AMQ International's

# STRATEGIC ASSET MANAGEMENT

# # 321

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## A Perfect AM Organisation?

**In this issue:**

1. **Can a perfect AM organisation exist**, and if it did what would it look like? Here is my contribution - how does it square with yours? Pages 2-3 ***Keywords:*** *AM excellence; organisational structure.*

2. **A case study from Saskatoon, Canada, by Greg Chartier, on establishing service levels using TOLERABILITY GRAPHS.** Pages 4 - 7 ***Keywords:*** *techniques, service levels; community engagement; surveys; tolerability, water service, Canada*

> Greg will be appearing at the IPWEA Conference to be held next month in Canberra and presenting his award winning paper "Developing a Sustainable Service Based Infrastructure Management Plan: Changing the Culture of Decision Making". Greg will be in Australia for about 8 weeks and he is specifically interested in the integration of operating and capital programming, and forecasting long term business outcomes for all three cornerstones of sustainability. If you are interested in these areas, too, either make contact with Greg during the Conference or write to him at greg.chartier@sasktel.net Or, if you wish, you can write to me.

3. **Part 3 of Benchmarking for Beginners, "HOW to benchmark and WITH WHOM"** pp 8-13.

That's it! Please enjoy!

Penny

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## A PERFECT AM ORGANISATION?

"Is there such a thing as a perfect AM organisation - and if it did exist what would it look like?"

Innovative, on-target, efficient - what? The UK Institute of Asset Management asked me for 250 words on this subject recently, and I did my best to comply. This is what I wrote: (What would you have written?)

"This begs another question: can an organisation be good at asset management (indeed 'perfect') - and yet poor at setting and achieving organisational objectives? Or indeed, vice versa - good at setting and achieving organisational objectives and yet poor at asset management? Can these two be divorced?

I tried to answer this question 25 years with state agencies but as they were all monopolies an objective judgement on organisational success was not possible. Then in the 1990s, Victoria gave me the opportunity I needed. It broke its metropolitan water agency into a bulk water body and three retailers, who, once freed from the shackles of the large and unwieldy state behemoth that the previous water authority had proven to be, jumped at the chance to compete with each other and demonstrate how innovative they could be. The regulator was the arbiter of good overall performance.

In the International AM Competitions (1996-2000) which I conducted, each retailer entered but one was much more successful than the others. The winning AM organisation was also the one most commended by the regulator. It had clear, consistent service guidelines and all asset managers were encouraged to carry out any improvement project they could conceive - provided they supported it with a sound business case. No wonder their enthusiasm levels and their commitment was so high and their projects so consistently successful.

Too often we think that excellence at AM is a process separate from excellence as an organisation. But how can it be?"

## FOLLOW THROUGH

*On reflection, I think that there is something missing from this short passage.*

*You have probably already seen what it is - and every pro golfer would readily understand. What is missing here is 'follow through'.*

I haven't visited this organisation in recent years so that I cannot tell whether the momentum has been kept up. But in any case I would want to add TWO THINGS to my definition of perfection.

1. Every proposal (be it a capital project or a process change) have attached to its business case proposal a **'benefits management plan'** - a statement of how the proposed benefits are to be achieved - *and measured.*

2. **A Review Process** whereby say one year down the track the champion of the new project or process has to appear before both the executive panel and a representative group of his peers and either demonstrate how the benefits are being achieved, or, if they are not, why they are not and what steps he intends to take to get it back on track. (In this case a further review would be needed, until such time as the benefits plan is clearly working.) This is, I understand, a common process in industry and I wrote up the story of BP's review process many years ago.

Footnote on **Embedding Processes.**

Many large scale process changes are facilitated by consultants. This is an appropriate use of resources. But it is important that the new processes are embedded into the 'way things are done around here' as soon as possible. Failure to do so will almost certainly result in a report that gathers dust on the shelves, and maybe hundreds of thousands of dollars and much of your supervision time wasted. Make sure that your consultants have access to relevant forms and models so that they can suggest the minimal way to start introducing the new ideas.

