SCOTTISH POLICE
AUTHORITY

Meeting	Audit Risk and Assurance Committee
Date	16 July 2020
Location	Video - conference
Title of Paper	Demand and Productivity Internal Audit Report
Presented By	Gary Devlin, Partner, Scott-Moncrieff
Recommendation to Members	Members are requested to discuss the report.
Appendix Attached	Demand and Productivity Internal Audit Report

PURPOSE

This paper presents our final report on the review of Demand and Productivity.

The paper is presented for the Audit Committee to consider the report, findings and management responses.

The paper is submitted for discussion.

Audit, Risk and Assurance Committee
Demand and Productivity
16 July 2020

1. BACKGROUND

1.1 The Strategic Police Plan is designed as a collaborative and strategic programme that aims to continue to improve the policing of Scotland whilst responding to new and changing demands.

1.2 In order to meet these demands, Police Scotland and SPA appointed a service provider who was able to guide and support the Demand and Productivity Unit (DPU) in the analysis of data and their ability to create a service-wide assessment of the organisations demand. The demand and productivity model will help the organisation continue to optimise resource allocation. The initial model of demand and productivity requires expansion across Police Scotland to ensure the organisation makes continuous improvements to achieve increased productivity and support financial sustainability. The DPU project has an assigned completion date of November 2020.

1.3 A Strategic Workforce Planning (SWP) project has also been set up by Police Scotland, with the purpose of developing and approving a robust Strategic Workforce Plan by November 2020. The Strategic Workforce Plan will support Police Scotland in developing a workforce of the right size, with the right skills and competencies, organised in the right way, within a budget that is affordable, to deliver the best possible service.. As both the DPU project and the SWP project are closely linked, the two project teams should be working in conjunction with each other to ensure a Strategic Workforce Plan is developed that accurately reflects the actual demand of the organisation.

2. FURTHER DETAIL ON THE REPORT TOPIC

2.1 Police Scotland has made significant progress in developing their understanding, measurement and reporting of demand and productivity. This work has been supported by the recently established Demand and Productivity Unit who have also taken on the implementation of a Resource Allocation Model for local policing.

2.2 This model produces regular reporting to inform resource decision making across local policing. At the time of the audit, a post-implementation review had not yet been carried out to establish the appropriateness of the model and of the assumptions and measures in place to ensure they are robust, appropriate and complete. The

DPU are also working to address ongoing issues relating to the availability and quality of data used within the model. Progress against these actions has been impacted by the re-tasking of the DPU as part of Police Scotland's COVID-19 response.

2.3   Finally, there is not yet an agreed plan as to how this model will be rolled out beyond local policing, or how this will be aligned with the development of Police Scotland's Strategic Workforce Plan. In addition, there remains uncertainty regarding how this work will be resourced alongside the existing work required to refine the model in place within local policing. These points should be an important area of focus for the DPU as their work continues to embed, refine, and roll out the Resource Allocation Model across Police Scotland.

3.   FINANCIAL IMPLICATIONS

3.1   The Internal Audit Report considers matters relating to Police Scotland's long term workforce strategy, as well as the use of resource planning tools to support the effective and efficient deployment of resource. This has implications for the ability of the organisation to achieve its objectives within planned budgets. Committee members should consider this section when considering the overall implications of our findings.

4.   PERSONNEL IMPLICATIONS

4.1   The Internal Audit Report considers the development of tools to support resourcing and deployment decisions, as well as the organisation's overall workforce strategy. Committee members should consider this section when considering the overall implications of our findings.

5.   LEGAL IMPLICATIONS

5.1   The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members should consider this section when considering the overall implications of our findings.

6.   REPUTATIONAL IMPLICATIONS

6.1   The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members

should consider this section when considering the overall implications of our findings.

7. SOCIAL IMPLICATIONS

7.1 The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members should consider this section when considering the overall implications of our findings.

8. COMMUNITY IMPACT

8.1 The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members should consider this section when considering the overall implications of our findings.

9. EQUALITIES IMPLICATIONS

9.1 The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members should consider this section when considering the overall implications of our findings.

10. ENVIRONMENT IMPLICATIONS

10.1 The Internal Audit Report considers the impact our review findings may have on organisational risk registers. Committee members should consider this section when considering the overall implications of our findings.
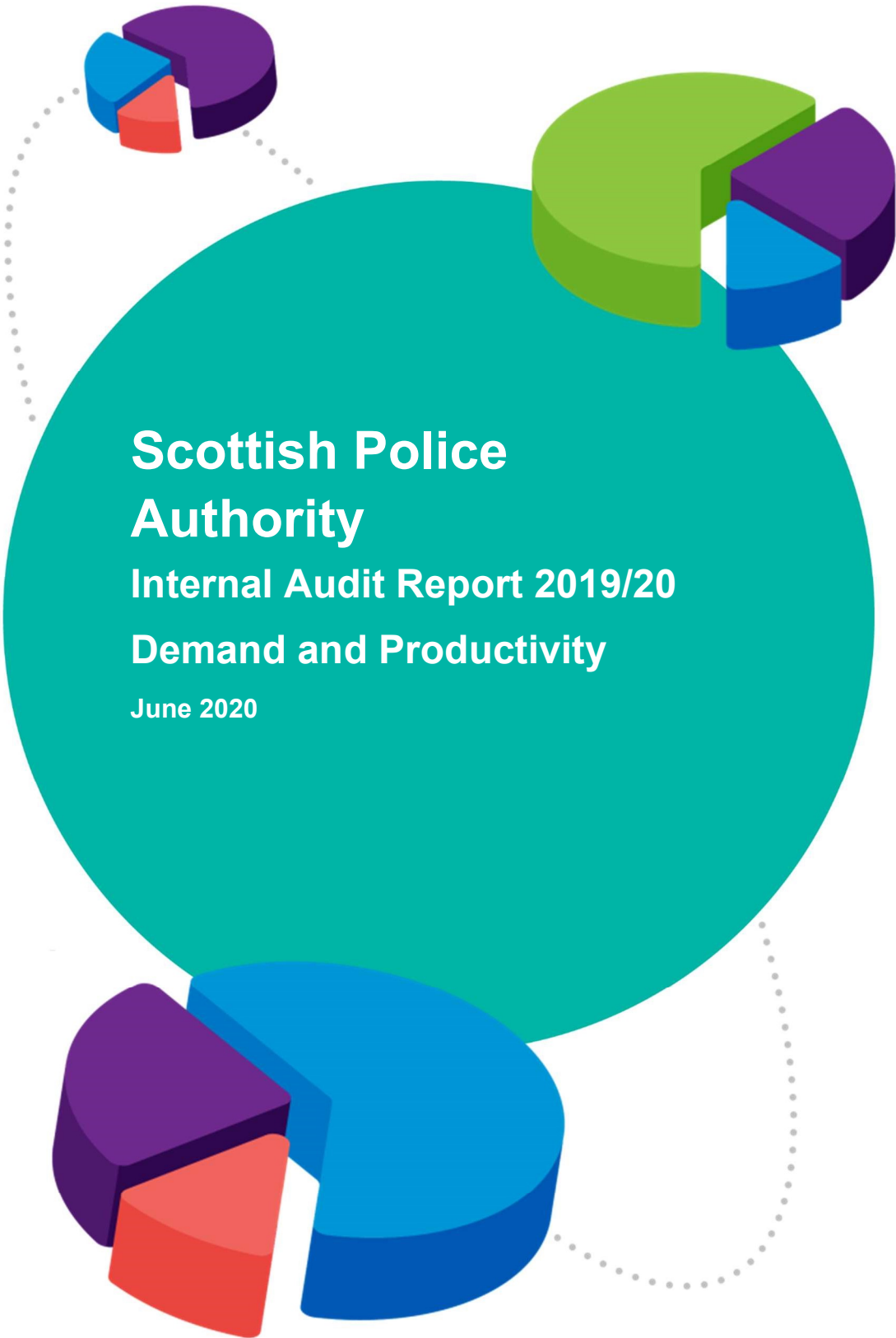

