
- Attainable – requires targets to be set that are observable, achievable, reasonable and credible under expected conditions as well a independently validated;
- Measurable – can be quantified /measured and may be either quantitative or qualitative;
- Used to identify trends – changes are infrequent, may be compared to other data over a reasonably long time and trends can be identified;
- Timely – achievable within the given timeframe;
- Understood – individuals and groups know how their behaviors and activities contribute to overall agency goals;
- Agreed – all contributors agree and share responsibility within the agency;
- Reported – regular reports are made available to all stakeholders and contributors;
- Governed – accountability and responsibility is defined and understood;
- Resourced – the program is cost effective and adequately resourced throughout its lifetime; and
- Assessed – regular assessment to ensure that they remain relevant

## 2.4 GROUPING KPIs INTO CATEGORIES

It may be useful to group KPIs into categories based on the agency's vision, strategy and objectives. Grouping into categories may also assist in testing KPI applicability, relevance and potential overlaps or conflicts. However, agencies should note that grouping is discretionary and may not be required or add value at all. Should agencies wish to group KPIs, the example categories listed below may serve as a starting point:

- Performance – services are relevant and appropriate to the organization.
- Reliability – service delivery is consistent, reliable, dependable and trustworthy.
- Responsiveness and timeliness – responses to client requests and delivery of services are within timeframes and other measures.
- Relationships – team members deliver services with tact, recognition, regard, and Thoughtfulness.
- Resources – time, budget and cost measures.
- Secure – protect integrity and privacy of data.

## 2.5 SMART KPIs

The acronym SMART is often used to describe KPIs.

- **S**pecific
- **M**easurable
- **A**chievable
- **R**elevant
- **T**imely

### SPECIFIC

KPIs need to be specific to the individual job and if possible expressed as statements of actual on-the-job behaviours.

For example, a KPI should:

- explain clearly to the employee what he/she has to do in terms of performance to be successful
- have an impact on successful job performance, that is distinguishing between effective performance and ineffective performance
- focus on the behaviour itself, rather than personality attributes such as 'attitude to customers'.

Terms such as 'work quality', and 'job knowledge' are too vague to be of much use.

### MEASURABLE

KPIs must be measurable, that is based on behaviour that can be observed and documented, and which is job-related. They should also provide employees with ongoing feedback on their standard of performance.

### ACHIEVABLE

Performance management needs to be an open, collaborative communication process. KPIs must be seen by all that they are achievable. The KPI must be realistically achievable. If it is set too high for the circumstances (such as an ambitious production target), not only will it be irrelevant but it will ensure failure.

### RELEVANT

It is essential that employees clearly understand the KPIs, and that they have the same meaning to both parties. Consultation is more likely to result in standards that are relevant and valid.

### TIMELY

KPIs should have an appropriate time frame.

It should be possible to collect the relevant information either 'as it happens' or within a short time afterwards, otherwise it will lose its relevance. As outputs of the performance management system, KPIs also need to be in alignment with other HR-related functions, including training and development, recruitment and selection, rewards and recognition, and career planning.

## 3. KPI FOR SOFTWARE DEVELOPERS

The role of software developer is to define, develop, test, analyze, and maintain new software applications in support of the achievement of business requirements. This includes writing, coding, testing, and analyzing software programs and applications. The few major parameters to evaluate the efficiency of developers are:

### 3.1 TECHNICAL SKILLS

1. **Basic Computer Science Skills**: Hopefully, any software engineer will have these skills and more. Research skills, reading comprehension, the ability to know how to use library functions, and understanding computing problems, design patterns, and frameworks are other skills that are valuable to have. A great class involves students and helps them to develop skills in logical thinking, creative problem-solving and communication. Classes that incorporate a team approach, requiring clear communication among members as they solve a problem and explain their solution to others, enables graduates to work this way at their jobs.

2. **Passion for Code**: Programming isn't for the uninterested. You must have a passion for code, developing it from a purely scientific skill into a craft or an art. Building code is much like developing a painting, a sculpture, or a symphony. With the popularity of Open Source, you don't have to be alone in code creation — the ability to work with software engineers and developers from around the world is possibly through the Internet.

3. **Fearless Refactoring:** Refactoring is the ability to improve code without changing what it does. The ability to realize that no one should be a slave to original code is key here — that old code can become unstable and incompatible over time. Refactoring enables the developer to own the code, instead of the code owning you.

4. **Develops Quality**: In a former era, engineers thought testing was beneath them. Today, experienced engineers know and understand the value of tests, because their goal is to create a working system. Exposing bugs and eliminating them is the best way to develop stellar code. But a good engineer also knows not to waste time writing trivial or redundant tests, instead focusing on testing the essential parts of each component.

5. **Willing to Leverage Existing Code:** Why invent the wheel when it's already working? Life is too short to continuously invent new codes and libraries. Reuse of internal infrastructure, use of third-party libraries, and leveraging web-scale services such as the ones offered by Amazon, are marks of a software genius.