**want to know more?** - write to me - penny@amqi.com

***keywords:*** *techniques, service levels; community engagement; surveys; tolerability, water service, Canada*

**Greg Chartier**

# TOLERABILITY GRAPHS: A powerful management tool.

## Understanding Community Service Levels

This article provides an overview of the community engagement methodology employed in a service level study undertaken by the City of Saskatoon to obtain community input to define and set service levels for its water distribution system. The service level study used a tolerability survey methodology developed and prototyped by the cities of Saskatoon and Regina (further information is available from the author) as well as some conventional public satisfaction survey polling techniques.

## Survey Questions

Survey questions **(1) general satisfaction** (used to rank level of satisfaction: very satisfied to very dissatisfied (5 levels), for example, for water quality and water pressure); **(2) general agreement** (used to rank level of agreement: strongly agree to strongly disagree (5 levels), for example 'should water mains serving schools and high density business areas have shorter response times to restore water outages?'); and **(3) tolerability** (used to obtain levels of acceptance of a specific performance parameter with the key output being a tolerability graph, for example, response times, acceptable interruption frequency, rate increase).

## Tolerability Survey

The tolerability survey method was the primary methodology used in the study. Tolerability is defined as the level that you can tolerate something and not react (how many times can your vehicle break down before you decide to replace it?). Reacting is when you become intolerant and act to demand change. Inquiring and gaining information about an issue may increase your tolerability level. A key output of the tolerability polling technique is the tolerability graph. The tolerability graph defines the relationship between the service or performance parameter and the percentage of the users satisfied with the respective level. Generally it is not affordable to satisfy 100% of the population (nor do you usually want to), the target condition is typically based on satisfying a specified percentage of the population.

## Benefits

For the asset manager and city council the methodology provides an objective means to:
- Set realistic service targets that are representative of public expectations
- Predict the effect on public satisfaction when a change in target conditions is contemplated
- Allow for informed decisions around public sensitivity to changes in service levels.

There may be little benefit to increase expenditure for a small gain in satisfaction. Conversely a manager may choose not to reduce service in an area where there will be a large increase in dissatisfaction if there are only modest savings.

## Defining service levels

A service level study must first start with an understanding of the service parameters to be evaluated. Service level outcomes for water main can be defined around the following three technical performance measures: physical condition, hydraulic capacity and water quality. Each of these parameters can also have a stated level of reliability, responsiveness to restore service and willingness to pay.

## Survey Results

The following section illustrates the form the survey results take and presents some of the key findings from the study. The final results consisted of a series of reports from the consultant as well as preparation of an internal report that included development of the tolerability graphs, additional statistical analysis, cross correlations and interpretation.

## Water Service Classification

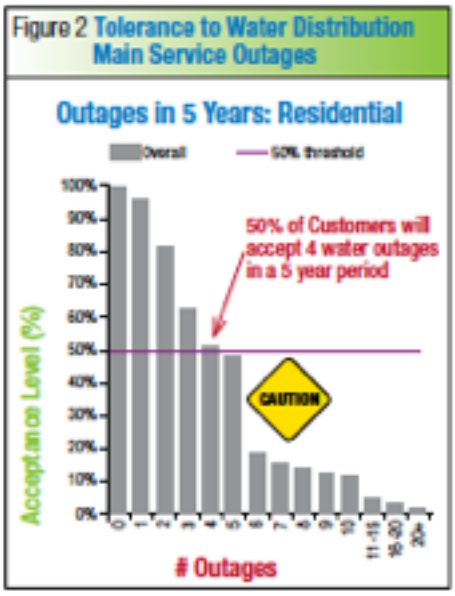
Water mains differ in their needs and service capacity depending on who they serve, where they are located and the impact of service failure on individual customers and the community as a whole. The service classification categorised each water main into one of three service classes. Using residential as the base service level standard (Service Class 3), respondents were asked if they agree that water mains servicing different property-use groupings should experience fewer water outages compared to residential properties before the water main is renewed. There was strong community agreement that Public Health and Safety Facilities should experience fewer outages before renewal with an agreement level of 94% for residential and 91% for business.

