Monitor

Making the health sector work for patients

Demand Forecast Summary Tool

Demand forecast summary tool

What does the Demand Forecast Summary tool do?

The tool …

- Provides a method of summarising your FT's forecast activity levels over the next five years
- Uses your assumptions on how demand for care at the trust will be affected by:
  - demographic changes
  - non-demographic changes
  - commissioners' plans
  - trust strategic changes

These pages …

- Offer guidance on factors affecting demand that can be considered when making forecasts
- Provide data sources you can use to inform assumptions
- Explain how the tool works

The pages and model do not…

- Provide monthly forecasts
- Include any data

Demand Forecast Summary tool in detail	• Provides a method of summarising forecast annual activity changes for your top specialties (or other patient segmentation) and the whole FT for the next five years • Builds on last year's activity as a percentage of demographic data • Includes a 'non-demographic change' sheet to allow for different types of change, eg diagnosis rates or prevalence rates or changes in other trusts' provision • Includes a 'commissioners' plans' sheet and allows for scenarios based on 'percentage of target change achieved' in commissioners' plans • Includes a 'trust strategic initiatives' sheet to input assumptions about the impact of strategic changes • Allows user to save different scenarios

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Forecasting demand/activity for the FT

Introduction

By using the Excel-based **Demand Forecast Summary** tool your FT can predict demand by service line, patient age and point of delivery. You can download the tool **here.**

Always read this document alongside the **Strategy Development Toolkit**, especially the **Forecast** chapter. If you use a different Excel tool (or other software) to summarise your demand forecast you may still find this document useful, but your key document will be the Strategy Development Toolkit's **Forecast** chapter.

This document offers guidance on how to forecast demand for clinical services. It includes factors you may want to consider, data sources you could use to inform your assumptions plus an explanation of the Excel tool's functionality and details of the required inputs.

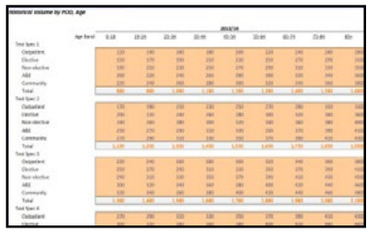
The Excel tool uses current volumes and applies changes to them based on your assumptions about factors influencing demand for care. These factors are grouped in the tool as shown on the next page.

The tool allows you to save different sets of inputs as a named scenario. This means you can easily return to, and compare, different assumptions.

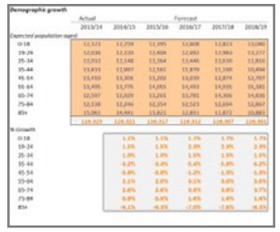
The Demand Forecast Summary model comprises three main parts

Inputs

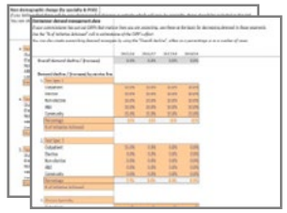
Current data



Demographic growth



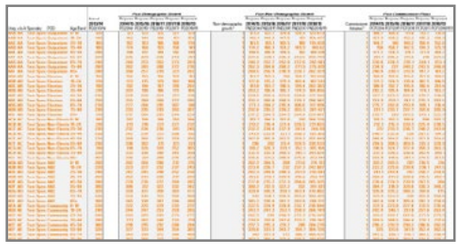
Other changes



- Historical data: last year's activity by POD, age, and specialty
- Demographic growth: predicted growth for your FT's catchment population
- Three input sheets for other changes

Engine

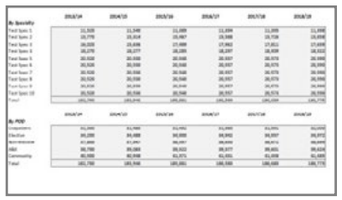
Summary calculations



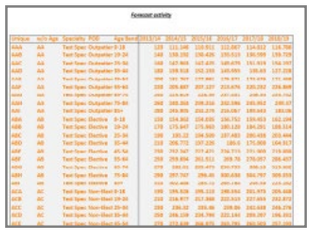
- Summary calculations: calculates forecast activity changes from input sheets

