

**Delivering quality and value
in the supply chain.
IBM Integrated Supply Chain
and Six Sigma.**

Advanced supply chain management techniques have both delivered valuable cost-efficiencies for many enterprises and highlighted the difficulties of controlling quality levels. Particularly for high-value, complex components, the costs of failure caused by low quality can far outweigh the savings achieved through aggressive procurement or ultra-lean manufacturing.

The IBM Integrated Supply Chain service offers a comprehensive programme based on Six Sigma principles, designed to meet the challenges of resolving the execution gap between lean manufacturing and quality. Through a combination of training and ongoing coaching, IBM Integrated Supply Chain transfers skills and practices that enable both enterprise procurement departments and manufacturing to use Six Sigma to extract value and quality from extended supply chains and diverse manufacturing operations.

“To serve every customer better than our competitors with products and services of excellent value and quality, and thereby earn continued enthusiastic trust and support.”

Bob Galvin, creator of the Six Sigma programme

Procurement is the starting place of the integrated supply chain, an essential element in controlling costs and driving process efficiency. Outsourced product and component suppliers form a very large part of the extended supply chain, delivering significant cost savings.

Managing the quality standards delivered by outsourced suppliers is a key challenge, especially for those enterprises with geographically dispersed or intricate supply chains. Where components are complex, such as those in automotive, electromechanical and electronics industries, the ability to manage and improve quality standards is essential.

The costs of product failure or recall can dwarf the original efficiencies gained through outsourcing, and gaining the ability to control quality successfully affects both the bottom line and total business operational risks.

Downstream manufacturing represents the ongoing implementation of Six Sigma techniques, founded on newly effective supply chain processes. The same high costs of failure apply, this time in a systemic manner, for manufacturing procedures, and Six Sigma methodology plays a major role in connecting process improvement with real business performance.

The IBM Integrated Supply Chain programme is designed to help enterprises reap the benefits of excellence in both procurement and manufacturing efficiency and quality. From training by IBM Integrated Supply Chain experts through to ongoing coaching in the practical application of Six Sigma techniques, the programme helps bring the proven cost and efficiency benefits of the Six Sigma model into the heart of the full value chain.

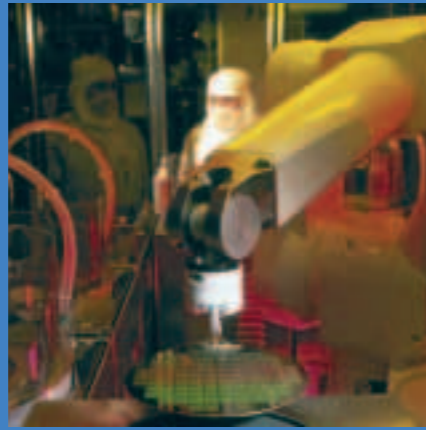
Connecting the Six Sigma components

The collection, management and interpretation of large volumes of data – from procurement, manufacturing and real product performance data – is generally outside the scope of the personnel actually employed in those roles.

The Six Sigma programme focuses on taking large quantities of raw data and providing manageable, usable, actionable pieces of information for management: trends, analysis and highlights that can be used to enhance processes and quality.

- *Data – collecting procurement, manufacturing, sales and field data*
- *Process – describing current workflows, inputs and expertise*
- *Information – analysing and refining the data into a usable state*
- *Action – process improvement, quality enhancement, lower costs*

IBM Integrated Supply Chain offers a complete service, from a thorough business process analysis to ongoing training and coaching, designed to deliver a total Six Sigma culture. By encouraging participation of all members of the value chain throughout the enterprise, from component procurement through manufacturing to final delivery, IBM Integrated Supply Chain can help deliver greater process efficiencies, quality advances and lower costs throughout the value chain.



Training from IBM Integrated Supply Chain.

IBM believes in and has invested heavily in Six Sigma methodology, based around training, learning and skills transfer. In combination with Best Practice and project management disciplines, the integration of new Six Sigma methodology within the value chain becomes a logical business process, with clear objectives.

The training programmes, each of fixed duration, are designed to describe and explain the benefits of the Six Sigma model. The purpose is to enable the specific return on investment to be identified from adopting the Six Sigma process. By using Six Sigma techniques in such a manner, clear cost-benefits can be highlighted alongside the business-risk reduction that enhanced quality control delivers.

IBM Integrated Supply Chain employs the 'Belt' system of Six Sigma qualification, and the programme trainers include Master Black Belt Six Sigma practitioners. Significant training effort is directed towards skills transfer for all of the Six Sigma categories – Yellow Belt, Green Belt and Black Belt – to ensure that classroom theory is matched by workplace practice.

The professional expertise embodied in the IBM Integrated Supply Chain personnel is based on both Six Sigma education and practical experience gained from multiple, large-scale implementations. The combination of theoretical foundations and real-world project execution ensures that IBM Integrated Supply Chain offers outstanding training that delivers tangible results.

Building the value chain with information.

The value chain, from initial procurement right through to final customer delivery, generates a very large amount of process data. Transforming this numerical record into useful information about quality and business performance is a key task for management, as an enabler for process improvement.

By engaging with IBM Integrated Supply Chain, Six Sigma statistical techniques can be applied to the raw data to generate precious value-chain information, used to reduce costs and increase total customer satisfaction. Armed with information released from the value chain, all participants are able to identify, control and cut the costs of quality failures.

To encourage enterprise-wide attention to the benefits of the Six Sigma methodologies, the IBM Integrated Supply Chain team encourages access to quality data throughout the entire business process. For example, by connecting both the procurement executive and the manufacturing departments to the same quality information database, managers understand the broader impact of their local decisions, and this knowledge-sharing is central to successful process improvement based on Six Sigma techniques.

