

**Evaluation of the Smith Bernal real-time  
computer aided transcript system,  
Solution CIC**

Report on behalf of Society for Computers and Law  
by  
Joyce Plotnikoff and Richard Woolfson

April 1992

*Joyce Plotnikoff and Richard Woolfson  
Consultants in Management and IT  
Tel: 01462 457555  
Fax: 01462 457229*

# CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>3</b>
<b>2</b>	<b>DESCRIPTION OF 'SOLUTION CIC' .....</b>	<b>4</b>
<b>3</b>	<b>THE EXPERIMENT .....</b>	<b>7</b>
<b>4</b>	<b>VIEWS OF PARTICIPANTS .....</b>	<b>14</b>
<b>5</b>	<b>FINDINGS.....</b>	<b>19</b>
	<b>ANNEX .....</b>	<b>23</b>

## **1 INTRODUCTION**

This report contains the results of a study carried out on behalf of the Society for Computers and Law to evaluate the real-time computer aided transcription system Solution CIC developed by Smith Bernal Company Limited.

The findings are based on observation of the experimental use of the system for a period of eight days between 17 and 27 February 1992 during a trial in the Official Referees' Court in London. A day's proceedings prior to the introduction of the system were also observed for the purposes of comparison. Only the judge in the case was provided with access to the real-time facilities that the system offers and his views were recorded prior to and throughout the experiment. Other courtroom participants were interviewed to gauge their perception of the impact of the system.

The trial, which concerned a dispute about procurement of computer software, was already 47 days old at the time the system was introduced, having started on 7 October 1991. Smith Bernal contributed Solution CIC and two operators free of charge for the duration of the experiment.

The terms of reference for the study are contained in the Specification of Work which is included as an annex to this report. The experiment did not include using the system in 'transcript only' mode as originally envisaged as the judge in the case quickly came to the view that the value of the system lay in its real-time features.

## 2 DESCRIPTION OF 'SOLUTION CIC'

### Overview

Solution CIC allows the keystrokes of a court reporter operating a stenography machine to be transferred to a separate computer that translates the reporter's shorthand symbols into continuously scrolling English text. This translation appears within seconds at terminals either in or outside the courtroom. The computer uses a dictionary that the reporter has previously built up which matches steno strokes to corresponding English words. The scrolling can be stopped in order to search for keywords or select passages for annotation without loss of information on returning to live mode. The text is divided into numbered pages each of which is 25 lines long. The line number is printed at the beginning of each line. Page numbering begins again at one at the start of each session.

When a word used is not in the dictionary stored on the computer, an "untranslate" occurs which results in the appearance on the screen of a string of meaningless symbols and letters. To overcome this problem, the text is simultaneously made available for editing to remove errors and convert untranslates into their correct English equivalents. This is usually done by an editor or 'scoper' sitting at a computer in the courtroom alongside the stenographer. The transcript which has been 'cleaned' in this way is not available to participants in real-time but can be provided shortly after the end of the day's proceedings as an ASCII file. This can, if needed, be converted and read by any standard word-processing package including WordPerfect.

### System description

The software used by Solution CIC runs on an IBM compatible PC under Microsoft's Windows version 3.0 operating system and is designed for use with a mouse. For the purposes of the experiment, Smith Bernal supplied the system on Toshiba T5200 portable computers which have a 80386 processor and have a monochrome orange gas plasma screen.

The software comprises a package developed by the American company Stenograph, which converts the stenographer's shorthand to English, and a front end developed by Smith Bernal which allows the annotation and searching of the text that appears on the screen.

Annotation of the transcript is performed using a utility in Solution CIC called Livenote. There are five different annotation facilities available:

#### 1) Quick Mark

This is the only facility that can be used while the text continues to scroll. Using the mouse, the user can double click on any line of text. The position of the mark is indicated by the appearance of an underscore of the line number on which the clicks were made. This flags the line of text for later reference.

All other annotation features become available only after the scrolling text has been halted by clicking a box marked STOP. Once the annotation has been made, the scrolling can be restarted by clicking CONTINUE.

