Simplifying Best Practices into BI Development

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Overview

A goal of all development projects is to implement the solution on-time and on-budget. Unfortunately, there are too many times that we miss that goal. A common reason for significant project delay is when the project team utilizes either an incomplete or an inferior design technique. Needless to say, it takes time and money to rework or reengineer a solution. The later in the development process a problem is discovered, the more expensive it is. More often than not, following a proven *best practice* can help to avoid costly mistakes, keeping the project on-schedule and on-budget.

A cause of project delays may come from the tendency to rush through design activities by either cutting corners or not properly completing a technique. The 'rushing' may also be attributed to not planning adequate time as well as not understanding the design technique well enough. Subsequently, a significant benefit of *best practices* is that it contributes to a form of mentoring and educating of your staff to the proper techniques, ensuring consistent results. Your investment of maintaining and evolving *best practices* will pay dividends in delivering timely BI solutions.

To properly address the breadth of this theme, *best practices*, this paper is first in a series of white papers taking you through a progression as depicted below:
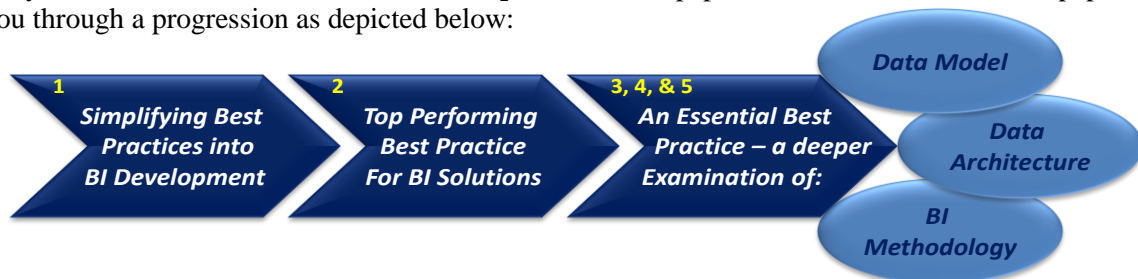
The purpose of "Simplifying Best Practices into BI Development" is to highlight the significance of establishing and incorporating *best practices* into both Data Warehouse (DW) and Business Intelligence (BI) development. A key component is the discipline of capturing your experiences or lessons learned back into the *best practice* itself. This enhances the value add proposition of *best practices* and contributes to achieving the highest level of business capabilities via BI solutions.

Definition of a Best Practice

Since *best practices* are used in nearly every industry and professional discipline, it is important to make a distinction that, for this paper, the term '*best practice*' is used within the boundaries of both DW and BI development typically found in an Information Technology (IT) environment.   Let's start by using a common definition of a *best practice* provided by Wikipedia – *see right*. To achieve the lofty goals of producing superior results and improving or evolving over time, a *best practice* requires a thorough and complete structure ensuring breadth and completeness.

> As defined by Wikipedia:
>
> *A best practice is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark. In addition, a "best" practice can evolve to become better as improvements are discovered.*

Each *best practice* needs a general description highlighting its purpose followed by a set of justification and rationalization rules. It is also important to describe the implications or consequences of not performing this *best practice*. Finally, identify any known exceptions to this *best practice* and give examples. By combining the purpose and rationalization, along with its implications and exceptions, you will bring better balance in how to use each *best practice*. In addition, via the process of capturing lessons learned and enhancing the *best practices,* you will allow it to evolve and adapt into the mainstream process.

Best practices play an important role in the creation and execution of a Business Intelligence Competency Center (BICC) or BI Center of Excellence. A primary purpose of a BICC is to facilitate and enable the delivery of high quality BI solutions (business capabilities) by ensuring that *best practices* are established, shared, and applied throughout the organization.

A BICC can help to initiate and reinforce predictable, repeatable, and consistent use of Business Intelligence functionality, in part, through the use of *best practices*. Centralized BI support functions and services that utilize *best practices* result in a reduced total cost of ownership (TCO). Consequently, there is a reduced risk of flawed project implementations and increased likelihood of successful projects.

Common Best Practices for BI Solutions

BI solution is a broad term typically used to describe some sort of business capability involving technology and analytics. So before we get into the 'how to incorporate *best practices* into your development processes', let's talk a bit in terms of what is a BI solution and why create a *best practice*. I think it is safe to say that most BI solutions have a fair amount of design complexity and business complexity associated with them. When appropriate, these complexities will benefit the most by applying repeatable and consistent *best practices* to them.

BI solutions represent many types of deliverables that come from either DW or Analytic Reporting development projects. As examples, a BI solution could range from creating a new data mart to delivering a new analytic reporting capability to deploying a new metadata repository.

