

Norman Eason's "Maintenance and Asset Management Information Systems"

"Productivity is the act of bringing a company closer to its goal."

Every action that brings a company closer to its goal is productive.

Every action that does not bring a company closer to its goal is non-productive."

Dr. E. M. Goldratt
'The Goal'

Chapter 15

Objective Assessment of Progress

I have often described Dr. Goldratt's definition of production in seminars by using little arrows to illustrate the constituents of production. Imagine each action in an organisation to be represented by a little arrow. If it is pointing vertically, then this action can be said to be productive. If, however, the arrow is not pointing vertically, then the action that it represents is less than optimally productive. Only the vertical component of the arrow can be said to be productive, and that only if the vertical component is pointing upwards! We can all give examples of actions whose vertical component is negative – in all senses of the word!

If we add up all the constituent actions in a task such as the implementation of a maintenance or asset management system, then we can see that if all of these are vertical, the result will be greater than if some of them face other directions. If these non-vertical or negative actions can be identified, then we have the basis for their correction and thus the improvement of the overall task. If these little arrows were iron filings, then, by using a magnet, we would be able to align them so that their North poles are all in the same direction. In practice, the alignment of actions in a project is much more difficult, primarily because most organisations embark on the implementation of a project without the ability to identify, and thus to correct, these rogue actions.

When tasked with, and measured by, critical short and long term targets, it is extremely difficult for a project

The Sanity Check

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manager to find time for the identification of these rogue tasks. If it is not in the personal interest of the staff member responsible for a task to have its rogue status identified, or if the rogue status results from a wrong assumption, then its identification becomes even more difficult. Furthermore, with the increasing pressures on all management to perform, it becomes almost impossible for them or their staff to think laterally and truly objectively about the project. They are usually on a treadmill that doesn't stop from the start to the end of the project. Unfortunately, because of this inability to step off the treadmill and to reassess the project with respect to its objectives, many projects effectively go off the rails without anybody knowing that this is about to happen. These could all have been avoided if a objective assessment of the project had been able to be made at one or more stages in its implementation.

The Sanity Check

An objective assessment of a project is possible, although it is extremely difficult for this to be carried out by any member of the project team. Apart from the difficulty in finding the time to carry out such a task, the objectivity of the team member can be a real problem and will certainly lead to questions regarding the results, especially if these results identify contentious issues.

The key requirement of an objective assessment is that it should be unbiased and able to produce conclusions that can be addressed by those responsible for the success of the project, without any axe to grind or separate agenda on the part of the person carrying out the assessment. It goes without saying that the person carrying out the objective assessment must have the expertise and experience necessary to carry out an in-depth investigation quickly and with the minimum disruption to the project. It is also crucially important that he or she has the necessary credibility to ensure that the conclusions and advice delivered by the assessment are taken seriously by the user organisation.

“An expert is someone who knows some of the worst mistakes that can be made in his subject and how to avoid them.”

*Werner Carl
Heisenberg 1901 –
1976, German
Physicist*

I have been carrying out such objective assessments for some years now, covering many different industries and investigations at all stages of implementation projects. All of these assessments are, of course, carried out in a totally confidential manner. The results from many of these assessments are both surprising and remarkable, although I have now reached the point where nothing really surprises me. However, examples of the problems found will be of interest to readers who have not yet attempted such implementations, and hopefully will prevent their repetition. I shall be providing several of these examples in the next section of this chapter without, of course, identifying the organisations from which they came. I am sure, however, that those organisations that recognise themselves will see the merit in the identification of the problem for others, and how much embarrassment and angst they could have saved had they identified the problems earlier.

Among the most common statements by organisations that have just completed an objective assessment is the wish that it had been carried out earlier. Indeed, it is my sincere wish that, as a result of reading this book, organisations will become sufficiently knowledgeable about the possible problem areas associated with the procurement and implementation of maintenance and asset management information systems as to reduce the need for such assessments.

Some time ago, I was carrying out an objective assessment of a system implementation for an international process company. I had asked the pertinent primary questions and was pursuing information triggered by the answers to these questions when I was stopped by one of my hosts who looked as though he had had a revelation. He said, “Do you realise what you are doing? You are checking our sanity?” Now he said this with such sincerity and without any animosity that we started to discuss the impact of his statement. We discussed the example of someone who is bent upon a particular task to

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the exclusion of everything else. He or she can appear to others to be taking insufficient cognisance of factors affecting, or affected by, this course of action and thus could appear to have 'gone off the rails'. We agreed that it takes others to recognise non-obvious mistakes and to them the individual's actions could be considered somewhat insane. Insanity may appear to be too strong a term for the actions representing the implementation of maintenance or asset management information systems. However, the examples identified in the next section of this chapter may indicate otherwise!

If we consider the term 'Sanity Check' in a less than literal sense and assign it to an investigation of the health and direction of a project, then it becomes a suitable alternative to the more general term of 'objective assessment'. I started using this term some years ago and it now has an association with maintenance and asset management that uniquely describes a process that is essential for the health of a project and of its participants.

It is a relatively quick activity and, in order to meet the requirement of unbiased objectivity, it is essential that a Sanity Check be carried out without the intention of using it as the basis for further consultancy. I have carried out many Sanity Checks, but only in one instance have I been involved in further work for the client. This was despite my usual statement before the Sanity Check that I would not be seeking further consultancy work from them. It arose, however, from the absolutely dire situation that I found when I delved below the surface of the project. They were so far from meeting the original objectives of the project and had made so many wrong assumptions that they requested my additional help. I was able to provide them with considerable assistance, but by then many irreversible errors had occurred and I was not able to totally save the credibility of the project and its members.

Many organisations share their experience so that others may gain from them, but I have found that few organisations share their mistakes, especially if these mistakes are corporately or individually embarrassing.

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Some Examples of Problems Identified by Sanity Checks

Many organisations embark on projects such as the implementation of maintenance or asset management systems with the belief that they have the correct strategy, the most appropriate team and the correct control mechanisms. They also often seek appropriate advice before starting the project, from consultants and from existing users of the proposed information systems. This approach is quite correct and many projects are successful as a result. Many organisations share their experience so that others may gain from them, but I have found that few organisations share their mistakes, especially if these mistakes are corporately or individually embarrassing. Also, many organisations seem to operate a 'dual account' approach to their experiences; their public representation of what was achieved is somewhat different to what actually happened! As we saw in the previous chapter, this 'dual account' phenomenon often occurs inside as well as outside an organisation, with operating staff well aware of the limitations of implemented systems while executives and Board members perpetuate a totally different version of the results.