2) Mark

This feature is similar to Quick Mark but this time several contiguous lines of text instead of just one can be highlighted by holding down the mouse button and sweeping the pointer over the passage of interest. On release of the button, the chosen lines are underlined on the display. It is possible to span more than one screen of text in marking a passage in this way, but the process is somewhat awkward and was neither explained nor used during the course of the experiment.

3) Cross Reference

Text is marked as in 2) but a window then appears on the screen allowing the user to add a single line of comment which is associated with the marked passage.

4) Note

An identical facility to 3) except that the comment can be many lines in length.

5) Issue

This is the most sophisticated annotation feature offered by the system. Either at the start of proceedings or as the case progresses, the user identifies and names up to 12 issues of interest. These are entered into the system. When the user chooses this facility, text is marked as in 2) and a window appears showing the names of the twelve issues. The user can then select the issue to which the passage of text is to be assigned by pointing and clicking with the mouse.

Each user is provided with a personal copy of the transcript by means of a data sharing device. The annotations made are specific to the person who makes them and are not visible to or accessible by any other user. At the end of the day, each user is presented with a document file containing a copy of the transcript marked with annotations. This copy contains the text as generated from the stenographer's keystrokes, not the cleaned version produced by the scoper. Using a utility called Document, the file can be searched and the annotations viewed in the same way as the live text file. In addition, reports can be produced which list all annotations by type together with the marked text to which they refer.

The system is still in development and this was reflected in the absence of proper on-line help and of a comprehensive user manual. A skeleton manual showing the various facilities provided by the system was, however, produced.

## **Ease of use**

The system can easily be mastered in few minutes by anyone familiar with the Windows operating system and using a mouse. All facilities can be invoked by pointing with the mouse and clicking. Only minimal keyboard skills are required for setting up issues and adding notes. If the intended user had not worked with a computer before, a general familiarisation course on using a PC would be advisable including sessions on Windows and using a mouse.

## **Costs**

No purchase costs were available from Smith Bernal as the system is still in development. Nevertheless, some observations can be made on the subject.

The Lord Chancellor's Department (LCD) currently procures transcription services by placing contracts with reporting firms who undertake to cover all proceedings at a particular court centre. Tape recording or computer aided transcription is employed to record proceedings and a paper transcript, which is much the most expensive element in the cost, is only provided by the contractor when a specific request is made. Real-time computer aided transcription is only meaningful if a transcription, complete with annotations, is provided for each case covered and this must be taken into account in any cost benefit analysis that the LCD carries out in relation to the use of real-time transcription.

Private clients who place a contract with a reporting service to provide real-time facilities in the courtroom and a daily copy of the annotated transcript can expect to pay about 25% more than for a traditional computer aided transcript.

For anyone contemplating purchase of the system, the minimum specification for a PC capable of running Windows is now generally accepted to be 2 megabytes of RAM and a 80386SX processor and these start from around £1000. To this must be added the cost of a printer and any maintenance charges although the computer need not be dedicated to running Solution CIC. In view of its development status, Smith Bernal could not provide costs for the software, but in any case these are likely to be less significant than the cost of hiring a skilled real-time stenographer to operate the system. Currently there are only a handful of operators with the requisite level of skill available in the UK and clients will have to pay a premium for use of their services. Even in the USA where there is a very large pool of trained stenographers, informed sources suggest that only around 10% are capable of operating a real-time system. Standards and a certification process are currently being introduced and the number of qualified real-time court reporters may be very low indeed. More information about real-time computer transcription systems in the USA is provided in a report to the Society for Computers and Law on the Third National Court Technology Conference held in Dallas in March 1992.

### **3 THE EXPERIMENT**

#### **Physical layout**

In the courtroom, terminals were provided to the judge and the consultants performing the evaluation but not to the other case participants. The stenographer with her stenograph machine and the scoper with her computer sat at the clerk's bench directly below the judge as pictured in the illustration overleaf. The data sharing device and the tape recorder used to produce the official record of proceedings were also located on this bench.