Outputs

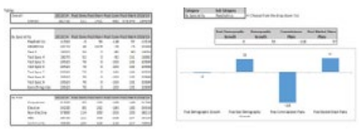
Output summary tab



Full output tab



Impact of assumptions



- Output summary tab: three summaries of five-year activity forecasts are automatically produced: specialty and POD
- Granular outputs can be used to create summaries using a combination of POD, age and service line
- Impact of assumptions tab shows the change due to each assumption

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Summary of factors affecting an FT's future activity

Separate input sheet in the tool

Conceptual consideration

Factors that affect future demand and trust activity volumes

1. Demographic changes
   - Growth in population
   - Change in age profile
2. Non-demographic changes
   - a. Disease prevalence changes (on top of demographic change)
     - Risk factors; epidemiology
     - Adherence to best practice care pathways
     - Technology changes and clinical innovations
   - b. Diagnosis and treatment rate changes (including via technology changes)
     - National diagnosis/treatment policy changes
     - Increased patient awareness
     - Complementary provider (eg GP) changes
     - Supply induced demand changes
   - c. Other changes
     - Service changes at neighbouring providers
     - Changes in referrers' choices
3. Commissioners' plans
   - National commissioning changes
   - Local commissioning changes
4. Changes due to FT's strategic initiatives
   - *This input sheet is intended to be used **after** your strategy has been agreed, to understand **impact of planned strategic changes on the forecast base line***
+ *Catch-up on waiting lists/existing backlog – one-off effect*
   - *This is a one-off effect that needs to be added only for the year(s) where catch-up is expected*

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Sources of assumptions for demand forecast modelling

	Sources of forecasting assumptions
1 **Demographic changes**	• Office for National Statistics (ONS) age/sex population forecasts • To be aligned with commissioners – clinical commissioning groups (CCGs) and NHS England (NHSE)
2a **Age-specific disease prevalence**	• Public Health England; director of public health • FT's proprietary data (eg analysis of patient administration systems (PAS) • Health and social care information (historical hospital episode statistics (HES) • Discussions with clinicians for observed changes in local and lifestyle factors
2b **Diagnosis and treatment rate changes (including via technology changes)**	• Discussions with the FT's medical, nursing and other clinical specialists • Guidance/standards from medical Royal Colleges and other national bodies • Academic literature • Reviews of practice at leading-edge healthcare providers in England and abroad • Most recent device/drug/treatment approvals from National Institute for Health and Care Excellence • Central government policy/Department of Health; NHS England • Regulators – Monitor, Care Quality Commission (CQC) • Think tanks, eg Nuffield Trust, King's Fund • Complementary provider changes: discussions with commissioners and providers • Supply-induced demand: FT experience with local population/customer surveys; clinician discussions; academic research
2c **Other changes**	• Changes at neighbouring trusts (eg growing/reducing services, or Monitor Contingency Planning Team) • Changes in referrers' choices: analysis of GP and secondary referral patterns
3 **Commissioners' plans**	• Commissioner plans (CCGs and NHSE specialised commissioners) • Adherence to best practice care pathways/national guidance (as described under 2b above) • Local authority plans (eg Better Care Fund) • Commissioner-led regional reconfiguration (CCG or NHSE specialised commissioning)

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Choosing the level of detail to use in modelling activity

You can forecast activity at many levels – at the trust level, at point of delivery, specialty or health-related group (HRG) level. You can segregate demand and activity in different ways – for example, by patient group rather than treatment specialty or treatment type (and technology used in the treatment).

The **Demand Forecast Summary** tool assumes you may want to predict activity by treatment specialty or HRG for high-volume work, and then include a 'remaining activity' line.

- Forecasting all activity at specialty or HRG level will probably be too detailed for strategic decisions.
- Forecasting all activity at point of delivery will probably be too broad and prevent you identifying different factors driving demand.

You will need to choose which HRGs or specialties (or other aspects of your activity data) you want to forecast as separate lines and which you include in the 'remaining activity' line. Factors you could consider include:

- Expected rate of demand change in this HRG/speciality/patient group/etc: if you expect demand to change in an unusual way compared to average changes for the trust, you will want to forecast it separately
- Current share of trust activity or income: you may want to examine bigger specialties separately
- Strategic questions about service change: you may want to examine services subject to focused strategic review separately

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Entering the user's core model choices into the tool

Enter your chosen specialties in the first page of the model, as shown.