## Service Level Expectations: Service Outages

Undertaking emergency repairs and rehabilitating water mains is the single largest expenditure in the distribution system in Saskatoon. For this reason, the largest number of survey questions was dedicated to water main service outages. The survey sample was also stratified based on obtaining equal representation from customers with good, fair and poor water mains, even though fair and poor mains represented a much smaller percentage of the customers in Saskatoon.

The purpose of this group of questions was intended to identify when the frequency of service outages is no longer acceptable. There is no single measure that can uniquely define when customers will no longer tolerate another water outage. Respondents were asked a number of questions about their tolerance to the time and frequency between water outages:

Figure 2 Tolerance to Water Distribution Main Service Outages



• How much time do you think you could reasonably be expected to tolerate between one water outage and another on your block?
• On average, what is the number of water outages you would tolerate in a five-year period?
• Without notice of the service interruption?
• With the provision of a water trailer?
• With notice of the service interruption?

Community consultation should be representative across the whole community. The results for residential and business customers for the number of outages they will tolerate on average in five years, is shown for mains in good, fair and poor condition (Figure 2 above). As noted in Figure 2, tolerability graphs are an effective way of presenting community expectations for service outages. For residential mains in poor condition 50% of the community will accept up to three service outages in five years. For both residential and business customers with good and fair water mains, there is very little difference in the number of water outages they will tolerate. The exception is residential customers with water mains in poor condition. Customer acceptance is a continuum that can be difficult to define by average or a single percentile. For example, 5% of respondents will not accept any service outages in five years, while 5% will accept between 10 and 15 outages.

One of the most important goals of the study was to link customer service expectations with water main performance curves used to evaluate life cycle costs. By combining the tolerability results with performance curves you can establish the community satisfaction level at any point along the curve. If you have experienced eight breaks, the average break frequency looking forward five years from the eighth break would match a community satisfaction level of 57%. A key point is that you can anticipate as part of your life cycle forecasting community satisfaction. Any number of interventions may be available to manage the break frequency and community satisfaction including cathodic protection or renewal. You can provide poor service and then initiate intervention or you can anticipate poor service and avoid it. The City of Saskatoon's service standard has been to renew water mains after its twelfth break.

## Service Level Expectations: Responsiveness to Restore Water Outages

A set of questions was asked to identify operational options that would significantly reduce the negative impact of a water service interruption. Customers' tolerances to the duration of service outages at different times of the day, and with different operational services, providing advance notice and providing water trailers, were evaluated. Without a water trailer or advance notice, customers expect that the water mains will be returned to service within 10 to 15 hours of a water outage. Providing a water trailer significantly increases the mean time that customers will accept a service outage before a main is returned to service. It is also interesting to note that in most cases there are only minor variances in response time expectations between customers on good, fair or poor water mains.

The question around providing advanced notice for planned service outages was designed to address the customer impact of an active leakage control program that would identify some leaks before they progress to a water main break requiring emergency shutdown. In these situations, customers can be provided with advance notice and repairs can be scheduled when there is the least amount of disruption.

| Table 3 Community Expectations to Restore Water Outages (Mean Time in Hours) | | | | | | |
|---|---|---|---|---|---|---|
| Service Outage | Residences | | | Businesses | | |
| | Good | Fair | Poor | Good | Fair | Poor |
| Any time | 13 | 15 | 14 | 6 | 10 | 11 |
| After 5 p.m. | 11 | 11 | 10 | 11 | 14 | 19 |
| After 9 a.m. | 11 | 12 | 11 | 6 | 8 | 8 |
| With Advance Notice | 42 | 38 | 39 | 24 | 24 | 29 |
| With a Water Trailer | 46 | 46 | 38 | 23 | 25 | 38 |

It is clear that reducing the time of service outages or providing water trailers can have a significant impact on customer satisfaction with emergency water outages. The current service level for restoring water outages in Saskatoon is 24 hours 95% of the time. The actual repair completion rate, as of 2007, was 40% at 12.5 hours, and 73% at 24 hours. This line of questions raised the issue of how to measure service outage response times, and the availability and timeliness of the information if it were to be used as an operational service target.