The courtroom where the trial was held is one of the smallest in the Official Referees' Court. At the start of the experiment, the stenographer sat immediately under the witness box with the scoper in the centre. While this is the ideal location for the stenographer to hear what is being said, it was perceived by the clerk as an invasion of the space that she would normally occupy to swear witnesses and pass papers to the judge. A few days into the experiment the clerk asked the stenographer to move away from the witness box and allow her to return to her usual position. This is the arrangement depicted in the sketch.

The cabling which the system required was hidden behind furniture, taped securely to carpet or nailed to skirting boards. It was not obtrusive and gave rise to no adverse comment from participants. As the illustration indicates, the judge's computer was set up to the side of his bench opposite to the witness box. Although the positioning was not considered significant at the time, it was later realised that the computer would have been better located on the same side as the witness box. This would have avoided any chance of the witness being able to read the screen and allowed the judge to glance from the screen to the witness with a minimum of movement. The evaluators and their terminal were positioned right at the very back of the court behind all the other participants.

Installation of the equipment in the courtroom took place before the court sat on the first day of the experiment and lasted about an hour and a half.



## **Preparation**

The judge in the case was an experienced computer user with good keyboard skills. He was familiar with Windows and a mouse although he did not use either regularly prior to the experiment. A number of training sessions were planned before the experiment began but in the event only one was required as the judge mastered the use of the system very quickly.

Preparation is also necessary for the stenographer and scoper to allow them to become familiar with names and specialised vocabulary likely to be used by participants in the trial. This is particularly true of cases such as the one used for the experiment where highly technical issues are involved. Any unusual words that are likely to occur are also added to the dictionary used by the computer in translating the stenographer's keystrokes into English. The process of adding new words continues throughout the trial.

An added difficulty arose in this case because the trial was already 47 days old when the system was introduced. Usually the team of stenographer and scoper have the opportunity to build up their familiarity with the case slowly as the participants feel their way at the start of the trial. The stenographer was provided with case papers by the judge and the parties to assist with the dictionary compilation exercise.

Lawyers from both sides were invited into the judge's chambers before the start of the experiment for a demonstration of the capabilities of the system.

## **Courtroom proceedings**

The experiment covered eight consecutive days of the trial. At the request of the stenographer, the judge announced to the court at the start of the experiment that a five minute break would be taken half way through the two and a half hour morning and afternoon sessions on each day. The degree of concentration which the real-time stenographer must maintain makes such rests essential.

During the experiment defence witnesses were cross-examined by counsel for the plaintiff. The cleaned transcript of the day's proceedings was available at around 5:30p.m. each day and a hard paper copy was delivered to both sets of solicitors. Only the judge was provided with transcript in computer readable form.

The system operated without technical problems of any kind throughout the period of the experiment. Other than the problem of space, the physical impact of the system was minimal. The only noise added by the system was the sound of the scoper's keyboard as she typed. This gave rise to no complaint from courtroom participants and was largely drowned by the hum of the air conditioning.

The interval between words being spoken and appearing on the screen was between one and five seconds throughout and the evaluators had no problems in following simultaneously the transcript and the proceedings. Although there were a number of words that were mistranslated by the stenographer, these did not interfere with

understanding the transcript to any great extent. Names of individuals not included in the dictionary and numeric document references proved particularly difficult for the stenographer to record accurately.

### **Use of the system by the judge**

The judge used the morning session on the first day to try out the various facilities offered by the system and decide which were the most useful. By the afternoon, he had decided that the Issue feature was by far the most useful and he used this virtually exclusively for the remainder of the experiment.

At the same time, the judge was seeking a suitable balance between manual notetaking and use of the system. In conversation after the first session he spoke of an inner reluctance to abandon his manual notes because of the importance of the issues at stake. Nevertheless, he quickly decided to use his manual note to create a log of events containing cross references to the transcript. At first he used bundle references for this purpose but later added also transcript page numbers.

