

Resource planning model for Supreme Audit Institutions

Technical note

An Occasional INTOSAI Capacity Building Committee Paper

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Resource Planning Model for Supreme Audit Institutions: Technical Note

Introduction

For many Supreme Audit Institutions (SAIs) implementing the ISSAIs is a major challenge. It requires new ways of thinking about audits, the development of new skills among auditors, and also new ways of organising. One of the changes SAIs need to consider is whether they have the right numbers of resources to deliver ISSAI compliant audits. To some extent a move from massive amounts of substantive testing to a more risk based approach should free up staff but equally if as a result of adopting the ISSAIs a SAI wants to move to being able to annually audit all government accounts then it could require more resources.

The UK National Audit Office (NAO) has developed a simple model to help SAIs identify the number of front-line audit staff and managers as well as the number of corporate support staff which may be needed. The staffing levels in the model are based on those existing in the NAO - so SAIs which are only just starting to use the ISSAIs may not reach the NAO's levels of efficiency immediately and may need more staff initially. The figures which result from using this model are only indicative. Each SAI using this model will need to take the resulting figures and assess their relevance to their own unique contexts. In some cases, the total resource needs which the model will generate may be beyond the scope of the particular SAI – and it may not be possible to do all the audits every year. However, what we hope is that this model will encourage users to think carefully about their staffing needs and be in a better position to define their resource needs for budgetary purposes and for discussions with governments, parliaments and others.

Some key assumptions

- The model reflects a situation in which the UK central government is producing accounts in line with international standards. In countries where this is not the case then the numbers of staff needed to complete audits may be different.
- The model is based on a situation in which financial audits and compliance audits are combined. For SAIs where there are two distinct activities then again the final resource mix may be different.
- The NAO has 3 main outputs – financial audits, performance audits and investigations. SAIs producing other outputs will need to factor these into plans.
- The NAO only audits central government. SAIs auditing local or regional governments may need to include these in the resource planning – possibly inputting them as micro or small audits.

Technical note

This technical note has been written to provide information on how to apply and use the resource planning model for Supreme Audit Institutions (available on www.intosaicbc.org).

The contents of the technical note cover:

- Model concept and design
- User instructions
- Model data
- Model assumptions
- Model outputs

Model concept and design

The resource planning model for Supreme Audit Institutions is a bottom up, deterministic model. It enables users to identify the staffing needed to conduct a portfolio of financial and non-financial audit work. It then uses data from the National Audit Office (NAO), and wider assumptions to estimate the number of people needed to resource the scoped list of financial and non-financial audit work.

To operate the model, two main steps are required:

- Build a portfolio at an audit level (i.e. ground up):
 - The underpinning data in the model is based on the audit experience of the NAO. Data from the 2015-16 audit years are used to estimate the number of hours needed (disaggregated by grade) to undertake three main types of audits – financial/regularity, performance/value for money, and investigations;
 - Estimates are adjusted to take into account assumptions on things like optimism bias, efficiency and staff utilisation rates;
 - With these starting assumptions in place, users list all organisations to be audited;
 - For financial audit, the user will need to classify the complexity of the work and the level of risk weighting associated with that audit. For non-financial audit, the user will need to identify the number of performance audits and investigations to be undertaken;
 - Then, the model applies a final assumption on corporate overheads, to estimate the number of people needed to support financial and non-financial audit work;
 - Corporate overheads include all the functional areas in the NAO which help the organisation carry out its audits. The UK outsources some support functions such as security, catering, cleaning, and publications/printing. The NAO also has no cars and therefore no drivers. Other SAls may need to take the corporate service outputs and adjust these to their own circumstances.

- Aggregate data to the organisational level:
 - People numbers are added up for financial audit, non-financial audit and corporate overheads.
 - These people numbers are projected five years in the future, assuming a stable portfolio of audit work and annual efficiency assumptions.

User instructions

The resource planning model for Supreme Audit Institutions is an open source workbook meaning all cells and worksheets may be edited. It is recommended users only edit cells coloured in blue which are classified as data entry cells. The editing of any other cell in this workbook is done so at the users own risk.