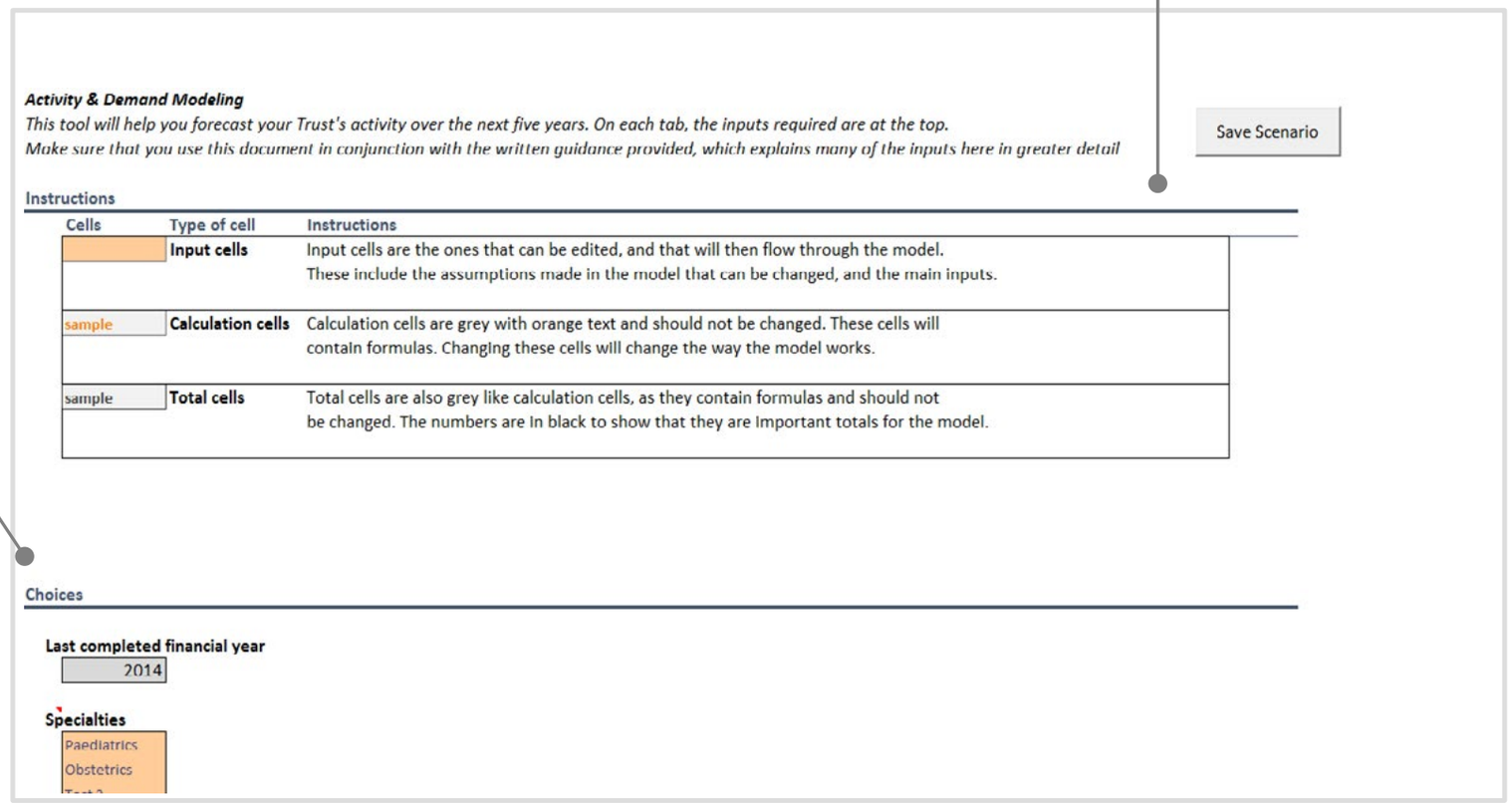
You will need to choose which year to start in by entering the last completed financial year (ie the last year for which you have data).

