



The Alturos Theatre Optimisation Method

## Introduction

This document introduces the Alturos Theatre Optimisation Method (ATOM), how it works and how it is positively impacting operating theatres in NHS Trusts across the United Kingdom.

### The Challenge: Issues within Operating Theatres

NHS operating theatres tend to share common features, such as the type of services offered, process flows, the profile of those who work within them, capacity and resource challenges and so on. Despite there being common features every hospital is different. Often, the specific differences between these features and how they interact are the cause of current performance.

Our extensive experience of working within the NHS tells us that the complexity created by these factors typically thwarts or limits efforts made to meet the aims and objectives within the NHS, that is, to improve quality, increase efficiency and thus reduce costs.

### What is ATOM?

ATOM is a set of approaches that can be selected and applied to improve the effectiveness of operating theatres within both the public and private healthcare sectors. Developed by practitioners of Process Improvement in healthcare, it has a strong track record of delivering positive results for patients, staff and hospital finances.

The Alturos Ltd team that designed ATOM comprises both healthcare and Continuous Improvement specialists and a specialist in organisational culture, therefore avoiding the "one size fits all" trap. This same team works onsite with hospitals to support ATOM's application and its continuous evolution.

ATOM's approach is based on evidence and follows a logical framework that we use to coach and support staff at all levels and functions. Its aims are:

1. To embed advanced improvement techniques which really work and make them easy to understand by all healthcare staff
2. To tailor the specific elements of improvement that any one organisation may benefit from; avoiding imposing unnecessary support that is not required. Not oversimplifying environments known to be complex - the operating theatre and perioperative care pathway
3. To focus on supporting staff throughout the change process and on measurement of progress rather than just prediction and report writing

ATOM is successful as it takes into account the complex and numerous variances within the acute healthcare sector. It produces measurable results that greatly outweigh the ethical level of investment we ask of clients. In particular it focuses on the following:

1. Using evidence, science and data for problem solving
2. Speaking the "language" of surgeons by using appropriate methods and specialist knowledge to which they can relate and many have been exposed to in their surgical training
3. Communicating with staff groups using methods and styles which are the most appropriate for them
4. Treating all perspectives as valid until proven otherwise, using evidence
5. Transparency and measurement of progress and outcomes that satisfy all parties

ATOM has a series of elements, similar to The Periodic Table, each of which focuses on a key part of the operating theatre "system".

Alturos works with its clients to identify which elements require attention and to what degree. This ensures the best use of resources and maximum benefits.

**The ATOM Table of Elements to Theatre Improvement – a scientific approach:**

Healthcare is a strongly scientific community, therefore ATOM is presented as a table of elements. This Periodic Table concept is useful because it groups together elements that may be interpersonal or technical.

It is also appropriate to consider the earlier elements to be where most of the effort is required; laying the foundations for sustainable improvement.

The benefits of this approach include happier staff, running safer processes that generate more patients per list in theatre sessions and which run more frequently on time.

Alturos can demonstrate each of these elements and how effective each has been in its application.

Evidence shows an increase in session utilisation and in the income generated by each list. This has been achieved in all common specialties. Importantly, pressure on staff has been reduced, leading to a more balanced use of resources and increased productivity.

**The ATOM Table of Elements:**

|                               |                               |                             |                                 |                             |                         |                                  |                                 |
|-------------------------------|-------------------------------|-----------------------------|---------------------------------|-----------------------------|-------------------------|----------------------------------|---------------------------------|
| 1 SE<br>Staff Engagement      |                               |                             |                                 |                             |                         |                                  | 2 PS<br>Patient Scheduling      |
| 3 IC<br>Improvement Coaching  | 4 IS<br>Improvement Science   |                             |                                 |                             |                         | 5 DC<br>Demand & Capacity        | 6 MI<br>Metrics for Improvement |
| 7 PU<br>Process Understanding | 8 PV<br>Process Visualisation | 9 ED<br>Experimental Design | 10 ST<br>Skills Transfer        |                             |                         | 11 WL<br>Waiting List Management | 12 GD<br>Goal Deployment        |
| 13 EC<br>Experimental Cycles  | 14 IA<br>Impact Assessment    | 15 CB<br>Cost Benefit       | 16 OC<br>Organisational Culture | 17 TT<br>Theatre Timetables | 18 AP<br>Agile Planning | 19 LL<br>Level Loading           |                                 |
| Cycles Experimental           | Assessment Impact             | Benefit Cost                | Culture Organisational          | Timetables Theatre          | Planning Agile          | Loading Level                    |                                 |

## The ATOM Elements – a summary:

1 SE

Staff  
Engagement

Working through change with staff is the most important element within ATOM. At all levels, from the Trust Board through to nursing staff in theatres, there needs to be honest communication regarding the direction for theatres, together with discussions about the frustrations and issues encountered.

