

Systems Thinking in Adult Social Care: how focusing on a customer's purpose leads to better services for the vulnerable in society and enhances efficiency

by Brendan O'Donovan

This case study documents the application of systems thinking methods to an English local authority Adult Social Care department. The author shows how the perception of large demand for scarce social care resources leads councils to screen out many of the applicants for this service through the strict application of eligibility criteria. A systems analysis shows the inefficiency of this approach: many of the users are later found to require a more expensive service once their condition has deteriorated sufficiently to be eligible. By redefining the purpose of this service and refocusing on doing what matters to the end user and ensuring it is done right-first-time, the social workers in the system are enabled to experiment with new methods of providing the service. The results from before and after the experiment are then examined, showing both cost savings and improved operational measures for service delivery.

Introduction and Methodology

This case study examines the application of systems thinking in an English local authority Adult Social Care (ASC) department. Systems thinking in the form of the Vanguard Method has been documented as applied to housing (ODPM 2005; Jackson, Johnston and Seddon, 2007; McQuade, 2008) and other public services such as policing and housing benefit payments (Seddon, 2008). Here the aim of the study is to understand and extend experience about a contingent, contextual and complex process, i.e. the application of systems thinking improvements in a social care setting. Evidence of performance in this case includes operational data from the intervention including:

- the end-to-end times for cases
- the number of 'first-time fixes'
- costs per case

Evidence also included interview descriptions by workers of comparisons between the old and new designs. In this council, interviews were conducted with participants at different levels in the organisation as well as with the facilitator who had been leading the systems thinking interventions. The interviews were semi-structured, non-standard respondent interviews where the purpose was to gather data which was reliable, valid and relevant to the research questions and objectives. These interviews were recorded, listened to again and transcriptions made of pertinent sections to the research, as suggested by White *et al* (2009).

Hypothesis

The 'Check-Plan-Do' systems thinking methodology was devised by Seddon and documented in detail in his books (Seddon, 2005 and 2008). In these accounts of how to go about systems thinking interventions, Seddon explains that Taguchi's Quality Loss Function (Lochner and Matar, 1990), with the associated concept of setting a nominal value and trying to improve against it through experimentation rather than working to arbitrary tolerances, should be adapted and applied to services (Seddon 2005 p60). Simply put, "*in service organisations it is the customer who sets the nominal value*" (Seddon, 2008 p. 69). The research hypothesis of this paper is that delivering to the customer's nominal value right-first-time would show a decrease in the organisation's costs, as one element of the reduction in the 'loss to society' encompassed within Taguchi's Quality Loss Function.

Whilst many operations management and marketing writers such as Porter (1985), Womack and Jones (1996) and Vargo and Lusch (2004) have mentioned or even offered definitions of value to the customer, it can be argued that none has developed an effective 'operational definition' (Deming, 1982 p. 276; Neave, 1990 p. 110) by which managers could identify and manage value in their operations. In services, systems need to be designed in such a way as to be able to provide what the early systems thinker Ashby called 'requisite variety' (Ashby 1956) in order to satisfy the customer's 'nominal value'.

Through this case study in an Adult Social Care (ASC) service, it will be necessary to show the underlying importance of designing the system in such a way as to detect the true nominal value of a customer and then ensuring that a service that can deliver

against it. By addressing this subject, this case study adds to the body of knowledge on customer value in the particular context of an ASC system. Moreover, this paper explains how beginning with a focus on the customer's nominal value and thus putting effectiveness measures before arbitrary measures of efficiency leads to both better service and lower costs.

Policy background to Adult Social Care and this intervention

Adult Social Care (ASC) consists of services aimed at helping people to live as independently as possible. More than 1.5 million people use social care services in England. Whilst the largest group of users for publicly funded social care are the over 65s, other groups of people in receipt of social care can include those with sensory impairments, physical or learning disabilities, terminal or mental illness, problems connected to ageing, alcohol or drug dependencies (CQC website, 2009). Types of ASC services can include home-care, day-care, residential care, meals in the community (commonly known as meals on wheels), specialised advice and support for people with hearing, sight or speech problems, car 'blue badges' for people with a permanent disability, equipment, adaptations and telecare alarm systems to help people live independently at home and other help for carers. There is a distinction drawn in England and Wales between acute healthcare which takes place within the remit of the National Health Service (and is thus free to the user) and the ongoing care of a patient which falls within the remit of local authority ASC departments (meaning that users may be subjected to means testing for the service). In practice, this distinction between which type of service is required by the end user can be difficult to make and can cause delays in provision as local authorities and the NHS argue over who will be responsible for a patients' costs.

Screening out service users

ASC services in England are nominally open to any citizen requiring assistance. However, as concerns have grown over both a perceived scarcity of resources and 'postcode lotteries' (where local services varied greatly across different geographies), national guidance has been published to advise who should be eligible to receive services. This guidance was laid out in the Department of Health's 2002 circular to local authorities 'Fair Access to Care Services (FACS) – guidance on eligibility

criteria for ASC’ (DH, 2002). The FACS criteria are therefore meant to guide all local authorities who have to decide where to pitch their thresholds for access to services within a framework. The four bands within which people’s eligibility needs are separated by FACS are ‘critical, substantial, moderate or low’. Essentially, these criteria are now used by authorities to try and screen out what is perceived to be more demand than they have the resources to cope with. The table below shows when someone is judged to be categorised as one level or another:

Table 3.1. The FACS band classifications

<p>Critical – when</p> <ul style="list-style-type: none"> • life is, or will be, threatened; and/or • significant health problems have developed or will develop; and/or • there is, or will be, little or no choice and control over vital aspects of the immediate environment; and/or • serious abuse or neglect has occurred or will occur; and/or • there is, or will be, an inability to carry out vital personal care or domestic routines; and/or • vital involvement in work, education or learning or will not be sustained; and/or • vital social support systems and relationships cannot or will not be sustained; and/or • vital family and other social roles and responsibilities cannot or will not be undertaken. 	<p>Substantial – when</p> <ul style="list-style-type: none"> • there is, or will be, only partial choice and control over the immediate environment; and/or • abuse or neglect has occurred or will occur; and/or • there is, or will be, an inability to carry out the majority of personal care or domestic routines; and/or • involvement of many aspects of work, education or learning cannot or will not be sustained; and/or • the majority of social support systems and relationships cannot or will not be sustained; and/or • the majority of family and other social roles and responsibilities cannot or will not be undertaken.
<p>Moderate – when</p> <ul style="list-style-type: none"> • there is, or will be, an inability to carry out several personal care or domestic routines; and/or involvement in several aspects of work, education or learning cannot or will not be sustained; and/or • several social support systems and relationships cannot or will not be sustained; and or 	<p>Low – when</p> <ul style="list-style-type: none"> • there is, or will be, an inability to carry out one or two personal care or domestic routines; and/or • involvement in one or two aspects of work, education or learning cannot or will not be sustained; and/or • one or two social support systems and relationships cannot or will not be sustained; and/or

<ul style="list-style-type: none"> • several family and other social roles and responsibilities cannot or will not be undertaken. 	<ul style="list-style-type: none"> • one or two family and other social roles and responsibilities cannot or will not be undertaken.
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(Department of Health 2002; CSCI 2008)

‘The Case for Change’ (Department of Health, 2008)

On top of the eligibility criteria and other regulations for social care provision, there are many discussions about how ASC will be provided in the future. There is a fear that with ongoing demographic change (an ageing but longer living population), demand for services will grow. With the belief that there will be more people competing for increasingly scarce resources, the government has called for the ASC system to be ‘transformed’ in line with other UK government ‘public sector reform’ initiatives, e.g. ‘Transformational Government’ (Cabinet Office Strategy, 2005). A government consultation exercise was undertaken in 2008 which discussed the need for new, more ‘personalised’ services (HM Govt ‘The Case for Change’ May 2008 p. 9). It is against this policy background that local authorities have been searching for new ways to manage their services. In order to attempt to reconcile these ideals of ‘person-centred’ services with the perceived need for rationing of resources, the local authority involved in this study decided to undergo a systems thinking intervention.

Systems thinking in ASC: The story of ‘Check’

This local authority decided to apply systems thinking (Seddon 2003, ODPM 2005) in their ASC department. The stated purpose of the intervention was to:

- Reshape and improve the customer journey through Assessment & Care Management; and
- Release capacity from the existing system to allow for further improvement in and reshaping of the service and to help meet financial pressures from issues like the anticipated demographic growth.

The intervention followed the ‘Check-Plan-Do’ cycle beginning by studying the ASC work as a system.

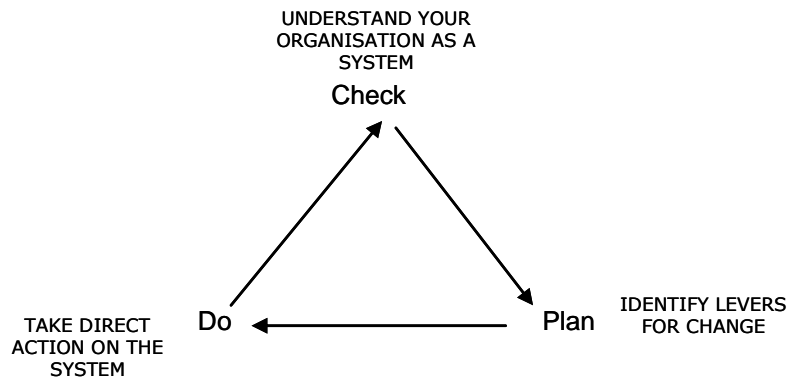


Figure 3.1 'Check-Plan-Do' cycle (Seddon 2005)

The model for 'Check' gives a structured way of understanding transactional services from the customer's point of view and is defined as an analysis of the what and why of the current system (Jackson *et al*, 2007).

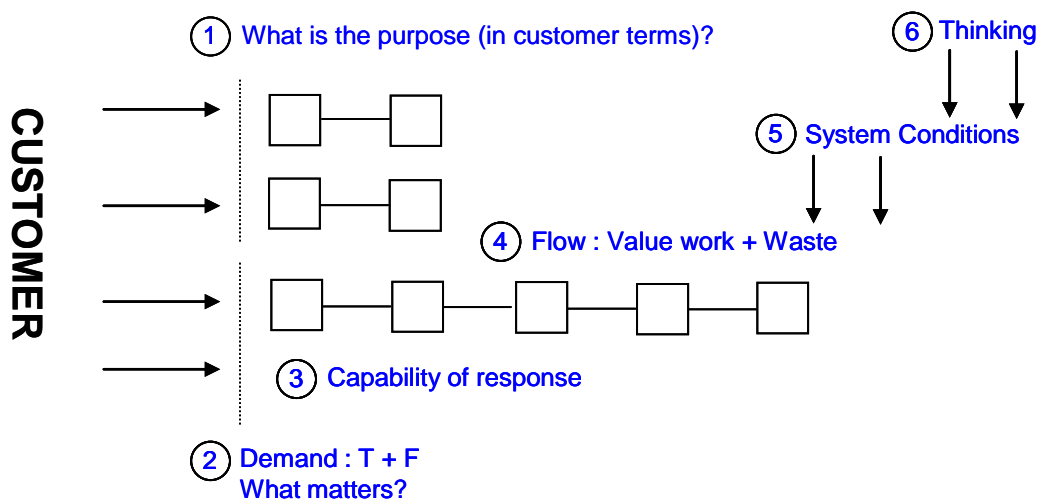


Figure 3.2 The Model for Check (Seddon 2005)

The process of going through Check “helps to identify scope for improvement in the current system that had previously been hidden” (McQuade 2008 p. 57). In order to study Check, a team of frontline workers was assembled consisting of practitioners from within ASC. In parallel, operational managers and the leaders of the organisation were engaged in similar activities.