Summarises the different types of cells and what changes, if any, users should make to each type

Core model choices are inputted here:

1. Last completed financial year (ie year of base data)
2. List of specialties to be forecast
3. Option to include assumption on the percentage of commissioners' demand reduction initiatives that will be met

This tab provides information on how to use the tool. Users should read all the information on this sheet



Activity & Demand Modeling

This tool will help you forecast your Trust's activity over the next five years. On each tab, the inputs required are at the top.
Make sure that you use this document in conjunction with the written guidance provided, which explains many of the inputs here in greater detail

Save Scenario

Instructions

Cells	Type of cell	Instructions
	Input cells	Input cells are the ones that can be edited, and that will then flow through the model. These include the assumptions made in the model that can be changed, and the main inputs.
sample	**Calculation cells**	Calculation cells are grey with orange text and should not be changed. These cells will contain formulas. Changing these cells will change the way the model works.
sample	**Total cells**	Total cells are also grey like calculation cells, as they contain formulas and should not be changed. The numbers are in black to show that they are important totals for the model.

Choices

Last completed financial year

2014

Specialties

Paediatrics
Obstetrics

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Entering current activity levels

Once you have chosen the level at which to model activity, you will need to enter the current activity volumes at this level by point of delivery (POD) and by patient age. The age groups used are 0-18, 19-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85+.

In the example below, the trust has chosen to use paediatrics and obstetrics as individual specialties.

Data requirement 1:
Latest financial year's volume for each specialty, by point of delivery (POD) and age

Historical Volume by POD, Age

	2013/14								
Age Band	0-18	19-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
Paediatrics									
Outpatient	120	140	160	180	200	220	240	260	280
Elective	150	170	190	210	230	250	270	290	310
Non-elective	190	210	230	250	270	290	310	330	350
A&E	200	220	240	260	280	300	320	340	360
Community	220	240	260	280	300	320	340	360	380
Total	880	980	1,080	1,180	1,280	1,380	1,480	1,580	1,680
Obstetrics									
Outpatient	170	190	210	230	250	270	290	310	330
Elective	200	220	240	260	280	300	320	340	360
Non-elective	240	260	280	300	320	340	360	380	400
A&E	250	270	290	310	330	350	370	390	410

All the orange cells need to be filled in with last year's volumes for each specialty

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Entering demographic change

Next, input changes in the population to which you provide services.

For data on forecast population changes, use ONS or other projections for the area where most of your patients live.

If your catchment includes more than one geographic area, you should use a combined forecast based on where your patients come from. For example, if 30% come from area 1 and 70% from area 2 – and you expect this split to hold true in the future – within the Excel cells you would use a weighted average calculation. For example: *(*Forecast population in 2014/15 in area one)*(30%) + (Forecast population in 2014/15 in area two)*(70%) to give you the 2014/15 figure.

Data requirement 2: Demographic forecasts for your geographic pool for the next 5 years

Demographic change

	Actual	Forecast				
	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Expected population aged:						
0-18	12,123	12,259	12,395	12,608	12,823	13,040
19-24	12,036	12,220	12,404	12,692	12,983	13,277
25-34	12,032	12,148	12,264	12,446	12,630	12,816
35-44	13,433	12,997	12,561	11,879	11,190	10,494
45-54	13,410	13,306	13,202	13,039	12,874	12,707
55-64	13,495	13,775	14,055	14,493	14,935	15,381
65-74	12,597	12,929	13,261	13,781	14,306	14,836
75-84	12,138	12,246	12,354	12,523	12,694	12,867
85+	15,061	14,441	13,821	12,851	11,872	10,883
	116,325	116,321	116,317	116,312	116,307	116,301
% Change						
0-18		1.1%	1.1%	1.7%	1.7%	1.7%
19-24		1.5%	1.5%	2.3%	2.3%	2.3%
25-34		1.0%	1.0%	1.5%	1.5%	1.5%
35-44		-3.2%	-3.4%	-5.4%	-5.8%	-6.2%
45-54		-0.8%	-0.8%	-1.2%	-1.3%	-1.3%

All the orange cells need to be filled in with predictions for changes in population, by age group, for the next 5 years

The grey cells with orange text calculate the percentage change based on the absolute numbers entered above. You should not edit these cells.

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Entering non-demographic change

The number of people you treat may alter due to changes in disease prevalence rates, diagnosis and treatment rates, referral patterns or services at neighbouring providers. The category of 'other changes' in effect describes a change in the *share* of patients that you treat, compared to other providers.

