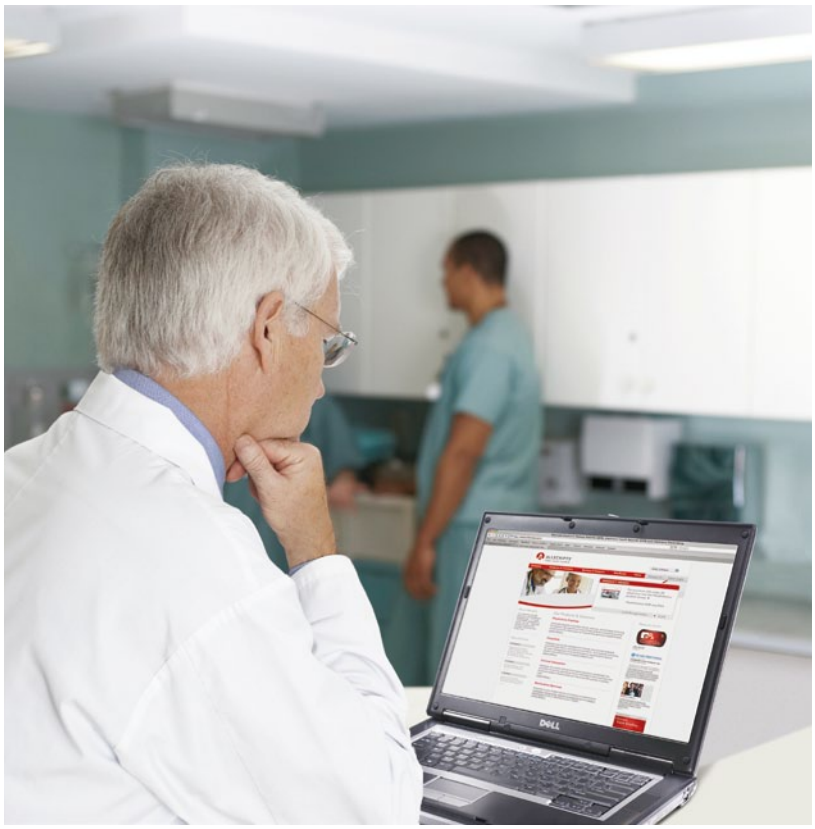
User Guide

MCC Clinical Calculator



1.0 Introduction

The MCC Clinical Calculator enables Hospitals to model the potential clinical & operational benefits which may be realised through the use of MCC. The tool further enables scenario-modelling to look at the implications of different deployment options and strategies throughout the different levels of e-health maturity so that the full spectrum can be analysed.

The Clinical Calculator has been developed to directly reflect the deep insights and analysis from the pan-European trial programme which was independently monitored and analysed by Ignetica on behalf of Dell and Intel. The full details and conclusions from the trial programme can be seen in the MCC White Paper.

This guide has been produced to help users understand and interact with the Calculator and to appreciate the core principles drawn from the trials and applied within the model. The following chapter provides an overview of these themes and further details are also available within the MCC White Paper. The subsequent chapters follow the structure of the Calculator and describe the operation of each page.

This calculator is designed to consider clinical use of MCC and the operational and economic benefits which accrue. MCC can also provide significant benefits for IT managers as described in the MCC White Paper and these aspects should not be overlooked. To enable Hospitals to model these aspects in a similar way to the clinical usage benefits, an IT Benefits Calculator is also being developed and will be available in 2012.

We hope that the Calculator will provide an intuitive resource to apply the deep insights drawn from the trial process to your own unique situation. Of course, prior to commencing an MCC programme more detailed analysis and transformation planning is required to ensure the full range of benefits are recognised, and can be realised. Dell Services' Clinical Transformation consultants are able to fully support Hospitals through this process and we would suggest engaging this expertise as the next logical step in the evaluation of MCC beyond the calculator.

2.0 Trial Based Deep Insights

The MCC Clinical Calculator has been designed to apply the deep insights established through the independently analysed MCC pan-European research programme. The detailed conclusions from the programme can be seen in the MCC White Paper. In this chapter however a set of core principles which are central to the operation of the Calculator are summarised in order to understand this context.

2.1 Mobile Clinical Computing

E-Health offers huge potential to improve clinical outcomes, patient experience and operational efficiency. However, all too frequently these benefits can be constrained by access barriers to information at the times, in the places and in the ways demanded by clinical workflows. MCC provides a solution to each of these challenges enabling clinicians to access information in ways which enhance rather than disrupt clinical workflows. Dell MCC provides;

- **Session mobility & persistence:** The ability to roam a desktop session from one device to another and to securely suspend the session when access isn't immediately required. Clinicians can thus trafer from device to device as they move from patient to patient, or location to location with all information securely available as and when required.

- **Single Sign On:** Ensuring users don't have to remember multiple passwords and can automatically login to multiple applications with a single sign on (SSO).

- **Security:** Users can authenticate by waving a contactless smartcard (which can be integrated into their employee identification). Coupled with SSO and Session Mobility, this allows clinician's to rapidly establish their application session, and then to near instantly reconnect or disconnect from this session when information access is required. Long and often unworkable login processes are thus removed, improving clinician's experiences, and improving security.

- **Location awareness:** Ensures you get the applications you need whatever clinical area you're in. With just an MCC client running on the end-point device providing access to all e-Health resources you no longer have to find a PC with the requisite application installed.

- **Less IT support:** As well as the clinical benefits achievable through use of MCC, IT support requirements can also be reduced, saving time/money and improving the service delivered to clinicians.

2.2 Proven Results

In order to fully assess the impacts of MCC and to establish deep insights into the principles leading to these results, monitored trials were undertaken at 10 hospitals in 6 countries across Europe. The trials were established by Dell, sponsored by Intel and independently analysed by Ignetica using BVIT (Business Value of IT) methodology.

- **Staff Productivity:** Productivity gains of up to 9% were identified with associated economic value in excess of £10,000 per user, per year. The extent of the productivity gain correlated closely to usage-profile and intensity of e-Health utilisation. Results covered a broad spectrum with an average productivity gain of 3% (equivalent to an hour per user per week) which has an economic value of £1,825 per user, per annum.

- **Patient Safety:** Increased with easy and rapid access to the latest information, and with potential to reduce clinical issues arising from information access errors.

- **Patient Satisfaction:** Staff productivity gains can mean clinicians have more time with their patients, patients feel more involved in decision making, delays can be shortened, (potentially reducing overall length of stay) and duplicated test requests can be avoided.

- **Staff Satisfaction:** Avoidance of frequently frustrating and time-consuming individual login/logout of clinical applications, providing information in ways which help clinicians perform their core role and reduce backlog activities and unproductive work required to access and manage information.

- **Security:** Enhanced by delivering individual login with no significant user overhead and by providing an additional security wrapper around older, less secure applications.

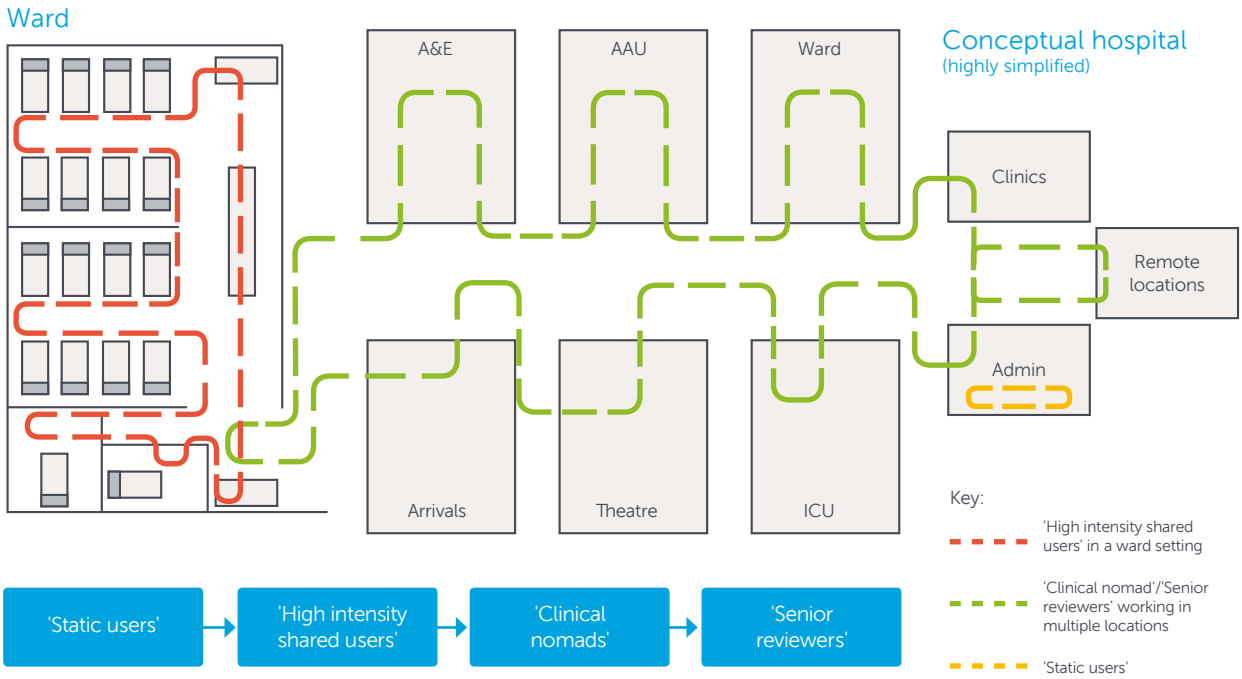
- **Direct Cost Saving:** As well as release of valuable clinician's time, the impact of MCC can also reduce direct costs, for example through avoidance of duplicated tests and potential reduction in length of stay.