RECOMMENDATIONS
Members are requested to discuss the report.

Audit, Risk and Assurance Committee
Demand and Productivity
16 July 2020

Scottish Police Authority

Internal Audit Report 2019/20

Demand and Productivity

June 2020

Scottish Police Authority

Internal Audit Report 2019/20

Demand and Productivity

Audit Sponsor	Key Contacts	Audit team
David Page, Deputy Chief Officer	Tom McMahon, Director of Business Integration Gordon Downie, Head of Corporate Services Transformation Faroque Hussain, Chief Superintendent Neil MacDougall, Chief Inspector Steven McKinnon, Inspector	Gary Devlin, Relationship Partner Elizabeth Young, Head of Internal Audit Andrew Diffin, Assistant Manager Mary Fitton, Associate

Executive Summary

Conclusion -

Police Scotland has made significant progress in developing their understanding, measurement and reporting of demand and productivity.   This work has been supported by the recently established Demand and Productivity Unit who have also taken on the implementation of a Resource Allocation Model for local policing.

This model produces regular reporting to inform resource decision making across local policing. At the time of the audit, a post-implementation review had not yet been carried out to establish the appropriateness of the model and of the assumptions and measures in place to ensure they are robust, appropriate and complete. The DPU are also working to address ongoing issues relating to the availability and quality of data used within the model. Progress against these actions has been impacted by the re-tasking of the DPU as part of Police Scotland's COVID-19 response.

Finally, there is not yet an agreed plan as to how this model will be rolled out beyond local policing, or how this will be aligned with the development of Police Scotland's Strategic Workforce Plan. In addition, there remains uncertainty regarding how this work will be resourced alongside the existing work required to refine the model in place within local policing. These points should be an important area of focus for the DPU as their work continues to embed, refine, and roll out the Resource Allocation Model across Police Scotland.

Background and scope

The Strategic Police Plan is designed as a collaborative and strategic programme that aims to continue to improve the policing of Scotland whilst responding to new and changing demands.

In order to meet these demands, Police Scotland and SPA appointed a service provider who was able to guide and support the Demand and Productivity Unit (DPU) in the analysis of data and their ability to create a service-wide assessment of the organisations demand. The demand and productivity model will help the organisation continue to optimise resource allocation. The initial model of demand and productivity requires expansion across Police Scotland to ensure the organisation makes continuous improvements to achieve increased productivity and support financial sustainability. The DPU project has an assigned completion date of November 2020.

A Strategic Workforce Planning (SWP) project has also been set up by Police Scotland, with the purpose of developing and approving a robust Strategic Workforce Plan by November 2020. The Strategic Workforce Plan will support Police Scotland in developing a workforce of the right size, with the right skills and competencies, organised in the right way, within a budget that is affordable, to deliver the best possible service.. As both the DPU project and the SWP project are closely linked, the two project teams should be working in conjunction with each other to ensure a Strategic Workforce Plan is developed that accurately reflects the actual demand of the organisation.

In accordance with the 2019/20 Internal Audit Plan, we reviewed the processes in place to effectively assess the overall and component source demand on Police Scotland in order to quantify a baseline demand profile and accompanying baseline operational capacity profile. We have assessed how this links to and supports the
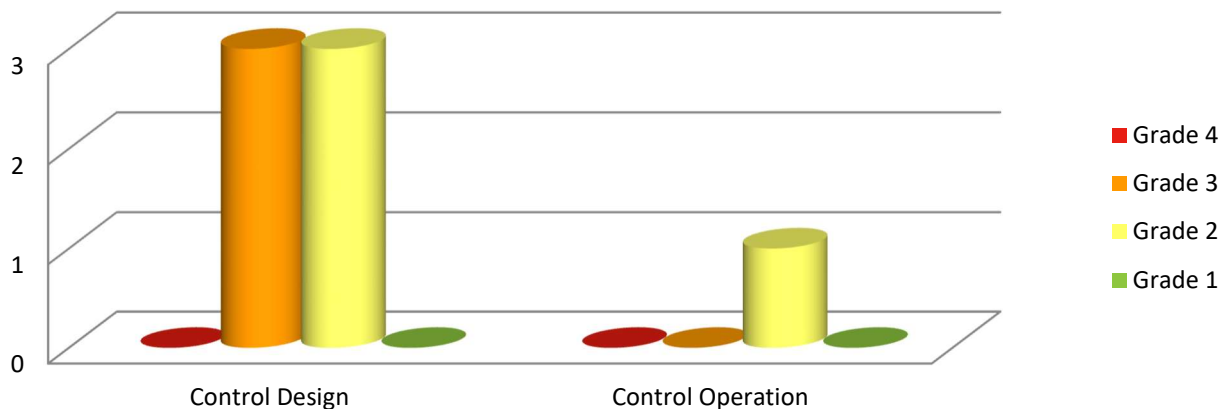
national resource allocation model and locally into rota and overtime management, ensuring that there is clear alignment with the developing Strategic Workforce Plan to ensure the workforce design meets the future demand.