Findings from Check: Purpose of the ASC system

After some initial time listening to the demands for assistance that were coming into the service, the check team were able to agree a definition for the purpose of their service. The purpose of ASC from the customer's perspective was agreed to be:

- **'Help me live my life the way I want to'**

This contrasted with the 'de facto' purpose of the current system which was:

- **'Help me live the life you want me to, as dictated by government policy (or our interpretation of it)'**

The participants within the system found it easy to define what the purpose of the system was, in simple terms, and from the customer's point of view.

The Concept of Nominal Value

The application of Taguchi's empirical approach to defining a nominal value (instead of working within tolerances) has been adapted by Seddon for services. In the 1950s and 60s, Taguchi "*developed a comprehensive approach to quality which touches every aspect of a product's design, manufacture and use*" (Lochner and Matar, 1990 p. 5). Taguchi believed it would be better for a manufacturing manager to set a nominal value and to encourage his team to work to continually reduce variation, resulting in better product quality and lower costs. In order to capture this concept graphically, Taguchi proposed the use of a 'Quality Loss Function':

"The value of the quality-characteristic is registered on the horizontal axis, and the vertical axis shows the "loss" or "harm" or "seriousness" attributable to the values of the quality characteristic. This loss is taken to be zero when the quality-characteristic achieves its nominal value, but is positive otherwise. However [...] very little loss is incurred while the quality-characteristic is fairly close to the nominal value. But, as the value moves away from the nominal, the loss increases at an ever faster rate" (Neave, 1990 pp.173-4)

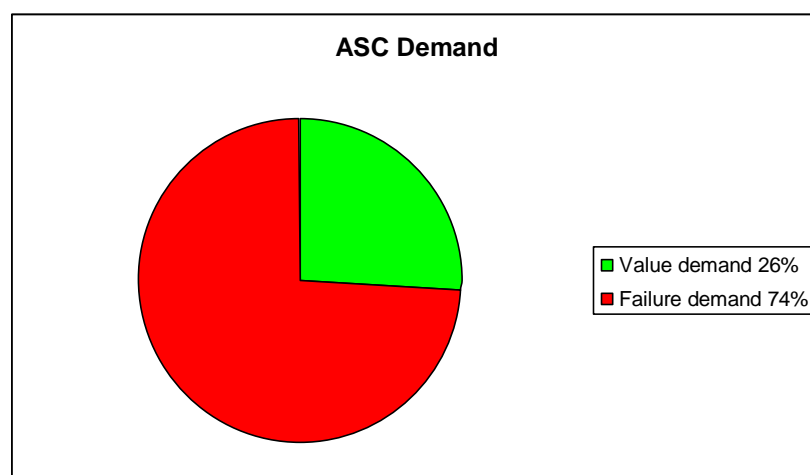
As Neave says, the loss function "*keeps in our minds the necessity for continual improvement - if there are discrepancies from nominal (and there always will be), then loss is being incurred, so the need for improvement (reduced variability) is ever-present*" (Neave, 1990 p. 175). In service industries, Seddon argues that it is the

customer who sets the nominal value (Seddon, 2005 p. 60)¹. If an organisation does not recognise and respond to what matters to the customer, then the service experience is poorer and the organisation is forced to consume extra resources to resolve the situation.

There are two elements of the nominal value to customers in services which are uncovered in the check process: the underlying demand being presented to the system (what service it is that the customer wants?) and also what mattered to their customers (how does the customer wish to receive that service?).

Demand & 'What Matters'

By studying the demand at all the points of contact with this system (such as the demands that came into the call centre, referrals from the hospitals and other professionals, etc.), the team was able to gather knowledge about the type and frequency of requests that they were dealing with. Seddon separates value and failure demands: value demands are the demands an organisation exists to serve, the demands for the things a customer wants. Failure demand is “*demand caused by a failure to do something or do something right for the customer*” (Seddon 2005 p. 26). It was found that overall, the value demands only amounted to 26% of the overall demand, whereas the level of failure demand was running at 74%.



¹ It is worthwhile mentioning that, in manufacturing, there are parallels to be drawn to the process of finding out the 'voice of the customer' (Hauser and Clausing, 1988). Where this is seen as desirable (e.g. the aspects of design required in a new car door), finding out what customers want is seen as part of the product design process.

Figure 3.3 Demand into the ASC system

To give an example of the types of value and failure demands, some of the most frequently heard are listed below.

Value	Failure
<ul style="list-style-type: none">• Can I make a new referral?• My circumstances have changed• Can I apply for/renew my ...?• Can I have(a piece of equipment)?• Can you advise me please?• We need help• I want to cancel my ...	<ul style="list-style-type: none">•Where is my carer/Meals on Wheels?•I am know to you but my Social Worker has changed/left•Who is my Social Worker?•We are not sure what is going on• I called about ... but have heard nothing•You sent me ... but I do not understand it•I am not happy with what you have provided/offered.•I'm just checking that•My Meals on Wheels food has not turned up

Figure 3.4 The Top Value and Failure Demands

The team also identified that 80% of the demand entering the system was from or concerning service users that had already had some form of contact previously with the organisation. It was a surprise for the 'Check' team to discover this information and to realise that the system was currently treating all demands as if they were brand new to the system. This finding about the nature of demand challenged a current management (and governmental policy) assumption that a high degree of contact was from new service users.

Knowledge of what demand is predictable gives the first piece of knowledge that defines the customer's nominal value i.e. what the customer wants. The second part is to answer 'what matters to the customers about how they receive their service?' In the process of analysing demand, it was possible for the team also to discern the 'what mattered' behind many of the requests, which they aggregated into two underlying concerns:

- Please solve my problem and get it right first time

- Please do it as soon as possible

From this understanding of ‘what mattered’ to service users, it was then possible to translate these ideas into new measures for the system. The use of the new measures allowed the team to retrospectively establish how good it had been at delivering services in the manner important to customers. In this system, these new measures were:

- End-to-end time – defined as the time taken from the point the service user first presents in the system and asks for help until the team have achieved their purpose and delivered against all the user’s needs.
- Right-first-time – determined by whether the team have been able to provide the correct service(s) at the right time for the service user at the first time of asking.