Consultant surgeons and anaesthetists, with their strong scientific background may show cynicism about where the NHS is heading as well as the possibility of improvement. Therefore, listening to all these groups is vital. However, in addition to taking on board concerns, certain opinions, behaviours and attitudes need to be challenged in order to effect change and to move people away from the position of "victim". Every piece of support requires this vital element.

2 PS

Patient  
Scheduling

No improvements in theatre efficiency (more patients, increased utilisation or income) can be made without a robust method for the staff who compile operating lists. They need to understand how much time is needed for a specific procedure, taking into consideration a particular consultant and theatre. This task is largely scientific, incorporating a great many variables and needs to engender a high degree of confidence in all concerned. The development of this system is therefore key in enabling improved control of waiting lists, completing demand and capacity calculations and conducting cost benefit analyses of process changes.

3 IC

Improvement  
Coaching

Our coaching methods and approaches build engagement, ensure involvement and gain commitment from the different staff groups with whom we work. This is where the elemental side of the model is key, although we do not simply progress through each element of the model, imposing them on the staff involved.

Through our flexible approach and by coaching teams, we have developed the elements necessary to support specifically those areas which we have been asked to improve; some elements may be appropriate and useful in some organisations, others less so or they may not be necessary at all.

4 IS

Improvement  
Science

ATOM has been developed by experienced specialists who excel in delivering support to individuals and teams in a non-judgemental way, creating a safe environment for staff to take ownership of issues and to experiment with improvements themselves. Improvement Science has been established since the early 1900s and has seen many changes since its inception. The Alturos team is one of the most experienced and successful in the UK in adapting and developing this science within the context of healthcare.

5 DC

Demand &  
Capacity

This aspect of the theatre environment is often one of the most challenging and our powerful blend of methods proves an effective solution. This element uses statistical methods, evidence, constructive facilitation, discussion and best practice to understand system demand, thus enabling us to see the "bigger picture" of resource allocation. Understanding this elective demand, the amount of theatre time associated with the demand for each speciality and for each consultant allows capacity to be efficiently planned and waiting times to be managed much more robustly. This element of the ATOM model provides the hospital with a long-term scenario based planning tool.

6 MI

Metrics for  
Improvement

Anecdotal evidence can be somewhat limited in satisfactorily declaring success as far as the improvement of complex hospital functions is concerned. This element of ATOM makes excellent use of effective process metrics, using time series data and statistical process controls to allow for the creation of a stable operating system, with built in controls.

7 PU

Process  
Understanding

The use of proven scientific improvement methods to enable all parties to understand why individual processes behave the way they do and how they are interlinked. Also a clear understanding of the causes of the issues highlighted is reached through a focused, detailed review of the process concerned. This Process Understanding element can only be carried out in the theatre and administration areas, not remotely.

8 PV

Process  
Visualisation

This element makes a complex system and its associated processes easier to grasp through their creation in easy to understand visual representations in graphical templates. The improvement process is therefore less daunting and from this improved understanding, a set of experiments can be discussed, agreed and conducted.

9 ED

Experimental  
Design

When working with the principles of Continuous Improvement, the staff involved need to be able to understand what does not work and to learn and improve as a result. Designing improvement experiments to test ideas is a highly effective way to tackle even the most stubborn of challenges. Moreover, designing and carrying out experiments is proven to maximise learning within the shortest possible time period.

10 ST

Skills  
Transfer

The development and sustainment of appropriate skills in client teams and in the teams' managers is central to ATOM and to all Alturos products. This element is key, not least because it enables the skills improvements to be long lasting and not just achieved during the initial support phase.

11 WL

Waiting List  
Management

This element, building on the Scheduling models, is used pro-actively to manage and control the operating theatre workload by looking at the waiting list in terms of minutes rather than numbers of patients. Thus, any "spikes" in the queue can be substantially better managed.

12 GD

Goal  
Deployment

The longer term strategic goals of theatres and each speciality can be deployed in a simple yet meaningful way that accounts for current demand changes. Using the correct process metrics and building upon coaching and engagement can create an environment where the act of improvement becomes more natural and part of a daily routine.