As well as assessing the nature and extent of the beneficial impacts of MCC across the broad range of trial settings, the programme also enabled the underlying controlling factors to be established. Using these factors it is possible to model the potential impacts in other MCC settings, and it is upon these principles that the MCC Calculator operates.

2.3 Principle 1: Usage & Mobility Profiles

Across all of the trials a broad spectrum of settings were considered and results found. Understandably these varied considerably but analysis identified set of four core usage-profiles which acted as key controls for these results.

These profiles describe the way in which e-Health systems are used in different settings and with different degrees of mobility. A key observation is that although there is a correlation of clinical user roles and usage-profile, these are not one and the same. Each user will typically spend time using several of the usage-profiles, and crucially it is the usage-profile itself rather than the clinical-role that controls the benefits realised.

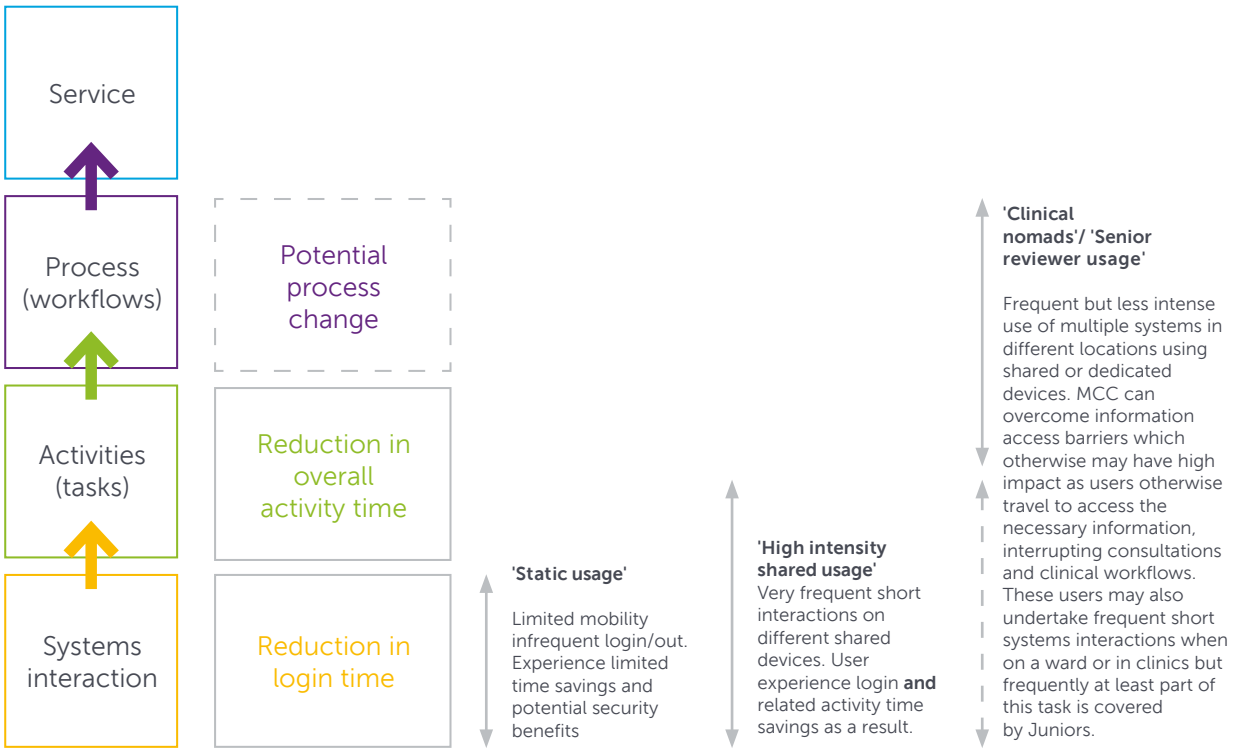


Four usage profiles have been identified as summarised in the table below and shown more graphically in the diagram above.

Usage Profile	Description
Static Usage	Typically using a single, dedicated device in one location and with limited requirement for mobility or frequent login-logout.
High Intensity Shared Usage	Multiple users accessing shared PCs (desktops, notebooks or workstations on wheels) as needed for particular tasks (typically requesting, results viewing or preparing for ward rounds). Use is normally characterised by short usage periods (typically less than 1 minute) but frequent repetition throughout their shift.
Clinical Nomadic Usage	Clinicians working and requiring access to information systems in multiple different locations around a hospital and potentially beyond. Access is frequently via a series of shared devices of different form factors available in the hospital locations.
Senior Reviewer Usage	With many of the same characteristics as 'Clinical nomads', 'Senior reviewers' may also have access to dedicated/personal devices for clinical and management responsibilities, with the need to access systems to review cases and decisions potentially on a remote basis.

Each profile involves different degrees of mobility and different means of using e-Health systems. Beyond mobility itself (and intensity of use covered later) it is these factors in particular which are central to understanding the wide variation in user productivity gains.

MCC has the ability to impact clinical usage on three core levels; system interaction level, task level and process level. These apply to different degrees for each profile as illustrated in the diagram below.



How each usage-profile derives benefits from different impact tiers

Building on these principles, the MCC Calculator seeks input to allow each of these aspects to be modelled. These variables include;

- **Staff Mix** - overall staff numbers by role, and % of usage time per usage-profile
- **Degree of mobility enabled** - the proportion of the hospital covered with MCC
- **Device coverage** - type and number of devices relative to concurrent users.

2.4 Principle 2: Intensity of e-Health Utilisation

The second core principle building on the usage profile is the extent and intensity of e-Health systems utilisation. This includes how dependent clinicians are upon their e-Health systems as well as how frequently and regularly they are used. Building on these and other factors including login complexity and numbers of applications this data is used to model the local scenario. In order to establish the model, the Clinical Calculator seeks input on variables including;

- **E-Health Stage** - the level of maturity of e-Health systems deployment
- **Application Mix** - the number of core applications in use
- **Login Complexity** - the time challenge in logging in to applications
- **Intensity of Use** - how extensively and intensively e-Health is used per usage-profile

The level of maturity of e-Health system deployment from departmental level PAS though to advanced decision support systems, is of course a key driving factor for all e-Health use-case considerations. The more advance the stage of deployment then the more intensely and critically important e-Health utilisation is likely to become. This is reflected within the Calculator with the selected deployment stage driving the default intensity and usage-profile share statistics.

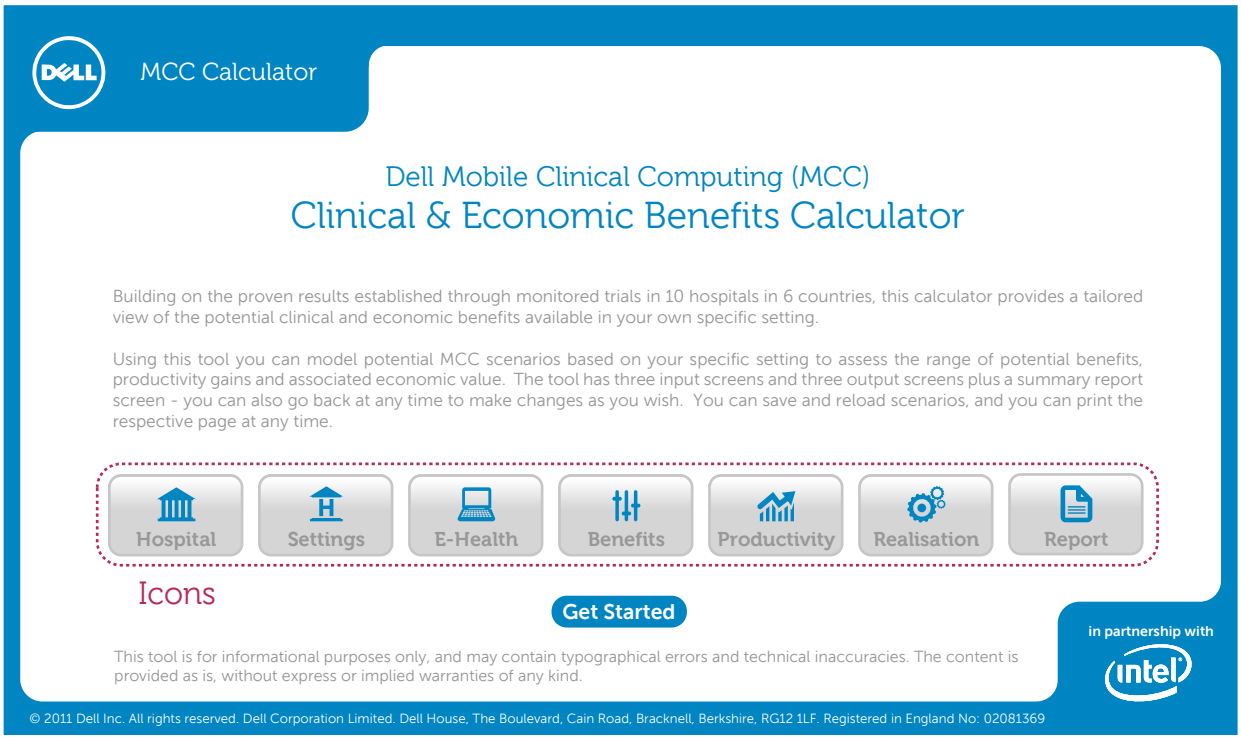
Of course beyond e-Health stage, the nature of the e-Health applications in use is also highly significant in modelling MCC impacts. Two key components are the numbers of core applications and the complexity of logging in to them. Login complexity can include both the time to login directly and related issues (for example this may include having to reboot a PC if it is locked by another user to be able to get to the applications). With one application this may be straightforward, but where multiple applications are involved, logging in to multiple systems (or combinations depending on the situation) the time implication can quickly expand. The Calculator seeks input on both of these attributes which it then applies using normative scaling coefficients.