You would also include the impact of trust-led initiatives already underway that will affect future demand.

This tab requires you to enter the combined effect of all these factors.

Data requirement 3: Assumptions on any non-demographic annual changes in activity for individual specialties

Non-demographic change (by specialty & POD)

If you believe that there will be non-demographic changes in activity which will vary by specialty, these should be included in this tab
You can choose to use the absolute change in number of cases expected for each specialty, or the % change year-on-year

	2014/15	2015/16	2016/17	2017/18	2018/19
Demand increase / (decline) by service line					
1. Paediatrics					
Outpatient	8	9	9	8	8
Elective	9	10	11	9	10
Non-elective	11	12	13	11	11
A&E	11	12	13	11	12
Community	12	13	14	12	12
Change in number of cases	50	55	60	50	53
2. Obstetrics					
Outpatient	20.0%	15.0%	14.0%	12.0%	10.0%
Elective	20.0%	15.0%	14.0%	12.0%	10.0%
Non-elective	20.0%	15.0%	14.0%	12.0%	10.0%
A&E	20.0%	15.0%	14.0%	12.0%	10.0%
Community	20.0%	15.0%	14.0%	12.0%	10.0%
Percentage	20.0%	15.0%	14.0%	12.0%	10.0%

Select percentage or absolute change here

All the orange cells need to be filled in with predictions for changes in activity for the next five years

The grey cells with orange text calculate the percentage change or number change by POD based on the input in the data entered above. You should not edit these cells.

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You can enter the change as a percentage or as a change in the absolute number of cases.

- Setting a percentage change may be easier when you are not aware of specific changes at sub-specialty level.
- Entering the change in the number of cases may be easier if you want to take into account changes at sub-specialty level; for example, you may expect an increase in cardiovascular stenting and are using ‘cardiology’ as your specialty. You would add up the changes in the number of cases at each relevant sub-specialty then enter the change in the number of cases for the specialty overall, setting the input to ‘Change in number of cases’.

You can use many sources to inform your view of how non-demographic factors will change demand for care. Ultimately, you will need to agree with clinical leaders how you interpret data and others’ forecasts, and decide how you expect demand to change at your trust. One good check once you agree this is to compare the forecast change to the rate of change you have seen over the last few years.

Entering commissioner plans

Changes in local and national commissioners' plans can affect your FT's activity level.

The model assumes that commissioners' plans will attempt to decrease activity, but you can enter a negative number if your commissioner is planning to increase activity for a service. For example, this could be the case for shifting care into community settings.

You can enter changes overall, or for individual specialties by POD.

For changes to individual services, you can specify the percentage of the target change forecast to be achieved. This will be useful if you want to test different scenarios, as you can enter the assumption from commissioners' plans once and then change the percentage of the target achieved to compare possible outcomes.

Data requirement 4: Commissioner demand management plans and assumptions on percentage of each initiative achieved

Comissioner demand management plans

If your commissioner has put out QIPPs that match to the service lines you are projecting, use these as the basis for decreasing demand in those segments.

Use the "% of Initiative Achieved" cell to estimate the Trust's view of the % of commissioners' demand reduction initiatives that will be achieved

You can also create overarching demand management schemes by using the "Overall demand decline/(increase)", either as a percentrage or as a number of cases.

	2014/15	2015/16	2016/17	2017/18	2018/19
Overall demand decline / (increase)	0.5%	0.5%	0.5%	0.5%	0.5%
Demand decline / (increase) by service line					
1. Paediatrics					
Outpatient	34	8	9	10	10
Elective	38	10	10	11	11
Non-elective	39	11	11	12	12
A&E	43	11	12	12	13
Community	46	11	12	13	13
Number of cases	200	50	55	57	60
% of Initiative Achieved	90.0%				

Overall change for all specialties by year

Specialty specific activity change (reduction shown as positive number) by year, by POD

Enter an assumption on what percentage of commissioners' target demand change will be achieved

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Entering changes due to new trust strategic initiatives

Data requirement 5:
Details of new strategic initiatives

The final input tab is where you set the impact of your trust's new strategic initiatives. You should leave this input sheet blank when you calculate the baseline demand forecast as part of the **Forecast** stage. You should then return to the model to understand the impact that all your agreed strategic changes have on your activity (and hence income, costs and margin – through separate modelling).