## Service Satisfaction: Water Quality Pressure and Volume

Water quality, and water pressure and volume were evaluated for general satisfaction levels, and the rate of use of in home water filters, treatment devices, and bottled water. Satisfaction rates for water quality and pressure and volume were 85% and 91% respectively. Although metrics for water quality and pressure were developed for the network, both can often originate in the connection or the internal plumbing.

## Cost of Service

Five questions were asked about customer willingness to increase monthly utility rates for service improvements using the tolerability polling technique. To residential customers, the question of rate increases was framed in the context of an average monthly bill of $51. As with service outages customer tolerance to rate increases can also be shown as a tolerability graph. Results of the five utility rate questions for service improvements are summarized in Table 4 for the 25%, 50% and 75% percentiles from the tolerability graphs (i.e., 50% of the businesses polled would accept a 3% rate increase to reduce water interruptions leading to traffic detours).

## Conclusions

The study validated the tolerability survey methodology as a powerful tool for communicating public expectations for various service level and utility rate parameters. Results from the study demonstrate that you can bridge the gap between the technical evaluation and programming options and community satisfaction measures.

**Greg Chartier** recently entered the field of infrastructure management consulting after a 27 year career with the City of Saskatoon. In his capacity with the City, Greg was involved in all aspects of surface and underground infrastructure management, from planning, design, and construction to operations, maintenance and rehabilitation. Contact him at greg.chartier @sasktel.net

## BENCHMARKING FOR BEGINNERS:
## A guide for public sector asset managers

### PART 3 : HOW DO YOU WANT TO BENCHMARK AND WITH WHOM?

**In Part 1**

we looked at the reasons WHY you may wish to benchmark (to improve performance, to demonstrate the existing state of affairs, to control). In part 2, we added a further reason (actually a subset of to improve performance) and that is to decide what would be reasonable targets at which to aim.

**In Part 2**

we looked at WHAT you may wish to benchmark, a particular function or process, a range of processes, the current general or specific state of affairs, and showed how both the WHY and the WHAT questions were important in choosing the most appropriate type of benchmarking for your needs.

In both of these we have already touched on the range of benchmarking options that there are available to you.

**In Part 3 we look more closely at**

HOW to benchmark (and WITH WHOM) that is whether to compare processes and outcomes in depth with a partner during site visits, or whether to engage in one of a varied number of metric comparisons.

And a related, and most important, question HOW are you going to interpret and understand the results you obtain so that you can act upon them?

### HOW TO BENCHMARK - THE OPTIONS

In essence the options open to you are to engage in an in-depth exploration (generally of one or two functions) with one or a few partners OR to take part in an organised exercise based on comparison of selected information with a larger number of agencies who may or may not be identified. The following table describes the options ranking them from those that provide the most information (but require the most resources) to those that provide the least.

## Table: BENCHMARKING OPTIONS

| OPTION | DESCRIPTION | WITH WHOM | EXAMPLE |
|---|---|---|---|
| **1. information Exchange with one or two partners** | In-depth exchange of process and outcome information with one or a few partners | Chosen partners (see note * below on how to choose) | Xerox |
| **2. Metric - Identified partners** | Comparison with known partners and processes and outcomes can be identified. | Generally with small groups in the same industry where organisational outputs are well known or can easily be established with a phone call. | Early benchmarking in the water industry when there was only one agency per state and there were close connections between them. |
| **3. Metric - Partners not identified but their characteristics described** | Comparison within a known group identified by number so that performance can be judged across a range of benchmark areas. | Generally within same industry, numbers can be larger than with Metric 1 and more information is provided. | Benchmarking undertaken by Universities and Tertiary Institutions in Australia and NZ. |
| **4. Metric -Comparison is not with benchmarking participants but against fixed targets** | Comparison against fixed targets | Generally within the same industry and targeted areas are chosen to be relevant to all | Most of the Local Government Benchmarking studies in Australia |
| **5. Metric - Comparison with unknown partners, with unknown characteristics and unknown outcomes** | Comparison against group results where the members of the group are not necessarily known to one another | Usually not restricted to the one industry, may be grouped according to some like characteristic, e.g. size. | Common in industry<br><br>requires benchmarking areas that yield numbers, e.g. $ per activity, rather than qualitative assessments |