It was also apparent to the Check team, as social workers witnessing the collection of data by their colleagues, that the way in which the information about the customer’s nominal value was collected was very important. This insight fed into the team’s ‘operational principles’ for redesign, discussed below.

Capability

The next step in the ‘Check’ process was to examine the system’s capability to deliver to customers. To do this, the team analysed a cross-section of cases over 506 representative (i.e. including a mixture of different demand cases taken historically from the original point of contact (‘I need help’) and tracked them to the point where the recipient could say ‘I can live the life I want to’ so that they could understand the capability of the current system to deal with demand. The requests for Meals on Wheels, Day Centres, Occupational Therapists for adaptations, etc. were taken at random from different area offices over a period stretching back three years.

Results from check included that:

- For end-to-end times for all demand, it was discovered that a service user would wait an average of 138 days (4.5 months) to get a service
- In 16% of cases, even then the system was unable to satisfy the needs of users

- Users could wait up to 486 days (15.5 months) to get a service (this is the upper control limit in the following diagram)

This information was shown in a Statistical Process Chart (SPC) (as shown below) and clearly showed an upward shift in end to end times.

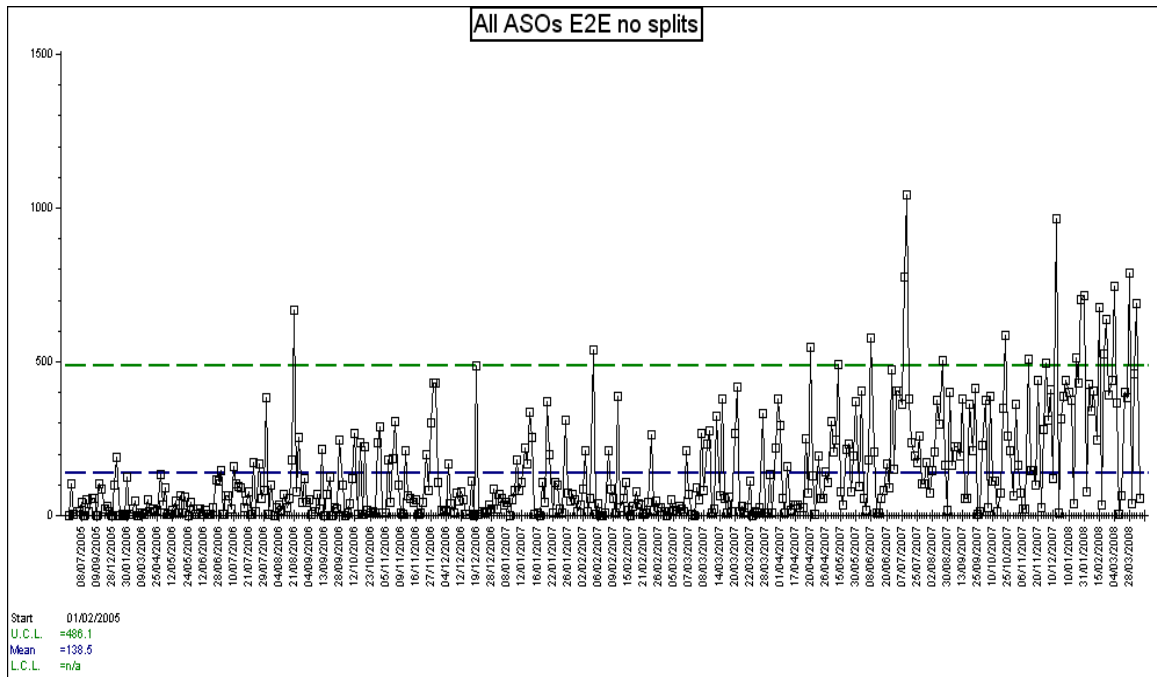


Figure 3.5 Statistical Process Chart showing a cross-section of ASC cases and how long they took to be completed from the customer’s perspective

A split of the data based on these upward trends indicated that as controls had been tightened in response to budgetary pressures, end-to-end times for customers in the last year of the data show an average of 253 days to get services and a service user could wait anywhere up to 760 days (the upper control limit). Analysing different demand types (e.g. for home care or equipment) showed the same general upward trend. This was evidence for one of the system conditions described below, i.e. the managers’ belief that services needed to be rationed. As a result, the system was moving even further away from being able to deliver to the customer’s nominal value.

For the ‘Right First Time’ measure, it was found that only 52% of the cases analysed had achieved the customer’s purpose first time round. There were a significant number of examples of service users ‘re-presenting’ (returning to the system) as a

consequence of an inadequate response by the service to meeting their needs at an earlier stage. Examples included where users had been sign-posted to services that were never actually accessed by the service user, or where a 'best fit' solution had been provided despite not really being what the service user wanted (for example, a user may have been given adaptive equipment which it would later be found that the user never felt confident enough to use. The adaptive equipment would therefore not have effectively addressed the issue). As a result, the demand from a user was not satisfied and the user would 're-present' into the system at a later date. The numbers re-presenting were evidence that the customer's nominal value had not been met the first time – something in the system had prevented the workers from being able to meet the 'what' and the 'how' of the service user's needs.

Work Flow

The team mapped the flow of work in the system at a high level. This showed the work the service had undertaken in order to meet the customer demand. The team identified eighteen core flows of work and looked at them from end to end: from the initial customer demand through to the delivery of services to meet these demands. Importantly, this also highlighted points where customers were 'screened out' for various reasons (e.g. not having met the FACS qualifying criteria) and did not receive any service. The average number of value steps across the eighteen flows was only 5% of the overall work, with the remaining 95% being waste from the end user's perspective.