Model_assumptions worksheet

Column C	Do not edit cells in this column, they are for information only
Column D	Do edit cells with a blue background. These are model assumption variables

Model_inputs worksheet

Column B	Input organisations to be audited (up to 500 separate organisations)										
Column C	<p>Classify the scale of financial audit needed (see table)</p> <table border="1"> <thead> <tr> <th>Size of audit</th> <th>Type of audit</th> </tr> </thead> <tbody> <tr> <td>Micro</td> <td>Non-organisational</td> </tr> <tr> <td>Small</td> <td>Small agency</td> </tr> <tr> <td>Medium</td> <td>Large agency, small department/ministry</td> </tr> <tr> <td>Large</td> <td>Big department/ministry</td> </tr> </tbody> </table>	Size of audit	Type of audit	Micro	Non-organisational	Small	Small agency	Medium	Large agency, small department/ministry	Large	Big department/ministry
Size of audit	Type of audit										
Micro	Non-organisational										
Small	Small agency										
Medium	Large agency, small department/ministry										
Large	Big department/ministry										
Column D	Input a % risk weighting for the financial audit (based on user judgement)										
Column E	Input number of performance audits per year per organisations										
Column F	Input number of investigations per year per organisation										
Column G	Do not edit cells in this column, they are for information only										

Please note – the National Audit Office does not audit local government and it has one main office and one regional office.

Supreme Audit Institutions may wish to calculate the number of staff needed to conduct such local audits by inputting these as micro or small audits. In terms of calculating the support staff needed at regional offices, a SAI may need to consider a minimum core group to cover office administration, IT support and drivers.

Model_engine

Do not edit cells in this worksheet, this contains the calculations which make the model work

Model_outputs

Do not edit cells in this worksheet, it contains the outputs of the model

Model data

The standard assumptions used in this model are based on NAO organisational data from 2015-16. This data is then rounded to the nearest whole unit. Further advice on the data contained in the model is available on request.

Model assumptions

Assumption	Description
Model_assumptions worksheet	
Hours per week	Standard contract hours for one full time equivalent (FTE) person
Days holiday	Number of days holiday per year for a single FTE
Utilisation rate	Percentage estimate of time a person spends on direct audit or other work (remainder spent on training, leave, meetings etc.)
Optimism bias	When planning, people are typically overly optimistic, this is commonly known as optimism bias. The model incorporates an uplift factor option, which may be used to take account of optimism bias.
Corporate overheads	Additional costs to take account of corporate overheads (e.g. HR, IT, finance etc.)
Inefficiency uplift	Percentage uplift, to take account of the relative maturity of an organisation, compared to mature audit institutions

Assumption	Description
Annual rate of efficiency improvement	Percentage continuous improvement of an organisation.
Type of financial audit: micro	Average number of hours spent on non-organisational audits
Type of financial audit: small	Average number of hours spent on small agency audits – typically with a budget of tens of millions of dollars.
Type of financial audit: medium	Average number of hours spent on large agency, small department audits – typically with a budget of hundreds of millions to billions of dollars.
Type of financial audit: large	Average number of hours spent on big department/ministry audits – typically with a budget of tens of billions of dollars
Performance audit	Average number of hours spent on performance audit projects
Insight & investigations	Average number of hours spent on insight and investigation projects
Model_inputs	
Financial audit risk adjustment (%)	The financial audit risk adjustment allows the user to inflate or deflate the number of hours assigned to a financial audit, based on an assessment of risk.
Model_engine	
Corporate overheads	Total hours allocated to corporate overheads are based on the total hours assigned to financial audit, performance audit and insight & investigation projects, multiplied by the corporate overheads assumption (see earlier in the table).
Global_inputs worksheet	
Weeks per year	Total number of weeks in a year (currently rounded down to 52)
Workdays per week	Total number of contracted workdays per week
Grade mix – financial audit	Average proportions of directors, managers, team leaders and junior staff who work on financial audits.