Again, these forecast changes can be entered as percentage changes or as changes in the number of cases. You can also enter an overall change in activity levels.

Impact of strategic initiatives

Assumptions for the impact of your strategic initiatives can be inputted either on a speciality level or at an aggregate level. Aggretate year on year % change can be inputted in cells D9-H9. To input by specialty, select speciality and whether you wish to input as year on year % change or total expected change in volumes from the drop down lists

	2014/15	2015/16	2016/17	2017/18	2018/19
Overall impact of strategic initiatives increa	0.5%	0.5%	0.5%	0.5%	0.5%
Demand increase / (decline) by service line					
1. Test Spec 2					
Outpatient	10.0%	11.0%	12.0%	13.0%	14.0%
Elective	10.0%	11.0%	12.0%	13.0%	14.0%
Non-elective	10.0%	11.0%	12.0%	13.0%	14.0%
A&E	10.0%	11.0%	12.0%	13.0%	14.0%
Community	10.0%	11.0%	12.0%	13.0%	14.0%
Percentage	10.0%	11.0%	12.0%	13.0%	14.0%

Input overall change year on year

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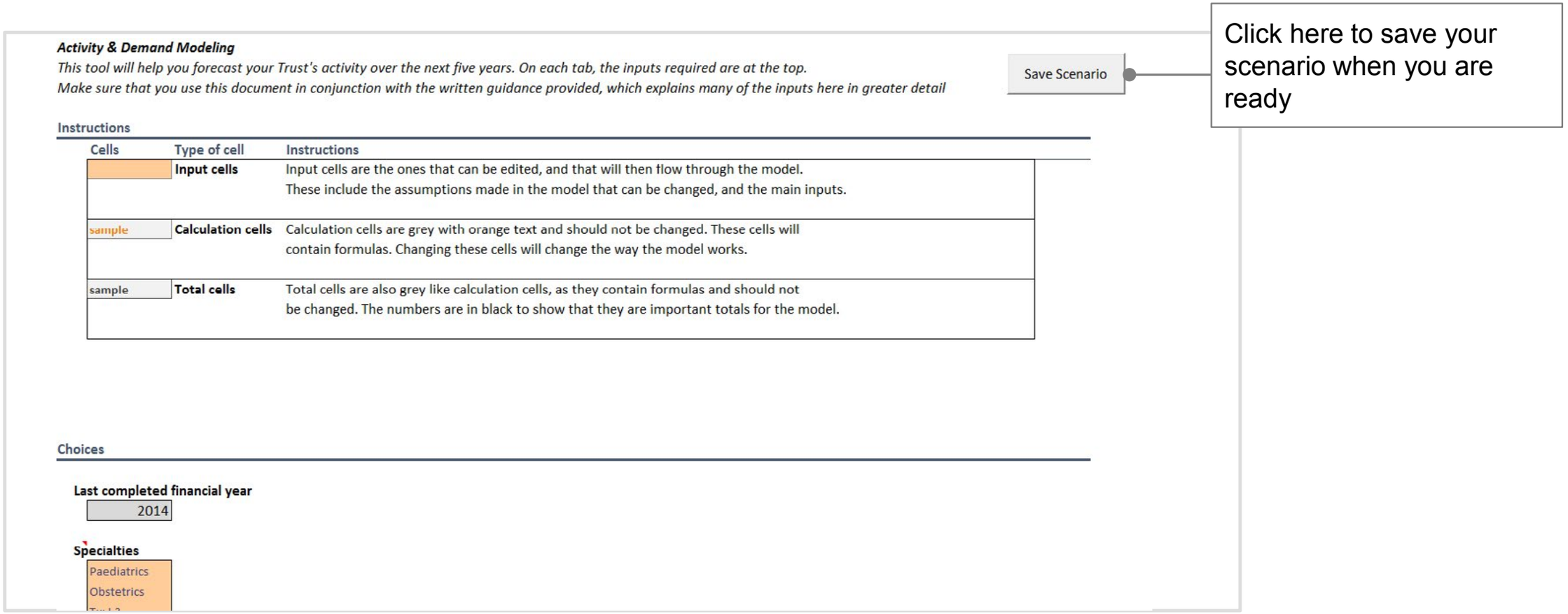
Saving scenarios

The tool allows you to save a set of inputs and the associated outputs (ie a scenario). Once you have entered all the inputs for one scenario, you can click the button shown below. The model will ask if you are sure you want to save the scenario, then prompt you to enter a scenario name. That scenario will be saved in a new file in the same folder as the model.

