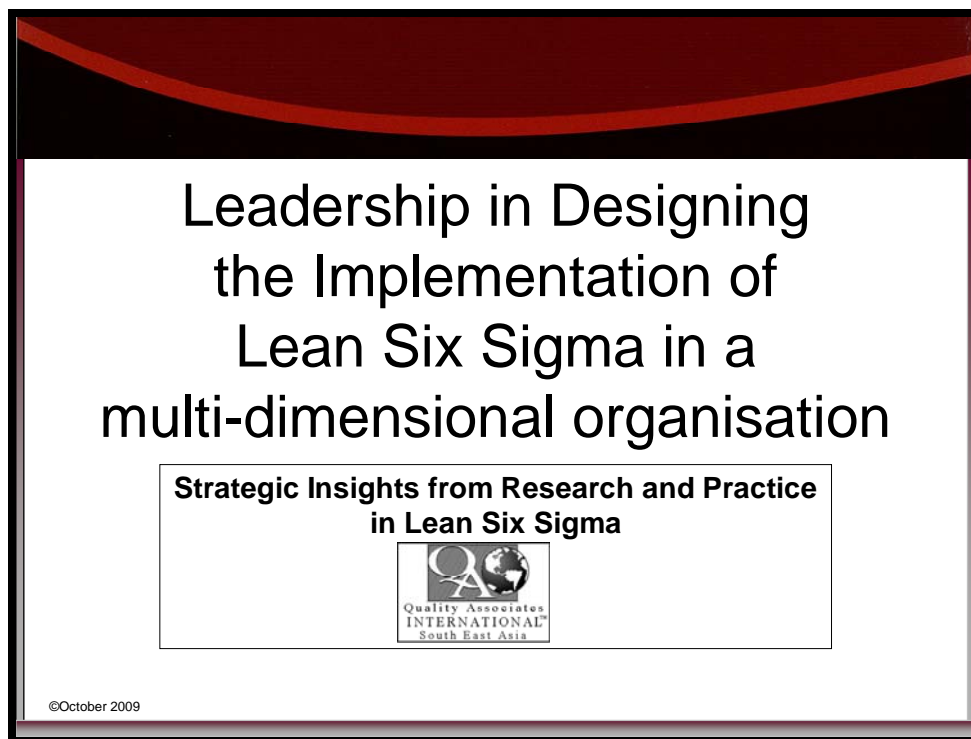




Leadership in Designing the Implementation of Lean Six Sigma in a multi-dimensional organisation



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Dave Kelly

Dave is CEO of Quality Associates International South East Asia Pty Ltd and combines these duties with consulting, development and training in process and business improvement, FMEA, lean six sigma, problem solving, electronic process management and is author of a number of training approaches and programs. With a Bachelor of Education in Mathematics and over 15 years experience in business working direct in both large and small organisations, he has been delivering sustainable operations and process management uplift across many industries.

Dave has delivered educational framework consulting and training in the manufacturing, financial service, education, government and retail sectors and has a key focus on capability uplift, business process performance and improvement and integrating curriculum into business strategy and objectives through Active 70-20-10 and the Business Curriculum Blueprints.

He has designed, developed and delivered lean six sigma in several organisations and is currently working on another black belt project within Quality Associates International South East Asia and the Quality Associates group of companies in the application of Search Engine Optimisation (SEO) and its importance in contributing to business strategy and goals.

Dave Kelly, B.Ed(Mathematics), Cert IV in TAA, Registered Lean Six Sigma Professional Master Black Belt AOQ

About Quality Associates International Group of Companies

Quality Associates International South East Asia (QAISEA) is a full service Quality, Reliability and Education training and consulting firm. Originally founded in the USA in 1987, Quality Associates International has offices in USA, Canada, Europe and Australia.

The Australian Office formally opened in 2005, although there has been a continuous agency presence in the region since 2000. Work with Australian companies and industries began over 15 years ago in education, manufacturing and quality. The Australian Office in Melbourne is servicing the Asia-Pacific region in all of its quality, education, training and consulting needs.

Quality Associates International provides the broadest range of products, education and business training. In working with our valued clients, Quality Associates South East Asia has provided services included consulting, development, training, education, software implementation and sales. This has covered:

Consulting in integrated training programs; product liability; FMEA facilitation, training and consulting; quality consulting; technology integration and implementation; Lean Six Sigma programs; Curriculum Development and the APQP process amongst others. Please visit our websites for further details.

Websites

Please visit our websites for further information:

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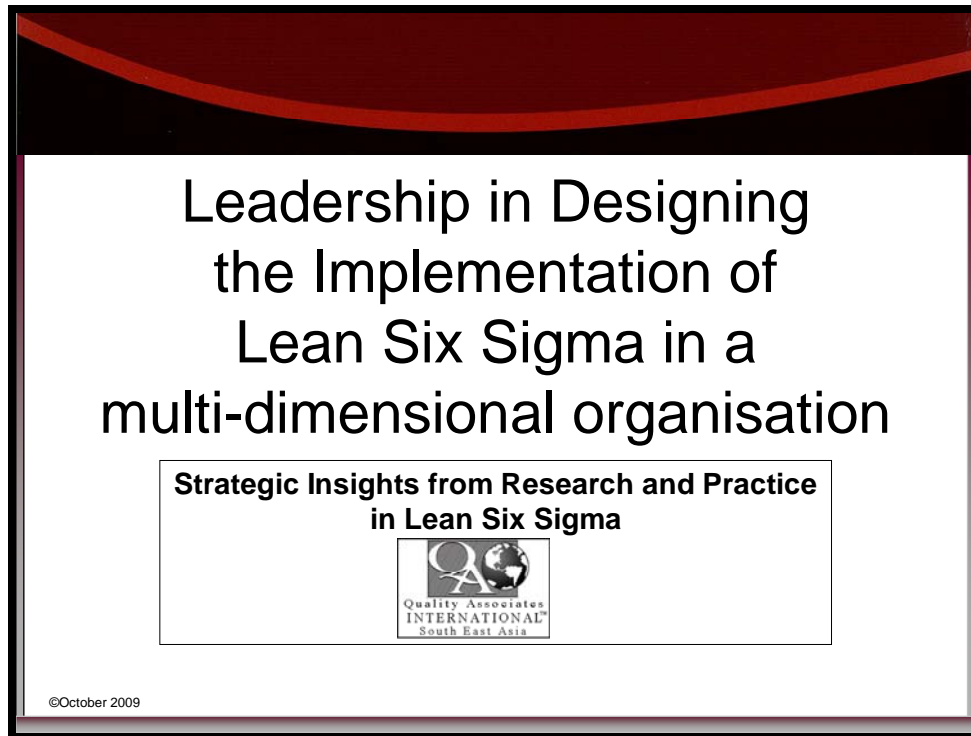
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Leadership in Designing the Implementation of Lean Six Sigma in a multi-dimensional organisation.



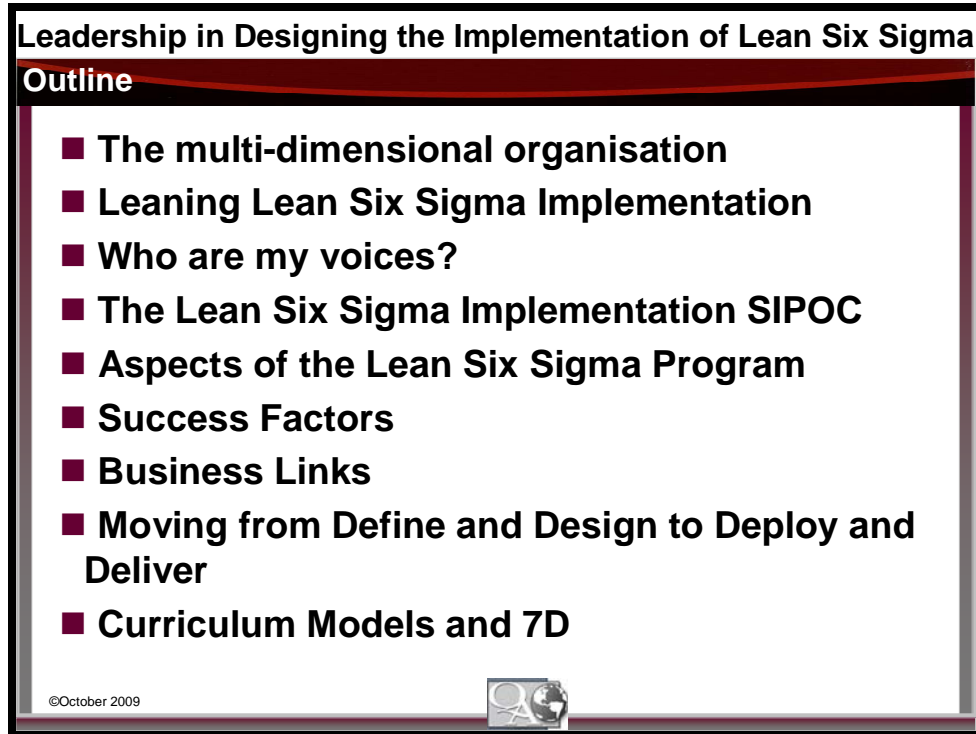
This paper has been written in conjunction with the presentation first delivered to the AOQ on October 6, 2009. The paper covers in more detail the discussion points outlined in the presentation and contains all slides shown in the order they appeared. Further information on any of the tools, methodologies and applications can be obtained by contacting Quality Associates International South East Asia on the contact details on the previous page.