Control assessment
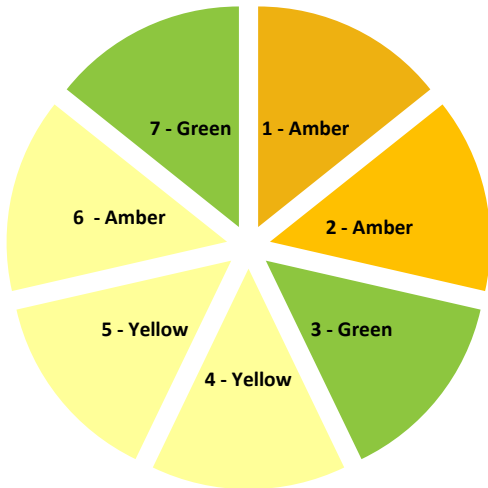
■ 1. The DPU has undertaken an effectiveness review of the demand and productivity model implemented within local policing, with the results being used to inform the continuation of the project within other departments

■ 2. The DPU has in place a consistent and auditable measure of demand and capacity that supports the wider roll-out of the project across the force and that this methodology has been robustly tested against available data, benchmarks and best practice

■ 3. The DPU has in place a consistent methodology for measuring capacity and productivity gains generated

■ 4. The DPU has identified the required skills and has received relevant training, ensuring the unit can achieve and sustain the skills and knowledge required to effectively deliver the project within the agreed timescales

■ 5. Sufficient and appropriate data is available to effectively demonstrate the demand capacity and productivity of Police Scotland force departments

■ 6. There are effective data quality controls and processes in place to support the demand and productivity analysis of Police Scotland force departments

■ 7. There are clear roles, responsibilities and linkages between the DPU, SWP project team and finance planning teams, with agreed deadlines to ensure sufficient and appropriate information is shared timeously between teams

Pie chart segments: 7 - Green, 1 - Amber, 2 - Amber, 3 - Green, 4 - Yellow, 5 - Yellow, 6 - Amber

Improvement actions by type and priority

Bar chart, x-axis: Control Design, Control Operation; y-axis: 0 to 3. Legend: Grade 4, Grade 3, Grade 2, Grade 1.

Seven improvement actions have been identified from this review, six of which relate to the design of controls. See Appendix B for definitions of colour coding.

Key findings

Good practice

- The Demand, Productivity and Performance (DPP) project's objective was to set up and resource a new demand, productivity and performance function: the now established Demand and Productivity Unit (DPU). This function has an important role in expanding the understanding of demand across Police Scotland and supporting the work on strategic workforce planning to ensure resources are appropriately allocated across Police Scotland.

- Following the completion of the DPP project, the Local Policing Development (LPD) project was initiated to develop a demand and productivity model for local policing that could be used, in time, to allow similar modelling to take place for other areas of Police Scotland. A Resource Allocation Model (RAM) was approved in late 2019 and transferred to the DPU for further development (pre implementation) in February 2020.

- Both the DPP and LPD projects were implemented under Police Scotland's standard programme and project management arrangements, reporting to a DPP Project Board, LPD Project Board, under the Local Approaches to Policing (LAP) Programme Board and ultimately the Change Board.

- In 2019, the PMO absorbed the work previously done by the DPU to track productivity gains resulting from their work. The PMO produce a Monthly Benefits Update to the Change Board ensuring there is ongoing oversight and scrutiny over benefits tracking.

- There are efficient controls surrounding the loading of data into the data repository including wrangling to ensure a standardised formatting, the use of a test system and automated emails from ICT to confirm the success of data loaded into the repository.

- The DPU is a key contributor to the development of the Strategic Workforce Planning Project. At both a strategic and operational level, we found that communication channels are in place to ensure the DPU has a clear understanding of the Strategic Workforce Planning Project Team's requirements and timescales. This helps to ensure the DPU has early sight of the Project Team's needs and can plan and prioritise those appropriately within their limited resources.

Areas for improvement

We have identified a number of opportunities for improvement that, if implemented, would strengthen Police Scotland's control framework. They include:

- In order for the RAM to be rolled out across the remainder of Police Scotland, the measures and methodology should be adapted to reflect the needs of the remaining departments. A plan should be agreed for the roll out of the RAM that includes appropriate consideration of resourcing, and aligns with the assumptions and approach adopted in the development of the Strategic Workforce Plan.

- The DPU's planned review of the RAM for local policing, which has been delayed by the impact of Covid-19 should be completed to ensure its assumptions and outcomes are robust and effective and that it delivers the expected benefits to Police Scotland outlined within the DPP/LPD full business case.

- The DPU team should seek to have an understanding and awareness of all data quality issues including tracking and monitoring progress in resolving data quality issues. By gaining visibility of any issues that affect their analysis, the DPU Team can prioritise data quality issues to address through the Data Governance Board. Where relevant, analysis that is affected by data quality issues should be clearly caveated.

- Police Scotland's Data Team should establish further data policies and procedures to ensure all data systems, in particular those incorporated into the DPU's analysis, have stringent data quality processes in place to ensure trustworthy data is being used for decision-making.

These key issues are further discussed in the Management Action Plan below.

Impact on risk register

This review is linked to the following risks from the Police Scotland Risk Register (Dated December 2019):

- Risk SR 004: If there is a lack of investment in the data, time and resource to understand our demand, there is a risk that the organisation does not prioritise effectively, resulting in less effective operational delivery and an inability to distribute our budget effectively or prioritise our change programme to achieve the benefits. (Risk score: 20; Very High).

Given the findings of our review and that work remains ongoing to develop and roll out the resource allocation model across Police Scotland, risks in this area remain heightened. Addressing the recommendations laid out within the Management Action Plan will assist Police Scotland in mitigating these risks and reducing the risk scores.

