

Measuring Maturity

Process **maturity measurements** can **help predict** results in an organizational system

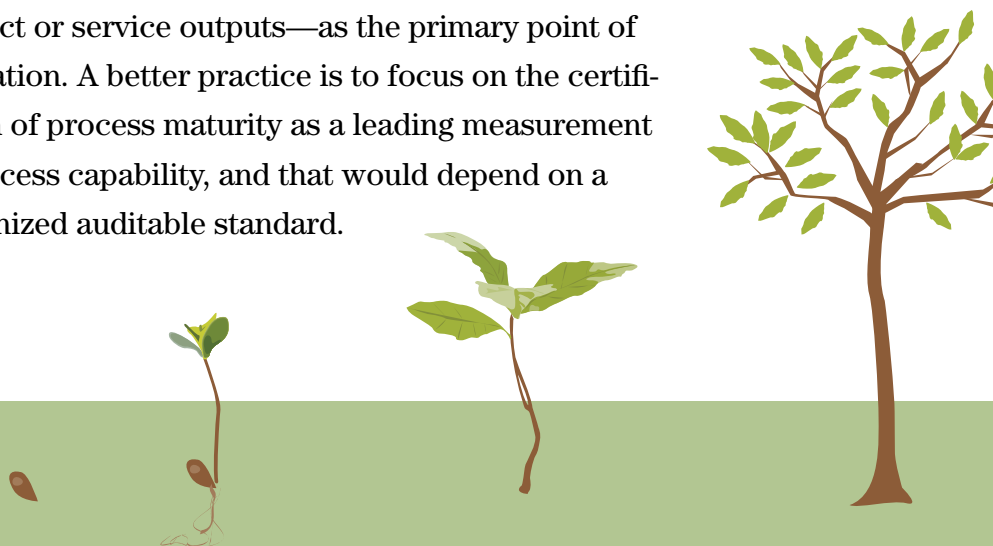
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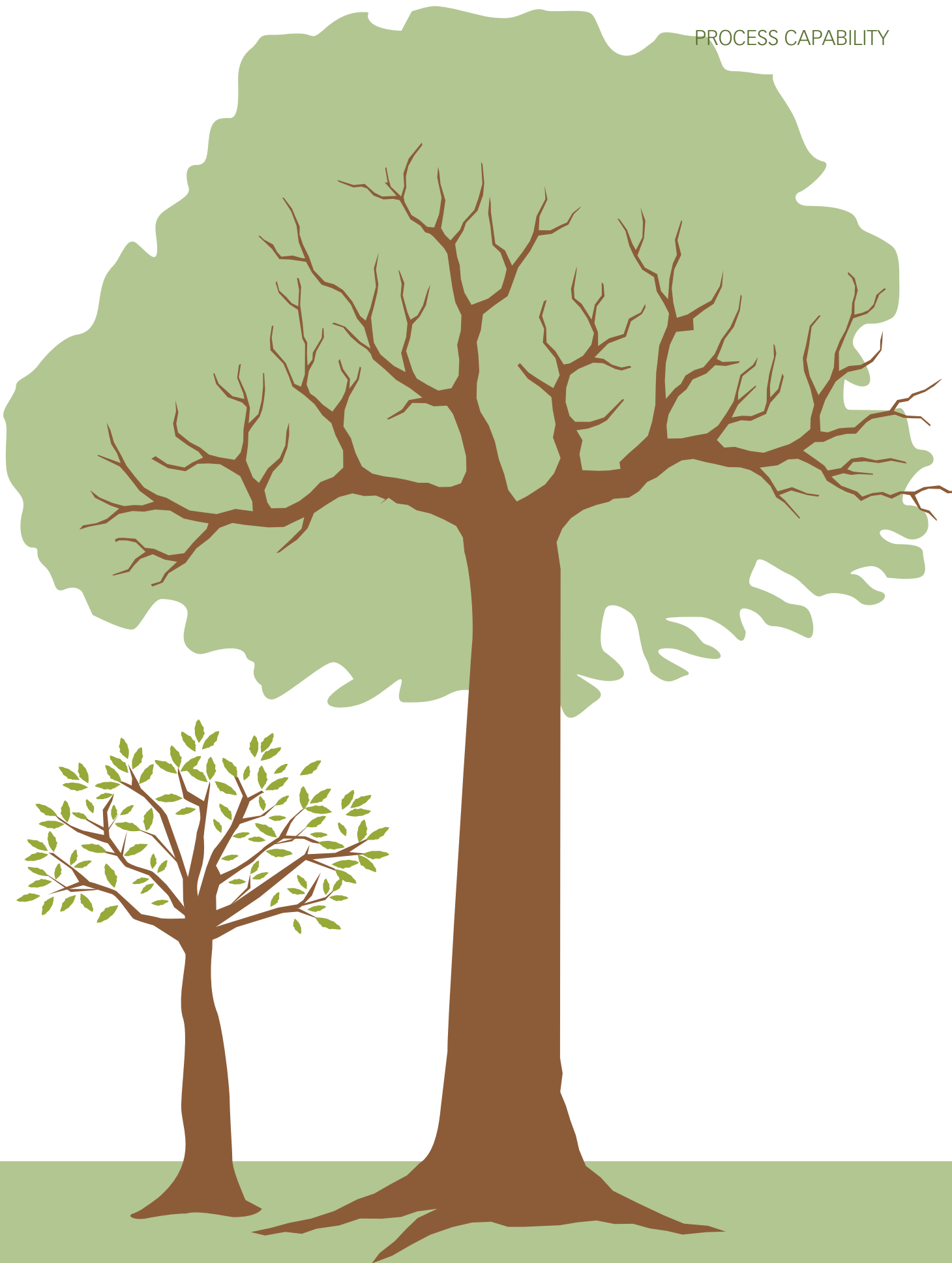
PROCESS CAPABILITY can be defined in two ways: the “measured inherent reproducibility of the product turned out by a process,”¹ and the “inherent precision of a process.”² Many in the quality field recognize process capability simply as the statistical likelihood a process will meet customer requirements.