I shall try to correct the balance of perceived results of implementation projects by identifying what can go wrong and why these problems occurred. The examples used are all taken from actual Sanity Checks that I have performed for several industrial organisations. They all identify problems rather than success stories. This is not an attempt on my part to be negative. There are several other examples that I could use where organisations have had successful implementations; these have invariably followed approaches to implementation consistent with the advice given in earlier chapters of this book. Many of them have also gone into print in journal articles and through the publication of conference papers, so there is absolutely no lack of published information on success. There is,

“With stupidity the gods themselves struggle in vain.”

*Friedrich von Schiller
1759 – 1805*

however, for the reasons stated earlier, a distinct lack of information on the problems encountered by many organisations, especially those problems that cause embarrassment to the company and result in refusal of authorisation to publish. Thus the following examples are most important for any organisation proposing to implement a maintenance or asset management information systems. As I stated before, they are all true, unbelievable though some of them may appear to be. You may not consider that your organisation could act in any of the ways described, but that was also the view of many of the organisations from which these examples were taken. In truth, these examples endorse the use of the term ‘Sanity Check’!

I shall categorise the following examples into four sections, covering errors in assumptions, strategy, agendas and approach. Some of these examples have been referred to in earlier chapters in order to illustrate specific problem areas.

Wrong assumptions

The two examples in this section have already been used in Chapter 8 to illustrate the impact of technology. For this reason, I shall omit some of the background detail and refer the reader to the ‘User Perceptions’ and ‘Other Technological Factors’ sections of Chapter 8.

The first example was described in the ‘User Perceptions’ section in Chapter 8 and, while user perception played a large part in what went wrong, the combination of this perception with wrong assumptions provides a salutary lesson for other potential user organisations. It will be remembered that the organisation used in this example was a process plant that was part of a large international group. The plant was under severe pressure to increase its performance and throughput, but seemed to have been severely restricted in achieving its goals because of the

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very old maintenance information system, which was deemed by the maintenance staff as being too difficult to use. It will also be remembered that, incredibly, the decision was taken to replace the old system with a new, expensive, state-of-the-art system. The example was used in Chapter 8 to illustrate the fact that the maintenance workforce had perceived that the old system was unusable because of its outdated user interface, whereas we saw that user motivation was the real problem.

Now, if we consider this example in relation to the assumptions made by various parts of the organisation, we can see how they needed a Sanity Check; almost every department involved in the activity made wrong assumptions. First of all, the maintenance users assumed that they were not at fault – a classic case of poor workmen blaming their tools. They believed that, because their maintenance information system was old, it must therefore be a cause of their inability to improve their operation. This factor occurs throughout industry; people believe that their tools must be up to date, otherwise they cannot be used effectively.

Their management perpetuated these assumptions. Perhaps there was another agenda in force at this level. Perhaps they too believed that the existing maintenance information system was old and needed replacing, and here was the opportunity for them to obtain a brand new system and at the same time update their own experience portfolio. If there was not such an agenda, it is surprising how such a request from the workplace should have got management's blessing without first going through a rigorous procedure of investigating the root cause of the problem. That some part of the management was less than happy with the situation was, however, shown by the fact that I was called in to perform a Sanity Check on the activity. Nevertheless, up until that time, no-one had said, "Wait a minute, what are we doing? And why are we doing it?" The original assumption had been perpetuated up the chain of control.

the problem was perpetuated as a result of a series of assumptions throughout all levels of the organisation.

Now we come to the Board level. Here again, we can only surmise at the scenario surrounding the decision. We have, however, clues as to what motivated the decision to purchase the new system. First of all, the proposal to replace the system would have been made to the Board by management. How many times have you come across Boards of Directors that are not fully in touch with the real activities and requirements of their operations? How many times have Board members accepted the advice of their staff purely because they themselves do not have the knowledge or experience to make an informed decision on the subject or to question the advice of others? I'm not saying that this is in any way typical of all Boards of Directors, but there are a sufficient number of examples to provide cause for concern! In this scenario, the Board is likely to assume that management had carried out a rigorous investigation of the problem and its possible solution. This is all the more likely if the responsible director was not able to fully understand any discussion of the matter.

The most obvious clue to the thinking at Board level is the fact that the operation was under severe pressure. In this case, the local Board would wish to do **something** to alleviate the problem. It would also wish their Corporate Board to be able to see that things were being done, and it would be of considerable help to them that the implementation of the system would take some time, thus providing possible breathing space for their operation.

Thus, while we saw in Chapter 8 that user perception was a problem with this organisation, we can now see that the problem was perpetuated as a result of a series of assumptions throughout all levels of the organisation. In fact, a further problem was the possible personal agendas of management and Board members. So we have a whole mix of problems that would not have been identified internally for a number of different reasons, but which came to light as a result of asking the correct questions during a short visit.

“Always remember what you originally wanted the system to accomplish. Having the latest, greatest system and a flashy data centre to boot is not what data processing is supposed to be about.

It is supposed to help the bottom line, not hinder it.”

*Richard S. Rubin
Telecommunications
Manager at Citibank*

The background information for the second example in this section is described in the ‘Other Technological Factors’ section in Chapter 8, when we considered **obsolescence**. The reader will remember that the Sanity Check was for a water utility that was on the point of ordering a new expensive information system because their current one was costing them substantial monthly fees and was not capable of handling dates in the new century.

Here the main objective was to get a new system in place in time for the new millennium and the sooner it was installed, the earlier they could stop paying the high rental fees for the current system. The example was used in Chapter 8 to illustrate the effect of **obsolescence** on the decision process for the procurement and implementation of information systems. However, two points must be made here with respect to **assumptions**.

Firstly, as we saw in Chapter 8, the assumption was made that the procurement of one of the largest and most comprehensive - and consequently one of the most expensive – systems on the market would automatically catapult them into the World Class level of asset management operations. In other words, throw enough money at it and the result must be World Class status! This is another instance where a policy that seems incredibly to most readers was pursued and implemented by a large organisation with the expectation of success! However, as we shall see with other examples, this thinking is not as uncommon as one would expect.