13 EC

Experimental  
Cycles

Planning and running experiments is key to the improvement and change process; the more experiments that we can run, the more likely we are to understand the process, therefore being able correctly to plan and draw conclusions from them is vital. This element of ATOM features a proven and structured method to achieve this.

14 IA

Impact  
Assessment

Alturos works with its clients to produce multi-dimensional measurements and assessments of the impact of ATOM in terms of finance, quality, patient experience, staff morale and efficiency. Understanding the results of each experiment can be challenging for complex organisations, therefore this particular element establishes appropriate assessment metrics at an early stage, thus enabling both us and our clients to fully understand existing processes and to measure exactly how effective a new experiment has been.

15 CB

Cost  
Benefit

If an experiment reveals an improvement but has a cost implication, is it truly financially effective? This element prioritises and targets only the changes that provide the biggest return on investment, a vital aspect within the healthcare sector.

16 OC

Organisational  
Culture

Often avoided or overlooked due to its perception as being hard to understand or change, ATOM makes use of the assessment method developed by two members of the Alturos team who are known thought leaders in organisational culture. This method has been designed to make the culture of operating theatres measurable and more tangible, enabling it to be changed and improved in alignment with an organisation's goals.

17 TT

Theatre  
Timetables

Every healthcare organisation operates theatres, day surgeries, admission units and recovery locations differently. Although change in this area can be challenging, creating a timetable that provides more consistent locations and staff teams will be key to building solid foundations for improvement and increased efficiency.

18

AP

Agile  
Planning

Improvements in session utilisation are effected in highly focused discussions and reviews with Consultants, outlining different techniques to allow a movement towards a preference model, rather than Consultant named sessions. Administration time is used flexibly to cross cover within each speciality, allowing more use of allocated sessions.

19

LL

Level  
Loading

Many healthcare organisations experience problems with bed availability, typically caused by emergency patient demand, thus causing problems with the flow through theatres. This element tackles this issue by aiming better to understand emergency patterns, working on procedure bed loading and on planning theatres in order to alleviate these challenges significantly.



**Sample of ATOM results (NHS England):**

| Trust                        | Specialties     | Increase in Utilisation | Annual financial return for Trust | Notes                           | Next Steps  |
|------------------------------|-----------------|-------------------------|-----------------------------------|---------------------------------|---|
| <b>Stoke Mandeville</b>      | Orthopaedics    | 9%                      | £480,958                          |                                 | Internal improvement team taking forward Roll-Out   |
|                              | Ophthalmology   | 23%                     | £612,000                          |                                 |   |
| <b>Sheffield</b>             | Urology         | 16%                     | £527,748                          |                                 | Sheffield now maintain their own model, we have trained them in its use and handed it over. Use in remaining specialties is growing, financial assessment to be completed |
|                              | General Surgery | 14%                     | £1,011,624                        |                                 |   |
|                              | Orthopaedics    | 8%                      | £1,186,328                        |                                 |   |
|                              | Gynaecology     | 4%                      | £258,941                          | ATOM not used In Gynae Oncology |   |
|                              | ENT             | 5%                      | £131,651                          |                                 |   |
|                              | Ophthalmology   | 6%                      | £45,977                           | Ocular Plastics only            |   |
| <b>Hinchingbrooke</b>        | Ophthalmology   | 13%                     | £255,816                          |                                 | Model provided for all other Specialties, Gynae Clinical Director leading implementation  |
|                              | Orthopaedics    | 11%                     | £523,421                          |                                 |   |
| <b>Blackpool</b>             | Urology         | 10%                     | £212,160                          |                                 | Training for staff in each specialty to Roll-Out  |
| <b>Mid Essex</b>             | General Surgery | 8%                      | £358,003                          |                                 | Internal improvement team taking forward Roll-Out   |
|                              | Gynaecology     | 14%                     | £312,026                          |                                 |   |
| <b>Luton &amp; Dunstable</b> | Urology         | 8%                      | £295,497                          |                                 | Roll out to all specialties in progress   |
| <b>Northampton</b>           | ENT             | 17%                     | £320,600                          |                                 | Roll out to other specialties now in progress   |
|                              | Gynaecology     | 15%                     | £395,282                          |                                 |   |

## What do users of ATOM say?

### **Jacky Rawlins, Group General Manager, Sheffield Teaching Hospitals NHS Foundation Trust**

“Alturos predicted for us that an increase in around 10% of session utilisation could be increased, although some members of the team were sceptical – this is what we got, and now the whole organisation is wanting to use the method in their clinical service.