Acknowledgements

We thank all staff consulted during this review for their assistance and co-operation.

Management Action Plan

Control Objective 1: The DPU has undertaken an effectiveness review of the demand and productivity model implemented within local policing, with the results being used to inform the continuation of the project within other departments.

Amber

1.1 Post-implementation review of Resource Allocation Model

The Demand, Productivity and Performance (DPP) project was approved in 2018 as part of a combined business case with the "Local Policing Development" (LPD) project. The projects were to run sequentially, with work on LPD commencing at the point of closure.

The DPP was established with a high level objective to "*Design, develop and implement the initial functions and provide staffing for a new Demand, Productivity and Performance function to support Police Scotland*". One of a number of outputs of the project was the "*establishment of a new team in Police Scotland to manage the repository and analytics (Demand, Productivity Unit - DPU).*"

The DPU then had a remit of developing a demand and productivity model across all of Police Scotland to support the Policing 2026 Strategy. The objective of the LPD was to improve the force's understanding of demand to support the development of a Resource Allocation Model (RAM) within local policing, work that concluded in September 2019, with the end of project report approved in December 2019. The RAM was handed over to the DPU in February 2020.

At the time of the audit, work had not yet commenced to extend the RAM beyond local policing.

We understand that post-implementation reviews originally planned as a component of the DPP and LPD business case have not been carried out. Through discussion with the DPU however, we understand that it is their intention to carry out a review of the RAM to ensure the model is robust and provides useful and appropriate output that supports effective decision making. From discussion to date, we understand that this review will cover the same broad areas as a post-implementation review but would be more detailed in nature.

At the time of the audit, the timelines for this review had been impacted by the re-tasking of the DPU as part of Police Scotland's COVID-19 response and the team were in the process of re-establishing this work.

Risk

There is a risk that, without review, the RAM may not deliver the outcomes and benefits approved as part of the approved business case leading to a lost opportunity to improve efficiency across workforce planning.

Recommendation

The DPU should continue with their planned review of the RAM, ensuring that resulting learning and actions are documented and implemented timeously. The outputs of this review should be shared with key governance groups to ensure that there is transparency as to whether the RAM as a planning tool is delivering the expected benefits, its suitability for deployment across the wider service, and any actions required to remediate this.

This learning should then be used when extending the model across all of Police Scotland, and in support of strategic workforce planning and the delivery of the Policing 2026 Strategy.

Management Action

Management agree with the recommendation -The DPU RAM review is currently underway with a paper outlining the assessment findings along with a plan to improve known data gaps to be provided to Director McMahon in July 2020. Note the model is yet to be implemented and what was provided to DPU was a model with acknowledged data gaps that require to be addressed prior to full implementation.

Note: All Management Actions dates are dependent on the development of the COVID-19 response due to both DPU's continued commitment to analysis for Op Talla command and the inability to baseline key demand data which cannot be done during the crises due to abnormal demand profiles.

Action 1: to continue review of the RAM for Local Policing and outline a plan for the remainder of 2020/21 around incremental implementation of the RAM with a corresponding data improvement plan. This includes a review of measures and assumptions per Objective 2 below. Plan to be presented to Director Business Integration.

Action owner: Head of DPU   **Due date:** August 2020

Action 2: Communications plan to be developed to ensure stakeholder engagement and provision of organisational learning outcomes to governance groups.

Action owner: Head of DPU   **Due date:** October 2020

1.2 Roll-out of demand and capacity modelling

As noted under MAP 1.1, work has not yet commenced to broaden the application of the Resource Allocation Model beyond local policing. This work could contribute towards, and should be aligned with, the development of Police Scotland's Strategic Workforce Plan. As such, it is important there is an agreed timescale, dedicated resource and a clear outline of the deliverables that will be needed.

Part of this work will involve a review of the model in place within local policing to understand the potential adaptations that will need to be made when rolling out the RAM across the force. This review will include, for example, assessing the assumptions that should be made, engaging with stakeholders in each business area and developing new productivity measures that accurately reflect productivity within different areas of policing. This work has the potential to be a hugely resource intensive exercise.

The FBC for the DPP approved in 2018 included initial 2019/20 budget for 7 FTE and the DPU is currently operating under what is termed its Minimum Viable Structure (MVS). A Change Request was subsequently submitted in 2019 reflecting that the DPU was not sufficiently resourced to deliver all work tasked to it, with one of the potential impacts of remaining under the MVS being limitations on the ability of the DPU to provide support to key stakeholders such as the Strategic Workforce Planning project. Additional resource has since been approved and recruitment is ongoing to bring the DPU up to its full complement of 11 FTE. We understand that the DPU has allocated a significant proportion of its resource to support the development of the Strategic Workforce Plan.

At the time of the audit, with the DPU having recently returned to business as usual after the COVID-19 re-tasking, the team were fully occupied carrying out the review and developmental work required to refine and embed the RAM within local policing (as referred to within MAP 1.1 and 2.1). There is currently no plan in place, or specific resource allocated, to articulate how the RAM will be extended beyond local policing, pending the planned review noted under Finding 1.1.

Risk

There is a risk of misalignment between the strategic workforce plan and the RAM as applied to areas of Police Scotland beyond local policing, if these tools apply different assumptions or methodologies to relate information about demand to expectations of the resource required to meet it. This could result in short term resource allocation decisions that conflict with the strategic plan, or strategic workforce planning decisions that do not support resource deployment needs.

Recommendation

The DPU should develop a plan setting out how the RAM will be applied across all areas of the force. This should involve engagement with the Strategic Workforce Planning (SWP) Project Team and Strategic Resources and Resilience Group (SRRG) to ensure that key assumptions are aligned. The plan should outline the resources needed to carry out this work, and reflect any key dependencies and timescales between the work of the two groups.

Management Action

**Grade 3
(Design)**

Management accept the recommendation and recognises that the recommendation from MAP 1.1 should inform the direction for expansion of RAM (or similar demand models) to other parts of Police Scotland.

Action 1: Following DPU RAM review (and implementation of RAM) conduct an exploration exercise with SWP team of other business areas to consider the potential alignment and impact of the review findings.

Action owner: Head of DPU   **Due date:** October 2020

Action 2: Present joint findings and recommendations for rollout/modelling to SRRG ensuring best use of resources.