The new file will show three tabs – 'Summary inputs', 'Summary outputs', and 'Impact of assumptions'.



Editing scenarios

In general, you will not want to edit scenarios. They are a completed piece of work enabling you to compare the impact of different assumptions.

However, you may want to edit a scenario – for example, if you have entered an assumption incorrectly. In this case, you should click the button as shown below. This will restore the full model functionality to your scenario and you will be able to edit it exactly as before.

Forecast activity

Edit Scenario

Click here if you want to edit your scenario

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
By Specialty						
Test Spec 1	11,520	14,226	12,620	12,615	12,382	12,148
Test Spec 2	13,770	15,161	15,294	15,431	15,573	15,715
Test Spec 3	16,020	17,948	17,962	17,962	17,811	17,659
Test Spec 4	18,270	16,121	17,862	18,352	18,367	18,382
Test Spec 5	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 6	20,520	24,636	21,379	21,379	21,602	22,649
Test Spec 7	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 8	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 9	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 10	20,520	20,530	20,540	20,557	20,573	20,590
Total	182,700	190,741	187,818	188,523	188,601	189,502

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
By POD						
Outpatient	31,500	32,761	31,942	32,451	32,461	32,617
Elective	34,200	35,708	35,224	35,265	35,279	35,447
Non-elective	37,800	39,323	38,969	39,018	39,035	39,221
A&E	38,700	40,502	39,905	39,956	39,974	40,165
Community	40,500	42,446	41,778	41,832	41,852	42,052
Total	182,700	190,741	187,818	188,523	188,601	189,502

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How to use the model

Full output

This table shows forecast activity by specialty, POD and patient age. You can place outputs into a pivot table to create the output summaries that your FT requires.

Specialty	POD	Age Band	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Test Spec 1	Outpatien	0-18	120	122.3139	122.5666	123.5497	123.3719	123.1363
Test Spec 1	Outpatien	19-24	140	143.2738	144.1326	146.1505	146.7832	147.3273
Test Spec 1	Outpatien	25-34	160	162.8308	162.9179	163.8462	163.2454	162.5819
Test Spec 1	Outpatien	35-44	180	175.5465	168.1428	157.5809	145.7421	134.1461
Test Spec 1	Outpatien	45-54	200	200.0315	196.696	192.5173	186.6251	180.7931
Test Spec 1	Outpatien	55-64	220	226.3555	228.8945	233.9012	236.6521	239.2059
Test Spec 1	Outpatien	65-74	240	248.2897	252.3917	259.9257	264.9218	269.6488
Test Spec 1	Outpatien	75-84	260	264.4053	264.3556	265.5577	264.2896	262.9305
Test Spec 1	Outpatien	85+	280	270.6146	256.6837	236.5187	214.5278	193.0147
Test Spec 1	Elective	0-18	150	169.8731	170.224	171.5893	171.3422	171.0149
Test Spec 1	Elective	19-24	170	193.2976	194.4562	197.1785	198.0319	198.7659
Test Spec 1	Elective	25-34	190	214.837	214.9518	216.1764	215.3836	214.508
Test Spec 1	Elective	35-44	210	227.5505	217.9534	204.2626	188.9165	173.8852
Test Spec 1	Elective	45-54	230	255.5848	251.3229	245.9836	238.4548	231.0028
Test Spec 1	Elective	55-64	250	285.7901	288.9956	295.3168	298.7898	302.0139
Test Spec 1	Elective	65-74	270	310.3487	315.4759	324.8928	331.1375	337.0456
Test Spec 1	Elective	75-84	290	327.6676	327.6059	329.0955	327.5238	325.8392
Test Spec 1	Elective	85+	310	332.8845	315.748	290.9428	263.8914	237.4279