The second, and possibly more serious assumption, is that there was no need to write either a specification or, even more incredibly, a maintenance strategy, before the procurement of the new system. Again, we shall see this assumption coming up in other examples. The fact that this policy was defined by an otherwise intelligent maintenance operation and was approved by their Board of Directors is astounding. However, they – and the other organisations in

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later examples – believed that because they were purchasing a large, comprehensive system, they need not worry about a maintenance strategy or a specification, as the new system was bound to be able to cope with whatever they required in the future.

As we have seen in several earlier chapters, a maintenance or asset management information system is a vehicle to aid the management of maintenance or asset management. It is not, cannot ever be, and should not be a policy-generating instrument. These systems, as we have seen before, should be sufficiently flexible to accommodate various strategies, although many – even the largest systems – have difficulty in providing such a range in a usable manner.

As we saw in Chapter 13, and we shall consider in Chapter 17, the motives of vendors are not necessarily aligned to the requirements of user organisations. Indeed, one very major vendor recently told me that they did not consider themselves to be experts in maintenance or asset management! Nor was it their policy to be such experts. Their objective was to continue to develop technology that was new and exciting, and thus would be purchased by successive generations of maintenance and asset managers. They believed that maintenance and asset management expertise should be the responsibility of users and consultants. They also believed that this was the strategy of their major competitors, so that the improvement of the professionalism and effectiveness of maintenance and asset management did not come into their development philosophy!

Although other vendors may disagree with this, if it is in any way true, then it totally nullifies a very major assumption made by many prospective users of systems, namely that purchase of the latest and most technology-based systems will automatically improve their operations. I would tend to believe the truth of the statement with regard to the larger vendors, for the reasons identified in Chapters 13 and 17.

This is a very competitive business and those at the very sharp end are forced to play by the rules defined by the major players. If they see technology as the principle selling point, they consider that most prospective users believe that they have all the functionality that they would ever require and they can demonstrate the presence of existing users in similar industries, then why would they bother with improved structures? Especially if their name will ensure that they are always short-listed for any major project and they thus have the opportunity to impress the user with their polished presentation and state-of-the-art technology.

As a general rule of thumb, the smaller the system, the more real maintenance or asset management expertise will be available from the vendor. This, however, is not necessarily the case for vendors of very small systems; it applies mainly to suppliers of medium sized systems who have a long-standing reputation for client support. They must compete on the delivery of solutions and for them the continuation of a good relationship with their clients is paramount.

So it is essential that prospective user organisations should not assume that any system will meet their current or future requirements. Its capability can only be tested against a well-considered maintenance strategy and a professional system specification.

Procurement of **any** information system without a proper specification is crazy; procurement of a maintenance or asset management system without first defining a maintenance strategy is irresponsible and unprofessional.

Wrong strategy

In the 'Constraints' section of Chapter 14, I described a problem facing a client of mine in relation to his use of a particular type of workstation that had been defined as a corporate standard for use throughout the organisation. The identified constraint was that this workstation had been

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And it did not have the capability to extend to collecting data from remote stations.

defined by the I.T. department in a way that would accommodate the requirements of all office applications. This was not seen to be a problem in applying it as the standard for the new asset management information system. The fact that the maintenance or asset management departments had not been involved, or considered, when the original office standard was defined was also not seen as a problem. Neither was there seen to be a need for the in-depth current and future needs of the asset management department to be taken into consideration when the workstation was mandated for the new system. The new system was an office system, wasn't it? And office systems have to comply with the current strategy regarding workstations. And the I.T. department had checked out the proposed system and found that it will run on the standard office workstation. No problem. End of story!

Except that it wasn't the end of the story! Because the asset management department were not sufficiently involved in the definition of the technology requirements and left it up to the I.T. experts, they found that they were severely restricted in how they could use and expand the system. The I.T. department had assumed that the new system would be an office system and had implemented their strategy accordingly. But it was only partly an office system. Of course, maintenance operatives would be sitting at a desk in order to select and allocate jobs and feed back the results of these jobs. But they also require that the system be able to access remote sites to collect condition data automatically in the future. Likewise, they would wish to expand the system to utilise remote access terminals. These facilities were not seen as immediate requirements and because of the decision to adhere to an established strategy, albeit the wrong strategy for the department, the progression of the asset management activity was effectively truncated within an office environment. The installed system could never thus achieve its true potential because the hardware strategy was the wrong strategy for the system.

**Conflict between
the choice of IT
and the choice of
Maintenance
with respect to a
preferred system**

Another example of a wrong strategy occurred with a utility client of mine. In this case, the maintenance operation was quite small and had for many years used a maintenance information system that functionally suited their requirements and with which all the staff was familiar. However, their corporate I.T. department identified the fact that this small, old system would not be able to cater for the new century. They were thus informed that they should find a replacement.

The maintenance department carried out a professional search of the market and came up with another system that catered exactly for their needs, both then and for the foreseeable future. It was also available for a fairly modest price. The I.T. department, however, had been involved with another, much larger part of the operation and had been instrumental in procuring and implementing an information system for them. This system incorporated a maintenance management module and so pressure was being put on the maintenance management department to use this module rather than the one that they themselves had selected.

I was asked to investigate the problem as part of a Sanity Check. I discovered that there was no operational communication between the maintenance department and the other part of the operation, and there was no need to communicate in the future. Also, the maintenance information system selected by the maintenance department was ideal for their current and future use, was simple to operate and data could be easily transferred from their existing system. There was absolutely no reason why they should transfer to the system selected by the I.T. department for the other part of the operation. There were, in fact several reasons why this would have been a very bad move for the maintenance department. The other system was large, cumbersome and difficult to use. As well as requiring substantial retraining of the maintenance staff, it would also have required considerable changes in order to accommodate the requirements of the maintenance department. Amazingly, the I.T. department considered that,

instead of making these changes, the maintenance department should change the way they operated in order to comply with the method of operation of the maintenance module of their suggested system!

I informed the organisation that they were trying to implement a wrong strategy. The maintenance department got the system they wanted and the I.T. department was told not to interfere in an area in which they had little knowledge.

