

ENDURING PRINCIPLES

The following set of principles may seem trite, but if there is one uber-principle that drives them, it is simply to make conscious, informed decisions. Many times we let our decisions be made by default by not thinking about the question at all. Many of these decisions are not made for once and all – they should be periodically re-visited to see if the reasoning behind them is still valid.

1. Make a conscious decision whether process and quality are important success factors for your organization. The essence of management is prioritizing which areas should have the organization's limited resources. If the operational excellence of the organization is adequate, there may well be higher priority issues to address, such as hiring and retaining good people, identifying products and services that customers want to buy, and marketing. But be sure that quality and operational excellence are acceptable!
2. Select, hire, and retain good people. The best process in the world will not help the incompetent perform well... although it should help average professionals perform better. Training and other methods for building the skills of your work force are among the best investments you can make, and professional development is an inducement for retaining good people.
3. Build products and services that customers want to buy. While this is not a process or quality issue in itself, without this foundation, process and quality initiatives have no place to gain traction. This does tend to be a self-correcting problem...
4. Focus on the customer. Technology is a grand distracter, especially for software professionals, but the bottom line for a successful organization is to address the needs

of a customer in a timely and cost-effective way. If the customer is not satisfied (and preferably delighted) with your work, then the continued existence of the organization is questionable at best.

5. Explicitly identify what the objectives of the organization are. Some objectives are business objectives, e.g., growth, market share, and profitability. Some objectives are improvement objectives, e.g., improve customer satisfaction, increase reliability, and reduce cycle time. Some objectives are social objectives, e.g., be a good member of the community and engage in charitable work.
6. Make a conscious decision about which improvement strategies you will use – and how you will recognize whether they are working. Principle-based improvement is extremely powerful, if your organization has the skills to pursue it effectively. Even if you do, there may be external drivers, such as customer requirements, that mandate certification against best practice frameworks such as ISO 9001 and CMMI.
7. Focus on defining processes using the minimum essential information to consistently do the work. Gold-plating procedures and work instructions is a common mistake. Sometimes detail is needed, but it may be most effectively captured in training materials, tools, templates, and other job aids. Lean thinking, which minimizes waste, is a useful strategy for defining good processes.
8. Use software design ideas in designing processes. Use abstraction, information hiding, high cohesion, low coupling, etc., because managing intellectual complexity is as important in designing processes as it is in designing systems.
9. Adopt systems thinking.

10. Adopt statistical thinking. Work is done by interconnected processes. Variation happens. Evidence-based management is based on understanding the variation and using that insight in making decisions.
11. Establish a culture of broad involvement in continual process improvement. Empowerment, participation, and trust should be meaningful at all levels of the organization – from the workers in the trenches to the CEO.
12. Encourage all workers to become reflective practitioners. A quality culture pervades an organization; it is not just a top-down initiative. Workers are likely to find that these principles extend far beyond their work lives.
13. Adopt both incremental and revolutionary improvements.
14. Pursue innovation in products and services by consciously designing an organization – or a part of the organization – that actively supports creativity and innovation. Creating a bureaucracy that deals well with the norm is easier in many ways than dealing effectively with the new. Even startups, if they survive, must learn to deal effectively with business as usual; actively maintaining an innovative spirit is not trivial, or there would be no “innovator’s dilemma.” Organizations must learn to balance chaos and order.
15. Actively accept risk. Today’s environment is too competitive for organizations that play it safe to survive in the long term. If all of your projects are successful, then you are probably being too conservative in your project selection – big gains are usually based on big risks. The flip side of accepting risks to accept the possibility of failure.

Even if you take a conscious decision on all of these issues, and many others that will arise, you are not guaranteed success. But your odds are much better than if you let

these slide! Although I hope you will agree with the logic behind these principles – and you can see my reasoning in the preceding chapters of this book – in some cases you may disagree. If so, I wish you luck and would be interested in hearing how things work out for you. Being a reflective practitioner applies to the author also, and I continue to learn and evolve my thinking.

This is a first draft of a chapter in a book being written by Mark Paulk entitled Building Mature Software Processes. Please note that this chapter was drafted before the set of quality principles coordinated by Taz Daughtrey was developed. They are being developed and revised in conjunction with the 2007 International Conference on Software Quality (<http://www.asq.org/conferences/software-icsq-2007/index.html>) and the 2008 World Congress for Software Quality (<http://www.asq.org/conferences/wcsq/>). This draft chapter will be revised in light of those principles at some point in the future, as well as based on comments that I receive back from my reviewers.