The paper concentrates on the requirements of designing a lean six sigma program rather than its execution. The up front design and development of the program before implementation goes a long way to ensuring that the correct success factors and measurables of the entire program are followed and delivered to all relevant stakeholders.

In the terms of our 7D curriculum model this entails a concentration in the Define, Design and Develop phases with the Document and Debrief phases running continuously from program kick off under Define. Deploy and Deliver

will be covered in other subsequent papers as will a more thorough overview of the 7D model which model is outlined throughout this paper.

Outline



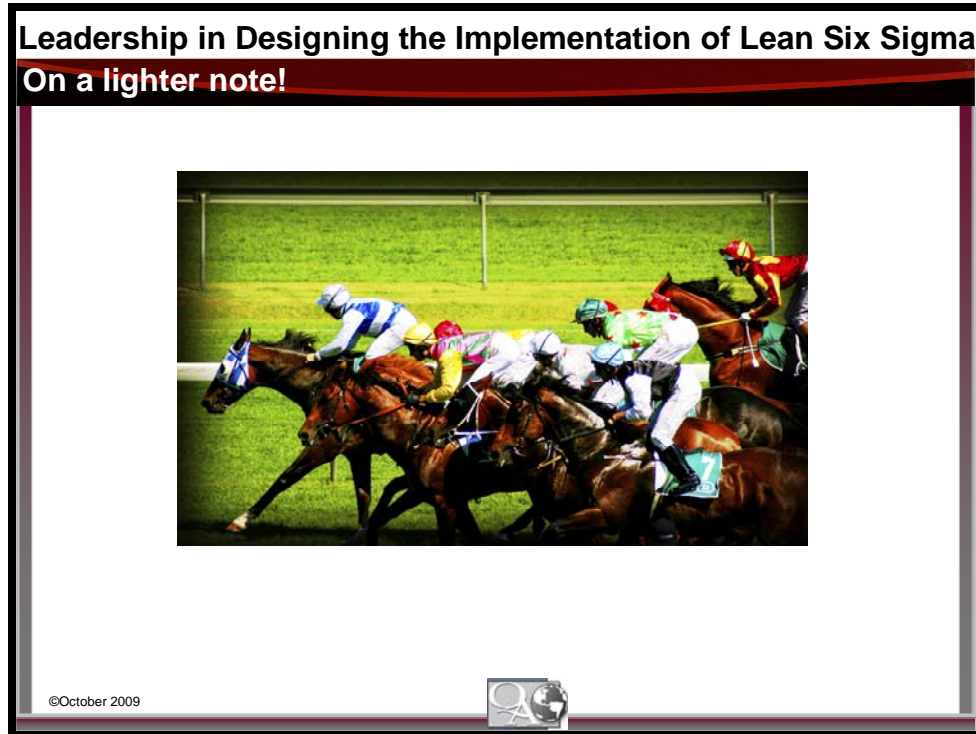
In this presentation and paper we will discuss and examine the following implementation criteria to maximise the chances for success in a lean six sigma program – relevant to all organisation types.

- A definition of multi-dimensional organisation although design implementation should still follow a rigorous process regardless of the organisational size and structure
- Seek to lean the implementation of lean six sigma programs using some its own requirements
- Cover the inputs or voices that will drive the outcomes and the measurables of the program
- The SIPOC view of a lean six sigma implementation
- What is generically required for success in a lean six sigma program and how does this effect the implementation
 - Customer Requirements

- Organisational Maturity
 - Process Maturity
 - Organisational Structure
 - Program Maturity
 - Curriculum Maturity
 - Participant Maturity
 - Participant Buy In
- Defining Success Factors and Measuring Success Factors through Hoshin Reporting
 - Ensuring Business Links throughout the implementation of the program
 - Deployment kick off – this can start prior to the end of the development phase but should not start before design phase is complete
 - How does a lean six sigma program fit into a curriculum model and what are the other 7D requirements

In short the success of the entire program not just each single aspect in isolation of each other.

On a Lighter Note



I have often been asked what the applications of lean six sigma are and is it limited to certain types of organisations. Lean six sigma has applications everywhere.

On a lighter note

Sigma has appeared in the thoroughbred horse racing industry. In fact it ran on the Saturday before the presentation over 1400 metres in the Westfield Doncaster Stakes at Flemington. Yes, as you may have guessed by now Sigma is a horse! I think the handicapper had a lean six sigma background as they managed to get it equal third weight but gave it saddle cloth 6 to get the 6 sigma message on the card.

Number 6 - Sigma went out favourite. Unfortunately due to uncontrolled process variations in the race or lack of race planning it finished not 1st or even 6th but 8th.

This somehow reflects a view of lean six sigma in some quarters. It often comes in as the flavour of the month and a cure all but fails to meet

expectations and deliver business requirements. This can generally be ascribed to a lack of expectation setting and a short fall in implementing a plan for the full program with accountabilities and deliverables required at all levels of the organisation.

It is the hypothesis that lean six sigma programs themselves refuse to learn from their own methodologies and principles. Too often there is a belief that the program will deliver simply by training in the methodology and running projects. There have been examples of training and project development being conducted independently of each other. The whole program needs to include all inputs from all the stakeholders in the organisation including all current business goals, objectives and strategies. The program itself needs to own rigour at six sigma levels with all voices having input into its structure and all reporting levels feeding into the higher program level deliverables across the business and to all stakeholders.

The multidimensional organisation

Leadership in Designing the Implementation of Lean Six Sigma

The multi-dimensional organisation

- **The multidimensional organisation**
 - ➔ **An organisation is multidimensional if**
 - ❑ **objectives are pursued simultaneously through multiple dimensions**
 - Product
 - Region
 - Account
 - Market Segment
 - ❑ **performance is reported simultaneously on and through multiple dimensions including**
 - overall performance and the contribution each dimension has on multiple levels
 - Each dimension being accountable for its contribution to overall performance
 - Dimensions being reliant on each other for resource
 - Collective accountability for overall performance
 - Customers are the profit centres of the organisation

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Without getting into a burdensome amount of detail an organization is said to be multidimensional if its objectives are pursued simultaneously through multiple dimensions either and including product, region, account, market segment, organisational objectives and so on in which:

- The overall performance of the company is reported simultaneously on each of the chosen multiple dimensions and across multiple levels in each dimension.
- Each dimension has a manager who is held accountable for the contribution of his dimension to the overall performance.
- Managers depend on each other for required resources and are collectively accountable for the overall company performance.

Source: Ackoff, Ashby, Bartlett & Ghoshal, Beck & Wade, Himanen, Prahalad, Prahalad & Doz and Strikwerda through <http://en.wikipedia.org>

Moreover managers in this type of organisation

- Can not, should not or will not work in a silo environment independent of each other.
- Agree on collective key performance indicators that escalate up to higher reporting levels.
- Have an understanding of the value streams of the organisations processes and be aware of upstream and downstream effects of failure in process/sub process which they are in control of.
- Should be champions for the organisation to understand and deliver process maturity at all process levels in order for a continuous improvement culture to exist and flourish.

The multidimensional organization is a new organization form, although it has been discussed as early as the seventies and subsequently by Ackoff (1977), Prahalad (1980) and Prahalad & Doz (1979), compared to the U-form, the M-form and the H-form of an organisation

U-form – U is for Unity

It relies almost exclusively on the functional approach to departmentalization. The U-form design is generally used to implement a single-product strategy and the emphasis is on functional activities and coordination.

H-form – H is for Hybrid

This form relies loosely on product departmentalization with the various products constituting different businesses. It provides protection against cyclical trends but can deliver below par financial performance.

M-form – M is for Multidivisional or Multiunit

It is similar to the H-form design, but most or all of its businesses are in the same or related industries. The M-form design is used to implement a corporate strategy of related diversification which can leave the organisation open to cyclical trends.

*Source: THE DESIGN OF ORGANIZATIONS -
<http://courses.washington.edu/inde495/lecd.htm>*

"The multidimensional organization is not one single specific organization form; it comprises a range of many organization forms. This includes the traditional multiunit organization, which simply is a one-dimensional organization, and remains to be applied in simple, one-dimensional environments. [Managers] cooperate on basis of a common goal and objectives and on basis of shared management information from one trusted source of transaction data to identify the opportunities of the firm and to capture these." (*Multiunit management to multidimensional organizations J. Strikwerda 2008*) Profit Centers are customer centric and while dimensions may follow traditional product, region and accounting lines the overarching focus is on the customer. In lean six sigma terms these are the voices that drive projects and continuous improvement.