Assumption	Description
Grade mix – performance audit	Average proportions of directors, managers, team leaders and junior staff who work on performance audits.
Grade mix – insight & investigations	Average proportions of directors, managers, team leaders and junior staff who work on insights and investigations
Grade mix – corporate overheads	Average proportions of senior managers, directors, managers, team leaders and junior staff who work in corporate functions. To note, senior managers are accounted for as part of corporate overheads only.

Model outputs

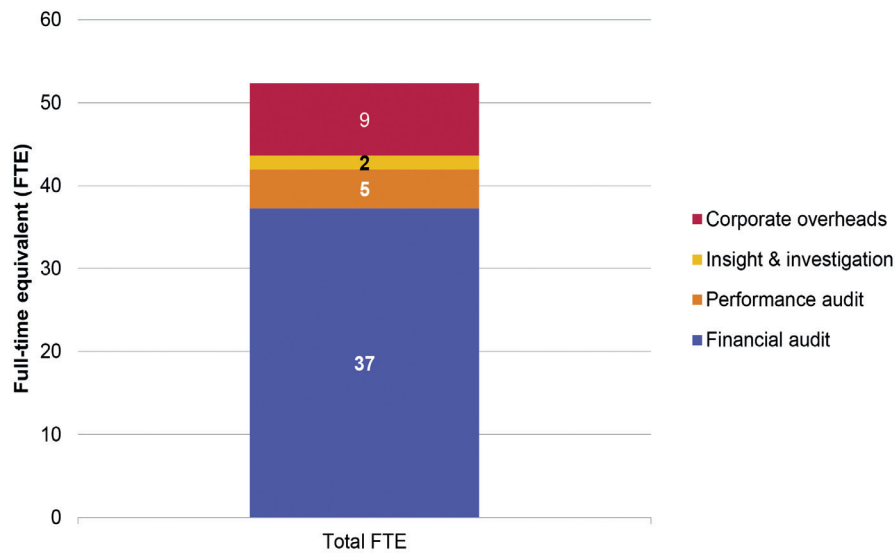
There are three main outputs for the resource planning model. The following tables and graphs are drawn from the sample data currently inserted in the model spread sheet. As the number and nature of the audits inputted changes so the outputs in terms of staff numbers will change for each of the following three main outputs:

- People (audit staff)
- People (corporate overheads breakdown)
- People projections (five years)

People (audit staff)

	Total FTE	Total FTE (senior manager)	Total FTE (director)	Total FTE (manager)	Total FTE (team leader)	Total FTE (junior staff)
Financial audit	37	0.0	2	5	16	15
Performance audit	5	0.0	0	1	2	1
Insight & investigation	2	0.0	0	0	1	0
Corporate overheads	9	0.0	0	1	4	3
Total	52	0.0	3	8	22	20

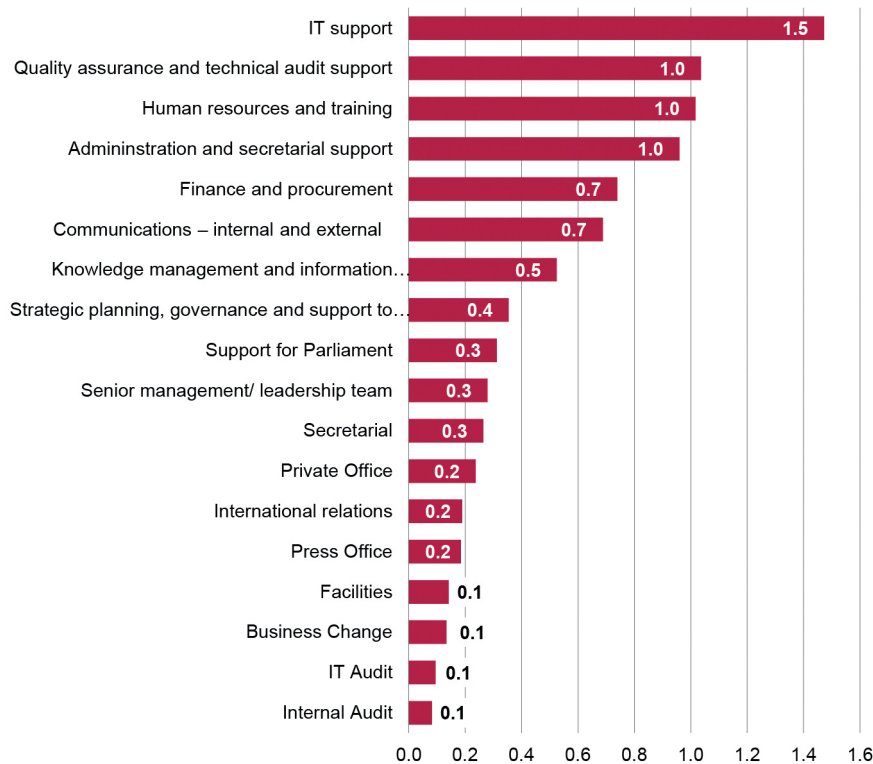
People estimates (year 1 only)