Wrong agenda

A very large organisation had a considerable maintenance operation that was evolving in a structured manner into an asset management operation. Everything was well planned for this transition, including the identification of the need for a suitable information system. A specification was produced that complied with the requirements of their maintenance strategy. However, at that point the sanity ended and the insanity began.

The organisation also had a large I.T. department that was under-utilised and that wished to enter the software distribution market. They had identified maintenance and asset management as potentially lucrative areas and, although they had little direct knowledge of either activity, or of the difference between them, were able to get the national distributorship for a foreign system. This was possible because of the potential sale to their own asset management department, which would therefore become the demonstration system for their national territory. It would also, however, be the first installation of the system outside its native country!

The I.T. department had significantly more power than the asset management department and were hailed as heroes for gaining the distributorship. It is possible that the Board was quite relieved and glad to go along with the I.T. department plans as the alternative, with no new external business, would have been a difficult downsizing decision.

“Nothing in corporate life is more dangerous than a staff function looking for work.”

*Thomas A. Stewart
‘Intellectual Capital’*

The asset management department was then instructed to abandon their search for an appropriate system and to use this system. I was called in by the asset management department to perform a Sanity Check on the project. Unfortunately, this took place far too late in the project and long after the foreign system had been purchased and installed. The project team were then struggling to implement the system against requirements that it could not meet without considerable modifications. Those that it could meet were often implemented in a cumbersome manner. There was very little that could be done with this system. It was an expensive system that did not meet the original requirements and would not be able to be a showpiece for selling other systems. The agenda of the I.T. department, backed by the Board, totally invalidated what should have been a significant improvement to the asset management operation.

The footnote to this is relevant to this and many other projects. No one ever knew that the project did not come up to expectations – except the asset management staff! They plodded on, fighting the system and doing the best they could with it. They didn’t cause problems for the Board, because they - or the ones that remained - needed their jobs. The Board was satisfied that they had been able to install the software to time, to budget and had started a new business department as well. They were, however, getting to be a little concerned that no other organisation had bought their new product!

Wrong approach

I was once asked to carry out a Sanity Check on a system implementation project for a very large industrial organisation. This organisation had been carrying out the implementation for over two years and was within a few months of the targeted completion of the project. They had, however, made the assumption that was identified in Chapter 14, i.e., that the project completion took place when

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the software was installed and the system was loaded with the transferred data. So their project completion deadline was not the true end point of the project, but it was a deadline nevertheless, and they were beginning to worry about whether or not they were on the correct path. So they called me in to perform a Sanity Check.

Subsequently, this organisation said that they wished that they had thought to call me in much earlier in the project, even possibly before the project had started, as the Sanity Check identified problems that were by then insurmountable. It is a characteristic of Sanity Checks that those requesting the Check are often in panic mode, although the remainder of the organisation may not yet guess that there might be any problems with the project!

My use of this Sanity Check as an example is not specifically about its timescale; it is about the overall approach of the organisation to the project. What I found when I first visited the organisation was a seemingly well run project, with I.T. and end user staff apparently well-integrated and with good communications between all parties. They did, however, appear to be going over the top with their internal and external public relations regarding the project. They had a project logo, project stationery, project newsletter and project reception desk. Some of these are good for the project, but it is possible to take them too far, causing the desired effect to be lost and to be replaced by a measure of scepticism and cynicism.

Excessive project hype does, however, have another, more serious effect. In this case, the publicity given to the project meant that any problems, e.g., anything that caused a substantial delay in the project, would either have to be identified through this publicity mechanism or would have to be hidden. This was especially the case for this organisation as the Board was very vocal in their support for the project, both directly and through their P.R. channels. A contributing factor to this process, and a complicating factor in relation to the subsequent identified problems, was the enormous

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budget for the project; a budget that was by far the largest that I had come across for such a project and which had already been spent.

So, whatever the true facts of the project, there was little likelihood that the project would appear to the outside world to be other than a complete success. The money spent, the director's buy-in and the unchangeable and unstoppable publicity vehicle determined that this should be so. But, as we saw in Chapter 14, there are often two different versions of events and results; the public version and that which permeates throughout the staff who use the system. The Sanity Check was requested by management and staff, who recognised that these two versions were the same.

This, however, was not the major problem that I found regarding the project, although it compounded the issue. The major problem related to the overall approach to the selection of the system. A surprising error made by the organisation in the selection process affected the remainder of the project and the possible future use of the system. It was an error that should not have been made by an organisation that was otherwise so capable and controlled. Nevertheless, it was an error that was so easy to make and to overlook that it is well worth highlighting here in order that others do not make similar mistakes.

The error concerned the method of selection of short-listed vendors. In order to fully describe the error and its impact, I shall take you through the selection process they carried out.

First of all, it is important to set out the ground rules for the project. It was deemed extremely important to the organisation, it was agreed that a considerable amount of money was going to have to be spent on the project, and it was thus recognised that it would become very visible in the public perception of the organisation. Thus it was agreed that considerable effort would be made regarding the public relations aspect of the project. Hence the logo, the newsletters, etc.

Now, if the project was to be a success – and if it was to be **seen** to be a success – then the Board and the project managers agreed that they should put in every check in order to ensure its success. And there is no doubt that in most areas they were successful in this respect. However, the major error in the project arose from their diligence in trying to ensure that they would not be embarrassed by a failed project.

They were almost paranoid with respect to the possibility that, despite their own professional control of the project, it could possibly fail as a result of the failure of the vendor of the system. They thus defined their criteria for the selection of their short-listed systems based on this fear. They required that the short-listed vendors should have systems that were considered to be in the top ten in the market. They then applied criteria related to the viability of the vendors; their worth, their parentage, their previous three years accounts, etc. They then selected a shorter list based on the proposals from these vendors and their costing against the requirement specification. From the resultant four vendors, they selected a further short list of two. One of these two vendors stated that they could not, in all honesty, deliver a system that satisfied the requirements as defined in the specification, leaving the final vendor as the winner. Note that this final vendor did not make any such statement. His system was therefore assumed to fully comply with the requirements of the user organisation.