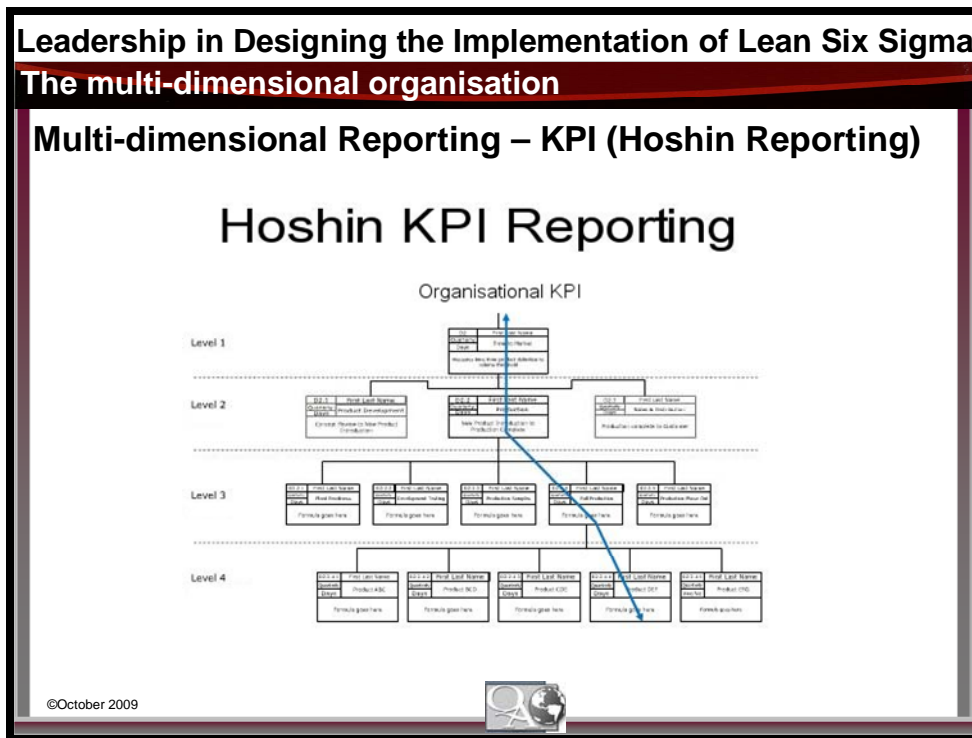
In short the maturity required in an organisation to deliver a multidimensional approach with knowledge of value stream, centralised reporting systems, end to end process management at all process levels and sound operations management allows for a higher determinant of success factors required to deliver the business improvements that lean six sigma boasts.

It required the combination of a fall in the costs of information, the development of dynamic multidimensional markets in terms of preference, how goods and services are selected and bought and changing distribution

channels from both private consumers and B2B and a new generation of workforce to create this paradigm shift in organization forms and this was as far back as Ashby in 1956 (Ashby’s Law of Requisite Variety)

The recognised structure of reporting and efficiency in a true multidimensional organisation places it in good stead for the application of lean six sigma programs as it should fulfill the organisational maturity requirements to make the design and implementation and ultimately the deployment and delivery successful. The requirements of designing the implementation of the program is the balance of this paper.

Hoshin Reporting



The claim of an organisation that it follows a multidimensional model is not necessarily a precursor to success in a lean six sigma implementation. The design of the implementation prior to deployment and delivery is still as relevant as ever. A key component of the design is the reporting structure – transparency is paramount for success tracking, impact analysis and

adherence to organisational key performance indicators. Organisational reporting structures may be in place but a lean six sigma program lends itself directly to the concept of Hoshin Kanri and the reporting that subsequently follows it.

The discipline of Hoshin Kanri is intended to help an organization:

- Focus on a shared goal
- Communicate that goal to all leaders
- Involve all leaders in planning to achieve the goal
- Hold participants accountable for achieving their part of the plan

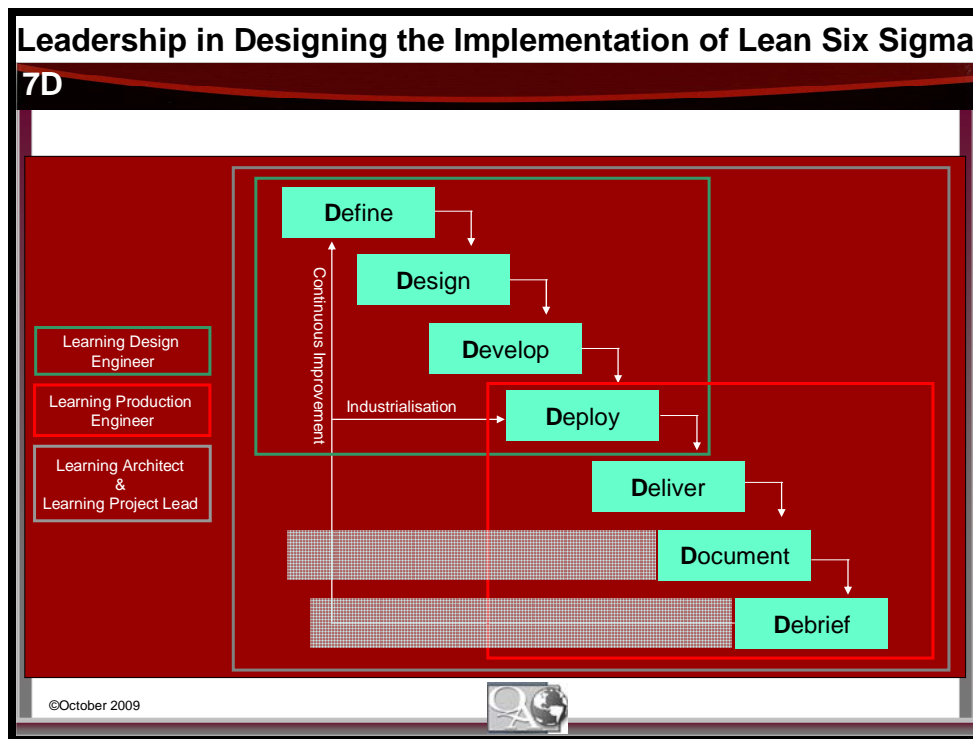
All key criteria to a successful lean six sigma implementation from training participants yellow, green, black and champions to project and program design, implementation and management. The broader program should not be lost in the wider detail of training and projects or their relationship to the business, its strategies and each other.

We have taken this concept through to Hoshin Reporting and the links to organisational KPI that a lean six sigma program should have in place. Adherence to KPI moves the program a step closer to ensuring success and should be forefront in the design of the implementation. Each step in the program including each project should be able to link to the higher level KPI of the shared goal of the organisation. In a multidimensional organisation KPI should be aligned along customer lines and will more than adequately allow the program and projects to reveal Voice of Customer concerns and improvement opportunities.

Some organisational measures may already be in place but the requirement of alignment along Hoshin Reporting lines needs to be a consideration in the design of the program, its implementation and designated success criteria. This enhanced by an understanding of the levels of process of the lean six sigma program and hence it's reporting criteria and lines.

7D

The 7D Model displays (below) the process followed at the second process level. The highest level would be the lean six sigma program process which is answerable to the organisational KPI – in essence the deployment of a lean six sigma program is the action undertaken by the organisation to deliver high level KPI. Each of these is broken down to a third level which would include training, project implementation, project and program reporting and these in turn drilled further to reveal contextualization of training, project selection criteria, tollgating, project document requirements and so on. This is beginning to sound like a Gantt Chart! Remember though program management before project management...