For the pilot project in Urology it took just 6 weeks from starting and has been stable ever since. We are now nearing completion of rolling this method out across all specialties. Against the income, the fees Alturos charged were tremendous value and we achieved a return in just one week of the benefits coming through. On top of this we have improved our planning for on day admission therefore, reduced delays and ultimately finishing as predicted; staff morale has improved across the multidisciplinary team.

The other key element for Sheffield was to have a model that was effective in terms of translating Theatre efficiency into real benefits. The methodology has allowed us to add support into the team to increase surgical time and ensure each list is profitable against the service line thus reducing the number of lists per annum required against contracted activity.

While we were working with Alturos on the Urology pilot, Jim identified that there was an issue with the Pre-op assessment process and the allocation of pre-op slots for Urology. Jim provided us with some method to calculate slots required in order to be able to ensure adequate flow into the booking teams’ office for appropriate allocation. We have also been working on capturing the demand onto the waiting list in terms of minutes to allocate, and then working with Alturos to be able to understand the capacity required for ongoing delivery of our demand and maintenance of the 18 week position.

Throughout our dealings with Jim, we have found him to be flexible as well as professional and he has the confidence and respect of our consultant body as an expert in his field. He has been able to incorporate any issues or aims we have that come to light during the project without wanting to extend the scope or the fees etc. In terms of external support, we have found it very beneficial.”

### **Cathy Jones, General Manager, Surgical Division, Luton & Dunstable University Hospital NHS Foundation Trust**

“The Alturos team have been a super support to our staff. Their methodical and calm approach to demonstrating the theory behind ATOM and tailoring their explanations to the various staff groups has been exemplary, and my senior team have learnt a lot just from observing the Alturos approach to clinician engagement! The leads are generous with their coaching and demonstration time which makes a real difference to the feel of the support – less telling us what to do, and more showing us how to do it and helping us along the way.

We are just at the beginning of our roll-out of ATOM, but already the teams are talking and thinking differently about scheduling, and are excited to realise the benefits from using the new model. The preparation phase of the scheduling times has been relatively painless and our Consultant teams have risen to the challenge of interrogating and understanding their procedure lists. The booking

team have responded really well to a consistent and robust set of timings, and we have taken the guesswork out of scheduling.

In contrast to previous attempts to improve productivity at the Trust, there is no report gathering dust on a shelf. The Alturos team work with the clinical staff alongside us, rather than leaving us to try and implement once they've waved goodbye. They are embedding the work with our teams and are adapting the approach to suit our needs, rather than an off the shelf solution which we then have to try and work with. The service they have provided is excellent value for money, and we are looking forward to not only successfully delivering a significant transformational QIPP project but coming out of the other side having enjoyed it and ready for the next one!

The team have proven expertise in the area and respond well to challenge on the principles and practice of ATOM. Being able to demonstrate how the model has worked in other Trusts has been invaluable in gaining the confidence of our teams, and the progressive trial and review process allows us to build a stable base of evidence to prove the model before going live which increases support and willingness to adapt.”

### **Lead specialists for ATOM:**



#### ***James Hearn, Director***

Jim's expertise and experience have supported healthcare and industry sector organisations deliver significant quality, financial, patient and staff experience improvements. Using a unique blend of Lean and Six Sigma techniques, he is able to apply advanced statistical solutions to healthcare challenges whilst making them accessible and engaging for staff at all levels. His skills were honed during several years of working for an NHS Foundation Trust and as a worldwide continuous improvement coach for a global paper products organisation.

Whilst his approach is underpinned by his considerable scientific skills, Jim is an excellent coach, able to instil and maintain effective new behaviours needed to reach an organisation's objectives.



#### ***Dr Tim Franklin, Director***

Tim has over 20 years' senior level management experience, having worked for start-ups, SMEs, the Public Sector and global organisations. Since 2006 Tim has mainly been working with NHS organisations, supporting their application of continuous improvement methods to achieve transformational improvements in most areas including pathway redesign, Operating Theatre improvement, Pharmacy efficiency, Radiology and many more.

Tim's friendly informal yet knowledgeable approach suits his speciality: helping to make tangible, long lasting improvements within client organisations. His view is that individuals can really make changes if they are motivated to do so. Tim's skills in building rapport and his considerable expertise within the fields of Continuous Improvement and Change and Culture Management through working with staff at all levels have enabled him to help clients make efficiency savings to meet and exceed their expectations.