Using the above inputs the Clinical Calculator is able to assess the likely implications in terms of intensity of use calculations. However where local situations vary from typical values then further manual adjustment is also possible as described in the following sections.

3.0 An Overview of the Calculator

The MCC Clinical Calculator is designed to gather all of the necessary local information with which to assess the potential impact of MCC in your own local setting.

The Calculator has a total of seven 'pages' with the first three being designed to capture information and the latter four providing perspectives on the potential impacts based on the input information. As can be seen ibelow a series of icons represent each of these page and these are used throughout for ease of reference.



3.1 Calculator Page Structure

Calculator Page	Description
Hospital Information	Gathers background information on the size, type and staff characteristics of your hospital.
Deployment Settings	This page enables the scale and profile of the potential MCC deployment to be defined. This may be the entire hospital or a specific area or grouping, or any combination in between. As well as providing key metrics for the deployment, this also seeking input on the number and type of devices in use and the degree of mobility enabled.

Calculator Page Structure Continued ...

Calculator Page	Description
E-Health Profile	The stage of E-Health deployment, the different usage profiles and the intensity of use for each, p[us the number of applications and their login requirements all have a major bearing the benefits available from MCC. This multi-stage page enables all of these aspects to be defined.
Beneficial Impacts	The Beneficial Impacts page identifies the scale to which each of the key strategic benefits dimensions may apply. This interactive page allows you to consider these at an overall level, and as they apply for each usage profile. You can then drill down within each category to understand the benefit area in more detail.
Productivity & Financial	Across all of the beneficial impacts, Productivity gain is the key operational and economic impact in nearly all situations. This page enables users to understand the scale and economic value associated with the productivity gains in full detail.
Benefits Realisation	Identifying the potential benefits available from MCC is an essential first step, but planning routes to ensure these can be realised is of course key. This page discusses these aspects and provides further links to relevant resources.
Deployment Settings	The final page provides a single page summary report covering the key indicators from the model.

3.2 Confidentiality & Privacy

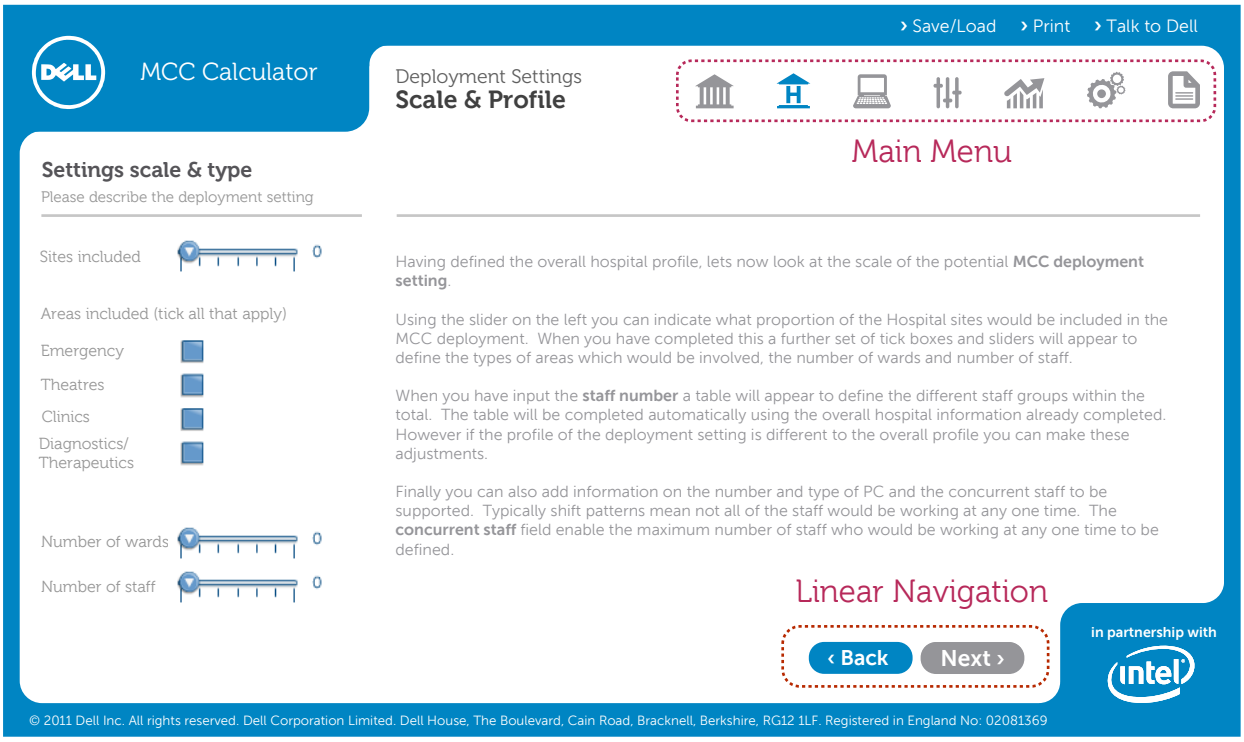
The information you provide is entirely confidential. The calculator is a standalone Flash Application which runs on your own PC. No data is transmitted, stored or processed other than on your own PC.

3.3 Navigation

Once you start using the tool you are automatically guided through each of the pages in a linear fashion. As you add more information the next questions appear automatically within the page and there is a simple 'back' and 'next' button to move on to the next section or page (or back) when you are ready.

The interface will not allow you move on to the next section/page until you have completed the necessary input on the current screen. During this time the 'next' button will be grey indicating more information is required. Once the information is complete the 'next' button will turn blue and you can progress to the next page/section, or of course move back to an earlier page/section to make any adjustments you may wish.

When all input information has been completed the tool will guide you on to the 'output' pages in the same linear progression as the input pages. However, when all of the input information is complete you also gain the further option of using the 'main menu' to jump directly to the page you are interested in.



Navigating using the 'main menu' can be particularly useful when you want to make adjustments to some of the input settings and to quickly see what the impact is on the results. To support this type of modelling where an input page includes multiple sections (the e-Health page being a prime example) the Calculator has been designed to take you back to the same part of the page that you last used. If you want to move within the page then this can be achieved with fine adjustments using the 'back' and 'next' buttons.

3.4 Saving & Loading Scenarios

While experimenting with different options you may also wish to save a particular scenario so you can come back to it later, or to more easily compare the results. The Calculator therefore provides a local scenario saving and re-loading facility using the button on the top right of the tool.

You can save as many scenarios as you wish each with an individual name for ease of reference and re-loading. The facility is entirely confidential with the information being stored on your own PC ready to reload as and when required. No data is stored or transmitted elsewhere.

Please Note: The local scenario is stored by your Flash Player as a Local Shared Object (LSO) commonly known as a "flash cookie". The default storage location for LSO files is operating system-dependent but LSO files are typically stored with a ".SOL" extension within each user's application data directory.