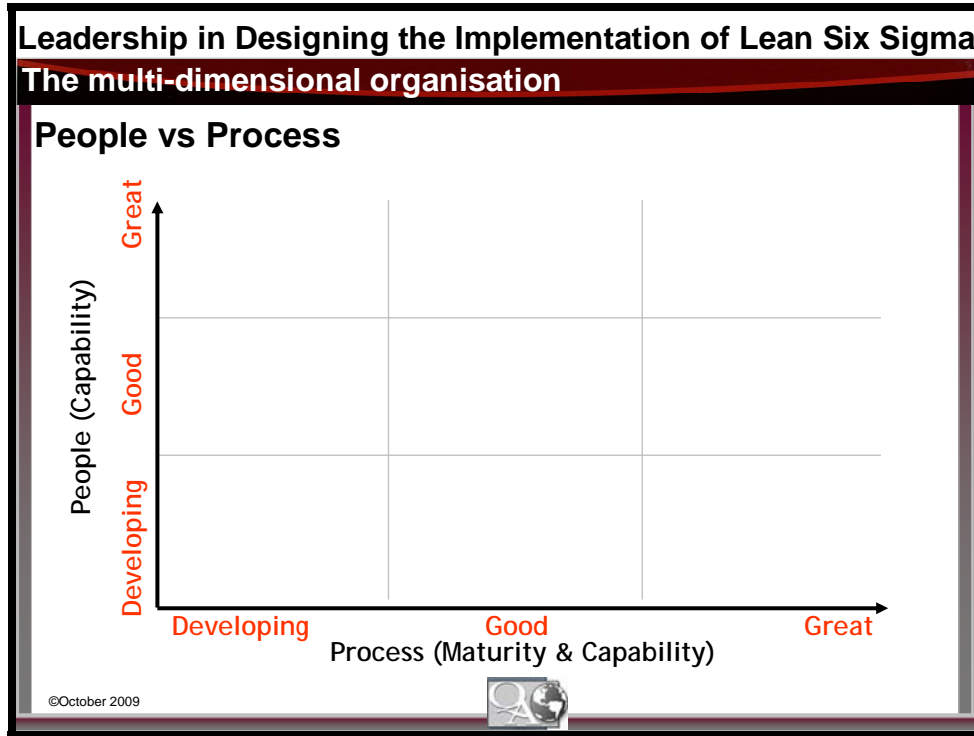
Hoshin planning is a comprehensive operations planning environment with methodological approach that facilitates organizations to achieve both strategic and operational breakthroughs – in short the requirements of a lean six sigma program and under a multidimensional environment should have transparent reporting requirements evident in the organisation.

Hoshin planning emphasizes the desire of a multidimensional organisational approach through enterprise coordination, communication, tracking/monitoring and cross-functional ownership of organisation wide key performance indicators, which:

- Includes the body of working knowledge of the organisation and leverages value streams
- provides business operations and objectives with an avenue of continuous improvement
- is based on participation and coordination by all dimensions and entities of the organization at all process levels
- consolidates strategy and financial planning
- emphasizes and supports continuous improvement
- reduces and/or eliminates the variability, confusion or misinterpretation of strategic/business strategy and direction

All of which are elements of lean six sigma and will help consolidate and focus the design and implementation of the program.

People Versus Process



Organisational structure, strategy and reporting models aside, an organisation is embarking on a lean six sigma program potentially because none of them currently exist and the program is intended to be part of transformational change. The danger here is the program can be made to perform the transformational change and while not impossible unless stated up front as one of the success factors can be pointed to as a failure of the program. As such an organisation needs to be clear on its level of business maturity and process maturity prior to launching the endeavor.

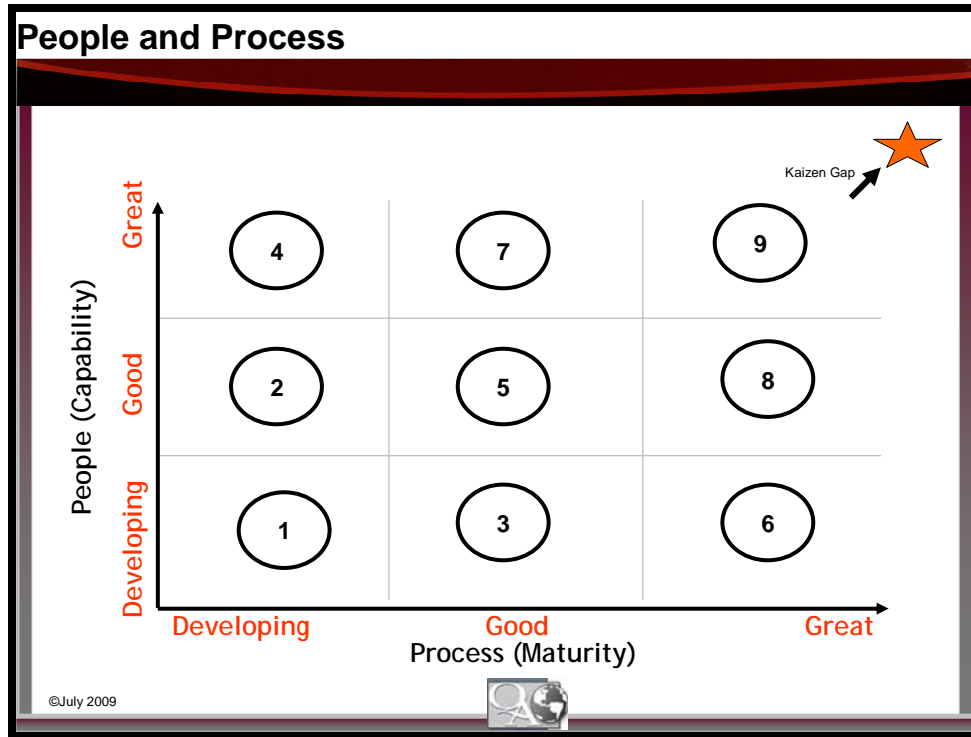
A simple and quick way to undertake such an assessment and to ascertain the requirements the design of the implementation of the program needs is the people vs process model. This model was developed in a response to being able to quickly get the organisational maturity point across in planning discussions for the requirements of lean six sigma and other process operational driven programs. Where an organisation sees itself on this scale will have a direct correlation on some potential programs that need to be run

either prior to or in conjunction with the lean six sigma program for example leadership programs, business process re-engineering programs, process capture programs, organisational operations programs, workforce capability enablement programs and at a higher level curriculum integration programs.

The people and process framework has its origins from the desire to place companies and organisations on a scale that is simple and can be identified at all levels of in an organisation and benchmarked rapidly to others. It delivers the company position quickly and succinctly and outlines the journey to greatness while being able to compare companies and organisations of different types simply.

All companies and organisations are made up of two key factors that deliver its measures, performance indicators, goals, strategies and results. The people within the organisation and the process they execute to deliver the results. In all circumstances the level of maturity in both people and their capability and the processes and their results, efficiency and capability will vary from emerging or developing to good and finally great. The utopic position is to have great people, indicated by great capability to execute, manage and change processes, and great processes which are statistically capable (have low defect rates), efficient and deliver the key results for the organisation. The great people great processes quadrant (9) delivers the scenario where the processes identify weaknesses in the people capability and sets out to enhanced this and expand the organisational body of working knowledge to make processes more capable and the people identify weaknesses in the processes and direct organisational change management on the processes, including impact, regulatory change and competitor influence amongst other change drivers to continually improve processes that in turn identify the people and their capability effected by the process change and seeks to close the gap hence once more affecting the body of working knowledge of the organisation and so on in a continuous quality cycle.

The Utopic Kaizen Position and Kaizen Gap



The utopic of Kaizen Position lies to the top right of the people and process matrix which by the definition of continuous improvement is not attainable and a gap, a Kaizen Gap, appears from the company's position and the nirvana point of perfection which will invariably shift with each internal people and process adjustment and growth or decay.

The Japanese word "kaizen" means simply "improvement," with no inherent meaning of either "continuous" or "Japanese philosophy"; the word refers to any improvement, one-time or continuous, large or small, in the same sense as the mundane English word "improvement".

However, given the common practice in Japan of labeling industrial or business improvement techniques with the word "kaizen" (for lack of a specific Japanese word meaning "continuous improvement" or "philosophy of improvement"), especially in the case of oft-emulated practices spearheaded by Toyota, the word kaizen in English is typically applied to measures for implementing continuous improvement.

Source: <http://en.wikipedia.org/wiki/Kaizen>

The people and process matrix can be underpinned by organisational measures on both axis of the framework that give qualitative and quantitative measures where the organisation is positioned on the chart. This gives evidence of where the organisation sits relative to the quadrant it falls into. There are several organisational measures available that allow for benchmarking with other organisations and a measure of organisational competency and capability on the people and process scale examples of which are the Australian Business Excellence Framework and ISO certifications amongst others.

Organisations that can legitimately place themselves in quadrant 9 should already have many if not all of the factors for success in a lean six sigma program established.

Leaning Lean Six Sigma Implementation

Leadership in Designing the Implementation of Lean Six Sigma
Leaning Lean Six Sigma Implementation

- **Regardless of the organisation significant time needs to allocated to define and design of the lean six sigma program prior to any delivery or organisational notification**
 - **“Measure Twice Cut Once”**
 - **Organisational Readiness**
 - Educational Framework Requirements
 - Project Management Methodology
 - Quality Management Systems
 - Feedback Loops
 - Process Management
 - Business Frameworks



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Get all suppliers and inputs confirmed before outlining the define and design phases of the program - the left hand side of the SIPOC. This includes all current business systems and frameworks in the organisation that fall under the educational framework, project management methodology and quality management systems (including feedback loops and process management) banners.