6. **Focus on Usable and Maintainable Code**: Software always works better then it is well designed and user-centric. Good engineers work hard to make the system simple and usable. They think about customers all the time and do not try to invent convoluted stuff that can only be understood and appreciated by geeks. A disciplined engineer thinks about the maintainability and evolution of the code from its first line, as well. Expressive names for methods and variables can make the code self-explanatory.

7. **Can Code in Multiple Languages**: Just like a person who can speak several languages, an engineer who isn't tied to one code language can think outside the box and is a more desirable hire. A willingness to learn new languages, new libraries and new ways of building systems goes a long way to creating a great software engineer.

### 3.2 PERSONAL TRAITS

8. **Vision:** What is the use in developing code, when it won't be applicable a year or two down the road? Visionaries create code and libraries that are open to refactoring, and easy to use in all code languages. Being able to see the impacts of present-day decisions is paramount to building great software.

9. **Attention to Detail:** If you get angry about misspelled database columns, "uncommented" code, projects that aren't checked into source control, software that's not unit tested, unimplemented features, and so on, then you probably try to avoid those issues yourself. Bad installation packages, sloppy deployments, or a misspelled column name can bring down entire systems. Be obsessive about details, and you'll be on your way to becoming a software star.

10. **Business Acumen:** If you don't understand why your software development is so important to your clients' livelihoods, consider this NASA story. "This software never crashes. It never needs to be re-booted. This software is bug-free. It is perfect, as perfect as human beings have achieved. Consider these stats : the last three versions of the program — each 420,000 lines long-had just one error each. The last 11 versions of this software had a total of 17 errors. Commercial programs of equivalent complexity would have 5,000 errors." The ability to understand why all the coding is done, as it the fruit for any customer or client.

11. **Curiosity:** The best software engineers are curious about why something is done one way or another, yet with the added ability of being objective about the solutions. Many engineers we know got in trouble as kids for taking things apart to see how they worked. Putting together software is just a creative, and many software engineers also have artistic hobbies. This creativity and curiosity is required to think outside the box when designing programs. The thrill you get from making something work is what keeps you going.

12. **Experience:** If you've been tinkering with software programs since you were a kid, your abilities as an adult will be quadrupled. Beyond hands-on experience, you might also be addicted to math and science, and the ability to stay organized. At the same time, great software engineers also realize that they don't know it all…the ability to continue to learn is essential in a field where change is a constant.

13. **Discipline:** Although you may have passion for your job, this love for your work and for the next project doesn't mean that you can be sloppy. Attention to detail is important, but so is an ability to stay organized. So much bad code belongs to developers who don't do what they know should be done.

14. **Patience:** Bugs are natural. Design glitches are normal. Sloppy coding by other engineers occurs often. Patience is a key quality for software engineers who want to work in this field.

15. **Teamwork:** Few projects are small enough or require so few skills that one person can do them well. Learning how to work as a team in college is one way to get over that "hermit" image…and working as a team online or in the office can only produce stellar projects. Successful engineers also become good communicators. They know how to write clear and concise reports and instructions, and know how to convey ideas to clients and customers.

## 4. KPI FOR SOFTWARE TESTERS

Software testing is not about hunting bugs but delivering great software. However, a vast majority of project managers still consider bug count as the most important measure of a tester's effectiveness. There are a host of metrics which can be used to measure the effectiveness of a tester in delivering the perfect software.

A well designed tester's Key Performance Indicators should show performance in terms of goals for different functional areas, overall performance as a team, and customer's feedbacks. Few of the KPIs   which resulted in an improvement in customer satisfaction index are:

1. **Requirement Knowledge**: This metric indicates how effectively a tester understands the requirement. If the tester is not 100% aware of the customer's requirements, a lot of time could be wasted in posting invalid bugs. This can be checked by evaluating the test cases or test plans prepared by a tester with reference to the requirement document. Set a target of 100% conformance to Software Requirement Specification document for the test cases.

2. **Test Coverage**: This metric indicates how many of the requirements are converted into test cases. This metric ensures that there will be continual improvement in the thoroughness of testing with respect to the requirements of the customer. This is measured as the percentage of test cases covered or executed by a tester. This should be analyzed from the results provided by testers in the test case document. Set a target of 95% or above for this metric.

3. **Testing Rework**: This metric indicates how many bugs were reassigned back to the tester due to lack of information. This includes the cases where developers ask for more information regarding a bug. This happens when a tester is unable to provide proper steps to recreate the issue or give proper screenshots, and leads to wasted time where a re-test needs to be done. Target is set as 0 testing rework cases.

4. **Customer Complaints**: This metric will indicate the satisfaction index of the customer. Each bug reported by the customer indicates a test case the tester missed to execute. So keeping a watch on the number of complaints, and resolving the root cause of the complaints will lead to a process which produces great software. Target is set as 0 complaints.