## BENCHMARKING FOR BEGINNERS:
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### WHAT DOES IT MEAN?

Interpreting and Understanding Benchmark Results

#### Benchmarking Option 1. Information Exchange with one or a few partners.

The chances are that, even with one partner, you will find that you are not using the same categories or software and that you will both need to make adjustments to the data you are using for it to make sense to the other. But you are in dialogue! *And you have a very good understanding of the organisational performance outcomes.* This is not true of the other benchmarking options to follow which is why they are subject to more misinterpretation and misunderstanding.

#### Benchmarking Option 2. Identified Partners

This is a situation where you know who your benchmarking partners and what benchmarking results they are getting. *You may also know, through common knowledge, what organisational results they are achieving* and you are able to contact them and ask questions of them (if only you know what to ask!) Clearly the smaller the group the more likely you are to know them - and for them to know you, so the dialogue opportunities are greater but they are not automatic as with Benchmarking Option 1.

#### Benchmarking Option 3. Partners not identified but their characteristics described

With Option 3 you know what results are being obtained by others but, even if you know the industry players well, you do not necessarily know (except by inference) which organisation is getting which result. *You are not able, therefore, to compare the AM result with the overall performance of that organisation.* However, each organisation is identified by number and you can check the results of that number across the entire range of benchmarked functions. Thus, if their cleaning costs per square metre are particularly low, you can see what is happening in related fields, such as re-painting, or repair. Unlike Option 2 you cannot ring up and find out information not included in the benchmarking exercise (unless you swap your ID numbers with other friendlies) but a lot of information is provided that you can check to better interpret and understand.

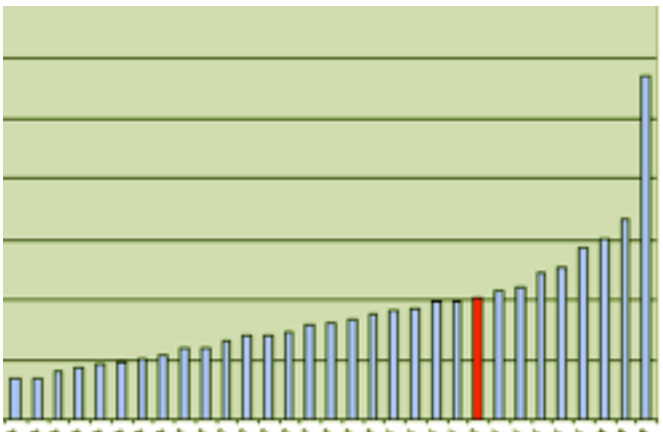
#### Benchmarking Option 4. Comparison is not with benchmarking participants but against fixed targets

With Option 4 benchmarking results compare your outcomes not with other participants (e.g. other councils in the study) but with pre-determined 'best practice' scores where 100% is the top of the range. Results from these studies will tell you

which functions score most highly. But it will not tell you which functions are the most important for you. So it will not tell you what actions you need to take. We will look at this aspect later when we consider "So you have benchmarked, now what?"

### Benchmarking Option 5. Comparison with unknown partners, with unknown characteristics and unknown outcomes

With Option 5, the results you get look rather like the picture opposite. Along the vertical axis are increasing amounts of the function being measured, e.g. cleaning costs per square metre, and along the horizontal axis are the results of all of the participants with your own result singled out, as in the red bar. This tells you that you are not as good as some, but then not as bad as others.