System Conditions & Management Thinking

In Seddon's model, the 'system conditions' are the things that explain why the system behaves in the way it does. Identifying these system conditions can then expose the thinking which is at the core of the problem, preventing the ASC system as a whole from being better able to deliver to the customer's nominal value.

In this system, the main system conditions identified were:

- The need to meet targets and to comply with performance management requirements - the team found that most of the performance indicators in ASC not only drove staff behaviour and additional waste work into the system, but also in many cases led to the system not achieving purpose for the customer.

- The perception that resources are scarce, and that services should be rationed (e.g. the FACS criteria) - this was found to cause service users to re-present in a range of cases with more critical needs at a later date, as their original needs (their nominal value) had not been dealt with 'right first time'
- The use of I.T. was driving the way work was performed - front line staff were found to be spending a significant amount of time in front of their computers recording data into various I.T. packages which drove the flow of work. The I.T. had been developed around collecting information for performance management rather than to support operational staff in delivering services.

Each of these system conditions, in their own way, constrained the work of the front-line worker and prevented them from meeting the customer's nominal value. Instead, all were evidence that the managers (guided by policy and procedures) were setting the 'tolerance levels' for the system, rather than allowing the customer to set the nominal value. On this point of perceived scarcity, one interviewee said: *"There's an expectation on public services that people will go for what they will realistically think they can acquire, rather than actually how can you address the needs they've got. We found lots of examples of that in the system where people ring up and give you one need, and when you go and speak to them you often find there were several needs there that haven't been met in the in the past, so they've stopped asking for them. Their expectations [of what the system can do for them] have dropped dramatically."*

This quote suggests that there were hidden demands that were only exposed when the worker was able to ignore the supposed scarcity-avoiding, tolerance level-setting policies and instead to spend time with the service user.

The use of IT was one such indication of the bureaucratic nature of the work being undertaken by social workers, preventing them from spending time with service users in order to better understand their needs. This is borne out by White *et al's* (2009) work in children's social care (a parallel system to this one) which showed that many social workers are stuck in their offices spending 60-80% of their time in front of computer screens, typing up reports to meet targets (The Guardian, 19/11/08, White *et al* 2009). A corollary of this bureaucracy is that front-line workers are not devoting

their attention to doing things in the ways that matter to service users. This is seen through the range of forms that have to be completed that have no relevance to the delivery of services: for example in one flow, the service user's ethnic background was asked for 15 times as part of the process. This waste of over specification is an example of the 'loss to society' that Taguchi talks about (Byrne in Ryan, 1988 p. 11). The opportunity cost of not doing things right for the service user can take the form of either of the two elements of a customer's nominal value: 1) not paying attention to what matters to the service user and 2) preventing their demands from being properly identified and met.

Re-design as built around allowing the customer to set the nominal value

As the purpose of ASC had been agreed as 'help people to live the way they want to', the system needed to be designed to be preventative (as opposed to the current system which waited for user's deterioration before intervening), insofar as was possible from this premise. This is aligned with Taguchi's loss function concept. It followed that the new design should respond to all customer demand, rather than turning people away because they were seen to have an insufficient need as had happened before.

The Check team discussed what a perfect ASC system would look like from a customer's perspective and decided:

- i.) Enabling the customer to speak to the right expert as quickly as possible is key to starting the process quickly. This helps eliminate duplication and waste and reduces failure demand from customers who are chasing where things are
- ii.) Having a consistent contact through the end-to-end process i.e. from request for help right through to getting the help they need
- iii.) The organisation can only really establish a full picture of a customer's needs and what matters to them through face-to-face contact and observation in their personal environment based on an open conversation with them. This includes trying to establish future needs through anticipating any predictable changes in circumstances that might occur so the right support is provided and ideally prevention is put in place to help avoid further deterioration

- iv.) In order to meet many customers' needs, it is necessary to use expertise and knowledge from a range of people. The lead contact therefore needs to be able to 'pull' on any support they required as and when it was needed e.g. welfare benefits support
- v.) Frontline staff would be empowered and free to make professional decisions on how best to meet customer needs.

The principles decided upon for this redesign were chosen after discussion with all of the participants in 'Check', based on their knowledge of what they had seen for themselves in the system, and aimed at achieving the above description of perfect from the customer's point of view and ultimately to gain an understanding the service user's nominal value:

1. Build relationships with customers by listening to and clarifying what they want
2. Anticipate the user's needs (are there things that the social worker's professional expertise would suggest will be necessary for the user in the future)
3. Have access to the right person (right expertise) at the earliest opportunity and the same person throughout
4. Treat people as valued individuals
5. Record and measure (proportionately) only relevant information linked to purpose
6. Support and trust staff
7. 'Pull' expertise (meaning when you need expertise you don't have, ask and it will come to you and the customer: the case should not be passed on)
8. Continuously improve, don't be afraid to get it wrong
9. Deliver the right service at the right time
10. Be honest
11. Keep things confidential

These worker-derived principles to guide staff in their interactions with service users were in contrast to the conventional management-imposed policies and specifications. The application of these principles in the work meant that the focus on the whole

person and their carers was integral to the new approach, with the result that the service became more person-centred. By freeing up the social workers'/occupational therapists' time, the workers were able to build a relationship based upon trust and understanding with the user. The service user and the expert together were encouraged to identify and provide innovative and creative outcomes to meet the user's need. In effect, these principles were a way of the workers operationalising Seddon's concept of the customer setting the nominal value. In the words of one interviewee: *"Before we were bound by putting the cheapest option in... That is the nice part about it [the systems thinking redesign]. Not being bound by the FACS criteria is good. You can make your own professional judgement, basically"*

The focus of the workers was on promoting choice and independence, developing solutions that often did not cost any more for the service. Everyone who approached the service was dealt with through the application of the above principles of working, which ensured that each individual could feel that they were being treated fairly and equitably. *The whole foundation of a systems thinking approach is to understand individual needs in order to do what the service user wants, hence different approaches to what superficially may appear to be the same problem (from a manager's perspective)*. The principles also encouraged workers to work with other health professionals in order to meet the individual needs of the service users and their families.