The following tables show the judge's use of system features during each session of the experiment and the number of pages of transcript produced in the session:

<b>17 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	66	75	141
Marks	0	0	0
Quick Marks	15	0	15
Cross References	2	0	2
Issues	13	25	38
Notes	3	3	6

<b>18 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	65	70	135
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	0	32	32
Notes	0	0	0

<b>19 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	67	67	134
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	33	37	70
Notes	1	0	1

<b>20 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	64	71	135
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	28	7	35
Notes	0	0	0

<b>24 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	81	69	150
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	48	34	82
Notes	0	0	0

<b>25 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	74	73	147
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	52	43	95
Notes	0	0	0

<b>26 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	79	68	147
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	66	45	111
Notes	0	0	0

<b>27 February</b>	<b>AM</b>	<b>PM</b>	<b>TOTAL</b>
Pages of transcript	83	75	158
Marks	0	0	0
Quick Marks	0	0	0
Cross References	0	0	0
Issues	40	22	62
Notes	0	0	0

At the end of each day's proceedings, the judge was presented with two files: one containing a copy of the 'dirty' transcript complete with annotations and one containing the cleaned transcript but without annotations. This second file had been converted to Wordperfect format to allow the judge to transfer it to his own wordprocessor but not surprisingly he preferred to work with the version that included the annotations. This can only be examined using the Document utility in Solution CIC which also allows reports to be generated listing annotations and the marked passages to which they refer. The system offers no flexibility in the format of these reports which the judge found unsatisfactory in a number of respects. To overcome this, Smith Bernal converted the

reports to WordPerfect format and transferred them to the judge's own computer where he could manipulate and reformat them at will using the power of the wordprocessor. While this provided a short term solution to the problem, it is much too time consuming and clumsy to be regarded as an acceptable procedure in general and a commercial version of the product will require a more flexible report generator.

## 4 VIEWS OF PARTICIPANTS

### The judge

Even after the first session in which the system was used, it was clear that the judge was impressed by the contribution that real-time transcription could make to proceedings in the courtroom. He quickly acknowledged in his comments to the evaluators that the pace of the trial accelerated when the system was introduced. This subject is discussed in more detail in the next chapter.

As the experiment progressed, the judge maintained a report of his comments and observations on the system. These tended to be of a technical nature describing ways in which individual system features could be modified and enhanced. None of these comments called into question the fundamental value of the system. The only difficulty that the judge experienced with the equipment was eye-strain in the second week of the experiment which he attributed to the orange-on-black gas plasma display.

The most significant technical problem noted by the judge was the unavailability of a copy of the clean transcript containing annotations made during the proceedings. Although the version which had not been cleaned was quite understandable when read at the time or soon after, it might be much less intelligible when re-examined at the end of the trial as the issues would not be as fresh in the reader's mind. This improvement, which is available on other systems in use in the USA, should be incorporated before Solution CIC is released as a commercial product.

The judge suggested that the system should permit a single passage of text to be associated with more than one issue which the version of the software used in the experiment did not allow.

Although the judge quickly settled on the Issue facility as the most useful of the annotation features, he felt that it could be improved by the ability to add a note of his own at the same time as assigning a passage of text to an issue. This would, in effect, replace the existing five types of annotation with just one which combined the current Note and Issue features.

Various concerns about use of the system were expressed by courtroom participants and these were subsequently put to the judge for his reaction. On the question of possible delay before spoken testimony appeared on the screen he had this to say:

"I thought that there was very little delay between the spoken word and its appearance on the screen; a matter of a second or so. The overall impression was of an almost immediate transcript on screen".

The judge strongly rejected suggestions that using the system distracted his attention from the proceedings. He insisted that he had plenty of time to make annotations on the transcript without falling behind and pointed to the fact that at no time did he need to ask for the pace to be slowed. On the contrary, he claimed the reduction in the burden of

manual notetaking enabled him to spend more time than usual noting the demeanour of witnesses as they gave evidence.