Now it may appear to readers that this was a reasonable method of selection of a system. There is obviously nothing wrong with ensuring that your vendor is viable; indeed that is one of the checks that must be made in the selection process. However, the error in this case arose from the use of this criterion as the prime method of selection, coupled with the assumption that all the major suppliers would be able to provide all the functionality and structures that would be necessary to meet the requirements of the specification.

the error in this case arose from the use of this criterion as the prime method of selection

Do you remember the quote from Douglas Adams in Chapter 3; “Assumptions are the things we don’t know we’re doing”? Here we have a very large organisation that **assumed** that as the systems from vendors got bigger, more comprehensive, and more popular, they **must therefore be able to accommodate any functionality and structures**. But we have seen that the accommodation of diverse functionality and structures – many of which are incompatible with each other – is a difficult and often neglected part of the development agenda for most vendors. So it should be unsurprising to readers that even the most popular system may fall short in this respect, especially because their developers may not feel the need for such a fundamental re-design of their system.

The user organisation purchased the winning system; it was also one of the most expensive systems on the market! They then began implementing the system, and after they had been doing this for some time, someone in the project team contacted me. They were starting to become worried that they were not going to be able to deliver what they had agreed and promised.

I started my Sanity Check with a series of Primary Questions, then delved into the problem as a result of the answers. I soon found out that the procured system was **never** going to satisfy the user organisation’s functional and structural requirements, because it had never been set up to accommodate these requirements. You will remember that the ability to handle various structures and functionality – some of which might be mutually exclusive – requires a total re-work of the system. This selected system had not been so amended and thus was incapable of meeting the user organisation’s functional and structural requirements.

So, what to do? A very large amount of money had been spent on the project. It was nearing its published completion. It was subject to a considerable amount of publicity. And it was recognised that failure to achieve the

“The tendency to hide unfavourable information often occurs in companies that are quick to reward success and equally quick to punish failure.”

*Robert M. Tomasko
Principal of Temple,
Barker & Sloan, Inc.*

published deliverables would be bad for the organisation.

The organisation did what any other organisation would do in the same position. It pronounced the project a success. Indeed, it may well be that the real problems didn't reach the Board. Remember that each staff member has his own agenda and it is better for him not to be the bearer of bad news! So, despite my identification of the real problem, the preparations for the celebrations to mark the successful end of the project went ahead. The Press was also informed of this remarkable achievement. Meanwhile, the workforce made do with a less than perfect system, realising that it was perhaps not in their best interest to rock the boat.

The vendor was perfectly satisfied with the outcome. He had covered himself with the wording of his proposal. He now had a new client in a new application area who was apparently satisfied that the installed system met his unusual functional and structural requirements. He thus had a new demonstration site that could be used for other organisations in the same industry who, if they did not question the **culture** of the demonstrating organisation (see Chapter 9) would in all possibility be able to be persuaded to procure a similar system.

How can such a situation occur? Can it be real? This scenario actually took place. It is not something that is published, for obvious reasons! But it happens. And similar situations happen all the time, without the general public becoming aware of them. Thus, without the knowledge that these mistakes – **serious mistakes** – take place, and are made by organisations that would be expected to know better, they will continue to be made by new, perhaps more naïve, organisations that are entering the application area for the first time. The cause of this problem, and its solution, involves areas other than those of maintenance and asset management. It is a problem arising from the relationships between directors, management and staff, and the knowledge that each level has of the activities and problems of the other levels. It is not an easy problem to solve, but its

“Much about growth is really about ego and greed, not business strategy.”

*Ricardo Semler
Maverick’*

identification should help in its solution. The problem also involves the vendors; they have it in their power to considerably alleviate the problem.

And then there is the ethical aspect of the problem. We shall consider this in Chapter 17.

My final example relates to a water utility. This utility had been privatised for less than a decade and was now embarking on a grand plan which, it was hoped, would result in their being considered among the top ten utilities in the world within the next five years. An unstated goal, connected to this vision, was that they would then be in an excellent position for take-over, thus providing considerable profit to the Board and to the shareholders.

There would appear to be nothing wrong with this vision. However, some colour must be added to the picture. Before the utility was privatised, it consisted of a very large number of small, autonomous water treatment works and sewage works that were run by communities and local authorities throughout the territory. At the time of privatisation, it was decided that these local teams should remain as they were and nothing had been done since to attempt to provide central guidance or control. This informal attitude permeated the total workforce, including the maintenance teams. Although some of these autonomous teams had introduced basic computing into their operations, each of these was amateur in operation and none could form the basis of any expansion of computerisation throughout the utility.

All of these autonomous maintenance teams appeared to be carrying out their work in a manner that was considered satisfactory by the management of the utility, but on closer inspection it was found that each team effectively did what they liked, when they liked. There was no importance given to any planned maintenance; if other work seemed to be more important, then it was done instead of the planned maintenance work. This might seem reasonable if the

**A “Fix-it”
Culture may
develop where
the workforce is
concerned with
keeping their
jobs**

planned work was then rescheduled for a later date, but in fact this was seldom done! And the fact that it was not done was not recorded! This perpetuated the maintenance problem and ensured that the maintenance teams were always seen to be busy – in fact they were busy on breakdown work that they need not have done if they had carried out the planned maintenance work properly.

In general, the workforce was working to a different agenda to that of the overall organisation. They were working to ensure that they were always considered to be important and thus would keep their jobs. Most of them lived and worked in remote areas; if they did not work for the water utility, then they would probably have to move and totally change their lifestyles. Also, the culture of the workforce was a ‘Mr. Fixit’ culture. They thought nothing of being wakened at three o’clock in the morning with an emergency. They were, of course, paid extra for such call-outs. Also, the harder the problem or the more difficult the situation, the more credibility they appeared to have with their colleagues and with their management.

The planned maintenance schedules were still the same as they were when they were recommended at installation by the manufacturers of the plant and equipment. No consideration was made regarding the criticality or duty cycle of the plant or equipment. Also, the fact that such a low priority was given to any planned maintenance work that was actually carried out meant that no attention was given to the collection and analysis of data on the effectiveness of this work.

This scenario was the starting point for the introduction of an asset management system that was to change the utility into a World Class organisation and enable them to achieve top-ten worldwide status within five years. At this point, they made a mistake that has been identified before with respect to other organisations. They authorised the procurement of an expensive asset management information system, believing that this would ensure their elevation to World

the move from a Departmental Maintenance categorisation to an Asset Management categorisation necessitates a total assessment of the attitudes, methods and culture of all parts of the operation

Class status. Also, by procuring an asset management information system, they believed that this would make them an Asset Management organisation, when any realistic analysis of their operations and their attitudes would have placed them squarely in the middle of the Departmental Maintenance category! Size of operation does not result in automatic asset management categorisation!

