

JUSE After 80 Years

History, key players, and impact of the Union of Japanese Scientists and Engineers

Prepared for Ricardo Hirata | June 2026

Executive summary

The Union of Japanese Scientists and Engineers (JUSE) is one of the most influential quality institutions of the postwar era. Established in May 1946, it became a bridge between science, engineering, government, academia, and industry at a moment when Japan had to rebuild industrial capability and credibility. JUSE's distinctive contribution was not only to teach statistical quality control, but to convert quality into a national learning system: courses, research groups, publications, awards, company visits, practitioner communities, and later international seminars.

Its history can be read in five waves: foundation and statistical quality control (1946-1951), institutionalization through the Deming Prize and education (1951-1961), company-wide and frontline participation through TQC and QC Circles (1962-1970s), internationalization of Japanese-style TQM (1980s-2000s), and current evolution toward strategy-linked TQM, human resource development, digital/IT utilization, and the search for 'Quality Next.'

The key players include JUSE founders and administrators such as Ichiro Ishikawa and Kenichi Koyanagi; external catalysts W. Edwards Deming and Joseph M. Juran; Japanese quality leaders such as Kaoru Ishikawa, Shigeru Mizuno, Tetsuichi Asaka, Masao Kogure, Noriaki Kano, Hitoshi Kume, and later TQM educators and examiners; and the companies that learned, practiced, won, taught, and exported Japanese quality management. JUSE's impact is visible in the rise of Japanese manufacturing reputation, the global diffusion of QC Circles, the Deming Prize as a rigorous reference for TQM, and the training of generations of quality professionals.

1. Origins: rebuilding Japan through science, engineering, and quality

JUSE was established in May 1946. Its official objective was to promote systematic studies needed for the advancement of science and technology and thereby contribute to culture and industry. From its earliest years, JUSE emphasized 'soft technology': mathematical and statistical methods applied to corporate management, with quality control as the central subject. JUSE itself describes its position as a 'Center of Quality Control in Japan.' [1]

The timing matters. Postwar Japan faced damaged infrastructure, scarce resources, and a poor international reputation for product quality. The practical problem was not simply technical. Japan needed a mechanism to develop knowledge, transfer it among companies, and legitimize a new managerial discipline. JUSE became that mechanism: a professional union, an educational platform, and a convener of industry-academia-government cooperation.

In autumn 1948, JUSE established a Quality Control Research Group at the request of the Economic Stability Board. The first Quality Control Basic Course was held in September 1949. The meetings around that course did more than prepare teaching materials; they also debated how quality control could help reconstruct Japanese industry. This created a disciplined learning loop between research, teaching, and industrial application. [7]

2. The Deming moment and the creation of a quality movement

In 1950, W. Edwards Deming lectured in Japan through JUSE, including an eight-day course on statistical quality control and a one-day course for top management. JUSE reports that Deming's teaching gave a major impetus to quality control when the field was still in its infancy in Japan. The transcript of his lectures was sold, Deming donated royalties to JUSE, and Kenichi Koyanagi proposed using those funds to establish the Deming Prize. JUSE's board approved the prize, which became a lasting institutional anchor for quality management. [3]

The Deming Prize, established in 1951, helped transform quality from a training topic into a management ambition. It rewarded individuals and organizations that demonstrated outstanding quality control, and over time became a demanding assessment of how TQM supports business objectives, strategy, daily management, cross-functional work, problem solving, QC Circle activities, quality assurance, new product development, IT utilization, and human resource development. [6]

Joseph M. Juran's visits in 1954 and 1960 reinforced the shift from factory-based techniques to quality as a responsibility of management. Juran's focus on managerial planning and business strategy complemented Deming's

statistical and systems-oriented approach. Through JUSE's platform, these ideas were not imported passively; they were adapted into Japanese company-wide quality control and later TQM.

3. Institutional architecture: how JUSE turned ideas into capability

JUSE's influence came from a complete architecture rather than a single program. Its model combined research, education, publications, events, awards, and company learning. The table summarizes the architecture.