Another criticism levelled at the system was that it was likely to induce mental laziness on the part of the judge. Taking a manual note, it was argued, forces the judge to mentally filter out all but matters of substance and this is an important facet of the judging process. The verbatim account of proceedings provided by the transcript makes this filtering unnecessary but adversely affects the quality of justice being dispensed. This argument too was rejected by the judge. In his own words,

"I did not feel that less intellectual effort was required from me. If anything, I felt that I was able to be more productive in real-time than would normally be the case. This was because I rapidly came to the conclusion that the real benefit to be derived from the system was my online annotation of the transcript with a view to generating reports later, properly coded to the issues in the case."

### **Defence solicitor**

The defence solicitor had experience of other jurisdictions in which a transcript was provided in all trials as a matter of course. He confessed to being "a great believer in transcripts" and of the opinion that "transcripts make trials shorter". Unlike the judge, he felt that the provision of the transcript itself was enough to reduce note taking to a minimum and the real-time features were little more than a frill. His own notes had shrunk from around 30 pages a day before the experiment to about five during it simply because of receiving a hard paper copy of the transcript at the end of the day.

He felt that there was a danger that judges could be distracted by the real-time features of the system and indicated that he may have observed this happening during the course of the experiment. He quoted an example of a case reported in the press where an appeal was allowed on the grounds that the judge was seen not to be paying attention to the testimony of a witness. He conceded, however, that these concerns would be allayed if it was clear that the judge was so familiar with the system that he could operate it without fear of being distracted from proceedings in the courtroom.

Despite this, the presence of the system had speeded up proceedings, in the view of the solicitor, and this could be attributed to the reduction in the amount of note taking. It was still possible to get cues by watching the judge as he could be seen using the system although one could not be sure what he was working on.

The solicitor also felt that the value of the transcript was greatest during cross-examination as it enabled counsel to identify weaknesses in witness testimony after the day's proceedings and home in on these the following day. Because of this, he felt that the timing of the experiment had created an imbalance in the proceedings since it was a definite advantage to the party cross-examining to have a full witness transcript. The defence had decided however not to raise any objection in view of the judge's clear wish to participate and the indication he gave to the parties that they should cooperate in the experiment if at all possible. Nevertheless, he would have been happier if counsel had not

received transcripts.

He criticised the five minute breaks in proceedings to give the stenographer a rest: "these give the other side the chance to regroup and, as we did not have this, it gives an unfair advantage." He suggested that this could be remedied by having more than one stenographer in the courtroom.

When asked what use the solicitor would make of the system if he too had access to a terminal, he replied that he would mostly use the Issue facility. The ability to search testimony would also be of great help particularly in view of the length of the case. He would also like to 'pipe' the real-time transcript directly to his client as he sat in his office which would enable him to see directly the quality of counsel's work.

### **Counsel for the defence**

The leader had experience of trials in which a transcript was provided and said that he prepared quite differently for such cases. He had not changed his approach in this case, however, because of the short duration of the experiment. He was continuing to take a full note despite getting a daily transcript, partly through fear of being left without any record at all if the system should fail. He acknowledged that the transcript would be useful at a later stage because it would be more complete than his note. On the other hand, transcripts record only what a witness says, not the manner in which he or she says it, which he felt could be of equal or greater importance. He thought that normally the judge would make a note about the manner of the witness but a real time transcript might result in the judge abandoning his note and the information being lost.

Both counsel expressed the view that the judge's concentration was adversely affected by the real-time system, although the junior felt that the problem had lessened with time while the leader did not. He said, "what worries me is when [the judge] plays with the mouse. Meanwhile the proceedings continue and he must be dealing with events that happened a little time before". Both conceded that the pace of the trial had speeded up after the system was introduced and neither felt disadvantaged through not being able to use the judge's pen as a cue.

Counsel were asked how they would use the system if they were provided with a terminal. The leader was adamant that it would be "a disaster" if he tried to use it personally. Any use would be confined to the non-speaking advocate.

