Evaluating Process Effectiveness to Reduce Risk

By Christena C. Shepherd, M.A.O.M., ASQ-CMQ/OE, CQA
Jacobs/ESSSA Group

It is well documented that government agencies do not have the same incentive as the private sector to focus on process effectiveness and continual improvement of those processes. It is also well documented whenever government agencies fail to deliver efficient, effective, consistent, and fair services to the citizens. In spite of the various "reinventing government" and "effectiveness initiatives" of the past decades, and in spite of the efforts on the part of many agencies to improve, government in general still lags behind industry in creating a culture of effective processes and systems. While the tragic events that unfolded in Flint, Michigan, teach us that running government "like a business" does not always take the needs of the citizenry into account, there are many lessons and techniques from the private sector that government agencies can use to improve.

The incentive to improve, while mandated by various administrations[1], needs to come from within the workforce, in order to effectively take root. The best, most effective incentive is to reduce, control or eliminate risk. Government agencies face some of the same risks as the private sector, while some are unique. While ISO 31000[2] has been around since 2009, risk has taken on increased visibility within the private sector with the advent of the emphasis on risk-based thinking in ISO 9001:2015[3]. The relationship between risk-based thinking and effective processes is simple and direct. Those processes that are well thought out and standardized (i.e. Plan-Do-Check-Act), will have taken into account the applicable policy, statutory, regulatory, safety, quality and technical parameters, which may not occur to someone performing the process with minimal experience or training; and thus protect the employees, the public and the agency from statutory and regulatory violations; delay in providing services; non-delivery of services; harm to public or employee safety and health; cost overruns; breaches in security; loss of confidence in government; failure of publicly funded projects; damage to the environment; ethics violations, and the list goes on; with local, national and even international consequences. The Plan-Do-Check-Act process, also known as the "process approach" can be used at any time to establish and standardize a process, and it can also be used to check periodically for "process creep" (i.e., informal, unauthorized changes that have occurred over time), any necessary updates and improvements. While ISO 9001 compliance is not mandated for all government agencies, if interpreted correctly, it can be useful in establishing a framework and implementing effective management systems and processes.[4]

Another method that can be used to evaluate effectiveness is the scorecard definitions in Mallory's Process Management Standard[5] as a basis for evaluating work on the process level on a scale of 0-5, with 0 being immature, or non-existent processes and 5 being standardized, effective, and continuously improved and improving processes. With processes on the lower end of the scale, agencies are vulnerable to a great many risks, with employees and managers making up many of the rules as they go, leading to the above listed negative results. Without clear guidance for nominal operations, off-nominal situations can, and do, increase the likelihood of chaos. In an increasingly technical environment, with inter-agency communication and collaboration becoming the norm, agencies need to come to grips with the fact that

---

[1] Low, John
[2] ISO 31000 *Risk management-Principles and guidelines*
[3] ISO 9001:2015
[4] Shepherd, C. C.
[5] Mallory, R.E, *Measuring Maturity*, Quality Progress, Sept. 2016
http://asq.org/quality-progress/2016/09/process-capability/measuring-maturity.html

processes can become rapidly outdated, and that the technical community should take on an increased role in the maturation of the agency's processes.

Industry has long known that effective processes are also efficient, and process improvement methods such as Kaizen, Lean, Six Sigma, 5S, and mistake proofing lead to increased productivity, improved quality, and decreased cost. Again, government agencies have different concerns, but inefficiencies and mistakes can have dire and wide reaching consequences for the public that they serve. While no one goes to work planning to cause harm, it is up to agencies to establish upper level systems, which make establishment and compliance with processes possible. Again, Mallory provides us with a Systems Management Standard[6], similar to the Process Management Standard, with a scale of 0-5 for systems effectiveness and maturity.

Deming determined that "*eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee. The role of management is to change the process rather than badgering individual employees to do better.*" [7] It is not just the working level employees who need effective processes, but the mid-and upper level managers as well. A disciplined management culture sets the tone for the employees, aids both routine and off-nominal decision-making, and incorporates risk – based thinking into the systems and processes as a matter of normal activity. Figure 1, illustrates the relationship between ineffective and effective processes and risk, through the use of the "stoplight" colors that are commonly used to show serious situations (red), situations which may be improving or deteriorating depending on trends (yellow), and situations that are under control and continuously improved (green).
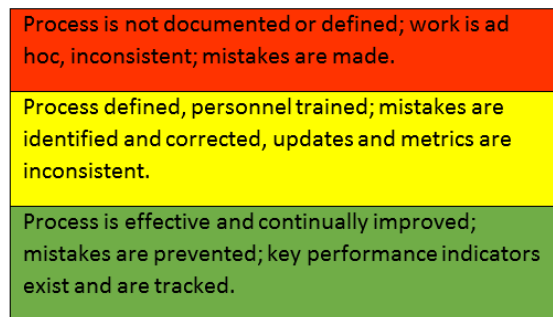

Figure 1.
Process Effectiveness vs. Risk

Another lesson that industry can provide, is that management, as well as processes and systems, generally will have performance indicators. Establishment of performance indicators can be useful in assessing risk, since they provide a basis for considering what can prevent the organization from achieving the required results or measures. From this assessment, appropriate controls can be included in processes and systems. It needs to be clear that risk assessments include evaluation of *both* liklihood *and* consequences. There are many examples in the news, from weather to the economy, where liklihood was

---

[6] Mallory, R.E, *Systems Management as an Agile Quality Framework*, Government Transformation in the News, Spring, 2017, page 13.
http://asq.org/gov/2016/05/government-division-news-spring-2017-.pdf

[7] Deming, W. E., http://www.azquotes.com/quote/873755

thought to be low, and therefore not taken seriously, but the consequences, when it occurred, were disastrous.