Mechanism	Purpose	Long-term effect
Quality Control Research Group (QCRG) and Basic Course (BC)	Study, codify, and teach statistical quality control.	Created a common technical language across companies and universities.
Deming Prize Awards	Recognize and examine outstanding quality control/TQM practice.	Made quality a strategic aspiration and created role-model companies.
JUSE publications and journals	Diffuse methods, cases, and practitioner knowledge.	Supported standardization of concepts and tools.
QC Circle Headquarters and branches	Support small group improvement and frontline education.	Institutionalized participation and problem solving at the workplace.
International Seminar on TQM (ISTQ) and company visits	Teach Japanese TQM to overseas managers and practitioners.	Globalized Japanese quality management through experiential learning.

4. Key players and their contributions

Key player/group	Deming Prize for Individuals	Contribution
Ichiro Ishikawa (1885-1970)		Industrial leader and one of the founding figures associated with JUSE; father of Kaoru Ishikawa; helped connect industry & Business leaders with the quality movement. First Chairman of the Deming Prize Award Committee (1951).
Kenichi Koyanagi (1903-1965)	1959	JUSE's first managing director proposed using Deming's donated royalties to establish the Deming Prize; help build publication and dissemination mechanisms. Deming Prize for Individuals (1959).
W. Edwards Deming (1900-1993)		External catalyst: his 1950 lectures through JUSE accelerated statistical quality control in Japan and provided the symbolic foundation for the Deming Prize.
Joseph M. Juran (1904-2008)		External catalyst: emphasized management responsibility for quality and helped move Japanese quality control toward company-wide management.
Kaoru Ishikawa (1915-1989)	1952	Core Japanese architect of TQC and QC Circles; championed participation by all departments and levels; edited JUSE quality publications and supported seminars.
Shigeru Mizuno (1910-1989) Tetsuichi Asaka (1914-2001) Masao Kogure (1915-2000)	1952	Members of the early Japanese quality community who worked with Ishikawa and JUSE to develop quality control suited to Japanese industry.
Masumasa Imaizumi (1921-1996) Hitoshi Kume (1937-na) Noriaki Kano (1940- and later TQM educators	1965 1989 1997	Contributed to modern TQM education, customer satisfaction, attractive quality, and international learning programs associated with Japanese quality management.
Deming Prize companies and examiners		Converted principles into evidence-based systems; became learning sites for other organizations through visits, publications, and seminars.

5. QC Circles and the democratization of quality

A decisive contribution from JUSE was the launch and support of QC Circle activities. JUSE states that QC Circle activities began in Japan in April 1962, spread rapidly, and have been practiced from manufacturing to services. It also reports that more than 70 countries and territories have introduced and promoted QC Circles. [4]

This was a major conceptual shift. Quality was no longer the responsibility of inspectors, engineers, or managers alone. JUSE helped translate statistical quality control into small group learning, workplace diagnosis, root-cause thinking, and

improvement projects by the people closest to the work. In this sense, QC Circles were both a quality method and a social technology for participation.

Kaoru Ishikawa was central to this movement. JUSE's Ishikawa biography states that he proposed QC Circle formation to educate frontline workers and served as chief editor of Genba to QC magazine, later renamed QC Circle, from its first edition in 1962 until his death. [7]

6. The Deming Prize as a management system benchmark

The modern Deming Prize is best understood as a management system benchmark rather than a trophy. The application guide asks organizations to explain business goals and strategies, the TQM framework for realizing those strategies, the implementation status of TQM, overall effects, and future. It explicitly connects TQM to customer-oriented objectives, social responsibility, leadership, daily work management, cross-functional activities, problem solving, small group improvement, new product development, quality assurance, IT, and human resource development. [6]

This structure reveals JUSE's mature view: quality is not a department. It is an integrated management approach for strategy execution and organizational capability. The prize shaped how companies prepared, how examiners evaluated, and how other organizations learned from award winners.

7. Internationalization and global impact

JUSE's impact moved beyond Japan through the Deming Prize, international conferences, QC Circle networks, visiting missions, and the International Seminar on TQM. The current seminar format combines classroom learning, company visits, and cultural/historical experience, showing that JUSE still treats TQM as a lived management practice rather than only a classroom subject. [5]

Globally, JUSE influenced three major streams. First, it contributed to the quality reputation of Japanese products and management. Second, it provided models for national and regional quality award systems, including rigorous assessment of leadership, strategy, process management, and results. Third, it spread participative improvement through QC Circles and small group activities, particularly in Asia and Latin America.