Forecast activity for each year by patient age, POD, and specialty

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Summary output

These tables contain the forecast aggregated by specialties and POD

By Specialty	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Test Spec 1	11,520	11,540	11,389	11,394	11,395	11,398
Test Spec 2	13,770	15,314	15,467	15,588	15,726	15,858
Test Spec 3	16,020	15,636	17,499	17,962	17,811	17,659
Test Spec 4	18,270	18,277	18,285	18,297	18,309	18,322
Test Spec 5	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 6	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 7	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 8	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 9	20,520	20,530	20,540	20,557	20,573	20,590
Test Spec 10	20,520	20,530	20,540	20,557	20,573	20,590
Total	182,700	183,946	185,881	186,580	186,680	186,775

Forecast activity for each year by specialty

By POD	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Outpatient	31,500	31,480	31,492	31,980	31,991	32,000
Elective	34,200	34,488	34,900	34,942	34,957	34,972
Non-elective	37,800	37,947	38,597	38,650	38,672	38,694
A&E	38,700	39,083	39,522	39,577	39,601	39,624
Community	40,500	40,948	41,371	41,431	41,458	41,485
Total	182,700	183,946	185,881	186,580	186,680	186,775

Forecast activity for each year by POD

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Impact of assumptions

These tables show the impact of the four categories of drivers of change on the five-year demand forecast

Select the specialty or POD you want to see in the graph

Graph shows the effect of the four categories of drivers of change on the selected specialty or POD

Tables

Overall	2013/14	Post Demc	Post Non-I	Post Comr	Post Mark	2018/19
Overall	182700	521	1432	-983	978.649	184648

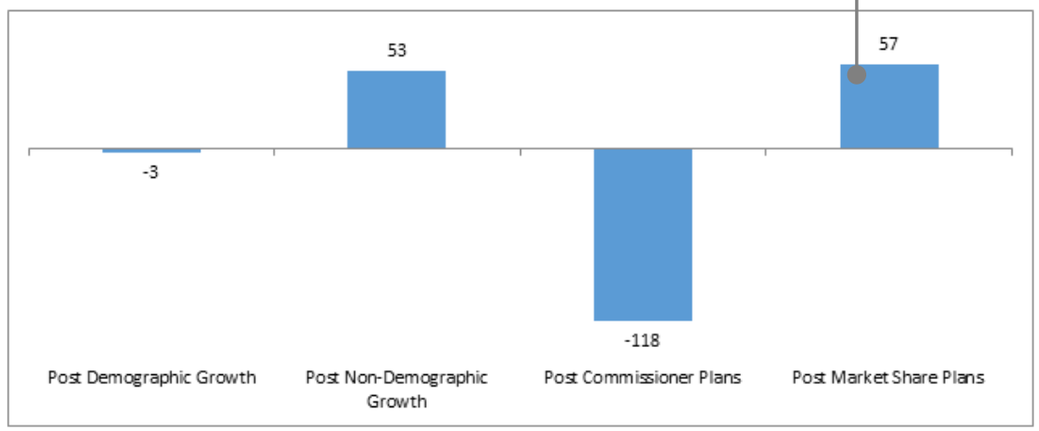
By Speciality	2013/14	Post Demc	Post Non-I	Post Comr	Post Mark	2018/19
Paediatrics	11520	-3	53	-118	57	11510
Obstetrics	13770	16	1379	-76	75	15164
Test 3	16020	34	0	-80	80	16054
Test Spec 4	18270	52	0	-92	151	18382
Test Spec 5	20520	70	0	-103	102	20590
Test Spec 6	20520	70	0	-103	102	20590
Test Spec 7	20520	70	0	-103	102	20590
Test Spec 8	20520	70	0	-103	102	20590
Test Spec 9	20520	70	0	-103	102	20590
Everything else	20520	70	0	-103	102	20590

By POD	2013/14	Post Demc	Post Non-I	Post Comr	Post Mark	2018/19
Outpatient	31500	63	233	-169	169	31796
Elective	34200	85	262	-184	183	34546
Non-Elective	37800	114	300	-203	203	38213
A&E	38700	122	309	-208	207	39130
Community	40500	136	328	-218	217	40963

Category	Sub Category
By Speciality	Paediatrics

<< Choose from the drop down list

Post Demographic Growth	Demographic Growth	Commissioner Plans	Post Market Share Plans
-3	53	-118	57



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