Despite the importance of this concept, however, most quality practitioners rely on lagging measurements—that is, measurements of product or service outputs—as the primary point of evaluation. A better practice is to focus on the certification of process maturity as a leading measurement of process capability, and that would depend on a recognized auditable standard.

In 50 Words Or Less

- Process capability is fundamental to quality, but quality practitioners often must rely on lagging measurements of product and service acceptability to determine their quality.
- Certification to a standard that measures process maturity can support the sustainability of quality efforts in all organizations.





Such a proposed standard—summarized in Table 1—is based on three basic premises:

1. The process is standardized through a process flowchart or other means.
2. There are measurements of process outputs linked to customer requirements.
3. There are records of systematic analysis and process-improvement results.

The certification of process maturity is a way to determine the extent to which key processes of any organization are first stable and then in control.

I researched and refined this uniform and auditable measurement of process maturity in collaboration with the ASQ Government Division (see sidebar “Auditable Quality Standards Will Incentivize Quality in Government,” p. 42).

The division has adopted it as a professional standard for government quality practices.

For-profit organizations, too, could benefit by

adopting this approach. Using it as a uniform professional standard has broad potential to support the sustainability of quality practices everywhere. In other words, the use of an auditable quality standard would allow any organization to measure the extent of process capability—both in its individual units and organizationwide. It also could serve as a way to incentivize management to standardize and control processes.

Scoring the processes

One of the ASQ Government Division’s business objectives is to seek a uniform standard of quality in government that is provided through an annual quality audit and also can serve as a companion to its existing financial audit.

Such an annual audit could be performed in any organization that adopted this standard. The power of this process-certification tool could be profound. Through its systematic use, the tool can provide a process maturity score from zero to 15 to every supervisor and manager in that organization and make the extent of quality implementation a known performance attribute.

As each component unit certifies its processes, it follows that overall organizational performance also will be greatly enhanced. In addition, a compilation of results of all units provides a scorecard on the state of quality in the entire organization, showing how many key processes were certified and at what level.

The score provided to each manager will reflect his or her practices of standardizing a best practice for his or her primary work activities, developing corresponding performance metrics, showing a pattern of performance improvement and involving production employees in those efforts.

Not only will this provide a grade on the state of the management of any program, but it also will provide a roadmap to opportunities for improvement. In short, process certification may be the best new tool to revive and enhance quality efforts everywhere.