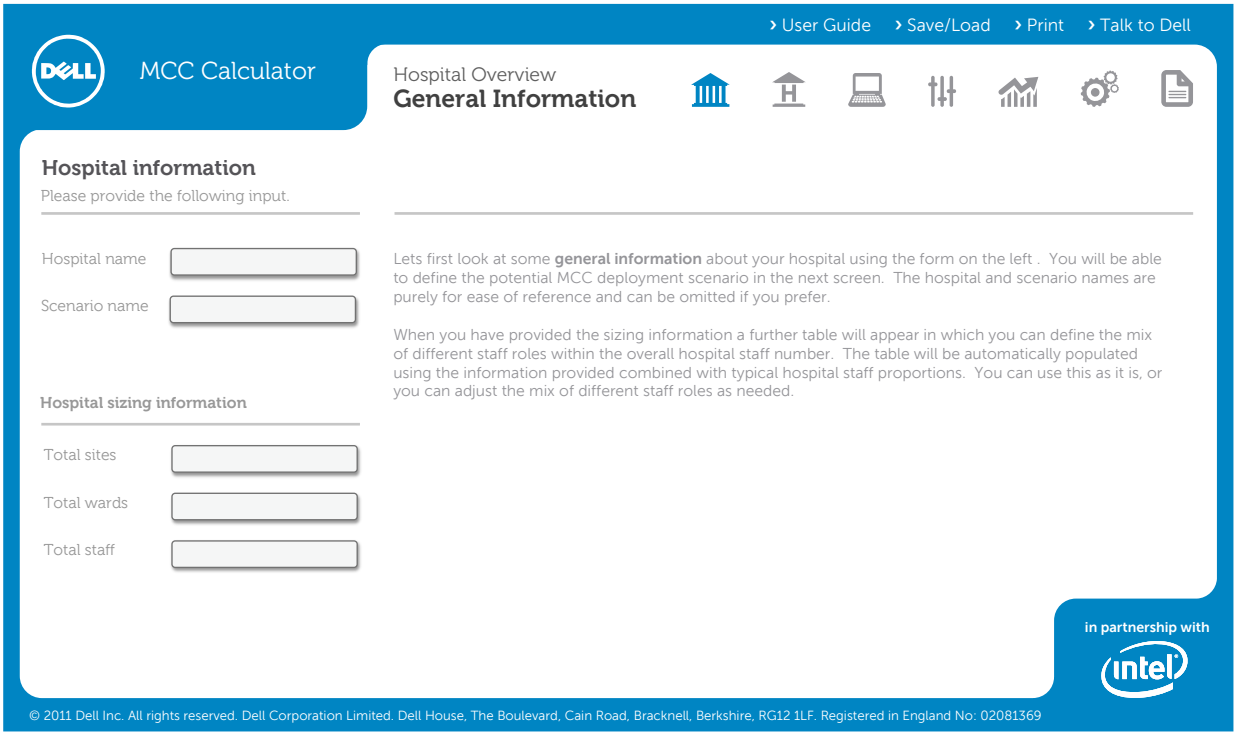
3.5 Printing & Reports

The final page of the Clinical Calculator provides a summary report encapsulating the key data from the model. As well as for on screen use, this can also provide a useful report to print for future reference. You can also print any other page you wish simply by clicking on the print button.

The print button opens a dialogue box allowing you to select you chosen printer and layout. In most cases printing at 100% and on a landscape orientation would be most effective.

4.0 Hospital Information

The Hospital Information page provides the background information necessary to understand the context of the potential MCC deployment scenario (which is defined in the following page).



On the left of the page you can define the Hospital and Scenario names (these are for your ease of reference only), and below these you can provide the principal sizing information for the hospital.

The first of these is the number of "sites". This refers to discrete locations rather than numbers of buildings at the same locations. Typically this covers scenarios where a Hospital Group has more than one hospital and where the senior medical staff may work at any of the sites. Should a hospital group have multiple hospitals, but there is very little mobility of staff between the sites we would recommend each hospital is considered individually and therefore shown as just one site.

Total wards and staff provide the next two areas. Once the total number of staff is completed a further table appears to enable the different staff groups within this total to be defined.

Staff

Please adjust the staff mix to reflect the profile of your staff. The table starts with typical values.

Staff group	Typical % per group	Adjustment from Typical	Number per group	Share of total staff
Consultants	4%		#	4%
Registrars & juniors	10%		#	10%
Nursing staff	40%		#	40%
Scientific	16%		#	16%
Other clinical	10%		#	10%
Other	20%		#	20%

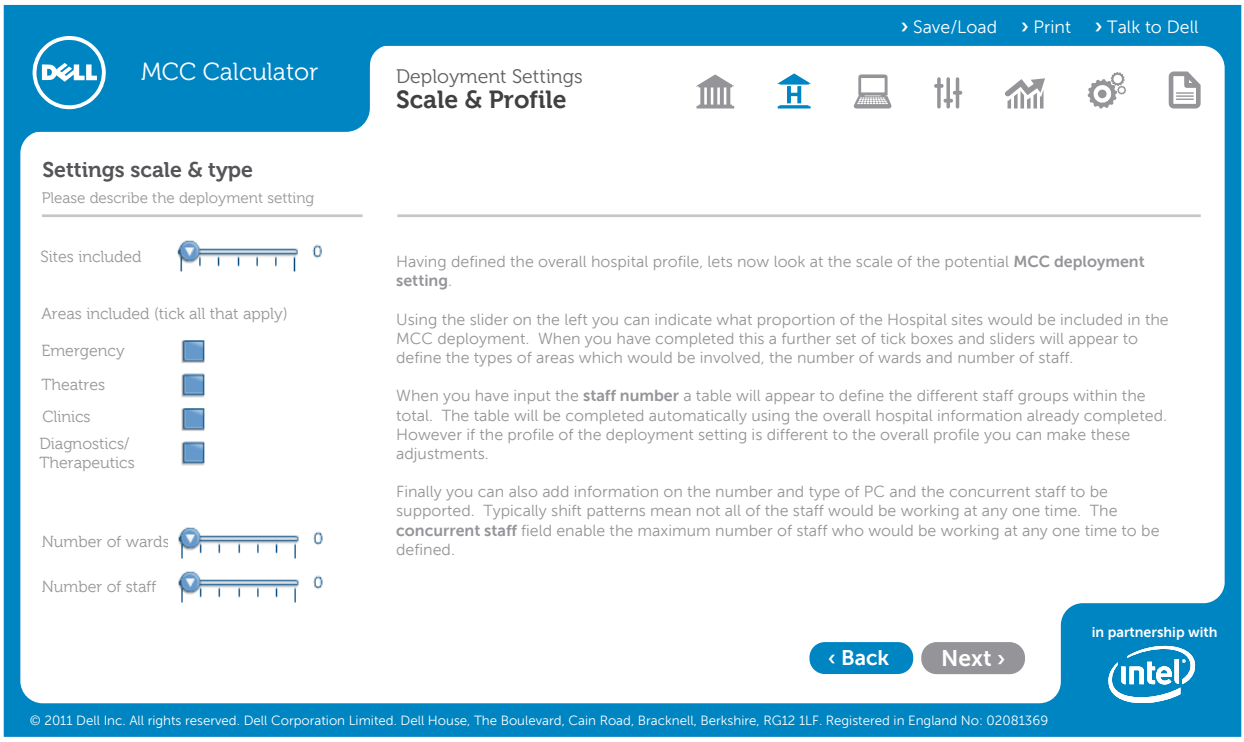
The table will automatically calculate the numbers and percentage shares for each staff group based on typical norms. If these are similar to those you would expect then you can use them as they are, or if you want to adjust them adjustment sliders are provided.

The sliders adjust relative to the normative value so that they provide an appropriate level of sensitivity. This may mean in an extreme case that if you slide to the maximum you may not reach the staff number you require. In this case you need to also slide some of the other down from their norm to release more staff to the original group.

When you are happy with the staff mix, pressing "next" will take you on to the Deployment Setting page.

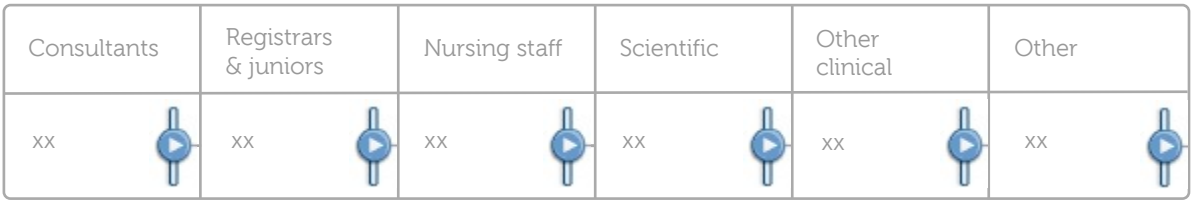
5.0 Deployment Settings

Having defined the overall hospital profile, the Deployment Setting page enables the scale and profile of the potential MCC deployment to be defined. As with each of the pages, as you enter information, further input areas appear to guide you through information gathering process.