Action owner: Head of DPU   **Due date:** October 2020

Control Objective 2: The DPU has in place a consistent and auditable measure of demand and capacity that supports the wider roll-out of the project across the force and that this methodology has been robustly tested against available data, benchmarks and best practice measures to ensure they are appropriate for the departments in question and comparable across the force.

Amber

2.1 Review of demand and capacity measures

During the development of the RAM the DPU reviewed the approaches in place within policing both nationally and globally, as well as considering academic studies carried out on the subject, to identify best practice. This review found that there was a lack of systematic productivity measures in place generally and that forces took a range of different approaches, including many having no model at all.

When developing the initial set of productivity measures, the DPU drew on the various examples researched in order to formulate a robust set of measures that were appropriate for Police Scotland. The remit of this initial work was to develop measures appropriate to local policing and this included measures such as:

- Incidents per FTE;

- Statements per case;

- Absence rate per FTE;

- Procurator Fiscal case success rate; and

- Overtime and working time regulation claim per FTE.

We understand from management that the productivity metrics in use have remained under review throughout the development of the RAM. However, as noted under MAP 1.1, the DPU's initial timescales for carrying out a comprehensive review of the RAM methodology has been impacted by the re-tasking of the team as a result of COVID-19.

Risk

There is a risk that the DPU do not identify changes needed to the productivity measures as a result of lack of timely review of their appropriateness and completeness. This could hamper the usefulness of the RAM reporting produced and the quality of decision making based on it.

Recommendation

We recommend, as noted at MAP 1.1, that the DPU carry out their planned review of the RAM methodology as soon as resource allows, ensuring input is captured from key stakeholders within local policing. This review should consider whether existing measures need to be refined, but also consider whether the measures

present a balanced picture of productivity across local policing, taking cognisance of any such review work already undertaken in the course of the design of the RAM methodology.

Management Action

Grade 3 (Design)

Management accepts the recommendation and will include measures in the review process as outlined in MAP 1.1 and MAP 1.2.

Action 1: To ensure that comms plan (MAP 1.1) includes engagement with key stakeholders, including SWP.

Action owner: Head of DPU   **Due date:** October 2020

Action 2: DPU to engage with the SRRG in relation to review findings and identify areas for improvement related to measures.

Action owner: Head of DPU   **Due date:** October 2020

Control Objective 3: The DPU has in place a consistent methodology for measuring capacity and productivity gains generated.

Green

The Full Business Case (FBC) for the DPP/LPD projects outlines that one of its objectives is to support the Policing 2026 goal to "*Generate more 'policing hours' for police officers by reducing administration and freeing their time to focus on operational matters*". The DPP and LPD projects should do this by enabling Police Scotland to "*understand, track and monitor the demands for policing services in order to inform evidence based strategic and tactical decision making across the organisation*". In addition, the LPD project specifically outlined that one of its expected benefits was to ensure shift patterns and officer deployment were aligned to demand, thereby reducing inefficiency and waste and improving productivity. This expected benefit was supported by productivity gains seen at other forces implementing similar projects across the UK.

The FBC tasked the DPU with reporting changes in organisational productivity and capacity against strategic resource commitments within an Interim Productivity Tracker (IPT). The DPU defines these measures as:

- Productivity: The ratio of outputs to inputs and the change of this ratio over time.

- Capacity: The maximum output that an organisation or an individual can produce in a given period.

The DPU began maintaining the IPT in August 2018 and the latest reporting up until August 2019 shows that in 2018/19 Police Scotland realised 174.95 FTE out of a potential 308.95 FTE productivity/capacity gains (146 FTE Capacity and 28.95 FTE Productivity). In 2019/20, the August 2019 report shows potential productivity/capacity gains of 474.6 FTE. This would mean by the end of 2019/20, a gain of 649.55 FTE could be realised. The IPT was reported monthly to the Director of Change, Project Leads and to PMO and then to the DCO.

In the summer of 2019, the IPT was handed over to the PMO who prepared one iteration of the IPT. The PMO then abolished the IPT as it was felt to duplicate other reporting prepared under the recently revised Benefits Management Framework and lacked solid foundations against which to measure gains. We have reviewed the most recent update prepared on Benefits Reporting presented to the Change Board on 2 June 2020. This report summarises all productivity gains across the change portfolio and notes that:

- For the period 2017/18 to 2021/22 the planned officer efficiencies is 1369 FTE

- The forecast for officer efficiencies is currently 1246 FTE

- Actual officer efficiencies delivered is 573 FTE.

As such the PMO Benefits Reporting reviews all efficiencies delivered throughout the change programme and provides a mechanism for these to be scrutinised and reported and this process will be the subject of an internal audit in 2020/21.

As noted under MAP 1.1 however, there remains a lack of clarity as to whether the expected productivity gains within the LPD and DPP projects are being delivered and whether the RAM is providing sufficient and robust information to support the decision making process. We believe a post-implementation review would address this issue and so believe this point is covered under MAP 1.1.

Control Objective 4: The DPU has identified the required skills and has received relevant training, ensuring the unit can achieve and sustain the skills and knowledge required to effectively deliver the project within the agreed timescales.

Yellow

4.1 Skills and training

As noted under MAP 2.1, the DPU require to recruit additional staff to move from the current minimum viable structure to a full complement of staff. As it does so, the DPU are also articulating their Target Operating Model including the products and services that will be provided by the function, the skills and roles needed to deliver those and in turn, the career and training pathways that will support individuals in those roles.

This work remained in progress at the time of the audit, however we noted that this was well underway with several decisions made and documents drafted. For example, to ensure the detailed role profiles and associated development pathways align with best practice, the DPU has researched relevant competency frameworks and has identified three of particular note: TRACER - Data Analytics Skills in Law Enforcement, the Cabinet Office – Professional Development Framework and The Government Statistician Group (GSG) Competency Framework. These will be used to benchmark the grading, training and development of the roles.

We understand that once completed, the outputs from this work will be reviewed and approved via the Transforming Corporate Support Services (TCSS) Change Board as a component of the wider redesign of Police Scotland's Analytics capabilities.