Origins and influences

In support of process certification as a primary strategy is the fact that process management is the one fundamental prerequisite of all quality practices. This was noted by W. Edwards Deming in *Out of the Crisis*.³

“The first step in any organization is to draw a flow diagram to show how each component depends on

Process certification standard / TABLE 1

Standard process	Measurements	Process improvement / employee empowerment
0: Process is not standardized.	0: Customer requirements are unknown.	0: Systematic improvement efforts and employee involvement do not exist.
1: A process flowchart or procedure document exists. May not be current or complete.	1: Some customer requirements have been established, but are often based on dissatisfaction, waste or error.	1: There are a few process improvements—all based on management initiatives.
2: Process flowchart or procedure document exists and is current and complete.	2: Customer requirements have been established and validated.	2: There are process improvements based on employee suggestions.
3: Process flow is regularly updated. Aim is clear and periodic feedback is obtained.	3: Key process measurements exist, and at least one is regularly updated.	3: A fact-based structure for analysis and problem solving is in place.
4: Flowchart or procedure document is regularly referenced and is used for training. Regular feedback is provided.	4: Several key process measurements are validated with customer requirements and regularly updated.	4: The workforce participates in continuous improvement and follows an established problem-solving structure. Tools are used.
5: Flowchart is uniformly used as an auditable standard. It is linked to metrics and continuous improvement efforts.	5: The process is stable and performing within control limits. Measurements are linked to benchmarks.	5: There is evidence of continuous, systematic improvement and measurable, positive results.

others. Then everyone may understand what his job is,” Deming wrote.⁴

Clearly, Deming understood that using such methods should be undertaken by everyone in an organization so collective efforts would define the entire organizational system.

ISO 9001 also holds process as fundamental. One of the eight quality management principles that forms the basis of the standard is: “A desired result is achieved more efficiently when activities and related resources are managed as a process.”⁵

This process certification method formally surfaced as far back as 1982 in work done at IBM.⁶ The method actually may have been an adaptation of the quality maturity grid first popularized by Phillip B. Crosby in *Quality Is Free*.⁷

The IBM Process Certification model was part of an effort to create an environment in which all of IBM’s operational managers looked to key processes as their primary management responsibility and took measurable action to ensure these processes were stable, in control and periodically reviewed to ensure continuous simplification and improvement.

The IBM model (see Table 2) uses a five-point scale to evaluate all processes and develop a report card for management on the adoption of process management and continuous quality improvement. Participation in process management thus became visible, and could be measured and used in individual performance reviews and in rewards that recognize quality achievement.

H. James Harrington referred to the same concept as “process qualification” and devoted an entire chapter to the subject.⁸ Process qualification, he reasoned, would not only ensure quality of output, but would also give workers in those processes “intermediate goals along the road to perfection,” motivating all managers to participate in the effort.⁹

Both models used at IBM and developed by Harrington have one primary evaluative descriptor and require interpretation of results by an executive body according to descriptive standards. Table 2 reflects these respective models.

The Harrington model anticipated changes in process maturity based on a petition from the process owner to the executive team, and that petition would address the following factors:

- End-customer-related measurements.
- Process measurements and performance.

- Supplier partnerships.
- Documentation.
- Training.
- Benchmarking.
- Process adaptability.
- Continuous improvement.

Others also have cited the necessity and ease of measuring process maturity¹⁰—making it confusing as to why there is no simple and easy-to-use process certification scale in widespread use today.

The process certification standard presented in Table 1 should provide an excellent leading indicator of process capability, along with sustaining and improving results throughout any organizations that use it.

Its use is entirely compatible and supportive of lean Six Sigma, ISO 9001, the *Baldrige Criteria for Performance Excellence* and other quality models. In short,

Process certification models / TABLE 2

Level	IBM model	H. James Harrington model
6	N/A	Unknown. Process status has not been determined.
5	The process as currently practiced is ineffective. Major exposures exist, requiring expeditious corrective actions, or the basics of quality management are not in place.	Understood. Process design is understood and operates according to prescribed documentation.
4	The process as currently practiced may have some operational or control weaknesses that require corrective action, but the resulting exposures are containable and the weaknesses can be corrected in the near future. The basics of quality management are in place.	Effective. Process is systematically measured, streamlining has started and end-customer expectations are understood.
3	The process as currently practiced is effective (meets customer requirements) and no significant operational inefficiencies or control exposures exist.	Efficient. Process is streamlined and more efficient.
2	In addition to the level three requirements, major improvements have been made to the process with tangible and measurable results realized. Environmental change is assessed with resulting process changes anticipated and committed to meeting customer’s future requirements.	Error free. Process is highly effective (error free) and efficient.
1	In addition to level two requirements, the outputs of the process are assessed by the owner and the auditor from the customer’s viewpoint as being substantially defect free (that is, to the level the process can reasonably deliver).	World class. Process is world class and continues to improve.