People (corporate overheads breakdown)

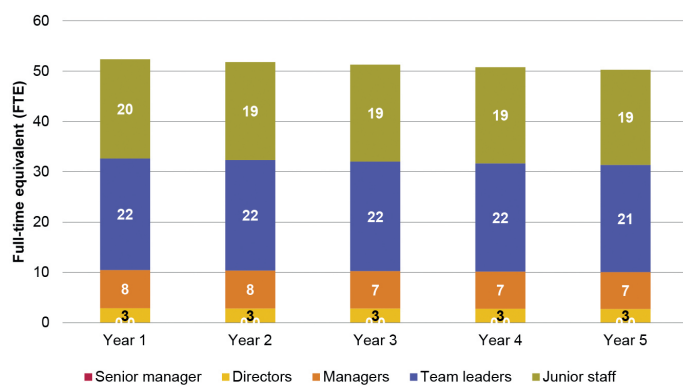
Role	Total FTE	Senior manager	Directors	Managers	Team leaders	Junior staff
IT support	1.5	0.0	0.1	0.2	0.6	0.6
Quality assurance and technical audit support	1.0	0.0	0.1	0.2	0.4	0.4
Human resources and training	1.0	0.0	0.1	0.1	0.4	0.4
Administration and secretarial support	1.0	0.0	0.1	0.1	0.4	0.4
Finance and procurement	0.7	0.0	0.0	0.1	0.3	0.3
Communications – internal and external	0.7	0.0	0.0	0.1	0.3	0.3
Knowledge management and information services	0.5	0.0	0.0	0.1	0.2	0.2
Strategic planning, governance and support to senior management	0.4	0.0	0.0	0.1	0.2	0.1
Support for Parliament	0.3	0.0	0.0	0.0	0.1	0.1
Senior management/ leadership team	0.3	0.0	0.0	0.0	0.1	0.1
Secretarial	0.3	0.0	0.0	0.0	0.1	0.1
Private Office	0.2	0.0	0.0	0.0	0.1	0.1
International relations	0.2	0.0	0.0	0.0	0.1	0.1
Press Office	0.2	0.0	0.0	0.0	0.1	0.1
Facilities	0.1	0.0	0.0	0.0	0.1	0.1
Business Change	0.1	0.0	0.0	0.0	0.1	0.1
IT Audit	0.1	0.0	0.0	0.0	0.0	0.0
Internal Audit	0.1	0.0	0.0	0.0	0.0	0.0

Corporate overheads breakdown (year 1 only)



People projections (five year)

	Total FTE	Senior manager	Directors	Managers	Team leaders	Junior staff
Year 1	52	0.0	3	8	22	20
Year 2	52	0.0	3	8	22	19
Year 3	51	0.0	3	7	22	19
Year 4	51	0.0	3	7	22	19
Year 5	50	0.0	3	7	21	19



Further information:

- Copies of the model can be found on: www.intosaicbc.org;
- For further information please contact: NAO International on: International.Support@nao.gsi.gov.uk.