In order to experiment with new ways of working, the requirement to spend time on reporting performance was removed for the social workers, occupational therapists and other professionals to allow them to focus on these principles. In place of the performance data, the teams were able to establish measures within the work aimed at helping them and their organisation to continually improve, through identifying and removing the 'blockages' that hindered the ability of the professionals to achieve what mattered to the service users. These measures had been decided upon during the check process as leading the organisation towards the service user's nominal value, i.e. end-to-end time and right-first-time.

Design of first contact in order to understand the customer's nominal value

Studying demand in the Check process had provided knowledge about the expertise that would be required to assess the high frequency, predictable demand. Staff were enabled to develop this expertise such that assessments could be made at the earliest point in the process via a face-to-face meeting. It was judged that this was the best way to gain a proper understanding of the customer's nominal value and to build the necessary relationship with the user. The new design was supported by only one assessment, provision and review form. This replaced the many forms in the old design, and the reviews of the services provided were determined according to what was appropriate for the user. The information collected was limited to only that which was needed for the provision of the service (which remained subject to refinement with care workers). This meant that the frontline worker was able to spend more time concentrating on understanding what mattered for the service user, identifying their nominal value. Bringing expert staff to the front of the process is often a key feature in a systems thinking redesign.

At the first point of contact, details were taken to establish if the person was already known to the organisation. If so, it was passed to the case worker and if not, the case was passed to the duty worker who would visit to make decisions about need and provision, 'pulling' in expertise from others as required; the case would not be passed over to anyone else. Provision (helping people to solve their problems) in some cases involved sign-posting and/or making creative use of partner organisations such as other local authority departments or voluntary agency/community resources. As one worker said: *"we've been able to take the case on at an early stage, and, working the case with the customer and their carers we've been able to pull in help where we've needed it."*

This practical, in-the-work design meant that there was a focus on the needs of the person as a whole. The approach required the experts (i.e. social workers) to be placed at the front face of the service. The use of one assessment, provision and review form meant that this was an efficient and flexible approach to the work, designed around the nominal value of the service user.

The results of the new system for the individual: Care

The redesigned service was designed so as to be able to do what the service users wanted (meet the customer's nominal value). The purpose of the design was to provide the right support for people in order to maintain their independence, quality of life and quality of community relations. Experience of the new design had been enthusiastically welcomed by users, with many offering unsolicited praise for the service. Waiting lists for services had been virtually eliminated: the access team had previously had 150 cases on a 6-8 week waiting list to be allocated prior to the intervention, whilst in the redesign the expert was now closer to the service user and can pull any other expertise needed, meaning that they were now able to deal with cases faster.

Early evidence from the redesign sites suggested that low-cost, early provision was preventing later higher-cost provision, although this would have to be tracked over a longer period of time to be fully verified. Also, pulling support when it was required led to a fuller picture of the customer's needs and financial situation from the outset. All this helped to inform how best to respond to the nominal value of the customer. For example, being able to pull in assistance with user's welfare benefits (a different department) at the beginning of the process has meant that the user's benefits could be maximised. In some cases this meant that no additional funding was required from ASC to provide what was needed for the user.

Increased Capability

The new design had resulted in the development of different measures which helped the people who did the work to continually improve and identify blockages in the system which were preventing them from delivering against the customer's nominal value. *The new customer driven measures were used to help the people doing the work learn, understand and improve within the service in their locality and not used as a means to compare and benchmark.* The key measure for the system was decided to be right-first-time. If a high right-first-time measure was to be achieved then the right thing would have been being done for the user and the work would be preventing people from having to 're-present', creating more demand on the system in the future. In the redesign experiment, where all internal and external factors that had been hindering the work had been suspended, the results collected from the redesign

showed 90% right-first-time. At the same time, the end-to-end time had fallen to an average of 36 days (down from 282 days).

An analysis of the table below shows the number of the individual service users who were supported that were either known or new to the system, and how many demands they placed on ASC department in each year. The table shows that the number of times service users are referred has reduced as a consequence of the new approach. In the redesign in this authority, the average number of referrals had shifted from 1.45 presentations of demand in 2007/08 to 1.22 in 2008/09. The frontline staff attributed these results to the new focus on taking time to build a relationship with clients and, by focusing on getting it right-first-time, this approach was preventing more service users from re-presenting.

Referrals	07/08 Service Users			% Off	08/09 Service Users			% Off	Grand
	Known	New	Total	Total	Known	New	Total	Total	Total
Review Only	390	0	390	14.9	513	0	513	17.3	903
1 Demand	566	1,363	1,929	65.0	867	1,145	2,012	67.7	3,941
2 Demands	198	300	498	14.2	222	144	366	12.3	864
3 Demands	78	96	174	4.0	51	16	67	2.3	241
4 Demands	34	25	59	1.2	7	5	12	0.4	71
5 Demands	13	13	26	0.5	2	1	3	0.1	29
6 Demands	6	7	13	0.2					13
7 Demands	2	1	3	0.0					3
Totals	1,287	1,805	3,092		1,662	1,311	2,973		6,065*
<i>% of Total</i>	<i>41.6</i>	<i>58.4</i>			<i>55.9</i>	<i>44.1</i>			

* 1,095 Service Users appear in both years, which meant 4,970 individual service users were supported across the two years when they were combined.

Figure 3.6 The number of times a service user's demand would reappear in the system

These results show evidence of the benefits to performance that can be achieved by concentrating a system on being able to deliver against the customer's nominal value right first time.

Comparative Costs of the New Design

The research hypothesis was that delivering to the customer's nominal value right-first-time would show a decrease in the organisation's costs, as one element of the reduction in the 'loss to society' as encompassed in Taguchi's Quality Loss Function.