it presents a powerful new tool to enhance any quality approach and its deployment. **QP**

REFERENCES AND NOTES

1. Joseph M. Juran and A. Blanton Godfrey, *Juran's Quality Handbook*, fifth edition, McGraw Hill International Edition, 2000, pp. 22-11.
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3. W. Edwards Deming, *Out of the Crisis*, Massachusetts Institute of Technology (MIT) Press, 2000.
4. In his book, *The New Economics for Industry, Government, Education* (MIT Press, 1993, p. 31), W. Edwards Deming attributed this statement to Paul Batalden, M.D., Dartmouth Medical School in Hanover, NH.
5. International Organization for Standardization, *ISO 9001:2015—Quality management systems—Requirements*.
6. Edward J. Kane, "IBM's Quality Focus on the Business Process," *Quality Progress*, April 1986, pp. 26-33.
7. Phillip B. Crosby, *Quality Is Free*, New American Library, 1979.

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9. Ibid.
10. Cherian Varghese, "Resolving the Process Paradox," *Cost Engineering*, November 2004, Vol. 46, No. 11, pp. 13-19.



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AUDITABLE QUALITY STANDARDS WILL INCENTIVIZE QUALITY IN GOVERNMENT

A recent survey of quality in state governments revealed that no more than 20% of all state agencies have formal lean quality improvement programs in place, and those initiatives in place have short life cycles.¹

Most programs do not survive more than three to five years and depend on one leader for their continuation. The biggest reason for this short life cycle is that government does not face the economic reality that confronts almost every other kind of business: Government will never go out of business as a direct consequence of a lack of delivered quality or competition.

Government does not have a revenue stream directly associated with a marketplace decision because taxes are automatically levied on behalf of the groups of departments and offices included within the jurisdiction.

In addition, the division of taxes between the various agencies that spend the money is most often done by formula—through legislative and budgeting action—and no individual agency is evaluated based on a positive marketplace impact. Each agency gets a legislatively determined piece of the pie.

There is no self-correcting economic motivation as there would be for the divi-

sions of a single organization that would show the products and services of one division were widely accepted by consumers while those of another were rejected. Government is generally managed as a package deal. Only elected representatives can shutter those that do not work, and the record of such shutdowns is almost nonexistent.²

Some may argue that those who hold political office must serve as primary stakeholders in the place of customers. Through their collective political actions, they must provide the correct economic motivation and leadership direction for quality to result.

In some cases, they do so, and oversight committees and audit agencies hold government accountable.³ It is a difficult proposition to know which offices or bureaus are operating efficiently and effectively, however, without uniform and verifiable measurements of the quality of the organizations supervised.

The challenge of incentivizing quality in government is to make the existence of quality, efficiency and effectiveness visible to elected representatives and the public. The ASQ Government Division has struck on the idea of auditable quality standards as a primary means of accomplishing that.

With an auditable standard for measuring process maturity, the division believes such an audit can be conducted annually within each jurisdiction. The use of such a standard will allow every jurisdiction to report on how many of its offices, programs and departments have standardized key processes and to what level. These guidelines make this possible through an objective, defined and auditable process-certification guideline as its base.

Because key processes are fundamental to every office and bureau—no matter how small—this auditable process management standard makes it possible for managers and supervisors to develop a report card based on their respective management practices. Uniform audits using the standard could be performed across all types of government and at all levels. —R.E.M.

REFERENCE AND NOTES

1. The survey was conducted by the ASQ Government Division and CPS HR Consulting. To read more about the method used and survey results, visit www.cpshr.us/resources_whitepapers.html.
2. Charles S. Clark, "Flattening Government: Why Rhetoric on Killing Agencies So Seldom Becomes Reality," *The Government Executive*, April 2011, pp. 21-28.
3. The U.S. Federal Government has an Office of the Inspector General that performs periodic agency audits. Many state and local entities have similar types of audit offices that perform similar reviews. These reviews are conducted randomly, but often focus on a single program or process. The reviews also do not provide comprehensive and prospective indicators of problems.