Workplace Educational Frameworks

There are several types of competency frameworks to investigate potentially including;

- Australian National Training Framework Competencies
- International Industry and Professional Competencies
- Organisation Specific (Capability Frameworks)

- Business Curriculum Blueprints; Industry Curriculum Blueprints;
Professional Curriculum Blueprints

Project Management

Project management is the discipline of planning, organizing, and managing resources to bring about the successful completion of specific project goals and objectives. It is often closely related to and sometimes conflated with program management.

A project is a temporary endeavour, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet particular goals and objectives, usually to bring about beneficial change or added value. The temporary nature of projects stands in contrast to business as usual (or operations and even program management), which are repetitive, permanent or semi-permanent functional work to produce products or services. In practice, the management of these two systems is often found to be quite different, and as such requires the development of distinct technical skills and the adoption of separate management.

Source: http://en.wikipedia.org/wiki/Project_management

Quality Management Systems

A Quality Management System provides a structure, including documentation and processes, which enables the delivery of products and services to be controlled and managed to consistently meet the specified requirements.

Source: New South Wales Government; Quality Management Systems Guidelines for Construction June 2005


The lean six sigma program falls into all three of these frameworks and the organisational maturity in each level will define the requirements in the design phase of the program. Particular attention may be required in liaising with stakeholders on the requirements of each area and the potential for individual programs or projects external to the lean six sigma program, although directly influencing it, to be created to uplift the organisation if it is

deemed immature in any of the requirements. These would have direct impact on the success criteria agreed to prior to any program launch.

Who are my voices?

Leadership in Designing the Implementation of Lean Six Sigma
Who are my voices?

- **Who are my voices?**
 - **Voice of Customer**
 - **Voice of Business**
 - **Voice of Process**
 - **Voice of Business Entity/Dimension**
 - **Voice of Participant**
 - **Voice of Program**
 - **Voice of Measurement**
 - **Voice of Learning**
 - **Voice of Problems**
 - **Voice of Waste**



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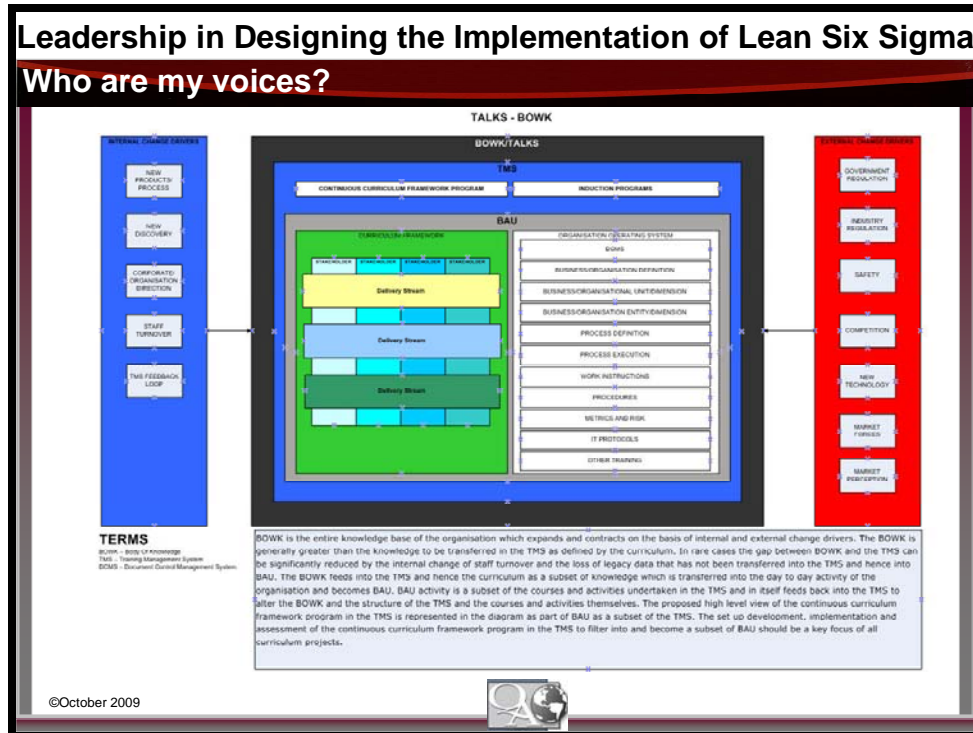
In gathering success criteria to design and define the lean six sigma program and identify inputs into the program all voices need to be consulted. This would include:

- Voice of Customer
- Voice of Business
- Voice of Process
- Voice of Business Entity/Dimension
- Voice of Participant
- Voice of Program

- Voice of Measurement
- Voice of Learning
- Voice of Problems
- Voice of Waste
- Voice of Compliance

In essence any input into the program needs to have a voice. This list could continue to include shareholders, industry professional bodies and so on. In some way each of these could be defined as a customer but it is still a good exercise in program definition to write them all down and identify there inputs. This will help identify resource, success criteria, potential projects, training requirements, program strategy, program key performance indicators, program risk, measures and so on. This is regardless of organisational type and structure.

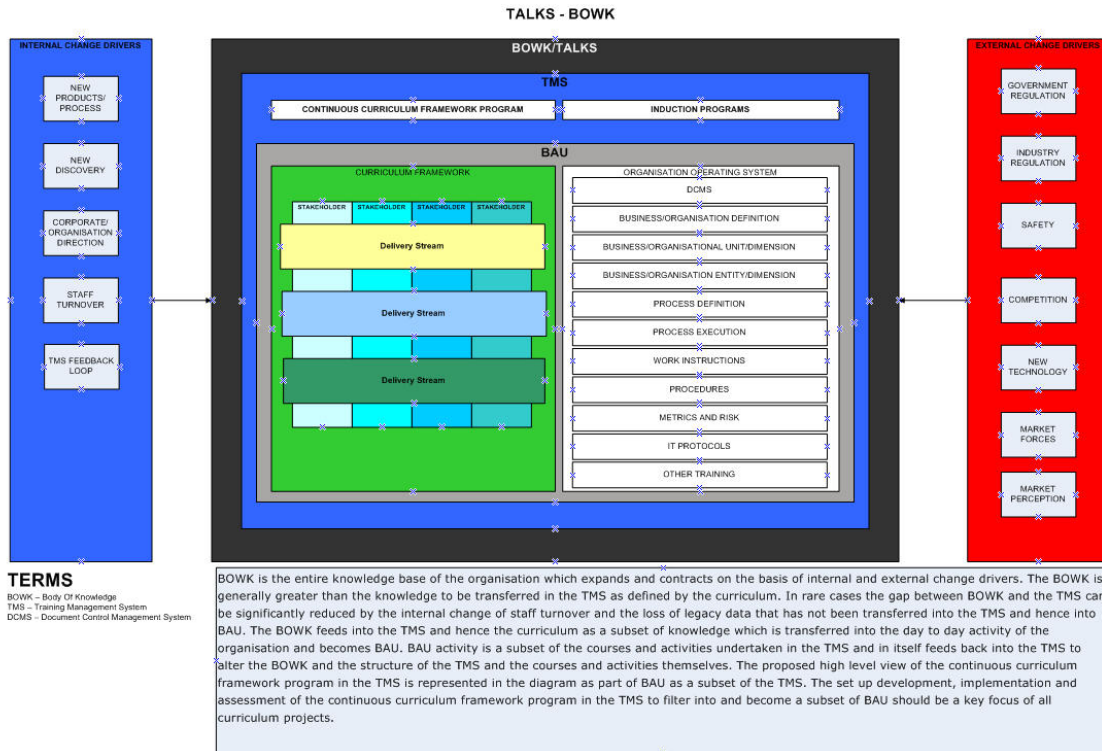
Who are my voices? – Body of Working Knowledge (BOWK)