8. Impact after 80 years: what changed because of JUSE?

Impact area	Impact
National industrial capability	JUSE helped Japan move from postwar reconstruction toward high-quality industrial competitiveness by creating a shared language and discipline of quality.
Management thinking	It connected statistical methods to top management, policy management, daily management, cross-functional systems, and long-term capability building.
Human development	Its courses, seminars, publications, and QC Circles trained generations of engineers, managers, supervisors, and frontline workers.
Global quality movement	JUSE helped make Deming, Juran, Ishikawa, TQM, QC Circles, and policy management part of the international quality vocabulary.
Benchmarking and learning	The Deming Prize and company visits created a disciplined way to learn from exemplary organizations.
Continuing renewal	Current themes such as TQM for strategy realization, IT utilization, human resource development, and Quality Next show an institution adapting to new value creation.

9. Critical interpretation: why JUSE's model endured

JUSE endured because it avoided the weakness of many improvement movements: it did not rely only on slogans, tools, or charismatic gurus. It built a system of social reinforcement. Training created knowledge; publications codified it; awards created aspiration and discipline; company visits made practice visible; QC Circles expanded participation; international programs created exchange; and the Deming Prize maintained standards.

A second reason is that JUSE balanced external learning and local adaptation. Deming and Juran were crucial, but Japanese leaders did not merely copy American methods. They integrated statistical quality control with company-wide participation, human development, and long-term management systems. This made JUSE a generator of new quality knowledge, not simply a distributor.

A third reason is the link to strategy. The modern Deming framework makes clear that TQM must help organizations realize business objectives and strategies. This is highly relevant after 80 years because contemporary organizations face digital transformation, demographic pressure, sustainability, global supply-chain risk, service complexity, and the need for continuous innovation.

10. Lessons for current leaders and quality professionals

- Build institutions, not only programs: JUSE shows that education, assessment, publications, events, and communities reinforce one another.
- Make quality a management system: quality should be connected to strategy, daily management, cross-functional improvement, and human development.
- Use awards as learning mechanisms: the value of the Deming Prize is not the ceremony; it is the disciplined preparation, reflection, and improvement journey.
- Invest in frontline participation: QC Circles show that capability grows when workers become analytical people, not only task executors.
- Preserve rigor while adapting language: TQM may require new labels such as Quality Next, innovation management, customer value creation, digital quality, or resilience, but the underlying principles remain valuable.

11. Current challenges for JUSE in Japan after 80 years

JUSE enters its ninth decade with a paradox: its heritage is stronger than ever, but the social and industrial context that made Japanese TQM famous has changed radically. Japan now faces a smaller and older workforce, pressure on productivity, global supply chain volatility, digital transformation, decarbonization, service-sector expansion, and growing expectations for resilience and trust. These conditions do not make TQM obsolete; they make JUSE's systems-thinking role more necessary, provided that the institution keeps translating classical quality into contemporary management language. [10][11][12]

- One challenge is generational renewal. QC Circles and small group activities were historically sustained by long employment relationships, supervisor coaching, and dense in-company training systems. With changing work patterns, labor shortages, and uneven skill transfer, JUSE must help companies redesign QC Circle activity for younger employees, women, mid-career hires, service workers, knowledge workers, and digital professionals. The core idea should remain participation and problem solving, but the practice must become more flexible, shorter-cycle, data-enabled, and visibly linked to career development. [13]
- A second challenge is avoiding the reduction of TQM to techniques, audits, or award preparation. JUSE's own legacy shows that quality becomes powerful only when technical methods, leadership, policy management, daily management, human resource development, and customer value are integrated. In many organizations, quality management risks becoming compliance-oriented while innovation, digitalization, and sustainability are managed elsewhere. JUSE can help re-integrate these agendas by positioning TQM as a management system for value creation, learning, risk prevention, and organizational capability. [6][12]
- A third challenge is the promotion and implementation of the design approach with its key methodologies, tools, and success cases, complementing the current problem-solving approach. As the company matures, a preventive approach is also required for the quality culture to thrive.
- A fourth challenge is digital quality. AI, sensors, analytics, software, and platform-based services require an updated quality vocabulary. Statistical thinking, variation reduction, PDCA, process ownership, customer-in thinking, and prevention remain relevant, but JUSE must connect them to data governance, software quality, cybersecurity, human-machine collaboration, and real-time decision making. The opportunity is to make TQM the human and organizational backbone of digital transformation rather than a separate legacy program. [11][12]
- The fifth challenge is international relevance. JUSE is respected globally, but international learners now need more than inspiration from Japanese cases. They need implementation roadmaps, local institution building, facilitator certification, executive coaching, diagnostics, and communities of practice that respect local labor relations, language, SMEs, public institutions, and service economies. JUSE's international seminars and