Risk

There is a risk that the DPU will not have the skilled staff, both in terms of numbers and quality of staff, as the staff in the DPU have not been sufficiently trained, leading to the DPU being unable to fulfil its purpose of assessing the manpower needs of Police Scotland.

Recommendation

We endorse the work ongoing within the DPU to develop their Target Operating Model and recommend that this is completed timeously. This should include appropriate provision for ongoing training and be reviewed periodically to ensure it remains appropriate.

Management Action

Management accept this recommendation in recognition that this forms part of the redesign and will continue to contribute to the transformation of Police Scotland's analytics.

Action 1: DPU will develop a matrix of the training/development requirements for each of the role profiles.

Action owner: Head of DPU   **Due date**: August 2020

Action 2: DPU will ensure that role profiles align with best practice and clearly identify skill /training requirements.

Action owner: Head of DPU   **Due date:** September 2020

Action 3: DPU to include reports on training at Departmental SMT

Action owner: Head of DPU   **Due date:** September 2020.

Control Objective 5: Sufficient and appropriate data is available to effectively demonstrate the demand capacity and productivity of Police Scotland force departments.

Yellow

5.1 Completeness check

There are well-documented issues within Police Scotland's legacy systems that have negatively impacted data quality and the completeness of the data used for demand analysis. We are aware that plans are being developed by Police Scotland's Data Team to address this. A key aspect of this is the Data Strategy. It is recognised that delivery of the Data Strategy will be a significant activity over the next 3-5 years.

Police Scotland is also in the process of implementing its data governance framework. This includes data owners for all data within the organisation. The data owners are ACC- or Director-level and they have responsibility for determining their own priorities for addressing data quality. They will submit their own priorities to the Data Governance Board who will subsequently prioritise the resolution of data quality issues.

At the start of the DPU project, an initial examination of all available data sources was performed including a consideration of the completeness of the in-scope datasets. There are multiple parties involved in the extract, transform load (ETL) and analysis processes for demand reporting. These include ICT, Data and DPU teams. Each of these teams will have a different set of responsibilities over data used for reporting and, with that, a need for different controls over data quality.

The Demand and Productivity Unit's main responsibilities in respect of data quality and completeness will be to assess the extent to which issues may impact on the quality and reliability of the analysis they produce. We received evidence that there are various checks, such as a completeness and uniqueness check, performed on data from some systems such as VPD and STORM. However, this process is not applied to all data sources used for demand analysis.

The inconsistencies in data quality, controls and completeness checks applied to data within each system has led to different standards and formatting of data, which the ICT team standardises and loads into the model. Although an automated report is generated that details the success of the ICT load and the completeness of the data loaded, there are limited controls within the Demand and Productivity Unit to allow them to have visibility of and to gain assurance on the completeness of the data in different systems before it is loaded into the model.

Therefore, although all data is successfully loaded into the repository from each system, this data may be incomplete in the initial system prior to the data load. This would result in incomplete data being loaded into the repository.

Risk

There is a risk that without completeness checks consistently being applied across all systems used within the data repository, incomplete data is used within the model. This can lead to an inaccurate image of the demand Police Scotland faces and all decisions based on this incomplete data may be missing crucial caveats.

Recommendation

We recommend that the DPU team expand their use of completeness checks and other controls to all systems used within the data repository where possible. This review of the completeness of data should be performed on an ongoing basis so that the DPU team can gain assurance that the data being used for analysis purposes is of sufficiently quality.

We also recommend that the DPU Team performs an exercise to identify data quality issues that may impact upon the accuracy and completeness of demand reporting. These should be assessed and prioritised in line with guidance provided by the Data team before being submitted to the Data Governance Board for them to determine when data quality issues will be addressed.

Management Action

Grade 2 (Design)

Management accept the recommendation and will engage with Chief Data Officer in managing and escalating of DQ matters through the respective Governance processes.

Action 1: Profile / develop reports which detail deficiencies in the quality of data used within DPU data sources (e.g. SEBP) to provide visibility of basic data quality dimensions (e.g. completeness, validity, accuracy). Prioritise critical data first.

Action owner: Head of DPU   **Due date:** August 2020

Action 2: Regular analysis of regular statistical work to identify any potential statistical outliers which may reveal hidden data issues

Action owner: Head of DPU   **Due date:** October 2020

Action 3: Identify impact of potential data quality issues on decision-making, escalating to via the Data Governance process (e.g. Data Owner Groups, Data Governance Board) where necessary. (Date corresponds with 6.1 and establishment of various CDO workflows)

Action owner: Head of DPU   **Due date:** December 2020

Control Objective 6: There are effective data quality controls and processes in place to support the demand and productivity analysis of Police Scotland force departments.

Yellow

6.1 Lack of wider Police Scotland data policies and processes

As the Demand and Productivity Unit relies on data from a variety of systems, it is important that there are wider organisational controls and procedures to ensure the data extracted and analysed is of sufficient quality to base decisions on.

When the Demand and Productivity Project began, there were no wider Police Scotland polices that covered data management and quality including:

- No organisation-wide Data Strategy existed to maintain the level of data quality required to support the business goal and objectives of Police Scotland.

- No Improvement Plan had been developed, monitored or maintained for the improvement of data quality across the organisation. As part of this there had been no examination or awareness of the current data quality in the organisation. Therefore, there was no minimum standard of data quality, no set policies and procedures for the management of data or how data should be documented for instance the use of data dictionaries and maps. In addition, there was no dedicated governing body to monitor and support adherence to objectives of a Strategy or Improvement Plan or assure a minimal data quality standard of all systems within Police Scotland.

- No policies or procedures existed regarding historical data that cover retention, backup, recovery, accessibility, data migrations and storage.

The lack of wider organisational controls and policies may have negatively impacted the quality of data the DPU team receives. Further, the lack of guidance on data management and quality resulted in the DPU team operating in the absence of defined controls and policies, which would enforce a minimum standard of quality and security of data.

During the course of our audit and as referenced in MAP 5.1, Police Scotland's Data team has developed and established an organisational approach to data management and quality. This included the development of a Data Strategy, which is aligned to the Data, Digital and ICT (DDICT) Strategy, to be delivered over the next three to five years and the establishment of a Data Governance Framework.

In addition, the Chief Data Officer has begun the establishment of Data Standards, which are only currently defined for nominal data and are in the process of being expanded to Crime. These Data Standards will set a minimal standard for each system and a review that data used within projects and teams meet this standard will be performed at a future date.