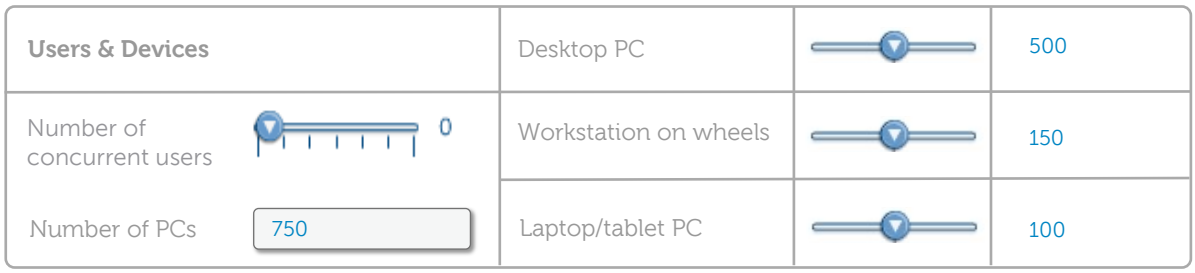
The first input areas on the left hand side of the page allow the overall scales to be defined. The numbers of sites, wards and staff can all be selected using sliders ranging up to the total levels for the overall hospital. There are also tick boxes to define other areas which may, or may not be included.

Once the number of staff slider is set, a further table will appear to further define the staff groups, and the types and numbers of computers in use.



The staff mix table will automatically calculate the numbers of staff in each group based on the hospital shares you previously defined. If this correctly represents the setting then no adjustment is needed. If the deployment setting has a significantly different profile then you can adjust these attributes using the vertical sliders.

The next input table (as shown below) focuses on the numbers of devices, their profile and the concurrent user population which would be enabled for MCC.



The number of staff concurrently working in a particular shift is an important consideration. In some cases this may the entire user population, but more frequently in order to cover different shift patterns only a proportion would be on duty at any one time.

The total number of PCs is the next field, and once entered the mix of devices (i.e. desktops, workstations-on-wheels and laptops/tablets) is automatically presented based on assumed proportions. As per other areas, the actual mix can be adjusted using the sliders, or the base values can be used at they are.

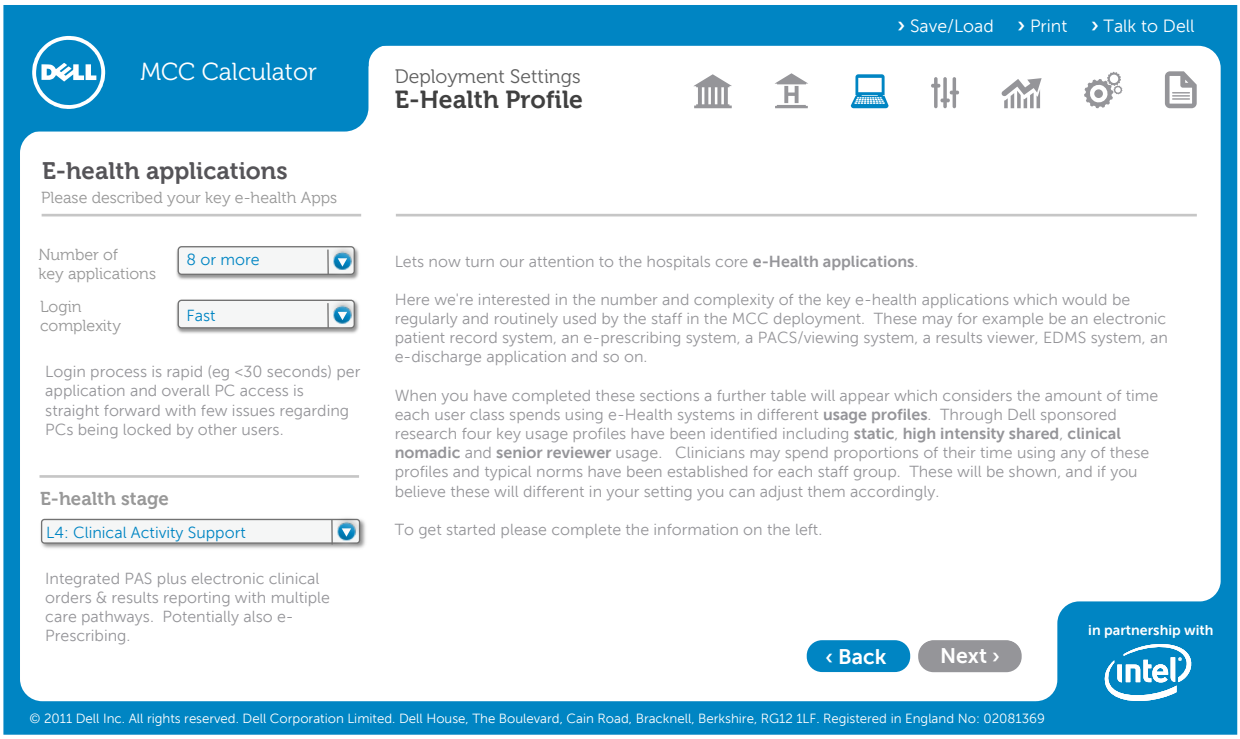
Different devices are of course appropriate for different tasks and can be used in different ways with differing degrees of mobility. Understanding the mix of devices enables the Calculator to analyse these implications relative to the numbers of concurrent users (and later e-Health profiles) to assess the extent to which MCC would impact operational usage and the derived benefits.

Important note: As described in chapter 1, MCC impacts user's interaction with their eHealth systems on multiple levels. These range from the direct system interaction, through access times to PCs and onward to activity and process change. 'Access time' in particular is influenced by number of PCs available relative the concurrent user population. When numbers are low relative to concurrent staff, access issues are more pronounced. In these situations the improvement with MCC is therefore correspondingly greater. However whilst MCC will provide proportionally greater benefit in these scenarios, having too few PCs will of course constrain overall e-Health system benefits. Care should therefore be taken to ensure that this aspect is not taken in isolation and should in no way be seen to advocate reducing PC populations just to gain increased MCC benefits.

6.0 E-Health Profile

The nature of a Hospital's e-Health applications, and the ways in which they are used provides a high degree of the context for MCC. and the e-Health profile page enables these factors to be defined. There are multiple dimensions involved and the e-Health page reflects this with has multiple sections as described below.

6.1 E-Health Applications



The first input component is the number of key applications. For the majority of hospitals there may be many tens or even hundreds of applications in use across the organisation, but here we are focused exclusively on the key applications which are used regularly and routinely by the staff within the potential MCC deployment. These are likely to include PACS, electronic patient records, e-prescribing, e-discharge, results viewers and EDM systems etc.

When the key application numbers have been defined, a further question appears regarding login complexity. Here we are looking at the issues surrounding logging in to the e-health applications noted above. For ease this is presented as drop down menu with just three options; fast, slow or mixed. As you look at the different drop down options a description of the scenario is presented which is also summarised in the table on the following page.

Option	Description
Fast	Login process per application is rapid (eg <30 seconds) and overall PC access is straight forward with few issues regarding PCs being locked by other users.
Slow	Login process per application is slow (eg >30 seconds) and overall PC access may also be more frustrating with, for example a periodic need to reboot PCs before they are available.
Mixed	Login process varies considerably by application with some less and some more then 30 seconds. PC access and reboot requirements are similarly mixed

In these two questions the Clinical Calculator is seeking input to assess the likely login activities and associated time requirements. When coupled with later questions on the stage of e-Health and intensity of use (which controls the likely frequency of login) an overall time assessment can be made.

The number of key applications acts as an indicator as to the degree of application switching which may be required and the consequent multiple logins implied. Clearly however not all applications may be need at once and therefore the calculator applies different login count coefficient dependent upon the number of applications, the stage of/intensity of e-Health as well as usage profile. Each of these are addressed later in the e-Health Page.

6.2 Stage of e-Health

The ways in which e-Health is used closely relates to the overall stage of e-health deployment or maturity. The Clinical Calculator therefore uses the stage of e-Health as an indicator to the usage-profile-shares and intensity-of-use. Where needed, both of these factors can also be manually adjusted as described later in this chapter.

Six stages of e-Health deployment are defined which draw heavily on a range of published maturity models to provide wide general applicability as set out in the table below.

Option	Description
Level 1: Independent Patient Administration	Patient Administration Systems (PAS) are deployed at a departmental level with potentially multiple systems and no integration on a hospital-wide basis..
Level 2: Integrated Patient Administration	An integrated PAS system either provided as a single PAS for all areas, or multiple systems linked to a master patient index.
Level 3: Clinical Activity Support	An Integrated PAS (as per Level 2) plus electronic clinical orders requesting & results reporting and potentially also with e-Prescribing. These systems support administration of core clinical activities for most clinical pathways.
Level 4: Clinical Decision Support	Integrated PAS, clinical ordering and viewing (as per level 3) plus electronic alerting, pathway guidelines and knowledge base/expert systems support to proactively guide and flag progression through core clinical pathways based on intelligent interpretation of clinical data.
Level 5: Specialist Modules	As per level 4 plus further integration of specialist clinical modules in addition to core clinical pathways.
Level 6: Advanced Telemedicine	As per level 4 and 5, plus the integration of tele-medicine and advanced multi-media applications

The stages can be simply selected from the drop-down menu on the bottom right of the page.