The managers tried to compare the costs of provision in the old and new systems. In order to do this, they used a basic form of Activity-Based Costing (ABC) whereby notional costs were given for each activity undertaken on the service user's behalf, e.g. for a contact assessment, or for a multidisciplinary meeting. Ten cases were then chosen at random from the 'old' and 'new' systems. Each group of ten included a range of services (home care, domiciliary care, adaptations and equipment). Calculations of the costs were then generated through an estimation of the average time required for such an activity, then multiplying this by the mid-point of the salaries of the workers involved.

Administration activity costs from the 'old' system (of ten cases taken at random) were calculated from these figures:

- The end-to-end time average was 282 days
- The staff time per case was on average 39.1 hrs
- The staff costs averaged out at £923.00 per case
- With average mileage costs of £75.00
- Overall, the gross administration costs were, on average, £998.00 per case

This is a limited data set but it indicates that the removal of FACS criteria does not mean that demand would automatically exceed supply. As mentioned above, many demands that were previously turned away using the FACS criteria came back to ASC at a later date. When this happened, the user was often in crisis and would cost both the care service and the health service much more than if the care professionals had taken the opportunity to spend the right time with the service user at an early stage, thus preventing future demands. This conforms to the expectations of Seddon's adaptation of Taguchi's Quality Loss Function to services.

The average cost of the actual care services provided after generating the administration costs in the above ten cases was £105 per case. At its starkest, this

suggested that it was costing approximately £1,000 to provide a service that had an actual cost of £100. This may be a chance reflection of the cases, for often the costs of provision are high and thus would increase any measure of the average. Nevertheless, it is possible to make a comparison of the administration costs between the old and new designs. Following the same method, the costs of administration of ten randomly selected cases in the new design were £134. This was a significant fall in costs, where the savings could now instead be converted back into a greater capacity within the system for providing ASC services.

In some cases, learning more about what the service user wanted actually saved the organisation money that they would otherwise have spent on adaptations. One interviewee described a case where an elderly lady had been originally prescribed a handrail to be put into her house. Ignoring the requirement to get the cheapest of three quotes from contractors, the worker invited one contractor he knew would be able to provide the service along to a meeting at the service user's house. By spending time with the contractor and the occupational therapist, the lady realised that all she actually wanted was a smaller grab-rail that would allow her up a particular step. As the interviewee said: *“Through looking at this carefully and building up a relationship with her, and understanding what she really wants, we were actually spending less money! Previously, the adaptation would have been done by filling in some bits of paper, and we'd have sent out a contractor to put in a handrail.”*²

The evaluation of the costs of provision in the new design would require a more detailed study of the data over time to make any firm conclusions. However, these early findings suggest that the assumptions in the new design that early provision will prevent or delay later more costly provision are correct. As a corollary, users are expected to maintain their independence for longer. It is also recognised that helping people to live the way they want to is often best achieved through relationships in the

² Additionally, the interviewee was able to discern that the service user was very concerned about showing to the outside world that she had a disability, having been burgled soon after her husband's death. If a handrail had been installed as the original demand required, then it was clear the lady would have felt a great deal of mental discomfort and worry from this new, conspicuous adaptation having been installed into her house unnecessarily. This mental discomfort would have been another example of 'loss to society' caused by not addressing the actual nominal value of the customer.

community or other sources of provision and would not always incur a cost for the local authority.

Other benefits of the redesigned system

Providing ASC right-first-time has the effect of preventing people in need 're-presenting' as another more complex demand in the future; it also prevents other types of failure demand (such as people calling into the system to say 'where is my Meals on Wheels?' or 'I'm just checking that ...') . In some sites where they have had opportunity to experiment fully with a different design in this authority, the failure demand was measured at below 10%, down from 74% as had been found in Check.

The redesign identifies the value work (assess and provide) and builds roles that do that. Achieving assessments in days and provision in weeks (rather than months or years) released resources, which increased the capacity of the system to do more.

The new design emphasised for managers what competences were required in the new roles and thus was more efficient in terms of training and development. It was anticipated by the managers that working in this less stressful and more motivating environment would lead to less staff turnover and hence less training costs. Reflecting this, one interviewee commented on how much more motivated they were, compared to working in the old system: *"You get a buzz out of being able to say to somebody 'you need a piece of kit, let's deliver it to you', knowing fine well that traditionally they would have never got that piece of kit."*

As ASC is a complex, human system, waste was being created through not dealing with user needs properly when they first presented. As a result, needs became more complex and demands on the system were being amplified (one original demand became many unresolved demands). This suggested that the greatest opportunity for intervention would be at the point of first contact: the redesign confirmed this. This also has an impact on the experience of the system by the user, allowing them to perhaps slow or halt the rate of decline in many users' health conditions. This is perhaps an example of the 'unknown and unknowable' consequences of bad management actions that Deming alluded to (Deming, 1982 p. 121).

These all show the additional ‘soft’ benefits that could be gained from designing a system which is better able to deal with the customer’s nominal value.

Levels of demand

The study of demand in this case study has meant it was possible to measure the number of people receiving services. In fact, demand was found to be stable at 25,000 people (only showing common-cause variation). The chart below shows the number of referrals per month made to the ASC department over 2007/08 and 2008/09. In fact, in August 2008 when the changes were made to the new way of working, a perceptible drop was observed in overall demand (see chart below).