company visits are valuable entry points; the next step is to package its accumulated knowledge into long-term country or regional capability-building systems. [5][14]

12. Potential role in the Americas, Mexico, and Latin America: from tools to systems and culture

The Americas, and particularly Mexico and Latin America, need quality and improvement approaches that mature from isolated projects into systems and culture. Many organizations have adopted Lean, Six Sigma, ISO, operational excellence, or improvement events, but the missing link is often an integrated socio-technical system: leadership commitment, daily management, employee participation, standardization, customer focus, education, and cross-functional learning. JUSE's experience is especially relevant because it shows how a national quality movement can be built through institutions, not only through consultants or individual champions.

Mexico has a special bridge to JUSE's legacy. QC Circle activity appeared early in Mexico, but the movement also experienced decline when participation, institutional support, leadership commitment, and continuity weakened. Later Mexican teamwork and improvement movements like AMTE (Asociacion Mexicana de Trabajo en Equipo NPO) showed that the idea can be revived when supported by national forums, evaluation criteria, training, and communities.

This history suggests that JUSE knowledge should not be exported as a set of Japanese rituals; it should be adapted as a system for developing local capability, credibility, and pride in problem solving. [15]

For Mexico and Latin America, JUSE could contribute in five practical ways.

- First, it can support a Spanish-language TQM and QC Circle knowledge platform with cases, facilitator guides, and executive materials.
- Second, it can co-design certification paths for QC Circle leaders, facilitators, middle managers, and executives.
- Third, it can help create sectoral demonstration cases in manufacturing, automotive supply chains, food and agribusiness, health services, public services, education, and SMEs.
- Fourth, it can advise regional award and recognition systems that reward learning and capability, not only results.
- Fifth, it can help form a network of universities, chambers, companies, and nonprofit organizations that operate as the backbone of a quality movement.

The most important message for Latin America is that quality culture cannot be “installed” by training alone. It develops when people repeatedly practice problem solving in their own work, when managers remove barriers and use facts, when teams present and learn from each other, when standards are improved rather than merely enforced, and when executives connect improvement to strategy and human development. This is where JUSE's 80-year experience is distinctive: it combines methods, people development, institutionalization, recognition, and learning communities.

A Mexico and Latam agenda inspired by JUSE should therefore include:

- (1) executive education on TQM as a management system.
- (2) QC Circle and small-group activity pilots are tied to significant business and social problems.
- (3) facilitator development and evaluation standards.
- (4) annual conventions and publication of cases.
- (5) industry-university-government collaboration.
- (6) adaptation to service and public-sector contexts; and
- (7) a regional knowledge network connected to Japan.

The goal would not be to copy Japan, but to use JUSE's accumulated knowledge to help Latin American organizations build their own sustainable quality and improvement cultures.

Conclusion

After 80 years, JUSE's legacy is not only historical. It remains a living example of how a professional institution can shape national capability and global practice. Its deepest contribution was to make quality a shared learning system: scientific enough to be rigorous, managerial enough to drive strategy, and participative enough to reach the frontline. For organizations seeking continuous improvement today, JUSE's history suggests that sustainable quality culture requires structure, discipline, leadership, education, and communities of practice over decades, not isolated campaigns.

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