6.3 Usage profiles for e-Health.

When you have selected the e-Health stage which most closely matches that of your hospital, a new table appears highlighting the usage profiles for e-health for each of the staff groups involved.

The principle of 'usage profiles' is a key aspect drawn from the pan-European trial programme and described in chapter 2. In essence the trial process identified four different usage-profiles all of which may be exhibited to varying degrees by different user groups. A key concept here is that **usage**-profile is not the same as **user**-profile is not one and the same. Each user may operate in all, or some of the usage-profiles to different extents depending upon the nature of their role. However the core benefits arise from the usage-profile rather than the users-profile (albeit with the later influencing the associated economic value).

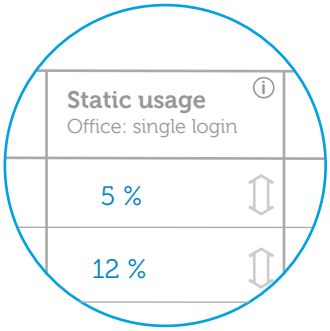
The Usages Profiles table which appears in the e-Health page (shown below) enables the proportion of time each user-group spends in each usage-profile to be defined.

Usage profile for e-health

Different groups use e-health in different ways. Here you can adjust typical profiles for your own setting.

Proportion time spent per profile	Static usage Office: single login	High intensity Ward: rapid login/out	Nomadic usage Use in different areas	Senior reviewer Use in any location
Consultants	x %	x %	x %	x %
Registrars/Juniors	x %	x %	x %	x %
Nursing	x %	x %	x %	x %
Scientific	x %	x %	x %	x %
Other-clinical	x %	x %	x %	x %
Other	x %	x %	x %	x %

The table is automatically populated using normative data (which is driven by the stage of e-Health deployment), and in many cases this may be used as it is. However, if the proportion of time spent in any particular usage-profile is not representative for the hospital in question it can be adjusted in the table as shown below;



In the table the percentage values are the proportion of e-Health usage time, ie of the total time the user group spends using or preparing to use e-Health systems.

In the example shown we see a consultant spending 5% of e-Health usage time in a Static usage profile. If this is representative then no further action is necessary. If however changes are necessary then these can be achieved by placing your mouse close to the arrow. A darker arrow will then appear and you can now increase the number by moving your mouse up and decrease it by moving your mouse down. The other numbers then adjust to ensure the total always remains at 100%.

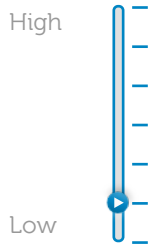
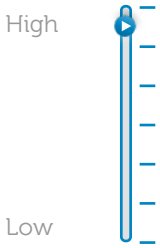
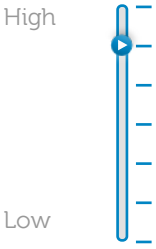
When you have finished making any changes, or if no other changes were necessary then clicking on next will move you on to the next and final section of the e-Health page relating to the intensity of e-Health utilisation.

6.4 Intensity of e-Health Utilisation

Intensity of e-Health utilisation is a relative measure of how actively each usage-profile interacts with and is dependent upon the key e-Health systems in use. Of course this normally increases with each e-Health deployment stage and the Calculator automatically populates the table with normative levels based on the eHealth stage you have selected.

Usage profile for e-health

Different usage profiles typically have different levels of e-health usage intensity - you can adjust these

Intensity of e-health utilisation	Static usage Office: single login	High intensity Ward: rapid login/out	Nomadic usage Use in different areas	Senior reviewer Use in any location
This is a measure of how dependent each usage-profile is on E-Health coupled with how intensively it is used for the particular profile.				
Rating (1=low, 10=high)	1	10	8	6

As shown in the graphic above, sliders are presented for each of the four usage-profiles, with each reflecting the normative values. To change these simply move the slider to the required position. In the unlikely event that there is no usage at all for a particular usage-profile (or more likely for scenario experimentation) you can move the slider to the zero position. A warning will appear and usage in that profile will no longer be used in the calculations.

Important note: Any adjustments made apply for that usage profile at the selected e-health stage. As such if you make any changes to one e-health stage and then change the stage, you will need to separately adjust the newly selected stage. Similarly if you then revert back to the former stage the configuration you included will be retained. The calculator has been developed in this way so that you can (if you wish) configure the settings for each stage and then used these at will within your own what-if analysis.

When you are happy with the settings, click next to move on to the Beneficial Impacts page.

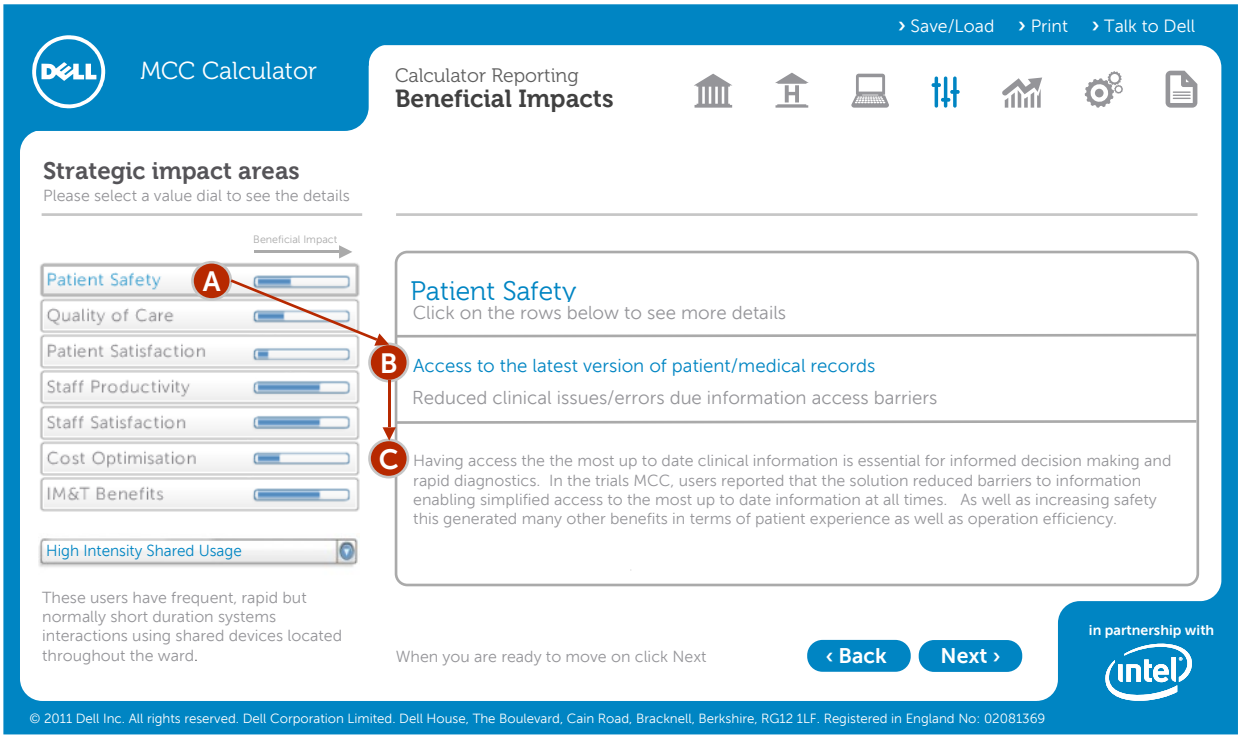
7.0 Beneficial Impacts

The Calculator is now able to provide an assessment of the potential benefits of MCC based on the information you have provided. The beneficial impacts page provides an overall assessment of the extent of the potential benefits available from MCC.

As highlighted opposite, the extent of the beneficial impacts against seven key strategic impacts areas for Healthcare is shown in a series of bar graphs. These strategic impacts areas directly correlate with the BVIT (Business Value of IT) value dials described in the MCC White Paper.

Below the Strategic Impact Areas, there is a drop down menu enabling you to view the benefits as they apply for each usage-profile as well as on a weighted average basis.

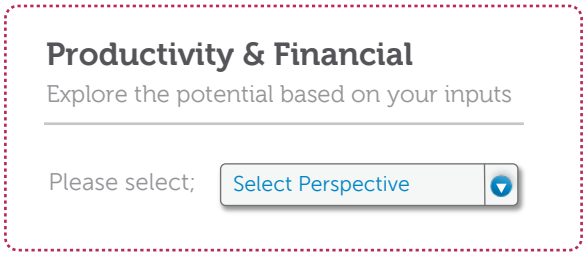
The impact areas can now be investigated further by clicking 'Next' which will open a table in the centre of the page.



As shown above you can now click on any of the Strategic Impact Areas (A), which will then display further details for that area in the table. You can then further click on the rows (B) to drill down to the next level of detail for each benefit area (C).

