

Ten Characteristics of a World-Class Infrastructure

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There are many criteria that distinguish a world-class infrastructure from that of a mediocre one. The Table below summarizes ten of the most common of these factors. Following this table is a more detailed look at each of these criteria.

Common Criteria of World-Class Infrastructures

World-Class Infrastructures	Mediocre Infrastructures
1. Totally Supported By Executive Management	1. Little or No Support From Executive Management
2. Meaningful Metrics Analyzed, Not Just Collected	2. Convenient Metrics, Not Necessarily Meaningful, Collected, Not Analyzed
3. Proactive Approach To Problem Solving, Change Management, Availability, Performance and Tuning, and Capacity Planning	3. Reactive Approach To Problem Solving, Change Management, Availability, Performance and Tuning, and Capacity Planning
4. Help Desk Involves Call Management, Not Just Call Tracking	4. Help Desk Focuses on Call Tracking, Not Call Management
5. Employees Empowered To Make Decisions and Improvements	5. Employees Empowered Very Little, or Not At All
6. Standards Are Well Developed and Adhered To	6. Standards Poorly Developed With Little or No Enforcement
7. Employees Well Trained	7. Employees Poorly Trained
8. Employees Well Equipped	8. Employees Poorly Equipped
9. Processes are Designed With Robustness Throughout Them	9. Processes Designed With Little or No Robustness in Them
10. Technology is Effectively Used To Automate Streamlined Processes	10. Technology is Applied, if At All, Inappropriately

1. Executive Support – Executive support is one of the primary prerequisites for implementing a world-class infrastructure. Executive support does not mean the mere approving of budgets for hardware, software and human resources.

Active participation by executives can take on many forms. It may involve executives taking the time to understand the challenges and obstacles of providing sound infrastructures. It may consist of managers helping to prioritize which functions of Systems Management are most important to their firms. It may result in executives backing up their staffs when negotiating reasonable, rather than the more frequently unrealistic, service levels with customers. Finally, it may be the CIO or his representative ensuring that other departments within IT, notably applications development, actively support and comply with established infrastructure policies, procedures, and standards.

2. Meaningful Metrics Analyzed – One of the most common characteristics I have observed over the years that differentiate well-managed infrastructures from those poorly managed is their use of metrics. One of the first distinctions in this regard is the difference between merely collecting data, and establishing truly meaningful metrics as derived from this data.

For example, most all companies today collect some type of data about outages to their online systems, regardless of whether the systems are hosted on mainframes, client/servers, or the Internet. A typical metric may be to measure the percent uptime of a particular system over a given period of time and to establish a target goal, for instance, 99% uptime.

The data collected in this example may include the start and end times of the outage, the systems impacted, and the corrective actions taken to restore service. The metric itself is the computation of the percent uptime on a daily, weekly or monthly basis for each online system measured. Compiling the outage data into a more meaningful metric may involve segregating the percentage uptime between prime-shift and off-shift. Or reporting on actual system downtime in minutes or hours, as opposed to percent availability.

3. Proactive Approach – World Class Infrastructures employ a proactive approach to identify and prevent potential problems impacting performance and availability. Marginal infrastructures are forced to take a more reactive approach toward problem solving. For example, a proactive strategy may use the analysis of meaningful utilization metrics to predict when an out-of-capacity condition is likely to occur. Armed with this information, technicians can then decide whether to add more capacity or to re-schedule or reduce workloads to prevent outages or performance problems. A reactive approach allows no time to identify these conditions and to make proactive decisions.
4. Call Management - Well managed infrastructures do far more than simply log problems in their call centers. Technicians in these environments track, age and escalate calls; they pinpoint root causes, solicit customer feedback, and analyze trends, patterns and relationships between problems, changes and other factors. Call management is really the cornerstone of a sound problem management philosophy.
5. Employee Empowerment – Many firms are reluctant to empower their employees. Some managers believe only supervisory level staff are capable of making technical

decisions or personnel judgments. Others may feel employees are not capable or well-trained enough to be decisive. Still others fear that granting employees more authority will result in them requesting more compensation. Progressive infrastructure organizations tend to mitigate these empowerment issues with communication, training, empathy and support.

6. Well-developed Standards – Standards can apply to virtually every aspect of IT, from versions of desktop software to mainframe operating systems; from dataset naming conventions to password construction; and from email systems to network protocols. When properly applied, standards can simplify maintenance, shorten deployment times, and ultimately reduce costs. But proper application requires that standards be thoroughly developed and effectively enforced.

World-class infrastructures usually identify all stakeholders of a particular standard prior to its development, and invite them to participate in its design, implementation and enforcement. Their participation goes a long way to ensuring buy-in, support and compliance.

7. Well-Trained Employees – World-class infrastructures invest heavily in training their staffs. This training may take the form of on-the-job-training, onsite classroom instruction, offsite courses at local facilities, out-of town classes, or bringing vendors in to conduct customized training. Top-rated infrastructures often employ a buddy system, or a one-on-one mentoring program in which experienced senior level technicians share both the content and the application of their knowledge to more junior level staff. Cross-training between infrastructure departments such as operations and networks, or between system administration and database administration is another effective method used by well-managed organizations to optimize employee training.
8. Well-Equipped Employees – An attribute of world-class infrastructures that parallels well-trained employees is ensuring they are also well-equipped. Less sophisticated shops sometimes sacrifice hardware and software tools in the name of cost savings. This is often a false economy that can drag out problem resolution times, extend the length of outages, occasionally duplicate work efforts, and eventually frustrate key staff members to the point that they seek employment elsewhere.
9. Robust Processes – World class infrastructures know how to develop, design and maintain robust processes. This topic will be described at length in the next section.
10. Effective Use of Technology – Managers of highly regarded infrastructures understand that the best application of technology, especially automation, comes only after processes have been designed with robustness and then streamlined. Mediocre shops often rush to automate prior to streamlining. This almost inevitably leads to chaos brought about by processes that are highly automated, but poorly designed.

The Enterprise Computing Institute (www.ecinst.com) helps IT professionals solve problems and simplify the management of IT through consulting and training based on the best-selling Enterprise Computing Institute book series. Founded by Harris Kern (www.harriskern.com), the industry's foremost expert on simplifying IT and world-renowned American author,

publisher, lecturer, and consultant, the Institute has focused on providing practical guidance for tackling current IT challenges since its inception in 1998.