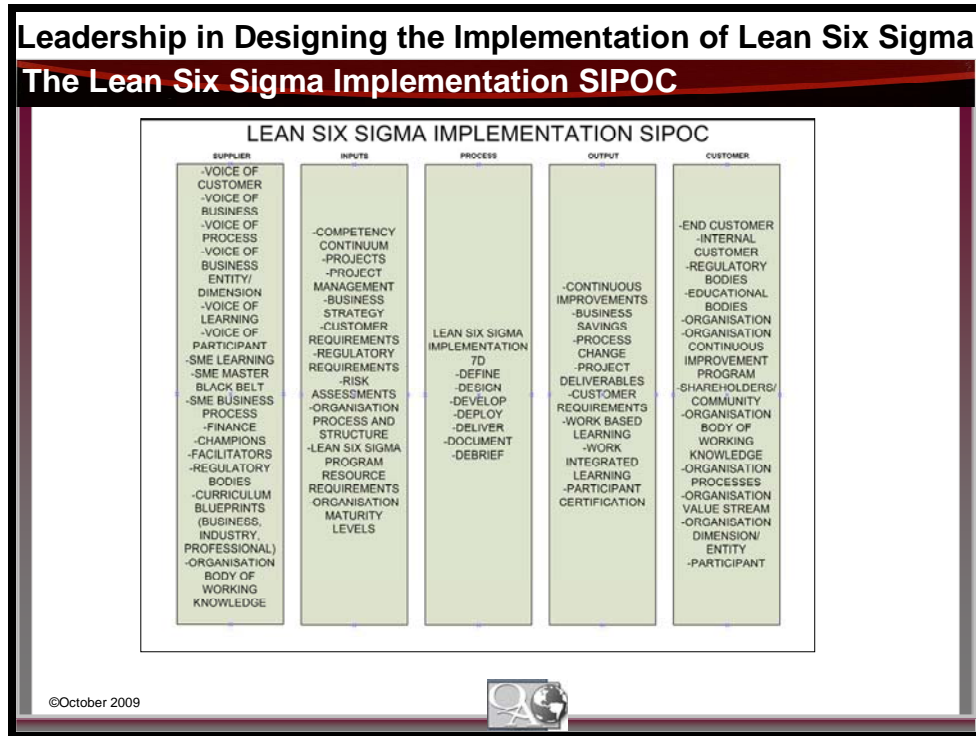
BOWK is the entire knowledge base of the organisation which expands and contracts on the basis of internal and external change drivers. The BOWK is generally greater than the knowledge to be transferred in the Training Management System (TMS) as defined by the curriculum. In rare cases the gap between BOWK and the TMS can be significantly reduced by the internal change of staff turnover and the loss of legacy data that has not been transferred into the TMS and hence into Business As Usual (BAU). The BOWK feeds into the TMS and hence the curriculum as a subset of knowledge which is transferred into the day to day activity of the organisation and becomes BAU. BAU activity is a subset of the courses and activities undertaken in the TMS and in itself feeds back into the TMS to alter the BOWK and the structure of the TMS and the courses and activities themselves. The proposed high level view of the continuous curriculum framework program in the TMS is represented in the diagram as part of BAU as a subset of the TMS. The set up development, implementation and assessment of the continuous

curriculum framework program in the TMS to filter into and become a subset of BAU should be a key focus of all curriculum projects.

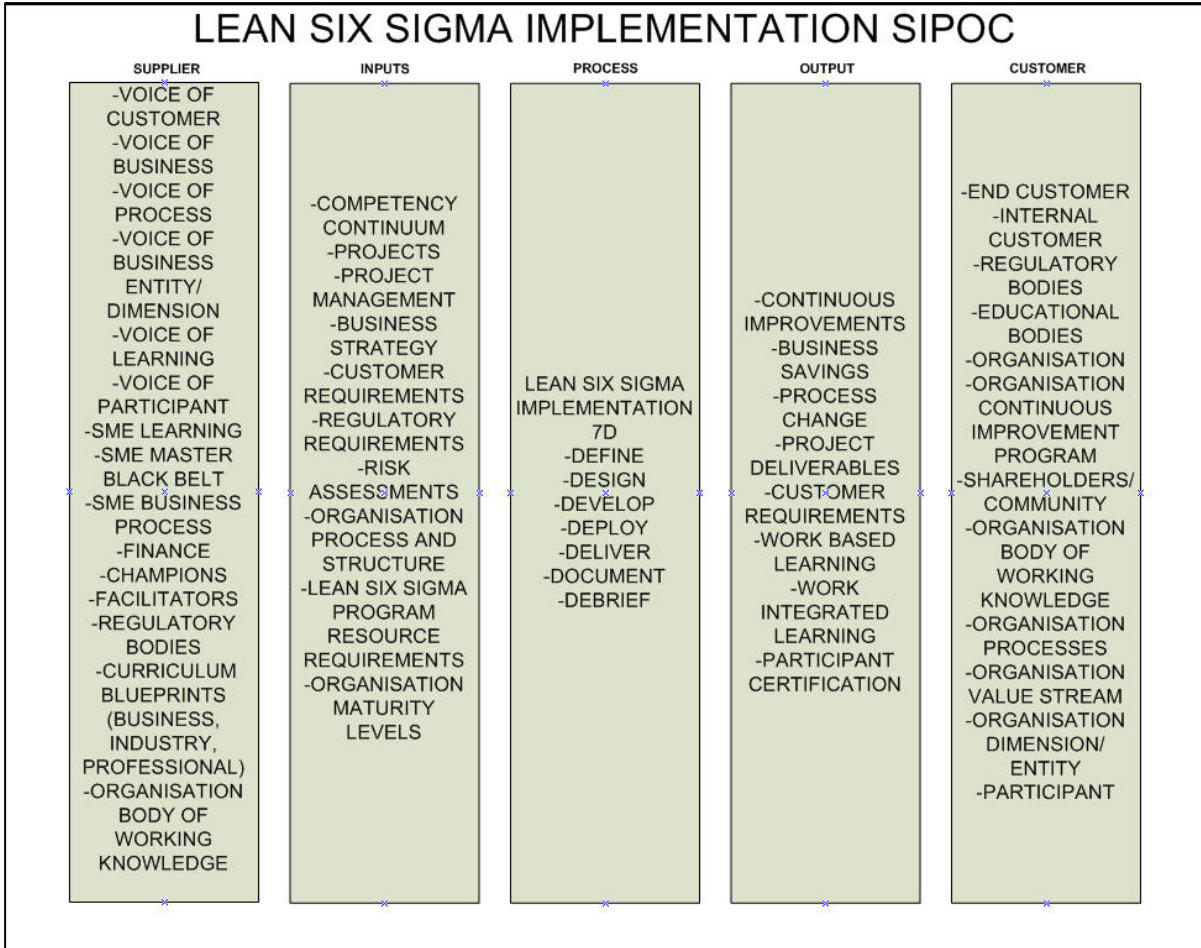
The lean six sigma program should tap into the curriculum view of the organisation where possible as it contains and exists within the requirements of a curriculum wise organisation that delivers work based learning programs. Much of our work in delivering organisational business curriculum requirements has interface in the way mature lean six sigma programs are conducted with training integrated into live on the job experiential learning.



The Lean Six Sigma Implementation SIPOC



One of the first steps in the Define phase of Lean Six Sigma after a project is realised is to create a SIPOC of effected processes. We can assume that if the lean six sigma program is a “go” then program management should begin and the SIPOC is a great place to start. Ensure this is completed as an initial step in Define phase of the 7D model. The SIPOC gives a high level view of all requirements of the program not just the six sigma course of study.




Aspects of the Lean Six Sigma Program

Leadership in Designing the Implementation of Lean Six Sigma

Aspects of Lean Six Sigma Program

- **Aspects of the Lean Six Sigma Program**
 - **Scope of program based on**
 - Organisational Size, Maturity, People v Process Rating
 - Depth of Projects
 - **Competency Continuum – Blooms**
 - Belt Requirements or Certification Requirements or Both
 - **Business Outcomes**
 - **Customer Requirements**
 - **Problem Solving**
 - not Problem Introduction or Problem Shifting
 - **Participant Recognition (WIFM)**
 - **Project Filtering, Deliverables, Impacts and Reporting**
 - **Program SIPOC clearly stated**

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Design of a program can begin the moment data from the organisation, its stakeholders and inputs becomes available to the program management team. The size of the team is directly dependent on the resources allocated to it by the organisation comprising of either or both internal resource and external consultancy. The SIPOC will reveal the areas of supply and inputs into the Define and Design phases of the 7D model however further data will be required around organisational structures (in a multidimensional organisation by definition it is more likely this data will be easier to find, articulate and deliver into the program), organisational size, organisational maturity, process and people maturity, potential problem areas for projects both perceived and real, educational alignments, business strategies, project methodologies and so on. This will not only give a view of how easy the program transition will progress but will also allow planning around potential training gaps, numbers of participants, filtering participant and project processes and outline outcomes for all stakeholders from participants to


senior management to potentially shareholders if appropriate. Moreover it will give the program a view into the success factors it will be measured by and allow planning for reporting, data collection for the program and alignment to business reporting to be set up and threaded through program tools such as participants diaries, project pulse checks, tollgates and decision criteria. The reporting of the lean six sigma program should not be limited to tollgates. Participants are in a program process and need to report on their progress which escalates into higher level reports for the program – remember Hoshin reporting here.

Success Factors

Leadership in Designing the Implementation of Lean Six Sigma

Success Factors

- **Success Factors**
 - **Customer Requirements met and enhanced**
 - **Problems Solved**
 - **Measurable Savings**
 - **Projects Delivered**
 - **Participants Certified**
 - **Continuous Improvement Program Developed**
 - **People v Process Improvements**
 - **Program Baseline Improvements**



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Every business will have a slightly different view of what success is dependent on its core principles, strategies and objectives. It is imperative here for the program to view the KPI's of the organisation and ensure any current measures deliver to them. It is also worth checking KPI alignment to business strategy and requirements. If no current alignment is evident the success of the program can be affected. Alignment here is considered crucial – a lean six sigma program must be

questioned or must question the business if no direct alignment can be set up. Without it there is no organisational responsibility for the program and with no responsibility the buy in from champions and sponsors diminishes.

