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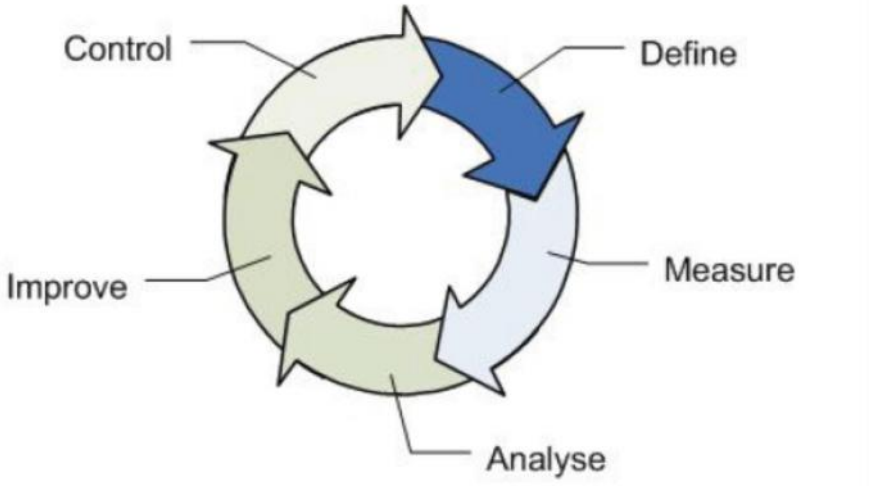
The Business Performance Approach

Data Quality Management

A white paper discussion into the impact of poor information quality and a Six Sigma approach for resolution.



Executive Summary:

Information is one of the most critical assets for any organisation in the 21st century.

However, few organisations manage this vital asset correctly and as a result suffer major impacts in the form of poor business performance, reduced revenues and increased operational expenditure.

Historically, the technology, skills and methodologies have simply not existed to resolve the often complex and challenging causes of poor information quality.

Today, however, the components required to resolve and control data quality issues do exist.

There is therefore no longer any justification for an organisation to ignore the clear need for high levels of information quality throughout their enterprise. Consumer pressure dictates nothing less.

This white paper discusses the impacts of data quality and creates a straightforward, industry - proven approach for effective data quality management.

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For more information, please contact us **0845 124 9495** email **contactus@it-performs.com** or visit our website **www.it-performs.com**

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There can be no doubt the Information Age has arrived

The volume of data stored on computer systems worldwide is steadily increasing due to advances in database storage technology and increased interaction with consumers via the internet.

New technology based services are almost a daily event. The importance of high quality data to drive these technologies has never been greater as more and more consumers become 'data aware'.

New opportunities – new dangers

With this increased dependence on data comes a paradox.

Many organisations actually place a low importance on the data that drive their key revenue providing services. Data is generally considered less important than other components that contribute to a service such as product, people or technology.

Consumers, however, frequently recognise the important of data quality. They recognise the impact of poor data in the form of errors in their billing statements, incorrectly addressed correspondence, delays in product delivery and incorrect goods delivered.

The quality of the 'user experience' is often seen as a key differentiator in an increasingly crowded economy and companies who fail to recognise this do so at their peril.

Data quality technology solutions – beware the silver bullet

A new industry has emerged in a relatively short time that claims to offer clients the capability to resolve data quality. Some companies have responded by purchasing this new breed of data quality technology. Many companies, however, fail to recoup the cost of such an investment.

So, if data quality tools alone are not the answer, how should organisations approach the issue of poor data quality?

The answer is to follow a structured framework that combines skills, technology, experience and a comprehensive methodology. The framework should enable a company to not only resolve the impacts of poor quality data but to successfully manage organisational change.

The first step in following this framework is to obtain much needed support.

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Executive sponsorship – gain a senior ally

The first vital task of any data quality programme is to gain the commitment of a senior sponsor who is committed to improving data quality for business performance.

Without a strong ally, data quality initiatives can often be the first project to be 'pulled' when financial pressures dictate budget cuts.