As we saw in Chapter 2, the move from a Departmental Maintenance categorisation to an Asset Management categorisation necessitates a total assessment of the attitudes, methods and culture of all parts of the operation. This utility had not attempted any of this and indeed was embarking on the whole implementation exercise based on the procedures and structures that they had inherited at the time of privatisation. The situation, however, got worse!

They had no activity within their entire operation that was looking at how maintenance should be carried out, that was skilled in modern techniques and methodologies, and could act as a vehicle for communication between the Board on one hand – who knew nothing about maintenance – and the autonomous maintenance operations on the other hand – who knew nothing about business strategies or the benefits that could be accrued from consideration of modern methods. There was, in fact, no-one between supervisor level at the maintenance operations – and not every operation had a supervisor – and the Operations Manager who reported to the Board, but who had no experience, and no real interest, in maintenance. Amazingly, the utility wished to emulate the current maintenance operations in the new system, even although there was no consistency or standardisation between any of these operations! Also, they intended using personnel from these maintenance operations as the ‘experts’ who would dictate the requirements of the new system and how it should be used!

Perhaps the most damning mistake that they made was that they embarked on the selection and procurement of the new asset management information system without first defining

the most damning mistake that they made was that they embarked on the selection and procurement of the new asset management information system without first defining their maintenance strategy and linking this into the overall business strategy

their maintenance strategy and linking this into the overall business strategy. They therefore fell into the trap of selecting a system that appeared to accommodate all their (unstated) wishes in the hope that it would be able to be configured to meet their ongoing requirements. In fact, as luck would have it, they selected a system that was appropriate and flexible for utilities. It did, however, need considerable alteration (which was costly and which could only be done by the vendor – they were, after all, locked-in). This had to be performed as the system was being implemented, thus impacting the project's timescale as well as its budget.

Thus there were two important activities that had to be carried out urgently, for which no previous consideration had been given and no budgets had been assigned. The organisation had to appoint someone with suitable asset management credentials to become responsible for all the asset management operations within the organisation. He or she had to be able to gain the respect of the maintenance workforce, a problem that was extremely difficult since they were previously led to believe that they were the maintenance 'experts' for the project. This new appointee had, however, also to engineer the changes in the operation from a Departmental Maintenance philosophy to an Asset Management strategy, with all the culture changes that this involved. As we saw in Chapter 2, this is a far from easy task and one that takes years – and a considerable amount of money – to implement. The selection of the appointee took several months and he was not able to play a significant part in the implementation of the system, which had to take place according to the agreed timescale and using the maintenance operators as the main local experts.

The lack of a maintenance strategy meant that one had to be produced as quickly as possible, using external consultants to advise on new techniques and methodologies. However, under these circumstances, it was only possible to provide this in draft form, with many general

statements and provisions for many different options that would have to be reconsidered once the asset manager was in place.

Thus it was a very unsatisfactory implementation. The utility did their best to portray the system as a success to their employees and to the outside world, but the system did not turn them into a World Class organisation and their wish to become one of the top-ten water utilities in the world remains a beautiful dream!

A Sanity Check asks the questions you wish you had asked at the start of a project.

Hopefully, it's not too late to do something about the answers.

These examples of what can go wrong with the implementation of maintenance and asset management systems illustrate that serious mistakes can happen, they can happen to large organisations, and they are invariably hidden. There are very many reasons for this, based on human fallibility, business credibility, personal agendas and many other factors. An analysis of these would require considerable knowledge of psychology and there is no provision for this in the scope of this book. The reader will, however, now be aware of the factors that can impact on the decision process for the implementation of these systems and can see how such mistakes can be made, resulting in the need for a Sanity Check. Hopefully these examples, and the knowledge provided in the other chapters of this book, will reduce the occurrence of these mistakes.

Credentials For Undertaking a Sanity Check

It should now become apparent to readers that carrying out a Sanity Check is likely to uncover many problems. These can be technological problems, they may concern

the fact that a Sanity Check was deemed appropriate in the first place indicates that there are potentially some problems to be found.

maintenance or asset management matters, they may concern the difference between these two activities, and they may be related to business strategies or to human relations. Thus the breadth of exposure to possible problem areas is enormous, consequently requiring commensurate knowledge on the part of the individual tasked with carrying out the Sanity Check. This knowledge must, however, be accompanied by another essential attribute – tact!

While it would be wrong to say that a Sanity Check only uncovers problem areas, the fact that a Sanity Check was deemed appropriate in the first place indicates that there are potentially some problems to be found. Thus, when they are found, it is important that they are identified in a tactful and professional manner. I have seen so many faces blanche when given bad news in a tactful manner, that I take great care to approach this part of the Sanity Check appropriately. Many organisations, especially those that have a policy of quick punishment for failure, tend to shoot the messenger who delivers bad news, so a tough skin is essential if one is prepared to tell it as it is!

It goes without saying that anyone implementing a Sanity Check should be eminent in the field of maintenance and asset management. This, however, is not sufficient in order to perform a Sanity Check correctly. He or she must also have considerable experience of the appropriate current and ongoing technology that could be applied to maintenance and asset management information systems and should be aware of the advantages and limitations of different types of technology as applied to these systems. Of course, this technological knowledge must cover what facilities are available from vendors of maintenance and asset management systems. Here, however, we must bring some reality into the situation.

In any national market, there are dozens of maintenance and asset management systems on offer. This, as we have seen in earlier chapters, presents a problem for organisations during the selection process. It does,

to be totally up to date with all the systems available in a national market, it would be necessary to examine all of these systems in great depth - at least twice a year!

however, also present a considerable problem for anyone conducting a Sanity Check. If he or she wanted to be totally up to date with all the systems available in a national market, it would be necessary to examine all of these systems in great depth, noting their relevance, benefits and disadvantages for each industrial segment and for each type of user organisation (e.g., basic or advanced user) at the same time. As if this was not a sufficiently daunting task, if it were to be done properly, it would have to be repeated at least twice a year. This would almost be a full-time job in itself!