There will be obvious success factors to cover - problems solved, costs saved, profits increased, participants certified, projects completed, waste reduced but each of these needs to be linked to an organisational KPI and linked to business requirements for continued buy in and examples of success for the program. Reporting should be structured progressively as the program grows ensuring direct success factors can be adhered to. Success or even failure should not be a surprise it should be known and transparent through the reporting lines of the organisation.

Business Links

Leadership in Designing the Implementation of Lean Six Sigma

Business Links

- **Business Links**
 - **Program Customisation**
 - **Multidimensional Organisation**
 - **Business Strategy and Objectives**
 - **Business Outcomes (not always profit)**
 - **Waste Reduction**
 - **Workforce Capability Enablement**
 - **Organisational Skills Matrix**
 - **Projects and Skill enhancements related to role definitions and process requirements**
 - **Hoshin Reporting Structure**



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Links should be made to KPI's within the business, to existing educational programs and frameworks including skills matrices and capability uplift or enablement programs (lean six sigma program success can be linked to these organisational measures), to the organisational structure, and to

maturity levels within the organisation. As the program progresses it should input into all available areas, measured or not measured (although if you cannot, will not or do not measure it you cannot improve it) in the organisation to maximize the areas where it can be deemed a success. It is not simply a matter of do the training, run the projects and success will follow. In a lean six sigma program we are also looking to create cultural change and by linking to all possible business outcomes the program can have a greater chance embedding a continuous improvement culture.

Moving from Define and Design to Deploy and Deliver

Leadership in Designing the Implementation of Lean Six Sigma
Moving from Define and Design to Deploy and Deliver

- **Moving from Define and Design to Deploy and Deliver**
 - **Development Requirements Identified, Established and Committed**
 - **Resource Requirements Defined**
 - **Risk Processes Identified**
 - Participant Entry Identified
 - **Analysis areas Identified**
 - **Educational Parameters Outlined**
 - **Program Costs outlined**
 - **Program Reporting Structures Agreed**
 - Aligned to multidimensional reporting

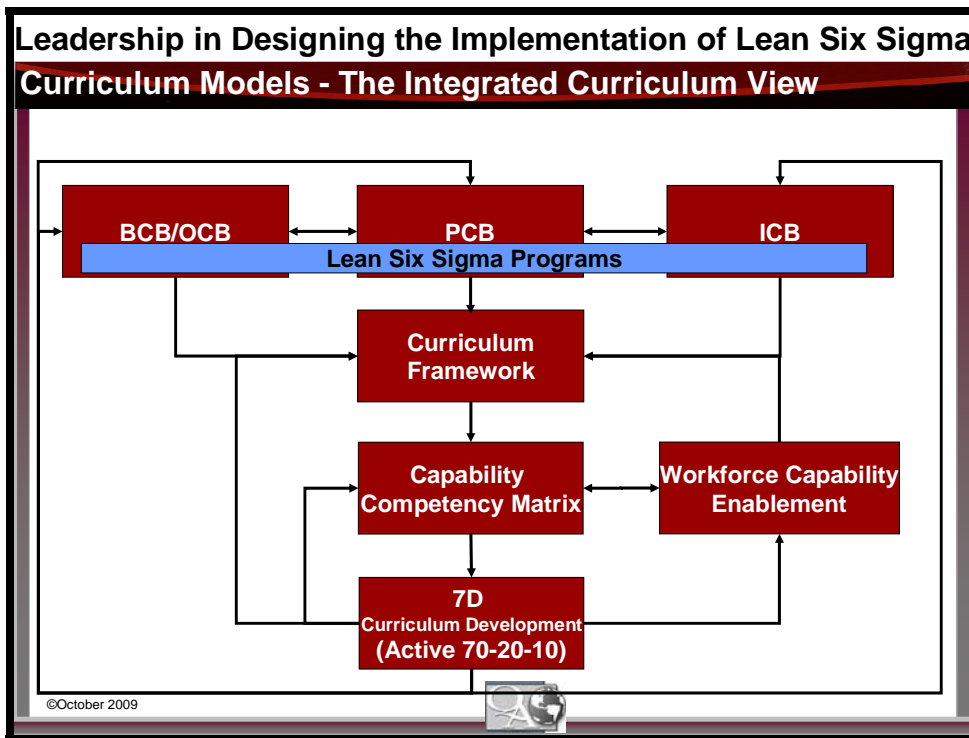


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It is imperative to the success of lean six sigma programs regardless of the organisation type that the Define and Design stage of the implementation of the program be aligned to business objectives and KPI and that all requirements and resources for those requirements be identified prior to moving to Deploy and Deliver. Where resource will be a potential problem a risk analysis needs to be performed to ascertain where the program is at least vulnerability for resource to be trimmed.

All program costs and potential returns should be identified at this stage and updated as the program progresses. Ideally the Define and Design stage should be signed off prior to proceeding in the same way lean six sigma DMAIC projects pass through a tollgate at each phase. Ultimately, success factors need to be set up, program requirements from all stakeholders need to be realized, reporting channels and measures need to be acquired and commitment from all levels of the organisation and stakeholders obtained before continuing down the lean six sigma road to ensure success.

Curriculum Models – The Integrated Curriculum View



The graphical representation example shows how the Business Curriculum Blueprint/Organisation Curriculum Blueprint (BCB/OCB), Professional Curriculum Blueprint (PCB) and Industry Curriculum Blueprint (ICB) feed into the curriculum framework. The Curriculum Framework incorporates both Formal and Emergent components and therefore unlike other models, including Capability models it is able to accommodate both formal and informal learning that occurs in the workplace. The model also discerns the

leaders of all types learning including those led by master practitioners which are extremely valuable in terms of the organisations body of working knowledge and legacy inputs to the curriculum. In the Introduction to Curriculum Blueprints course we endeavour to identify the inputs, outputs and feedback loops in BCB/OCB, PCB and ICB and the likely sources, customers and stakeholders internal and external to the organisation and/or business which has direct links into a lean six sigma program.

Business/Organisation Curriculum Blueprint

The Business/Organisation Curriculum Blueprint contains all inputs and requirements from the business/organisation perspective. This includes the business/organisational operating system, integrating the organisations' body of working knowledge, identifying and promoting the organisation maturity in terms of people and process, integrating the roles and requirements within the organisation and ensuring delivery of products and processes at every level. The Business Curriculum Blueprint feeds directly into the curriculum framework which delivers into the capability and competency matrix and the outcomes of the educational requirements of the organisation.

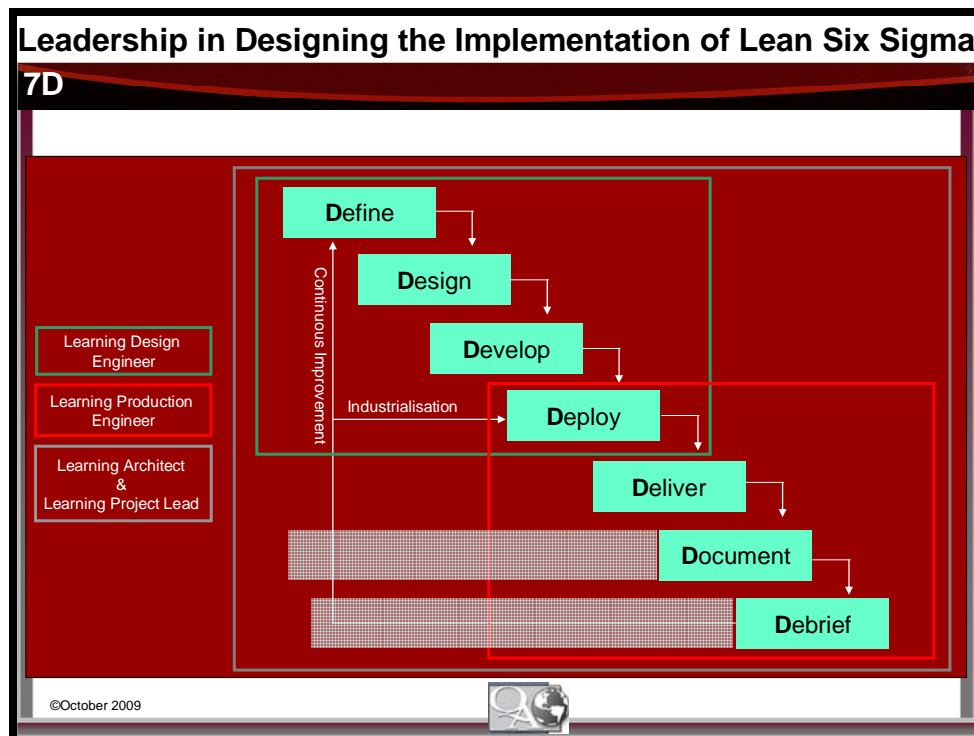
Professional Curriculum Blueprint

The Professional Curriculum Blueprint contains all inputs and requirements of the professions represented within the organisation and those professions that are part of the stakeholder organisations that make up the organisations customers, supplier base and value stream. Internal professions can be found through role definitions and competency and skill requirements however external professions will require organisational knowledge of end to end processes and value streams including customer groups which will have requirements on the Curriculum Blueprint. Identification of learning types and delivery mechanisms in the professional blueprint will require knowledge of both the internal curriculum and externally delivered curriculums.