Risk

There is a risk that the Police Scotland has ineffective data quality processes in place leading to staff being unaware of the processes to ensure 'good' data is used for reporting. This could result in untrustworthy and misleading data being used for reporting or limiting the effectiveness of demand analysis.

Recommendation

We recommend that the Chief Data Officer establishes an organisational approach to data with the aforementioned policies being approved and implemented in a timely manner. The minimal data standard including the documenting of data dictionaries and maps should be expanded to different data including the other systems incorporated within the demand analysis to ensure a more consistent level of data quality across all the relevant systems. Priority should be given to that data which is most important in supporting decision making.

We recommend that the Demand and Productivity Unit should have representation on the Data Governance Board to ensure awareness of the impact of any decisions on demand analysis and vice versa is considered when decisions are made. The team should liaise with this body and the newly defined data owners to improve any current identified data quality issues that limit demand analysis and a clearly defined approach and methodology to resolving data quality issues should be established.

Management Action

Grade 2 (Design)

Management accept the recommendation and will liaise with Chief Data Officer to ensure DPU considerations are included in the development of wider organisational strategies.

Action 1: Ensure DPU representation at the Data Governance Board

Action owner: **Chief Inspector DPU**   **Due date:** September 2020

Action 2: Ensure DPU representation at each of the Data Owner Groups.

Action owner: **Chief Inspector DPU**   **Due date:** September 2020

Action 3: Formalise Data Strategy to include existing Data Governance plans, Data Owner Groups, more detailed Data Quality plan, 2-3 year Roadmap Plan (including investment plan, DDD, etc.).

Action owner: **Chief Data Officer**   **Due date:** March 2021

Action 4: Create a new overarching Data Policy for Police Scotland, covering areas like data quality, data standards, data accessibility, metadata, as well as traditional compliance requirements such as retention, protection, security.

Action owner: **Chief Data Officer**   **Due date:** March 2021

6.2   DPU visibility of data quality issues

As part of the DPU project lifecycle described in MAP 5.1, the DPU team identified several issues with the data quality. We received an example paper documenting an identified issue in the Missing Persons data, the impact and severity of the issue and a suggested solution. However, it is not clear how this and other identified data quality issues are monitored and tracked, or the actions taken following the paper to address this issue.

The absence of a formal procedure to monitor data quality issues identified by the DPU team is compounded by the lack of documentation of data quality reviews for all systems used for analysis, resulting in a potential lack of oversight and visibility of data quality issues that might affect demand analysis.

Risk

There is a risk that Police Scotland may lose oversight over any identified data quality issues either resulting into flawed data being incorporated into the model or a limited effectiveness in resolving data quality issues. The latter would mean that useful data is excluded from the model to account for these unresolved data quality issues, which could limit the effectiveness of the demand analysis.

Recommendation

The DPU Team should establish an awareness of the data quality of all sources used in their analysis. When data quality issues are identified, the impact of these should be determined before their continued use in decision-making and the effects of this should be documented and a caveat placed on all affected analysis. This may take the form of a "health warning" on the data used in analysis to allow visibility of issues that may affect decisions.

In order to support this visibility of data quality issues, a Data Quality Register or equivalent can be used to record all identified issues. This should allow oversight of data quality issues including the impact, dependencies and progress in resolving these issues. This Register can be used as a management tool to allow the DPU team to prioritise and monitor issues to be resolved through the Data Governance Board.

Management Action

<mark>Grade 2 (Design)</mark>

Management accept the recommendation and will engage with Chief Data Officer to support DPU implement these actions

Action 1: Define a data quality management process to identify and manage data quality issues with DPU data sources (e.g. SEBP), which will include clear visibility of DPU-related data quality issues

Action owner: Head of DPU   **Due date:** August 2020

Action 2: Create a DPU Data Quality Register to catalogue the known data quality issues, and use as a management tool to prioritise, monitor and escalate via the Data Governance process (e.g. Data Owner Groups, Data Governance Board), where necessary.

Action owner: Head of DPU   **Due date:** August 2020

Action 3: Assess options to recognise the potential impact of poor data quality on decision-making, and develop an integration plan based on identified data quality issues. Make this transparent to decision-makers who consume the data.

Action owner: Head of DPU   **Due date:** September 2020

Action 4: All products produced which use data with known issues must have caveats written in to make it clear to the intended audience of what these issues are and the associated implications.

Action owner: Head of DPU   **Due date:** September 2020

Control Objective 7: There are clear roles, responsibilities and linkages between the DPU, SWP project team and finance planning teams, with agreed deadlines to ensure sufficient and appropriate information is shared timeously between teams.
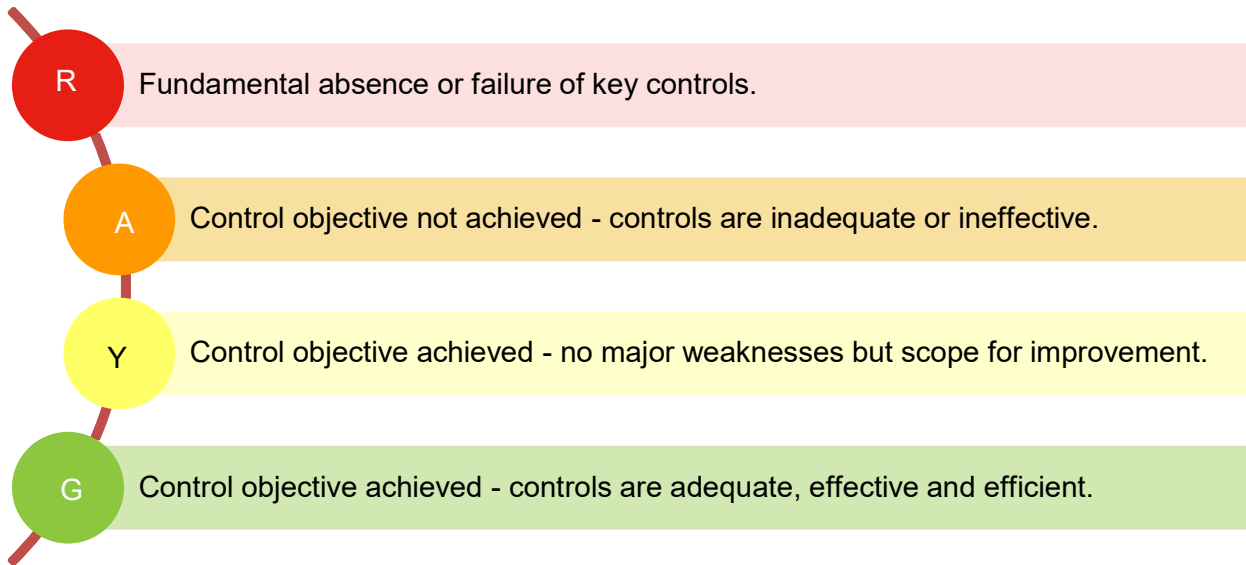
Green