If data quality initiatives are managed correctly they will create large revenue streams and increased profits so ensure the senior sponsor is fully aware of the data quality benefits so that they become a strong voice in any budget discussions.

If an organisation has never implemented a data quality programme, professional assistance should be sought to help convince senior management of the need for a data quality programme.

Maturity assessment – in denial or in control?

Once a senior sponsor is in place, the next activity is to examine the maturity of the organisation in terms of whether it has the required components to continually improve data quality across the enterprise. These components include the necessary skills, technology, methodology and organisational structures that are regarded as critical to sustaining high levels of data quality.

Most organisations operate in a reactive or ad-hoc fashion to data quality problems and accordingly are viewed as 'immature' in terms of information quality management. They often fix issues as they are reported with 'patches' that hide the underlying root-cause. These companies typically waste a large amount of their revenue on customer churn, poor service levels, high operating costs and generally inefficient productivity. They are typified by either being in denial or lacking awareness about the impact of poor data quality on their business functions.

Very few organisations are at the other end of the maturity scale.

Mature organisations have full executive backing for information quality management and continuously improve the quality of data within their organisation using well defined processes. Such organisations are typified by efficient service delivery, lower operating costs and intelligent utilisation of their data typified by value-add initiatives such as business intelligence on their product lines and consumers.

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Strategic alignment – link data quality initiatives to corporate goals

Aligning the data quality programme to the strategic goals of the company is fundamental to the success of any data quality initiative and this is also examined during the maturity assessment. By following a strategically aligned approach the data quality programme will receive continued executive support.

Many data quality programmes fail when they invest large amounts of time and effort in data quality solutions that do not derive any tangible financial gain or aid the company with future targets.

Data quality should ultimately be self-justifying with return on investment being continuously measured and openly reported to senior management. This will guarantee increasing exposure of the benefits of data quality and ensure that other areas of the organisation are willing to participate.

The aim of every data quality programme should be to create a successful template that can be replicated enabling data quality improvements throughout the enterprise.

Focus on the critical few

When deciding on which area of the business to focus data quality efforts, always apply the pareto or 80/20 rule. Apply the rule by identifying the 20% of the business that drives 80% of the profits or creates 80% of the losses. By focusing improvements in these areas you will create the maximum possible returns on investment.

For example, imagine a supply chain department incurs £2,500,000 operational costs per year. Compare this to a marketing department in the same company who have a small sales database that they wish to improve and currently generates approximately £300,000 worth of sales each year.

A 3% improvement in the supply chain department will create £750,000 worth of revenue. The same improvement in the marketing department will generate £90,000 worth of revenue.

Always focus on the area of maximum return. It will guarantee the continuous support of data quality initiatives throughout the enterprise.

Accurate measurement – critical indicators of data quality

The next phase is to measure the baseline of data quality within the organisation.

If the key revenue producing processes of the company are viewed as major organs then the data can be viewed as the life-blood of the organisation. A baseline of data quality effectively identifies the health of the data through the measurement of data quality indicators such as accuracy, completeness, consistency, integrity and timeliness.

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During the measurement phase it is critical to identify the needs of the business users. Many companies fail to carry out this step and instead rely on the data quality technology to provide all the measurements. Technology is merely a tool and the data quality analysts should identify the measures that are important to the business community. Failure to carry out correct 'needs analysis' is a common cause of complaint and ultimately creates a low return on investment.

Business case – a call for action

As part of the measurement phase, a key deliverable is a business case to demonstrate that the baseline has identified the financial investment and expected return for further improvements.

It is crucial that any technical measurements are interpreted in business terms. Without the necessary business impact there is a risk that senior management will ultimately post the question – so what does all this mean to us? It is imperative that you report the quality of data in clear, financial terms, not just in the format presented by the data quality tools.

Important note: If the measurement phase has not identified sufficiently serious data defects then consider measuring a different business area. Remember the 80/20 rule; maximize the return of investment by identifying the areas of greatest return and the data quality programme should continue to receive executive support and approval.