A way to determine if creating a *best practice* merits consideration is to weigh its importance related to BI solutions as well as the level of risk associated to the effort. Here are a few questions to ask:

Is it important to design certain components using a consistent and repeatable technique? Is it important to follow a certain process using a consistent and repeatable method? Do you have a rather inexperienced team? Are the implications or consequences of not conforming to *best practices* considered high risk? Is BI solution development occurring across several organizations and/or geographically separated groups?

Best practices are meant to augment your development process and not replace it, so look for areas to compliment work activities and avoid creating conflicting instructions. The following outline summarizes a set of common *best practices* that I have used and found very valuable in developing DW and BI solutions:

1. Establish a data design driven by business requirements and fostered by business stewardship
2. Adopt an iterative, flexible development methodology addressing DW and BI solutions
3. Adhere to the design rules of dimensional modeling for analytic data models
4. Allow only data that has business analytic value to be stored in the analytic data mart layer
5. Utilize a three tier data architecture to manage Enterprise data
6. Acquire data from the true data source or system of record
7. Leverage the corporate investment and functionality of strategic tools
8. Apply appropriate data reconciliation and data quality considerations to the data architecture
9. Apply appropriate access control and security considerations to the data architecture
10. Keep performance in mind when designing solutions rather than address it as an afterthought

Your list of *best practices* may vary from the above as each organization will have different goals and may place different emphases on the set of practices it considers most important. Subsequently, a key take-away is that each *best practice* is branded to the way your organization performs it and that over time, it is enhanced by applying your experiences to each one.

Establishing a Formal *'Best Practice'* Process

It is important to note that establishing a formal '*best practice*' process does not replace the need for a strong development methodology. As the graph below illustrates, most organizations will have governing bodies (*i.e.,* Project Management Office & Enterprise Architecture) overseeing a development methodology. As a complementary process, *best practices* simply augment the appropriate methodology. Each *best practice* completes, in some fashion, the overall development process. This way everyone follows a consistent pattern and thoughtful process.
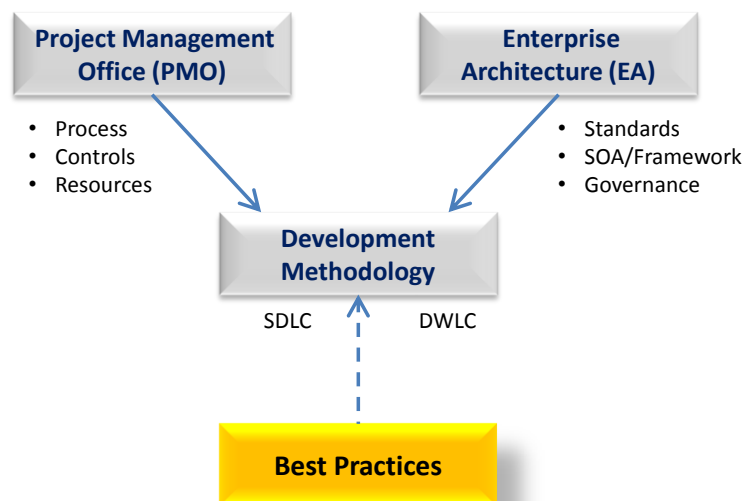
A *best practice* is used to describe and enhance a process or technique by following a consistent and repeatable method of doing things that multiple organizations can take advantage of. Unfortunately, it is often skipped by companies, even though they may consistently employ and follow a strong development methodology. So it is important to integrate each *best practice* into the appropriate methodology to ensure that it is used when needed.

Project Management Office (PMO)
- Process
- Controls
- Resources

Enterprise Architecture (EA)
- Standards
- SOA/Framework
- Governance

Development Methodology

SDLC   DWLC

Best Practices

As stated in the definition, a *best practice* is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark. As shown in the below diagram, *best practices* cover or represent different aspects or features within the BI environment. It may address specific design techniques, to broad architecture considerations, to data governance (business) processes or different methods ensuring expected results:

- Data Governance
- Metadata Management
- Data Integration
- **Best Practices**
- Data Warehouse
- Business Intelligence
- Iterative BI Methodology

A superior BI foundation is built on a combination of *best practices* and guiding principles that provide a "foundation" for a long lasting Enterprise Analytics Environment.

Work with your PMO or project delivery team to incorporate formal sign-offs and approval points of critical *best practices* within the methodology and where appropriate, utilize checklists to ensure that the

required technique was performed and compliance was met.   During the creation of the project plan, make sure that you put in adequate time to each activity covering the *best practice*.