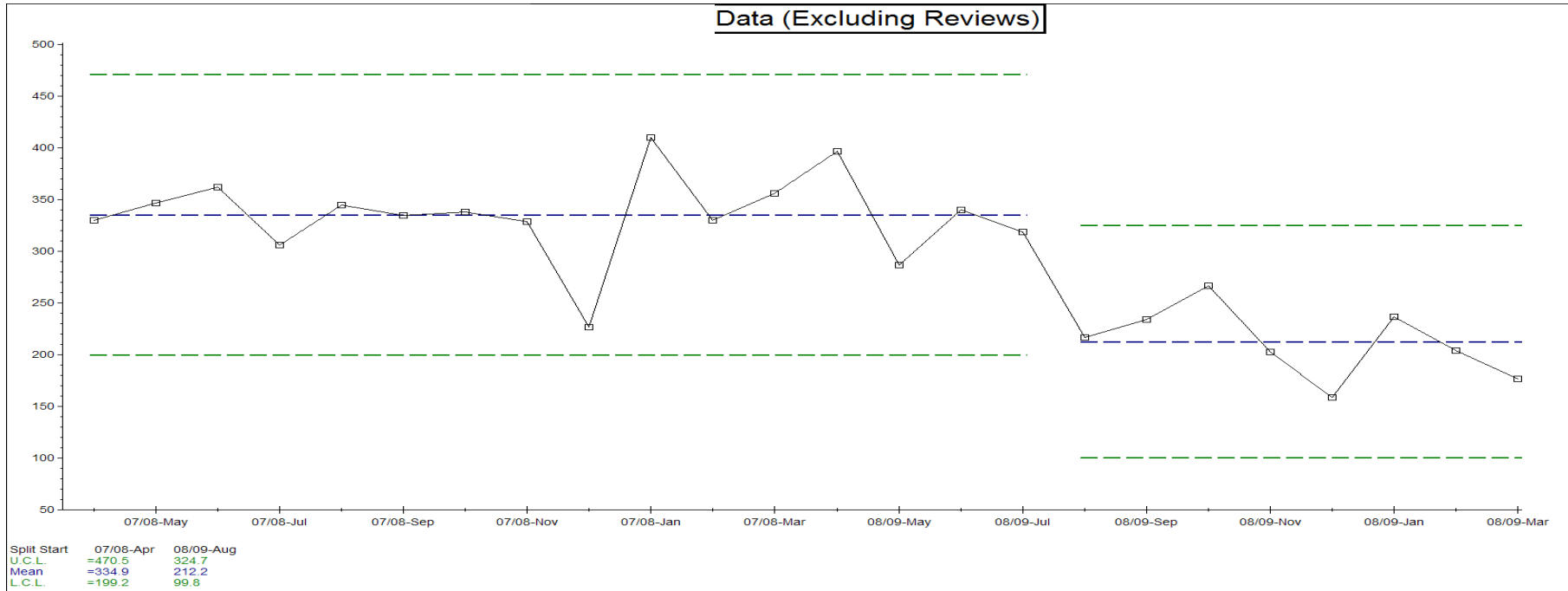


Figure 3.7 Statistical Process Chart showing demand over time

An associated concern was that removing FACS would lead to a spike in demand. However, the experience gained from experimenting in this authority is that this did not happen. New 'low' and 'moderate' demands were seen to amount to only 7 percent of all demand. Solving peoples' problems in these instances was not costly.

Conclusion

It is noteworthy that, by focussing on the customer's nominal value and effectiveness (better service and an improved service user experience) systems thinking was able to deliver substantial efficiency improvements as a second order result. This is the same continuous improvement experience as witnessed in the Toyota Production System (Ohno 1988, Womack, Jones and Roos 2007). By eradicating the requirement for 'feeding the performance machine at all costs' from this system, there was less of what Taguchi would call the 'loss to society' from not having delivered to the customer's nominal value. Such elements of the 'loss to society' included the costs to the authority (and the taxpayer), the harm done to the independence and well-being of the service user, the concern of the user's carers and family, the damage to the morale of the staff involved. By focussing on effectiveness (doing the right thing for the customer) and focussing on perfecting the way that the service worked from the customer's perspective, this organisation was able to show greater efficiency.

It was the contention of the staff in this local authority that the use of systems thinking allowed for the government's personalisation principles and policy objectives to be met without the need for the rationing and screening out of services as was previously happening as a result of the FACS criteria. Some of the results included:

- A fall in end-to-end waiting times from an average of 282 days to only 36 days
- A reduction in administrative costs of approximately 85% per case from on average £998 to £134 per case (from a sample of 10 similar cases, comparing figures from before and after the redesign of the work)
- 90% of cases being dealt with right-first-time, compared to a previous figure of 52%

It was also found that government policy of rationing access to care was actually amplifying demand on the service: by making it harder to qualify for care, people's health would deteriorate and the person would 're-present' to the system, meaning that their conditions would often be more costly to treat. After an initial analysis of the data, the numbers of people 're-presenting' in this way was suggested to represent 80% of demands on the system. This discovery flies in the face of the cost-control justification for the rationing that was previously taking place in the system.

Through experimenting with the design and management of their work, the authority had been able to remove the requirements to (in the words of the Check team) 'feed the performance machine at all costs' which dominated the way that they used to approach their work. As part of their studies, the authority had discovered that it was the requirement to comply with the specifications promulgated by regulatory bodies and inspection regimes which were the causes of many of their costs and which were behind subsequent poor service to the end service user. As a result, the authority concluded that these specifications (such as the FACS eligibility criteria) should be discarded and further experimentation be allowed in order to demonstrate what results can be achieved in their absence, instead using measures set only from the users' perspective.

The following table provides a summary of the benefits realised in this case study. These results show that systems thinking can be profitably applied to an ASC department. The benefits of discovering the nominal value of the customer and then designing a system flexible enough to deliver against it right-first-time were shown in the results achieved. In fact, in this system, as many of the vulnerable service users were unable to articulate their real needs, the skills of the professional and their carers were required to ascertain exactly what mattered and the precise nature of the demand from the customer. The FACS criteria and the other management requirements for rationing of resources were the main specifications that were preventing the frontline worker from being responsive to the varied needs of the users. Taguchi's Quality Loss Function and the concept of nominal value have therefore been demonstrated to have great relevance to this ASC service.

Table 3.2 Summary of the benefits of the systems thinking intervention

Adult Social Care	Old System	Redesigned System	Improvement
End to end time	282	36	87%
Failure demand	74%	10%	-
Administrative cost	£998	£134	87%
Right First Time	52%	90%	-

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