5. **Bug Success Rates**: This metric indicates how many of your bugs resulted in a valid fix. Invalid bugs happen when SRS is not correctly interpreted, or the testing is wrong. Invalid bugs put a strain on the deadlines for a project, and needs to be avoided. Target is to achieve 0 Invalid bugs.

6. **Team performance**: This is a collection of metrics that should set for the team as a whole. eg .milestone delays, start lags, response times, etc. Including the total team metrics in tester KPI is important as the testing team needs to work together with others to make sure the overall targets are achieved. By

including the team targets in the tester's KPI, the testers will do whatever is needed from their part to get the project finished on time. It will encourage the developers to provide testability in their code, and the testers to communicate with developers about possible vulnerabilities.

## 5. KPI FOR QUALITY ASSURANCE   PERSONNEL

Software quality assurance (SQA) consists of a means of monitoring the software engineering processes and methods used to ensure quality.

It is is a process that ensures that developed software meets and complies with defined or standardized quality specifications. SQA is an ongoing process within the software development life cycle (SDLC) that routinely checks the developed software to ensure it meets desired quality measures. The key parameters for performance evaluation are:

1.  Number of critical bugs compared to the total number of bugs: This will the show percentage of critical bugs compared to total number of bugs. This information could be useful in determining in how effective the testing procedures are.
2.  Percentage of unit tests covering software code.
3.  Percentage of reorted bugs that have been fixed when going live: Percentage of total bugs that have been found while testing and are fixed   when a new software release is going live
4.  Test coverage percentage of software specifications.
5.  Percentage of bugs found inhouse: Percentage of bugs found inhouse compared to bugs found by customers.
6.  Number of bugs per release: This kpi will show the number of bugs per release. For measurement reasons, a time period should be set. Lets say you measure the amount of bugs a month after each release. This should result in an interesting trend.
7.  Percentage of high priority bugs.
8.  Number of times (corporate) website shows a 404 page: When a 404 error page of a corporate website is showed more often than a certain target this might indicate navigation issues within the website itself and/or "old" links might still present in the index of search engines and/or web directories.
9.  Number of escaped defects.
10. Number of defects found over period of time: During the testing cycle, or even during the post release maintenance and support, the number of defects found/logged over a period of time is a good indicator of how product quality was changing over the Project Cycle or Product lifecycle.
11. Time taken for completing a test of a software application
12. Number of returning bugs: Total number of returning bugs that are reported in a new software version.
13. Number of defects per function point: Number of defects detected in the software divided by the total number of function points (FP).
14. QA personnel as percentage  of  the number of application developers
15. Number of defects per line of code: Number of defects detected in the software divided by the total lines of code (LOC). The most common definition of LOC seems to count any line that is not a blank or comment line, regardless of the number of statements per line.

## 6. KPI  FOR OUTSOURCING PERSONNEL

Business Process Outsourcing (BPO)   has established itself well and is growing at a rapid rate. BPO sector offers handsome initial salary, good growth and many other benefits to its employees. Keeping in mind the attrition rates in the sector, the performance measurement and appraisal processes are of extreme importance in BPO's. It is often used as one of the tools to retain the employees.

BPO employees have the advantage of getting performance based incentives. In most of the BPO organisations, there are well designed schemes for awarding the performance based incentives to the individuals and/or the teams as a whole. An incentive on the completion of the defined targets is a common practice in BPO's.

The general parameters for the measurement of employees' performance are:

*   Speed i.e. process performance
*   Accuracy
*   Productivity of each process
*   Average Call Value (the sales made or the revenue collected etc.)
*   Time and cost per call
*   Average Handling Time (talk time and after call wrap up)
*   Adherence to Schedule (availability to take calls etc.)
*   Percentage of abandoned calls

According to a recent survey – "The Pay for Performance can be as much as 22% of the salary." Therefore, performance evaluation, reviews and appraisal play a vital role in the performance management in BPO sector and all the above mentioned parameters are used in performance appraisals  to evaluate and review the performance of the employees.

## 7. CONCLUSION

Clearly, having well defined key performance indicators is no longer optional. In fact, it is now recognized as a major key in remaining competitive and understanding how   business is performing in an ever changing and increasingly competitive environment.   In selecting Key Performance Indicators, it is critical to limit them to those factors that are essential to the organization   reaching its goals. It is also important to keep the number of Key Performance Indicators small just to keep everyone's attention focused on achieving the same KPIs.  Monitoring and continually improving these matrices will help to deliver great software and result in good brand image.   Software   project managers can use the assessment techniques to measure the performance   of software professionals,   so that timely   corrective actions can be taken. Because of limited resources like time and money, majority of the software organizations are under pressure of monitoring and controlling the software employees' performance. The systematic ways of measuring   performance helps in identifying high performance employees in organizations and useful in rewarding and recognizing their work in IT industries.

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