This development time-line illustrates the necessary touch points over the life-span of a development project:

Timely execution, approvals & sign-offs

| Pre-Req'ts | Analysis | Design | Code | Test | Implement |
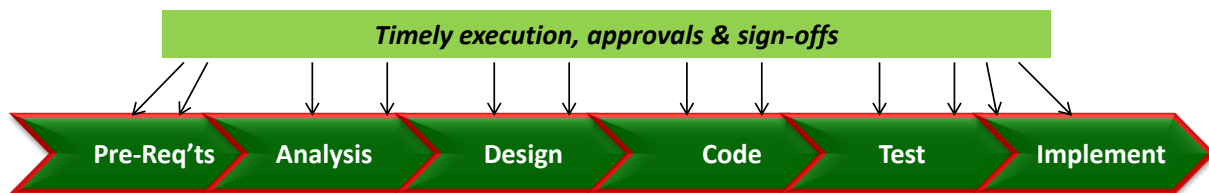
1) *Be sure to provide adequate time to the 'best practice' activities within the project plan*
2) *Employ aspects of an iterative methodology where appropriate – e.g., prototype or proof-of-concept*

Documenting and maintaining *best practices* can be a complicated and laborious process, but will help to avoid costly mistakes keeping projects on schedule and on budget.   Your investment of maintaining and evolving *best practices* will pay dividends in delivering timely BI solutions.

Taking Ownership making each Best Practice Unique

Taking ownership is a key ingredient to achieving and preserving the benefits of *best practices*.   As the purpose behind *best practices* are to trigger the use of repeatable and proven patterns of either design techniques or process methods, it is important to find ways to improve and grow them.   This enhances the value add proposition of *best practices* and contributes to achieving the highest level of business capabilities within BI solutions.

This ownership includes the discipline of capturing your experiences or lessons learned back into the *best practice* itself.   At the end of each project, conduct a formal exercise of reviewing the project successes and issues with the full project team.   Make sure you structure these reviews as non-threatening and free of any retaliation as your goal is to gain any and all feedback.   Only then can you start formulating the real experiences and issues capturing lessons learned back into the *best practices.*

Lessons Learned

Improved Best Practice

Current Best Practice

Don't think that you'll simply have time to do this exercise when the project completes as this rarely happens.   You need to anticipate the amount of time needed and incorporate it in the project plan itself from the very beginning.   Managing all aspects of project development requires a lot of work including managing and growing *best practices*.

Don't allow this to be optional as then it will never happen and make sure you include all team members because everyone can and should contribute to this important feedback process.   Another trick to ensure completion of lessons learned is to incorporate this as a criteria item within the individual performance review.   This way 'gaining ownership' becomes part of the norm and not the exception to the day-to-day work.

Benefits of a BI Center of Excellence

BI Center of Excellence or Business Intelligence Competency Center (BICC) is a significant theme in itself and merits its own series of white papers. So here I'll highlight the general benefits of a BICC as a formal platform for *best practices*.