Analyse the causes – not the symptoms

Root-cause analysis is one of the most vital phases for improving data quality yet is often overlooked.

Many companies omit this phase and move straight to the improvement phase by applying 'data-cleanse' techniques. This is a serious oversight as the causes of data quality can often be complex.

Poor data quality is typically caused by people or technology. People are a frequent cause either through lack of training, incorrect data entry or simply abusing the system. Technology, a common problem, impacts data quality in numerous forms including incorrect programming logic or system failures that cause data to remain in an incorrect state.

It is important to determine which are the 'underlying' problems as opposed to the 'presenting' problems. For example, the presenting problem of poor data quality in a corporate database may be the result of several underlying issues such as poor database design, invalid software design, data entry issues and incorrect database maintenance procedures.

Only through correct root-cause analysis can a data quality programme successfully reduce costs and improve productivity. Many companies mistakenly build additional cleansing logic to rectify the presenting symptoms of data defects. These fixes are typically 'downstream' from the original cause of the problems which remain unresolved.

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Fixes or 'patches' only serve to create additional costs in hardware, software and development time along with the increased delay in service completion. They may appear a cost-effective solution but by calculating the impact of increased maintenance and reduced service levels over the lifetime of a typical computer system the business case for ad-hoc fixes is rarely justified.

Improvement – focus on the underlying failure

When the root-causes have been correctly identified the next phase is to implement improvements to prevent the defects recurring. At this stage many organisations opt for the 'data-cleanse' option to rapidly clean defective data. Whilst there may be data that requires urgent attention, the focus should always be on long term prevention of data quality defects. In this situation several improvements can be made such as improved training for users, software corrections and any number of technology and people improvements.

Ironically, improving the data often requires non-data related activities that require small amounts of effort and investment. Implementing a data quality awareness programme for a small team of data entry users may cost a fraction of the cost of purchasing expensive data cleansing technology for example.

Data quality monitoring – charting the trend

One of the key phases omitted by many organisations is to continuously monitor the data quality levels as part of a managed reporting activity.

Some organisations only assess their data on annual or bi-annual periods in the form of a basic audit and reporting activity. This is costly as serious data defects may have been active for several months causing operational and financial impacts to the business.

The obvious approach is to monitor the data continuously in order to identify whether data quality is in a controlled state or whether defects are increasing. This type of approach makes use of the measurement tools used earlier to identify defects.

As a data quality programme matures, more and more rules defining what constitutes defective data can be built into the earlier measurement tool which is now linked into the monitoring phase. The net benefit being that the health of the data is continuously improved.

Without accurate monitoring it is a certainty that data quality issues will return but remain hidden.

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In Summary

Data quality tools alone cannot solve the complex problems of defective data. The phases cited earlier form part of a comprehensive methodology that integrates business modeling, management consultancy, analytical data techniques, data quality tools and business intelligence to create a total data quality management solution.

The methodology discussed in this white paper is closely aligned to the Six Sigma improvement system that has been proven to remove defects, decrease costs and raise service levels in organisations throughout the world.

The costs of poor quality data remain incredibly high. Some analysts estimate that the costs of poor quality data in a typical organisation are anywhere from 10-40% of operating revenues. Recouping even a fraction of that expense will lead to considerable revenue opportunities. However, the final justification for data quality must lie with the one resounding principle upon which all basic decisions should be made – common sense.

Simply denying the impact of data quality on business performance does not make common sense.

So, is your organisation in denial or in control of data quality?

About IT Performs

IT Performs (ITP) has delivered business intelligence and information management solutions since 1996. Partners with leading business intelligence and information technology vendors, ITP have a comprehensive track record of delivering high-end solutions for data warehousing, sales forecasting, financial reporting, process modeling and data migration initiatives across a number of industry sectors.

If you would like to discuss any of the issues raised in this white paper or take part in a workshop to identify if your organisation is in denial or in control of data quality please use the following contact information:

*Call **0845 124 9495** or email **info@it-performs.com***