So it is necessary to be realistic in this respect. No one who offers to perform a Sanity Check can reasonably be expected to fully know the current status of every maintenance or asset management system available in a national or international market. They may have a good understanding or awareness of some of the available systems, but that should not be considered by the client organisation to represent knowledge of the overall market. This is an assumption that is made by many client organisations, not only with respect to Sanity Checks, but more often with respect to the selection of systems (see Chapter 14). Unfortunately, this assumption usually isn't stated by either party. Nevertheless, a moment's consideration will indicate that such a widespread and current knowledge is unlikely to exist.

So if the person tasked with carrying out the Sanity Check cannot be expected to have widespread and current knowledge of all the available systems, how can he or she carry out the Sanity Check? This is done by understanding the client's requirements and his problems, and by addressing it from this direction. In almost every instance regarding a Sanity Check, the client has already made an irreversible decision in respect of a particular system. The Sanity Check thus considers how this system, together with the current plan for its implementation and for the management of data, will satisfy the overall objectives of the organisation. Of course it will be necessary to delve into the

an individual tasked with carrying out a Sanity Check should be completely unbiased.

This, of course, should mean that there is absolutely no association between them and any vendor.

“Common sense is not so common and is the highest praise we can give to a set of logical conclusions.”

*Dr. E. E. Goldratt,
‘The Goal’*

selected system, but now we have only one system, and only one version of it to look at.

A further requirement of an individual tasked with carrying out a Sanity Check is that he or she be completely unbiased. This, of course, should mean that there is absolutely no association between them and any vendor. It should also mean that they should not be attempting to use the Sanity Check as a means of gaining other consultancy business. This is a difficult area and it is best for a prospective client to be aware of this possibility and thus ensure that he asks appropriate questions and takes proper precautions.

Finally, it is essential that the individual who carries out Sanity Checks has a considerable amount of common sense and can think laterally. It is this ability to connect a client’s answer to a particular question to a potential problem that is not immediately obvious, that ensures the success of a Sanity Check. He or she must be able to see what everyone else has seen, and to think what nobody else has thought!

Motivation for Sanity Checks

Sanity Checks are carried out for many reasons, but the prime motivations are unhappiness or worry about the course that a project appears to be taking. For some managers tasked with highly critical projects in organisations that tolerate few mistakes, this escalates to actual fear; fear for their jobs and consequently fear for their career. This is not to overemphasise the problem. Some years ago, it was accepted that if individuals did their jobs properly, with sufficient effort and dedication, then should the outcome not be as expected, their input would be examined and, where this was unsatisfactory, they would be reprimanded. Nowadays, the general culture is very different. The norm is for a scapegoat to be found for any problems, resulting in all project personnel operating their

“The nineties will be a decade in a hurry, a nanosecond culture.

There’ll be only two kinds of manager: the quick and the dead.”

*David Vice,
U.S. Vice Chairman
Northern Telecom*

own agendas aimed at ensuring that they will survive the project unscathed. As we saw in Chapter 14, this can often result in agendas that are not in line with the overall objectives of the project.

This is a sad fact of modern life, which is not usually taken into sufficient consideration when implementing projects of this type. It is not likely to improve; indeed there is every possibility that the situation will get worse as organisations become more competitive and consequently put more pressure on their staff. The emphasis now is increasingly on milestones and short-term deliverables. It is a culture of haste, but haste to each successive goal, often at the expense of the satisfactory completion of the ultimate goal. This was recognised as a problem for the nineties; its impact seems to be increasing exponentially rather than linear!

As a project progresses, this urgency, and consequent stress, becomes greater. At early stages, there is an assumption that the basis for the project is correct and there is therefore no need to question this basis or call in outside help to endorse current actions. As the project progresses, this ceases to be so, especially if all available time is taken up with urgent problems associated with short-term milestones. If there is no time to think and to question, then the need for a check on current actions and the actual overall direction become even more pressing. These concerns are seldom aired at project meetings because of the effect on personal milestones and agendas. They do, however, increasingly become the basis of sleepless nights!

Thus some organisations have a culture that would never generate a request for a Sanity Check. Others would like to undertake such an unbiased check on their project, but do not know that such a check is available, and would not know who has the appropriate mix of expertise and objectivity. As I said earlier in this chapter, those that do decide on a Sanity Check invariably do so at a stage in their projects that is much later than should have been the case,

with consequently fewer possible remedial actions for identified problems. Their delay is due to the reasons stated above.

Major projects normally incorporate checks and balances at several stages in their development.

Why should maintenance and asset management implementation projects—which are major projects in their own right—be any different?

As we shall see in the next chapter, although this delay, or absence, in checking the direction of a project may be for reasons that are understandable in the current business environment, there is really no excuse for failing to perform a risk analysis on its possible overall success. These are major projects by most measurement standards and all such projects normally incorporate checks and balances at several stages in their development. Why should maintenance and asset management implementation projects be any different?

Performing the Sanity Check

Sanity Checks do not generally take very long to complete, provided that some preparation has been undertaken beforehand. This preparation usually results from a telephone discussion between the person requesting the Sanity Check and the individual tasked with carrying it out. This discussion familiarises the latter with details regarding the structure, objectives and culture of the user organisation and the current stage in the project. Using this information, he or she is then able to request resources to be put in place before operation of the Sanity Check. These resources may include documentation that has to be read; they will certainly include the available of identified key project members or other staff who may be able to provide the information required by the Sanity Check. As with all activities involving outside personnel, the operation is more efficient if the necessary resources can be put in place and scheduled so that time is spent effectively.

The duration of a Sanity Check is usually no more than a few days, half of which are spent on-site. The elapsed time can, however, be much longer, especially if information and resources are not readily available. It is quite understandable that all personnel are extremely busy at the

All Sanity Checks are different, because all organisations are different and their attitudes and culture fundamentally affect the activities covered by Sanity Checks

time that a Sanity Check is carried out. Their time must, however, be made available for the Sanity Check to be effective. Very little time will be required, but the information provided must be from the best sources in order for the Sanity Check to be correct and effective. It is best for the user organisation to designate a single point of contact for the duration of the Sanity Check. This does not mean that this individual will have to allocate all his time to the exercise. He or she must, however, be able to identify the best source of information, either from other staff, from documentation, or from computer records. He or she must also have the authority to schedule staff for discussions with the person carrying out the Sanity Check.