The leader explained his view that transcripts in general can have the effect of lengthening proceedings because of the way they change counsel's approach and technique. He explained that:

"You tend not to bother to try to get the answer you want in one question but to have three or four goes at it because the judge is not writing it down. Also a transcript makes you over-analyse passages. You look for all possible interpretations and try to get it perfect. This might prolong the trial itself. It can also hugely lengthen final submissions because of the amount of material there is to draw on. There is also a likelihood of more

detailed wrangling between the parties which would also prolong things. Half the evidence given in a case is actually irrelevant."

Despite these concerns, the leader claimed that he was, on balance, in favour of transcripts and considered that the real-time system was an advance over conventional computer aided transcription.

### **Counsel for the plaintiff**

The leader expressed his views on transcripts in strong terms:

"I don't like daily reporting at any time. It puts off the processing of information that otherwise has to take place as the case proceeds. This is true for both judge and counsel. It also creates more work as the entire transcript has to be read rather than just one's own notes which are inevitably more succinct. It can also have the effect of prolonging cross-examination as you examine minutely everything that was said each evening. In fact I have not looked at the transcripts at all. I accept that it can speed up things in court because the judge takes fewer notes but it increases work out of court. Also there can be arguments in court about the accuracy of the transcript. Overall the pace is slowed."

He was also unequivocal about the merits of the real-time system:

"I feel it is a distraction to the judge because he is not familiar with the technology. He is reading what is on the screen which is testimony that was given some time before and so cannot concentrate on what is being said at that moment. I can think of specific examples of questions he has missed in this way. He is usually very sharp and he did not miss anything before the system was introduced. Also because he is concentrating on the screen he cannot check on the demeanour of the witness. I personally do not put much store by that - witnesses are always under extreme stress -but many of my colleagues think that it is very important."

The junior remarked on the positioning of the judge's terminal on the opposite side of the bench to the witness box and pointed out the benefits of moving it to the same side as the witness (see discussion in chapter 2). He indicated that neither he nor his leader had yet looked at any of the daily transcripts but would expect to do so at the end of the trial. He did not feel that having a screen of his own in court would be of benefit because he only took a note of the important details and would not be helped by a verbatim account. The only positive point noted by both counsel about the presence of the system was that the breaks for the stenographer were of benefit to them also.

### **Expert witness**

An expert witness for the plaintiff who had given evidence before the system was introduced in the courtroom and observed proceedings during the experiment offered his comments. He said that the pace of the trial had speeded up considerably since the system started being used because the judge did not have to slow things down for note taking. He had found giving his evidence extremely difficult: his testimony was so

technically detailed that the judge could not take notes and concentrate on what was being said. He therefore had to stop speaking at various points to allow the judge to take notes and this so interrupted his flow that he found it very difficult to pick up his argument again when the judge had finished writing. In his view, the system would be of particular benefit if used during expert testimony both in terms of shortening the time required and allowing the witness' flow to proceed without interruption.

### **Plaintiff client**

The plaintiff client who was in court throughout the trial expressed the view that proceedings had flowed more freely since the introduction of Solution CIC and that there were fewer interruptions from the judge. However he felt that the only benefit of the paper transcripts to his side was in settling disagreements among his team during pre-court discussions on what had been said the previous day. Even so, the relevant passage was often hard to find and an index or the ability to search the text electronically would be a great advantage. (This would have been possible had the transcript been provided to counsel on disc as well as in hard paper copy). Without this, he felt that the transcript simply represented more work for his team.

A defence expert witness was due to give evidence during the week following the end of the experiment and the plaintiff felt that the transcript would have been of benefit to his side were it available during cross-examination.

He endorsed the view of counsel for the plaintiff that the five minute break would be what he missed most when the system was removed.

## 5 FINDINGS

### **Effectiveness in replacing handwritten notes**

The evaluators had the opportunity to examine the judge's notebooks prior to and during the experiment. In the 12 court days beforehand, an average of about 20 pages of notes per day were taken. Although morning and afternoon sessions both lasted about two and a half hours, more notes were taken in the morning three-quarters of the time. After the experiment started, the judge's notes dropped to about five pages per day with a dramatic change in the notes themselves. Instead of a summary of proceedings, they now consisted of times, headings and bundle references and served only as a log of events with cross references to documents, orders and the transcript. In the second week of the experiment, rather fewer pages of transcript were produced in the afternoon sessions than in the morning although the short length of the experiment make it hard to draw a definitive conclusion from this.