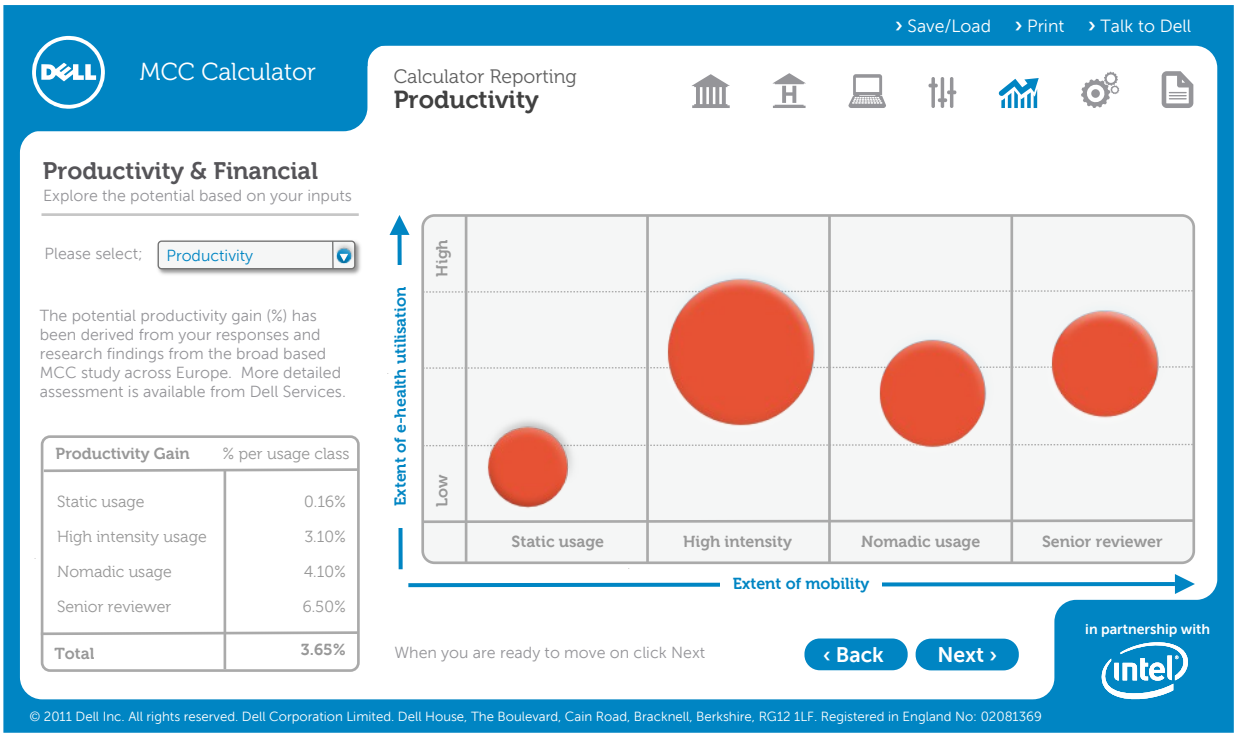
8.0 Productivity & Associated Economic Value

Having explored the overall beneficial impacts of MCC, this page provides a more detailed assessment of the potential productivity gain and the associated economic value.



When you arrive at the page you have a choice of which perspective you want to view - productivity or the associated financial value. You can select either using the drop down menu.

8.1 Potential Productivity Gain



As shown above, the potential productivity gain is represented graphically and in tabular form for each usage-profile.

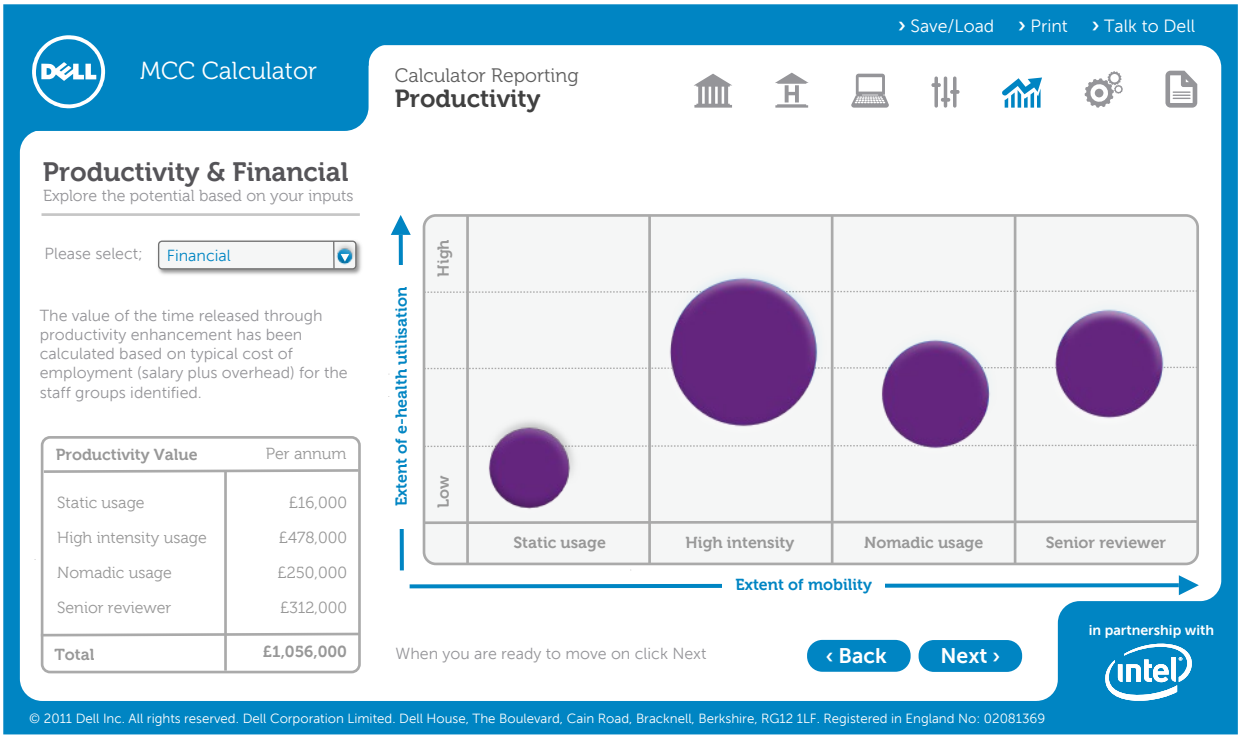
A bubble chart illustrates the potential productivity gain with the size of the bubble(s) reflecting the relative scale of improvement and with its position reflecting the usage profile and degree of e-health utilisation. This can be particularly useful to understand the proportionate productivity gains per usage-profile as well as the overall scale. Rolling over the bubbles highlights the % gain and this is also presented in the table on the left.

The potential productivity gain is established by the Calculator based on the information you have provided using the three tiers of potential impact described in chapter 1, including;

- Systems Interaction Changes (ie reducing login time),
- Activity Changes (reducing the overall time required to access information) and
- Potential Process Changes (refining process efficiency based on MCC capabilities).

8.2 Economic Value of Productivity

Selecting the "Economic Value" perspective from the top left drop down control displays a very similar screen to the above, but with productivity measures replaces by their financial equivalence.



The economic value of the productivity gains discussed above is calculated based on the economic value of the time released. Based on the mix of staff groups and the time in each usage profile the value of their time is calculated based on typical salary levels, overhead loadings and working times. This is then applied to the productivity gains to derive the value of the time released.