All Sanity Checks are different, because all organisations are different and their attitudes and culture fundamentally affect the activities covered by Sanity Checks. It is therefore impossible to give a format for the activities included in a Sanity Check, except that, once the request for resources has been addressed, what follows is a series of interviews and document analyses, concluded by a written report. However, a Sanity Check always starts by asking a number of Primary Questions of the user organisation. The answers to these questions will prompt secondary questions and further investigation. This is where the expertise and experience of the individual carrying out the Sanity Check is essential. Anyone can ask the Primary Questions. Taking it further requires the credentials identified earlier in this chapter.

I believe that there are around one hundred Primary Questions that should be asked in a Sanity Check. These questions will be different, depending on who performs the Sanity Check. They should, however, cover Culture, Policy towards Maintenance and Asset Management, Maintenance Strategy, Specification Comparison, Vendor Appraisal, System Appraisal, Transfer of Data from Current System, Asset Structure, Access Restrictions, Work Planning, Job Costing, Maintenance Scheduling, Data Capture, Data Quality, Data Ownership, data Life Cycles, Data and

Information Sharing, Data Analysis, Strategy Evolution and System Testing. Categories of questions may increase as a result of the initial discussions.

Sanity Check Results

The results of Sanity Checks will, of course, always be different. They will depend on the user organisation and what was found from the investigation. Some of these results have been identified earlier in this chapter, but it should be remembered that these were identified to illustrate what could go wrong with an implementation and why these mistakes were made. Not all Sanity Checks result in horror stories! Many endorse the actions of the project teams and even the projects that have gone wrong have some good attributes! The Sanity Check report should include a list of observations that highlight potential problems and what could possibly be done to improve the situation. Unfortunately, as discussed earlier, many of these problems can only be solved as a result of changes in the operation or culture of the organisation and many of them are interdependent. Thus it is usual for the results of a Sanity Check to be considered by all levels of management in order to decide what action to take.

Usually that is the end of the involvement of the person carrying out the Sanity Check. Only if clarification of some points is necessary will further contact be made. The Sanity Check thus has to be clear and understandable by all levels of the user organisation's management. This termination is as it should be. The user organisation has found out the status of its project and can take whatever action it deems necessary. The person carrying out the Sanity Check should really not be involved in any further work resulting from the Sanity Check as by doing so he or she puts into question the objectivity of the report.

Key Points in Chapter 15

Most organisations implement project without considering the possibility of rogue actions and their effect on the overall success of the project.

Pressures to perform make it almost impossible for management and staff to think laterally and objectively about the project.

Many projects effectively go off the rails without anybody knowing that this is about to happen.

The key requirement of an objective assessment of a project is that it should be unbiased and able to produce conclusions that can be addressed by those responsible for the project's success, without any axe to grind or separate agenda on the part of the person carrying out the assessment.

The person carrying out the assessment must have the necessary expertise and experience, and must have the credibility to ensure that the conclusions and advice delivered by the assessment are taken seriously by the user organisation.

An expert is someone who knows some of the worst mistakes that can be made in his subject and how to avoid them.

Among the most common statements by organisations that have just completed an objective assessment is the wish that it had been carried out earlier, thus avoiding some of their mistakes.

A 'Sanity Check' is the objective assessment of the implementation of maintenance or asset management information systems.

It is essential that a Sanity Check be carried out without the intention of using it as the basis for further consultancy.

Many organisations share their experiences of projects, but few share their mistakes, especially if these mistakes are corporately or individually embarrassing.

Many organisations seem to operate a 'dual account' approach to their experiences; their public representation of what was achieved is somewhat different to what actually happened!

Key Points Continued

A 'dual account' approach also occurs inside organisations, with staff well aware of the limitations of implemented systems while executives and Board members perpetuate a totally different version of the results.

There is an abundance of literature on the success of projects, but virtually none on the actual problems encountered.

Wrong assumptions cause mistakes. This does not necessarily happen as a direct effect of the assumption, causing the mistake and its source to be hidden by successive related events.

People believe that their tools must be up to date, otherwise they cannot be used effectively.

Wrong assumptions coupled with wrong agendas can compound the situation.

Wrong assumptions tend to perpetuate themselves up (and sometimes down) an organisation.

Organisations often assume that the purchase and implementation of an expensive asset management system will automatically turn them into a World Class organisation.

Many organisations believe that by purchasing a large, comprehensive system, there is no need for a maintenance strategy or a system specification, as the new system will be able to cope with whatever is required in the future.

A maintenance or asset management system is not, cannot be, and **should not be** a policy-generating instrument.

Procurement of a maintenance or asset management system without first defining a maintenance strategy or producing a proper specification is irresponsible and unprofessional.

Don't assume that any system will meet your current or future requirements. Its capability can only be tested against a well-considered maintenance strategy and professional system specification.

Computing strategies, particularly those related to hardware, are often developed without the involvement or consideration of maintenance or asset management departments. It is possible, therefore, for these strategies to be wrong in respect to maintenance or asset management systems and for this not to appear as a problem until late in the project or during the later use of the system.

Corporate systems with maintenance modules must be checked out for compliance with the maintenance strategy and with a professional system specification.

Do not confuse the implementation of a maintenance or asset management system with other potentially conflicting agendas.

It is possible to hype up a project too much, causing scepticism and cynicism when results do not quite come up to expectations.

Don't assume that because a system is from a popular major vendor and claims to be comprehensive, it must therefore be able to accommodate any functionality and structures.

Although a vendor's financial credibility is important, it should not be used as the main criterion for selection.

Do not set targets for the organisation that are impossible to achieve. The objective will tend to become the **perception** of success, rather than actual success.

Wrong strategy, assumptions or approach can result in the need to take major decisions and actions during the implementation of a project, when they can least be done rationally and effectively.

Serious mistakes can happen to large, as well as small, organisations and are invariably hidden.

No one who offers to perform a Sanity Check can reasonably be expected to fully know the current status of every maintenance or asset management system available in a national or international market.

The person carrying out a Sanity Check should be totally unbiased and should have absolutely no association with any vendor.

Organisations that decide to perform a Sanity Check invariably do so at a stage in their projects that is much later than should have been the case, with consequently fewer possible remedial actions for identified problems.