***Finding:** Clearly the introduction of Solution CIC resulted in a significant reduction in the volume of the judge's notetaking. The residual notes constituted little more than a log of events and an enhanced version of the system could eliminate the need for almost all notetaking by the judge.*

### **Effect on the pace of proceedings**

The type of case used for the experiment normally proceeds quite slowly due to the heavy reliance on documentation, but it slows even further when the judge takes a note and counsel is 'watching the judge's pen'. All the participants interviewed agreed that the pace increased after the introduction of the system. One counsel suggested that the overall pace is slowed because of the introduction of extra work outside the courtroom although this was based upon previous experience of transcripts as neither he nor his junior read the transcripts provided to them during the experiment.

Although no expert testimony was given during the experiment itself, an expert witness who was in court referred to the judge needing to halt proceedings for notetaking during his evidence as the complexity of the argument made it impossible to listen and take notes at the same time. Use of the system would have overcome this problem.

Even during the experiment, there is some evidence that the pace, as measured by the number of pages of transcript per day, increased in the second week. This could be due a certain tentativeness on the part of participants when the system was first introduced but it could also reflect a difference in the nature of the proceedings: the first week was predominantly concerned with submissions while the second was devoted to cross-examination of witnesses.

***Finding:*** *As there is no statistical data on the pace of the trial before the experiment, it is impossible to be categorical about a change of pace. Nevertheless, there is strong anecdotal evidence from interviews with participants and the impressions of the evaluators that the pace was faster with the system. It is also clear from the comments of the expert witness that his time in the witness box would have been shorter had the system been used when he gave evidence.*

### **Resistance from other courtroom participants**

The enthusiasm of the judge for Solution CIC was matched by the doubts and suspicions of others involved in the trial. Even the court clerk seemed to feel threatened by the presence of the system. Some of the adverse comments were actually criticisms of the experiment rather than the system and would not apply if the system was used throughout the entire course of a trial. This applies, for instance, to the concerns of the defence solicitor relating to the unfair advantage that access to the transcript gave to plaintiff's counsel during his cross-examination of defence witnesses.

People often feel threatened by technological change in their working environment. The appropriate response is not to ignore this fact but to acknowledge that such concerns exist and need to be addressed. In some cases the criticisms are valid and changes must be made to meet them. In others, the comments arise from misunderstanding and explanation and reassurance should be offered. One example of such misunderstanding in this experiment relates to the time interval between words being spoken and appearing on the screen. Because the lawyers had not seen the system demonstrated during live testimony, some assumed that the length of the gap was much greater than the actual one to five seconds. This led them to the conclusion that the judge in reading the screen was concentrating on an issue quite different to that being addressed by the speaker at the same time, hence the concerns about the judge being distracted.

***Finding:*** *Introduction of systems such as CIC can expect to encounter resistance from courtroom participants. As part of the preparation for their use, a programme of training and familiarisation is needed to explain the purpose of the systems and the benefits they can deliver.*

### **Impact on courtroom design**

Although installation of Solution CIC was achieved in a short time and with a minimum of disruption, the environment of the court was far from ideal. Cabling requirements need to be considered as an integral part of courtroom design to ensure safety and ease of installation. Courtroom furniture should be capable of accommodating terminals for system operators, judge, parties and members of the public. Privacy needs should be taken into account to ensure that screens can not be overlooked. Appropriate lighting should be provided to ensure that screens can be read clearly and with a minimum of eye-strain.

***Finding:*** *The involvement of those responsible for court building should be sought to ensure that designs take into account the needs of courtroom technology.*

### **'Quality of Justice' considerations**

This is the most far-reaching of the issues raised by the experiment. Unless the use of systems such as Solution CIC can be seen to enhance, or at least not to impair the quality of the justice dispensed they have no future in the legal system.