Generally, although not necessarily, a move to the right is considered 'good'.

This type of benchmarking is open ended, there are no pre-determined 'best practice' scores as with Option 4 and the 'best' outcome is determined by whoever is in the set of participants and these are not

Benchmarking Option 5 presents the most problems in interpretation. Here are some of the issues that you will need to consider:

1. **What represents an improvement?** Because there is no pre-determined best practice representing the top score (as with Option 4) all the outcomes of the open-ended benchmarking will tend to be ratios (cleaning costs per square metre, customers per kilometre of pipe, etc.) which allow themselves to be naturally recorded metrically. Many of these will be input:input ratios. And this creates a problem. For example if the study records, say, 'maintenance dollars per kilometre of pipe', is it an improvement for the figure to increase, or for it to decrease? If you are not doing 'sufficient' maintenance then an increase can be an improvement. If you are, then an increase represents a waste of money and is not an improvement. Moreover, even if you start from a situation of under-maintenance, at some stage continual increases will approach an optimum and from then onwards further increases in expenditure will represent a worsening performance. In other words, these results can not be interpreted without a set of targets at which to aim. (And since the reason for engaging in this type of benchmarking is generally to find these targets, you have a problem).

2. **The problem of end points.** Extremely good or poor results are likely to be outliers caused by particularly favourable or unfavourable social or environmental factors rather than a genuine relationship between the inputs being considered. So be beware.

3. **"One swallow does not a summer make"** And one benchmarking figure or indicator actually indicates very little. As an example, years ago the water company I worked for wanted to reduce the number of maintenance personnel on the response trucks from three to two. The unions resisted. Eventually a compromise was reached. They would allow 2 men to a truck, but nobody could be fired and new trucks had to be bought to accommodate all the men. The following year response times fell to the lowest ever recorded! And no wonder, with so many trucks sitting around waiting for something to happen. But a response time benchmark did not tell the whole story. For this we also need a 'cost per response' benchmark. (This is equally true of any interpretation of a KPI).

## CHOOSING YOUR BENCHMARKING PARTNERS

### Best in the field?

Your choice of benchmarking partners depends on the style of benchmarking you have chosen. If you have chosen to benchmark by exchanging in-depth information with one or two benchmarking partners where you explore together the differences in approaches and outcomes that each of you are taking then, for public sector enterprises the most important issue is that all participants gain in the exchange.

This means that choosing the 'best in the field' if you are currently the worst will not yield a satisfactory outcome for all. It could be a good idea to choose some organisation that is better than you are in some regards but worse than you in others.

The Australian Quality Council's Benchmarking Code of Conduct provides a succinct set of rules for partner exchange:

Keep it legal
Be willing to give what you get
Respect confidentiality
Keep information internal
Use benchmarking contacts
Don't refer without permission
Be prepared from the start
Understand expectations
Be honest
Follow through with commitments

And before you choose, and before you commit, make sure that you understand your own processes!

If you don't think you understand your own processes well, then you may be better off with a highly scripted, detailed, benchmarking operation of the Benchmarking 4 type where you will learn more about yourself as you go.

### Choosing partners for a Metric Benchmarking exercise

You have the choice of

Your own company or department (particularly if you have many offices doing similar work) (You can even benchmark this year's results against previous years and note which functional changes led to which outcome changes)

Your own industry (where you can be reasonably sure that the outcomes you are aiming at, even though you don't know them precisely, will be reasonably similar)

Another industry that excels at the function that you have in mind.

Beware of benchmarking exercises that have a large variety of participants with different objectives and constraints. And beware of benchmarking exercises in which the measures are vague. (We will illustrate in the next issue.)

## Next Issue:

**In Part 4 we will look at some benchmarking examples to give you some concrete examples of the theoretical issues that we have dealt with so far.**

## Part 4: Three Benchmarking Case Studies