The IBM Integrated Supply Chain programme delivers both the practical implementation and the training programmes necessary to deliver the Six Sigma results and transfer the skills needed for ongoing value.

Cost meets quality.

Procurement departments tend to focus on the volume/cost equation, working within tight service level agreements. A rolling review of global and local suppliers able to meet the contracted quality and delivery schedules ensures efficiency of process, with consequent cost reductions and business benefits.

The outsourced supplier has very different business goals, which include designing a manufacturing process – probably very unlike the prototyping or original design process – that maximises cost efficiency. With the manufacturing process largely outside the direction of the procurement department, managing quality and raising standards may be difficult through the extended supply chain.

Personnel tasked with sourcing complex components often possess excellent professional skills for managing volume, price and service level agreements; quality standards and improvements are then typically resolved between the supplier and the manufacturing divisions. This disconnect between the procurement and manufacturing processes may lead to impaired production quality, thereby eroding the cost-benefits accrued through outsourcing.

IBM Integrated Supply Chain is an advocate of the Six Sigma model, which allows procurement departments to meet these cost and quality challenges through a programme of training and ongoing implementation coaching.

Six Sigma offers advanced, proven techniques that allow procurement executives to manage quality as an integrated part of the supply chain process. For all enterprises seeking to enhance quality in procurement, IBM Integrated Supply Chain offers technical programmes, practical training and ongoing support to transfer Six Sigma knowledge and execution.





Identifying the execution gap.

Identifying the execution gap between the supply chain practice and service delivery, caused by business change and variation, is the key to generating a solution. Building a business model that is able to cope with both economies of scale and very high quality of production is central to success.

Business flexibility is often achieved through diversification across multiple, low-cost, outsourced suppliers – with consequent loss of control and increased potential business risk. At the other extreme, full in-house operations offer greater stability and security of supply, but at significant additional cost.

Reconciling the competing demands of business process efficiency and business risk avoidance through quality management is a major challenge for all organisations. IBM Integrated Supply Chain can help, providing the expertise to design and deliver responsive, efficient and effective supply chain models fully integrated with Six Sigma and its associated excellence.

Onward support and Six Sigma motivation.

The active deployment and use of Six Sigma provides the ultimate proof of its effective contribution to cost-savings and efficiency.

To convert knowledge into practical competence, the IBM programme includes ongoing coaching designed to integrate the Six Sigma theory with day-to-day business management. The coaching is aimed at those practitioners and managers who have corporate business responsibilities, and at motivating the enterprise-wide adoption of Six Sigma.

Manufacturing operations and the procurement executive are core to the value chain, and are also intimately connected to the performance of products in the field. The Six Sigma methodology provides a solid numerical basis for decisions that affect quality, and places all value chain operations on the same statistical foundation.

For example, the process includes tracking supplier performance through the use of Key Performance Indicators. Not only is this procurement-specific Six Sigma training, it also allows personnel to apply the tools immediately and extract value from the new supply chain processes.

Focus on the practical.

IBM deploys a range of project management, statistical and training tools under the Six Sigma banner. The methods include industry-standard and proven techniques, focusing on improving processes, products and services. Examples include DFSS: Design For Six Sigma and DMAIC: Define, Measure, Analyse, Improve, Control.

To meet the needs of a highly competitive and constantly changing marketplace, new products are often designed and marketed without reference to the impact on the complete value chain. Training in DFSS from IBM Integrated Supply Chain will enable teams to use Six Sigma principles to identify business and quality issues at the outset of new product creation, providing a clear risk assessment across the value chain at an early – and highly valuable – stage.

Existing processes, where Six Sigma and DFSS have not been deployed, are suitable for DMAIC programmes. For example, as the challenges of complex component procurement become clear – through failure, quality issues and other areas – DMAIC as a learned process can contribute real value to the supply chain, in reduced costs and the gradual implementation of Six Sigma techniques.

Based on global experience of supply chain management in multiple industries as varied as retail, industrial chemicals, automotive, information technology and finance, IBM will assist in delivering a transformation in supply chain management and procurement excellence.

IBM Integrated Supply Chain offers its technical experience of both DFSS and DMAIC to provide thorough training and ongoing support, designed to enable the benefits of Six Sigma in the most rapid and cost-effective manner possible.



IBM uses both industry-standard and industry-specific tools to accelerate the total project phase. Such solution techniques include:

- MINITAB statistical analysis
- IBM-exclusive collaborative software
- Specifications management solutions
- Process control solutions with early warning capabilities

- Collaborative Web platforms and portals
- Failure mode systems engineering
- Customer requirements flowdown methods

IBM Integrated Supply Chain also deploys its own software tools and methodologies, developed through practice and experience, to help deliver successful Six Sigma programmes.

IBM Integrated Supply Chain.

Adapting to the realities of business requires a proactive approach that is designed to assist organisations build core skills in the following essential process areas:

- *Analysis and assessment of supplier capabilities and innovation*
- *Definition and integration of new product and service development*
- *Management of the interfaces between internal and external divisions*

Building such distinctive core excellence in managing the value chain will lead to competitive advantage. IBM Integrated Supply Chain offers the skills, expertise and strength-in-depth to create successful Six Sigma programmes in enterprises of all sizes and sectors.

Drawing on the experience gained from implementing highly effective, flexible supply chain projects, IBM enables:

- *Improved, proactive collaboration between operations*
- *Synchronized business processes throughout the value chain*
- *Planned, robust methodologies that scale for growth.*

By designing the procurement, manufacturing and supply chain management processes as part of the total business process, IBM ensures that the voice of the customer is heard – loud and clear – at an early stage. IBM Integrated Supply Chain will help create an inclusive, collaborative approach that lowers inter-departmental friction, raises the corporate quality standards and cuts operational costs.

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