The judge's comments highlight the potential contribution of real-time annotation to the production of judgements in long or complex cases. Judges are under severe time pressure to start a new trial soon after the completion of the previous one with little time set aside for the writing of the judgement. Despite the attractions of analysing a case as it proceeds, judges seldom find time during the trial to add a further manual 'layer' of work to the manual note by identifying issues, indexing and cross-referencing. When Solution CIC is fully developed, the judge in this case foresaw being able to produce self-contained reports every few days based on the annotations he made in the courtroom. By this means, the preparation of his judgement could be spread more evenly over the course of the trial. The judge would assume that any evidence of importance that he had not highlighted would be brought to his attention by counsel in their submissions during the final stages of the trial. He considered that this process would be immeasurably superior to his manual note, enormously labour saving in respect of out-of-court time, and instrumental in providing a foundation for the judgement.

Although the parties in the case were not provided with access to the real-time features of Solution CIC, it is reasonable to deduce that the same facilities that the judge found so useful would also enable lawyers to provide their clients with a better quality of service.

Finally, real-time transcription offers the possibility of making court proceedings accessible to the deaf and hard of hearing. New legislation in the USA on the rights of the disabled may oblige courts to make available such systems and it seems likely that in the future there will be pressure for similar action in the UK.

***Finding:*** *A system such as Solution CIC has the potential to allow judges to adopt a more gradual and systematic strategy in reaching a judgement. It makes it feasible to interpose a layer of review and analysis as the trial proceeds which would not otherwise be possible. Through the ability to search and retrieve information automatically, it makes the searching of testimony a more reliable and less painstaking process than at present. These facilities are likely also to be of benefit to the parties in presenting their case. Finally, real-time transcription can make court proceedings accessible to the hearing impaired.*

## **Facilities offered by Solution CIC**

It was not part of the evaluators brief to conduct a detailed technical evaluation of Solution CIC. Nevertheless, some comments on the subject are appropriate.

Solution CIC is still in development and therefore lacks a number of attributes that must be provided before it can be launched commercially. The judge in this experiment has produced a list of suggested modifications aimed at improving the functionality and ease of use of the system and these are being considered by the developers. In particular, suitable user manuals need to be produced together with on-line help and an automated tutorial aimed at first time users. Existing annotation features need to be replaced by a single facility which combines the current Issue and Note features. The processes of editing the transcript, performed by the scoper, and the annotations added by the user must be integrated to make available an annotated copy of the cleaned transcript. A flexible report generator needs to be added enabling the user to summarise information in a format of his or her choice. The system must be made 'failsoft' to ensure that no information is lost in the case of a power outage or other system failure. Security features need to be introduced to exclude unauthorised access to user files.

***Finding:** Solution CIC has the potential to make a genuine contribution to the judicial process by providing an accurate and searchable record of proceedings in court and the ability to annotate this record in real-time. Further development work is necessary, however, before it is of an acceptable standard to make available commercially.*

## ANNEX

### Evaluation of Smith Bernal 'Solution CIC' in the Official Referee's Court

#### Specification of Work

The study will assess the usefulness of the above system by drawing on the experiences and impressions of the judge, a first time user. In particular, the following aspects of the system will be addressed:

- a) initial user training
- b) preparation required by operator for introduction to new courtroom situations including dictionary compilation
- c) ease of use of system
- d) effectiveness in replacing handwritten notes
- e) courtroom situations where use of the system is particularly helpful, e.g. during complex technical discussions
- f) savings of time produced both during and after court
- g) impact on other courtroom participants.

The study will include a short description of the system in the particular configuration used for the experiment. The various system functions will be considered separately for the purpose of estimating the practicality of each. For this purpose, it is proposed that the system be operated for part of the time in a restricted mode where it provides only Computer Aided Transcription facilities. This will allow separate assessment of the benefits of receiving an automated daily transcript and of the extra real-time features provided by the Smith Bernal front end.

In addition to discussions with the judge, it is hoped that permission will be obtained to speak to counsel to record their perceptions of the effect of use of the system.