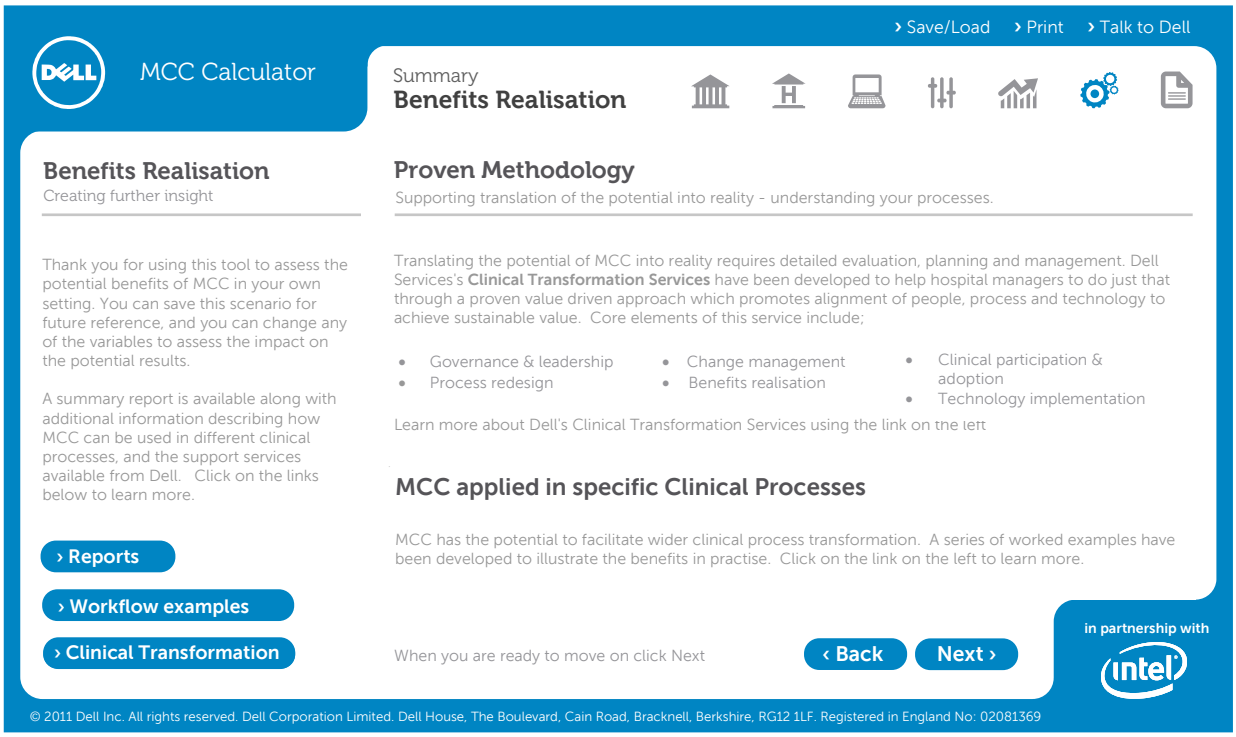
As per the earlier productivity bubble-chart, the financial value diagram can highlight some critically important aspects regarding the source of overall economic value. For example, in many scenarios the productivity gain individually for Senior Reviewer usage is considerably more than High Intensity Shared usage. However, the typically higher overall number of hours spent in the latter can mean overall, despite lower individual gain can have higher overall value potential etc.

8.3 Other sources of Economic Value

Through the pan-European trial programme, the time value of productivity gains was identified as the largest source of economic value realised through the clinical use of MCC. However this is not the only source. As indicated in the Beneficial Impacts page, both direct cost savings and associated economic value can also accrue from other beneficial areas. Direct costs can be saved through avoidance of duplicated tests, value can realised through reduction of information based clinical risks, improved clinical outcomes, greater staff satisfaction and higher patient throughput to mention just a few areas. Whilst the focus of the Calculator relates to productivity it is important to also consider these wider factors in a full analysis of local benefits. This does of course require more extensive analysis and is very much part of the clinical transformation services offered by Dell Services. Further details are available from within the Calculator.

9.0 Benefits Realisation

Translating the potential of MCC into reality requires detailed evaluation, planning and associated change management. The benefits realisation page provides links to resources and services which can help with these processes.



9.1 Applied examples of MCC in example Clinical Workflows

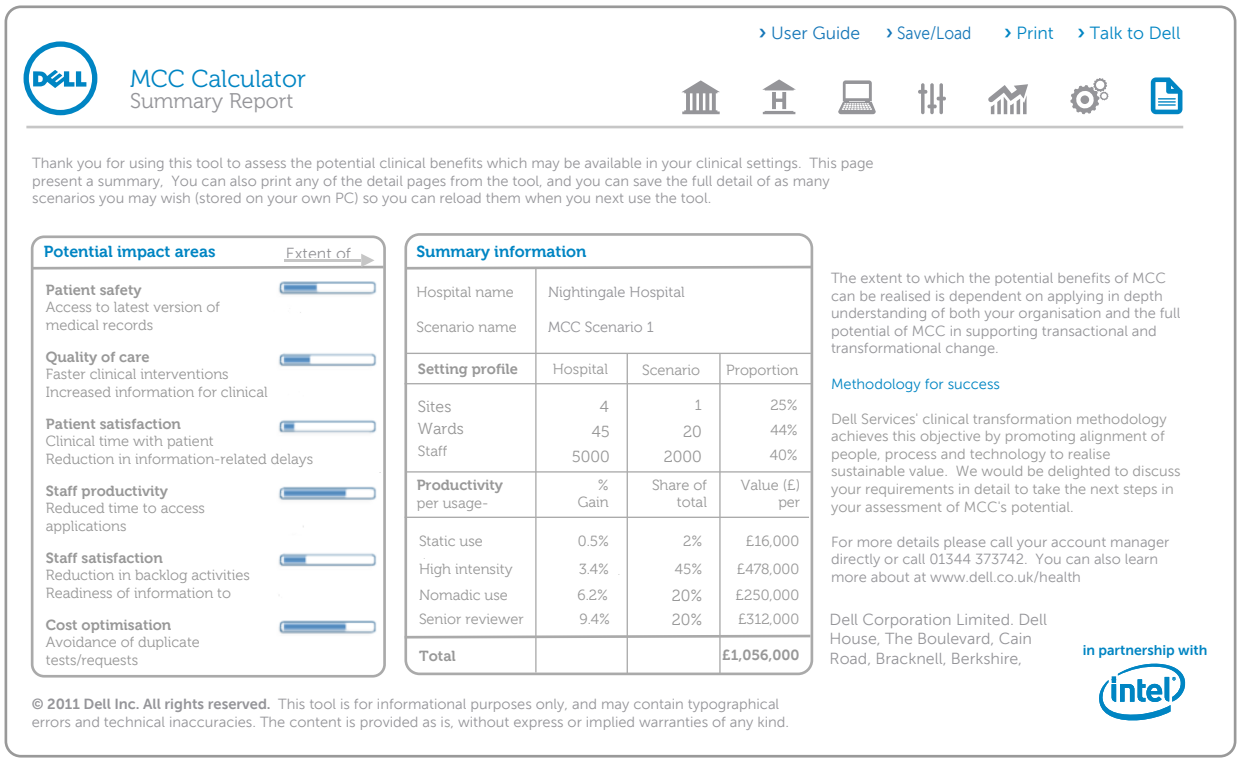
MCC has the potential to facilitate wider clinical process transformation. A series of worked examples have been developed to illustrate these aspects. Links to these are available on the page.

9.2 Clinical Transformation Services

Dell Services' Clinical Transformation expertise can be applied to support hospital managers through a proven value driven approach which promotes alignment of people, process and technology to achieve sustainable value. From the Benefits Realisation page there are links directly to further information on the services and support available from Dell.

10.0 Summary Report

In each of the MCC Clinical Calculator pages different input and output perspectives have been addressed in detail. The Summary Report in contrast presents a top level, single page summary of the key input and output aspects.



› User Guide › Save/Load › Print › Talk to Dell

MCC Calculator
Summary Report

Thank you for using this tool to assess the potential clinical benefits which may be available in your clinical settings. This page present a summary, You can also print any of the detail pages from the tool, and you can save the full detail of as many scenarios you may wish (stored on your own PC) so you can reload them when you next use the tool.

Potential impact areas — Extent of

Patient safety
Access to latest version of medical records

Quality of care
Faster clinical interventions
Increased information for clinical

Patient satisfaction
Clinical time with patient
Reduction in information-related delays

Staff productivity
Reduced time to access applications

Staff satisfaction
Reduction in backlog activities
Readiness of information to

Cost optimisation
Avoidance of duplicate tests/requests

Summary information

Hospital name	Nightingale Hospital		
Scenario name	MCC Scenario 1		
Setting profile	Hospital	Scenario	Proportion
Sites	4	1	25%
Wards	45	20	44%
Staff	5000	2000	40%
Productivity per usage-	% Gain	Share of total	Value (£) per
Static use	0.5%	2%	£16,000
High intensity	3.4%	45%	£478,000
Nomadic use	6.2%	20%	£250,000
Senior reviewer	9.4%	20%	£312,000
Total			**£1,056,000**

The extent to which the potential benefits of MCC can be realised is dependent on applying in depth understanding of both your organisation and the full potential of MCC in supporting transactional and transformational change.

Methodology for success

Dell Services' clinical transformation methodology achieves this objective by promoting alignment of people, process and technology to realise sustainable value. We would be delighted to discuss your requirements in detail to take the next steps in your assessment of MCC's potential.

For more details please call your account manager directly or call 01344 373742. You can also learn more about at www.dell.co.uk/health

Dell Corporation Limited. Dell House, The Boulevard, Cain Road, Bracknell, Berkshire,

in partnership with intel

The summary report page provides a great quick summary when reviewing the final conclusions or when developing different what-if analysis options. Like all of the pages it can be printed using the menu options.

Further information

Using the lessons, insights and direct feedback from the pan-European MCC Trial programme, Dell can help you realise similar benefits by implementing a Dell mobile clinical computing solution tailored to your own specific requirements. Customisation of the solution goes beyond hardware. It starts with a free consulting workshop to assess your current environment and make solid recommendations that lead to improved clinical outcomes. Call your dedicated healthcare Account Executive for a free whiteboard session and visit our new interactive virtual hospital demonstration featuring the Dell MCC solution at dell.co.uk/virtualhospital

Dell Corporation Limited.
Dell House, The Boulevard, Cain Road, Bracknell, Berkshire, RG12 1LF.
Registered in England No: 02081369.