A BICC enables the leveraging of Business Intelligence across the organization. This is achieved through strengthened BI tool skills, a broader and increased usage of BI, and the elimination or minimizing of re-training. This diagram depicts the BICC service and product offerings via the means of consulting, guiding, researching, and training:
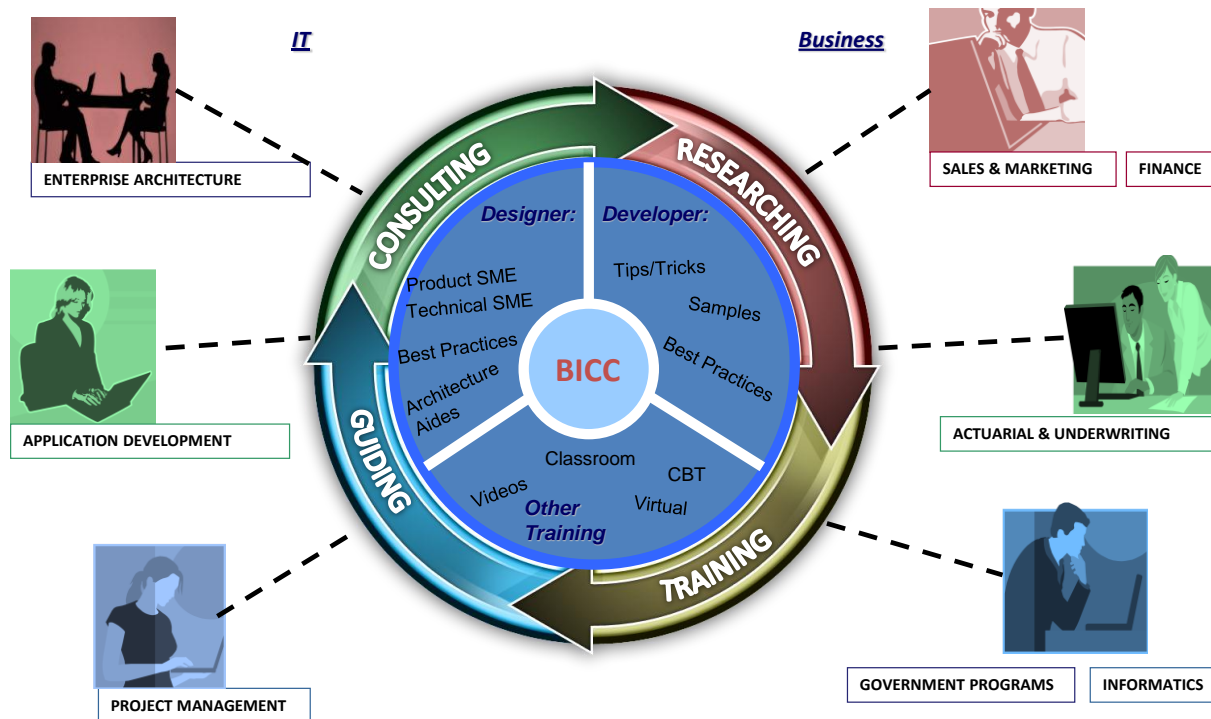
Organizations with a BICC experience greater business user satisfaction. Contributing to the higher satisfaction is an increase in self-service capabilities and the ability to react more quickly to changes in the business. Having shared business knowledge and experience readily available, there is a greater understanding and more accurate use of the data. More timely access to trusted information and an increase in quality of data available for analysis, improves an organization's decision making ability.

A BICC can help to initiate and reinforce predictable, repeatable, and consistent use of BI. Rework is minimized, being done correctly once and then shared with others. BI can enhance productivity. With increased processing capabilities, more can be produced with existing staff. Projects consume fewer resources with a shortened implementation time and increased throughput.

Centralized BI functions and services that utilize *best practices* result in a reduced total cost of ownership (TCO). There is a reduced risk of flawed project implementation and increased likelihood of successful projects. Use of technology resources and assets are maximized. By utilizing the current tools and environment, investments and one-offs are minimized. A BICC promotes a standard, reusable BI approach and architecture. Project and technical infrastructure costs are reduced, while leverage with vendors is increased. By exploiting existing technological investments, software costs are decreased and performance (run time) is improved. The cost of the overall BI environment is reduced.

Conclusion

The purpose of "Simplifying Best Practices into BI Development" is to highlight the significance of establishing and incorporating *best practices* into both DW and BI development. It is important to integrate each *best practice* into the appropriate methodology, ensuring that everyone follows a consistent and thoughtful process. This enhances the value add proposition of *best practices* that contributes to achieving the highest level of implementing business capabilities. Subsequently, your investment of maintaining and improving *best practices* will pay dividends in delivering timely BI solutions.

Accepting ownership is a key ingredient to achieving and preserving the benefits of *best practices*. As the purpose behind *best practices* is to trigger the use of repeatable and proven patterns of either design techniques or process methods, it is important to find ways to improve and grow them. This ownership includes the discipline of capturing your experiences or lessons learned after each project back into the appropriate *best practice,* allowing improvements to be made on an on-going basis.

Also, a BICC or BI Center of Excellence can help to initiate and reinforce predictable, repeatable, and consistent use of business intelligence functionality, in part, through the use of *best practices*. Centralized BI functions and services that utilize *best practices* result in a reduced total cost of ownership (TCO). Consequently, there is a reduced risk of flawed project implementations and increased likelihood of successful BI solutions.

About the Author:

Gary Hanson is the Owner and a Principal Consultant at Analytic Data Solutions, LLC. With over 30 years in the Information Technology field and 15 years of practicing in the data warehouse and business intelligence field, Gary has extensive hands on experience in information architecture, data integration, data management, data modeling, and business intelligence. Gary is the co-author of Quick Start Analytics for Healthcare and holds a B.A. degree in business management from Metropolitan State University

About Analytic Data Solutions, LLC:

Analytic Data Solutions is a BI-data solutions consulting company with a strong business orientation specializing in creating a comprehensive enterprise analytic environment strategic roadmap or program plan. This roadmap, coupled with the foundational components of the business requirements and the architecture blueprint, provides the means to execute the appropriate sequence of projects achieving timely and business value-add analytic solutions.

To learn more, please visit us at: http://www.analyticdatasolutions.net