Performance indicators can run the gamut from cost, schedule, quality, safety, security, productivity, customer satisfaction, regulatory compliance, and many others. In order for government agencies to improve, they need some kind of baseline from which to begin their measurement process. The performance indicators, which should relate to strategy, mission, goals and objectives, also provide a measure of whether processes and systems are effective. It should be noted that when an organization fails to achieve their performance goals and objectives, they likely have gone beyond the risk of a negative outcome, to a problem that has already manifested itself.

A word about the audit process is necessary. Dr. Nigel Croft, Chair of ISO/TC 176/SC2, (technical committee for ISO 9000 series standards) in his keynote address to the Exemplar Global Auditor Symposium in May, 2017, pointed out the necessity for a transition from what he termed "tick the box" auditors to auditors who "understand the business". With the trend toward less prescriptive and more results-based standards, it is necessary for the auditors to have subject matter expertise in the area being audited, so that they can adequately evaluate whether a process is effective and whether risk-based thinking has been included in process development.[8] This should be the case regardless of the which standards are applicable. The advantage to an organization in using some type of performance management standard (e.g. ISO or Baldridge), defining their systems and processes, and analyzing them for effectiveness, is that it serves to preclude much of the subjectivity that might otherwise be injected into the audit results. It is incumbent on the process owner, however, to be well versed in the process parameters and performance indicators, such that effectiveness can be evaluated periodically whether or not it is being audited.

Much has been written about the water crisis in Flint, and it offers a good case study in ineffective processes. While the entire story cannot be reiterated here, it is instructive to follow the basic chain of events. An emergency manager was appointed to deal with the financial crisis, and he was allowed to make decisions based on financial considerations without a thorough techncial or risk assessment. The assessment that Flint was given by the Michigan Department of Environmental Quality that corrosion control was not necessary, was in error. Once the lead contamination began to surface there was not an effective process for assessing and investigating the public health complaints to determine the cause; and once the cause was detected, there was not an effective process for the local, state and federal environmental, legal, and public health communities, the scientific community, the emergency manager, and the governor, to collaborate on the issue, its source, and its solution, in a timely manner. The following statement taken from congressional testimony of Virginia Tech University Professor Marc Edwards, is a case in point:

"We would not have this disaster if they had had a corrosion control plan," said Edwards, who added that he believes the crisis "probably started innocently in the chaos of the turnover (to the Flint River) and someone simply forgot to follow the law."[9]

---

[8] Croft, Nigel H.
[9] Spangler, Todd and Groppe, Maureen, Detroit Free Press and USA Today

The lack of a plan (process) led to chaos, and someone forgot to follow the law. Thousands have suffered because there was no process. Effective processes that manage, reduce, and eliminate risk are not just desirable, they are essential to government operations and can even be a moral imperative.

_____

Ms. Christena Shepherd began her civil service career with the Department of Defense in 1977, and transferred to NASA/Marshall Space Flight Center (MSFC), Huntsville, Alabama, in 1980. She was assigned as a Quality Assurance Lead in support of the MSFC Engineering Directorate Propulsion Test Area where she performed quality assurance, quality engineering, risk management and safety functions. Ms. Shepherd retired from NASA in 2009, and has been supporting the MSFC Propulsion Test Laboratory on contract since her retirement. She is currently employed by the Jacobs ESSSA Group. She graduated from the University of Phoenix with a Master of Arts in Organizational Management, and obtained a Manager of Quality and Organizational Excellence certification and Auditor certification from the American Society for Quality (ASQ). She is a Senior Member of ASQ and has been active in the ASQ Government Division since 2003.

References

Croft, Dr. Nigel H.; *Keynote Session: The New Generation of Management System Standards;* Exemplar Global International Auditor Symposium; May 15-26, 2017; https://exemplarglobal.org/ias-2017/sessions/

Deming, W. Edwards, http://www.azquotes.com/quote/873755

ISO 31000; *Risk management-Principles and guidelines*, International Organization for Standardization; Geneva, Switzerland; 2009

ISO 9001:2015; *Quality management systems-Requirements;* International Organization for Standardization; Geneva, Switzerland; 2015

Low, John; *You Can't Run Government Like 'a Great American Company';* http://www.govexec.com/excellence/promising-practices/2017/06/you-cant-run-government-great-american-company/138434/?oref=govexec_today_pm_nl; June 6, 2017.

Mallory, Richard E., *Measuring Maturity,* Quality Progress, Sept. 2016 http://asq.org/quality-progress/2016/09/process-capability/measuring-maturity.html

Mallory, Richard E., *Systems Management as an Agile Quality Framework*, Government Transformation in the News, Spring, 2017, page 13. http://asq.org/gov/2016/05/government-division-news-spring-2017-.pdf

Shepherd, Christena C.; *A Framework for Government Agency Quality Management Systems*; http://rube.asq.org/gov/2016/05/government-division-news-spring-2016-.pdf

Spangler, Todd and Groppe, Maureen, Detroit Free Press and USA Today; *Detroit Free Press Live: Congressional panel takes on Flint water crisis;* 11 a.m. EST February 3, 2016 http://www.freep.com/story/news/local/michigan/flint-water-crisis/2016/02/03/live-congressional-panel-meet-flint-water-crisis/79743588/

The Institute of Internal Auditors North America; *International Standards for the Professional Practice of Internal Auditing (Standards)*; https://na.theiia.org/standards-guidance/Public%20Documents/IPPF-Standards-2017.pdf