Industry Curriculum Blueprint

The Industry Curriculum Blueprint contains all inputs and requirements of the industries that shape the organisation. This could include the industries suppliers, business to business customers and suppliers in addition to the industries the organisation is directly a member of. This would include all standards, regulations and requirements of all industries. It is the role of the curriculum blueprint to disseminate the level of competency and skill requirement of the industry both internally and externally according to the organisational strategies and key requirements and indicators.

7D Overview



Define

The Define phase covers voice of customer; stakeholder engagement; curriculum charter links; learning cohorts; learning level definitions; resource, process and communication strategies; business strategies and objectives and so on. Define is a one pass program/course development

phase that is revisited for continuous improvement as the curriculum develops and matures with the organisations process and people management. This is done at the introduction of new and updated programs and courses to the curriculum.

Design

The Design phase covers training needs analysis; capability gap analysis; source and populate curriculum set (level dependant); learning and assessment process; learning metrics; business strategy and process links; blended percentages; program induction meetings; link, impact and risk reviews; steering committee initiation. Design is a one pass course development phase that is revisited with the introduction of each new or updated program/course in the curriculum. The intent of this phase is to set up templates and strategies to feed into the next phase.

Develop

The Develop phase covers populating the curriculum set including visual aids; facilitator, participant, coaching, assessor, assessment guides; process guides; asset guides and so on. This includes any contextualisation to the business dimension, entity or unit. Program schedules are developed along with resource, communications and stakeholder development plans. The Steering Committee would sign off on all work developed including the work based learning activities integral to the assessment piece of program/course offering in the curriculum.

Deploy

The Deploy phase covers the assembly of resource assets and teams, the set up of administration in Training Assessment Learning Knowledge Systems, activating the 70-20-10 approach and ensuring all contingency are catered for in the delivery phase that gives the curriculum and the program ROI and BAU readiness. In the case of a lean six sigma program this would ideally include the set up and maintenance of program success factors.

Deliver

The Deliver phase covers the induction of all required team members (facilitators, coaches, assessors, stakeholders), delivering to the participants through the blended learning percentage, assessing participants, setting tollgates if required and the process of certification and articulation.

Document

The Document phase begins parallel to the define phase and seeks to ensure documentation is covered through all phases from program/project plans to capturing competency and legacy data in the Training Assessment Learning Knowledge Systems to enable Workforce Capability Enablement

Debrief

The Debrief phase is the continuous feedback and improvement loops into the program/course and training development, the curriculum and where required the Business Curriculum Blueprint and 7D process. Continuous Improvement should be constant, regular, tracked and easy to implement to gain full and immediate effects. This would include obtaining data from the field on the content, metrics and process of all offerings in the curriculum and enterprise body of working knowledge.

Appendices



Acronyms

Alpha Order Acronyms

7D	7 D's of Curriculum Course Development
8D	8 Discipline Problem Solving
ABEF	Australian Business Excellence Framework
ABN	Australian Business Number
ADRI	Approach Deployment Results Improve
AIM	Australian Institute of Management
AITD	Australian Institute of Training and Development
APQP	Advanced Product Quality Planning
AQTF	Australian Qualification Training Framework
ACN	Australian Company Number
BAU	Business As Usual
BCB	Business Curriculum Blueprint
BOWK	Body of Working Knowledge
BPM	Business Process Management
CAPA	Corrective Action Preventative Action
CEO	Chief Executive Officer
COA	Chart of Accounts
CONT	Cost of No Training
CPA	Certified Practicing Accountant
DCMS	Document Control Management System
DMADV	Define Measure Analyse Design Verify

DMAIC	Define Measure Analyse Improve Control
ETS	Emission Trading Scheme
	Federation of Automotive Products
FAPM	Manufacturers
FMEA	Failure Modes Effects Analysis
HR	Human Resources
ICB	Industry Curriculum Blueprint
IPA	International Police Association
ISO	International Organisation for Standardisation
KPI	Key Performance Indicators
LA	Learning Architect
LAW	Learning at Work
L&D	Learning and Development
LDP	Learning and Development Practitioner
LE	Learning Engineer
MP	Master Practitioner
MSA	Measurement Systems Analysis
NRAA	National Registered Assessors Association
OCB	Organisational Curriculum Blueprint
PCB	Professional Curriculum Blueprint
PDCA	Plan Do Check Act
PM	Project Manager
PMBOK	Project Management Body of Knowledge
QAISEA	Quality Associates International South East Asia
QMS	Quality Management System
RCC	Recognised Current Competencies
RPL	Recognised Prior Learning
SIPOC	Supplier Input Process Output Customer
	Specific Measurable Achievable Realistic
SMART	Timely
SOP	Standard Operating Procedure
SWOT	Strengths Weaknesses Opportunities Threats
TAA	Training And Assessment
	Training Assessment Learning Knowledge
TALKS	System
TQM	Total Quality Management
WBL	Work Based Learning
WIL	Work Integrated Learning
WL	Workplace Learning

Selected Curriculum and Education Definitions

Capability Uplift

Capability Uplift is a measured improvement to enable the business workplace curriculum to strategically develop and support the right focused people to do the right work at the right place and deliver value to the organisation's communities.

Coaching

Coaching is usually focussed on specific skills or tasks. The coach's role includes helping the participants to interpret and understand the competencies, gather evidence and provide feedback on progress. A coach should also help to prepare an individual development plan for employees.

Contiguous Education

A term used to describe an educative method which blends formal and informal learning. It therefore incorporates prescriptive training components together with an emergent syllabus. *Source: Hann, Lawyers Practising Learning: Re-Shaping Continuing Legal Education*

Informal Learning

The main features of informal learning are that it is:

- Organic/holistic
- Contextual
- Activity and experience based
- Arising in situations where learning is not the main aim
- Activated by individual learners rather than by teachers/trainers
- Often collaborative and collegial

Source: Hann, Lawyers Practising Learning: Re-Shaping Continuing Legal Education

Formal Training

Formal Training can be considered as classroom or lecture style activity. This is instructor or facilitator lead. Formal Training may or may not have an assessment piece attached to it and does not necessarily have an end to end training process wrapped around it.

Work-based Learning

Work-based Learning (WBL) - Learning that involves work-place knowledge and skills either in the university or in the workplace that is normally with the formal involvement of the employer. A pragmatic approach employed to

meet a need to develop work skills of organisational workers. Their learning is based at work. Sometimes assumes that the learner is developing certain key skills such as interpersonal, information handling, self-application and personal development. Can involve work placement, internship or externship.

Source: Hann, Lawyers Practising Learning: Re-Shaping Continuing Legal Education

Work-integrated Learning (WIL)

Work-integrated (WIL) and work-based learning are umbrella terms to describe the range of educational programs that integrate formal learning and workplace experience. Examples are work- based projects, unpaid work, apprenticeships, practice firms and co-operatives education programs (Atchison, Pollock, Reeders & Rizzetti, 1999). Also called ' co-operative education ' (Dressler & Keeling, 2004), (2.1.2.3). Can be contiguous education if it involves informal learning and reflective practice.

WIL is often linked to professional practice because it envisages that students will be exposed to the complexity and context of professional practice. It can occur:

- On campus
- In simulated work settings
- Within the work experience
- In community based learning activity (Queensland University of Technology, 2007)

Source: Hann, Lawyers Practising Learning: Re-Shaping Continuing Legal Education

Workplace Learning (WPL)

Manifest when there is an appreciation and understanding about the informal nature of much of the important learning that occurs for practitioners at work. Unites learning with work. To find out about workplace learning an educator or researcher must understand its connection to a practitioner's reflection on action and their informal learning. The educative interest is to learn to become a connoisseur of this artistry. Having done this it is possible

to explore ways with the practitioner that they might enhance their capacity to learn from their experiences and share this working knowledge with fellow practitioners. Here there is a connection to the notion of co-operative learning but in this case it is initiated by the practitioner not the educator.

Source: Hann, Lawyers Practising Learning: Re-Shaping Continuing Legal Education

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