In April 2020 we reviewed Police Scotland's Strategic Workforce Planning (SWP) project. The DPU is a key contributor to the SWP development, providing baseline data and analysis to support the development of local and integrated strategic workforce plans. As such it is essential that the SWP Project Team works closely with the DPU, articulating their needs and timescales to enable the DPU to deliver the required information timeously. Within our review of Strategic Workforce Planning however, we noted that work was required by the SWP Project Team to develop their project plan and in particular, we noted that some dependencies on work to be carried out by other areas of the organisation were not clearly articulated in the still-maturing project plan.

As such, whilst the recommendations from this report remain outstanding, we reviewed the progress made in respect of joint working between the SWP Project Team and the DPU. We noted that the Director of Business Integration, who has overall responsibility for the DPU, is a member of the SWP Project Board. In addition, a Strategic Resources and Resilience Group (SRRG) has been established with the primary purpose of coordinating the planning from linked work streams including Demand and Productivity and Strategic Workforce Planning. The Director of Business Integration is a member of the SRRG, alongside the Director of People and Development and the Head of Strategic Workforce Planning. The SRRG has an agreed Terms of Reference in place and will report into Police Scotland's Corporate Finance & People Board, but at the time of the audit was yet to meet functionally.
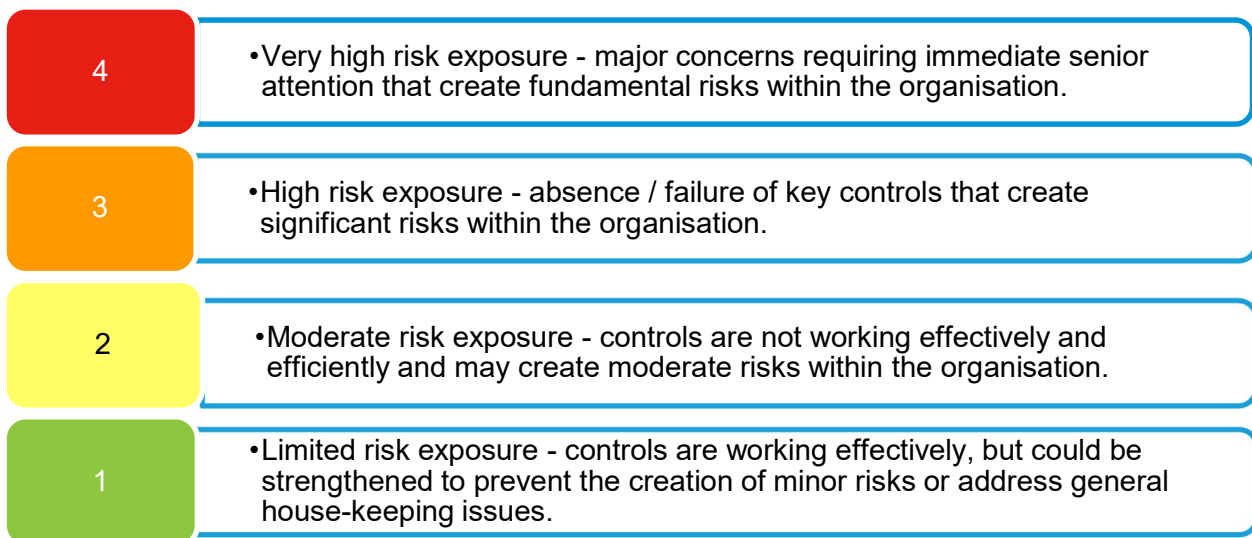
At an operational level we found that since our previous report and as a result of the stage that the SWP project has reached, there has been increased engagement between the DPU and SWP as the DPU applies scrutiny to the demand comments and assumptions made in the draft workforce plans For example, we noted that in April the DPU and SWP project teams instituted an informal weekly call to ensure mutual alignment on requirements and timescales. To date, the DPU reported that they have found this regular interaction useful in terms of understanding the detailed needs of the SWP project. In addition from discussions with management we observed a strong commitment to supporting the SWP Project and in ensuring that work in this area was a priority for the DPU over the coming months as the SWP Project progresses.

Appendix A – Definitions

Control assessments

R — Fundamental absence or failure of key controls.

A — Control objective not achieved - controls are inadequate or ineffective.

Y — Control objective achieved - no major weaknesses but scope for improvement.

G — Control objective achieved - controls are adequate, effective and efficient.

Management action grades

4
- Very high risk exposure - major concerns requiring immediate senior attention that create fundamental risks within the organisation.

3
- High risk exposure - absence / failure of key controls that create significant risks within the organisation.

2
- Moderate risk exposure - controls are not working effectively and efficiently and may create moderate risks within the organisation.

1
- Limited risk exposure - controls are working effectively, but could be strengthened to prevent the creation of minor risks or address general house-keeping issues.

Appendix B – Action Summary

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
1.1	The DPU should continue with their planned review of the RAM, ensuring that resulting learning and actions are documented and implemented timeously. The outputs of this review should be shared with key governance groups to ensure that there is transparency as to whether the RAM as a planning tool is delivering the expected benefits, its suitability for deployment across the wider service, and any actions required to remediate this. This learning should then be used when extending the model across all of Police Scotland, and in support of strategic workforce planning and the delivery of the Policing 2026 Strategy.	Management agree with the recommendation -The DPU RAM review is currently underway with a paper outlining the assessment findings along with a plan to improve known data gaps to be provided to Director McMahon in July 2020. Note the model is yet to be implemented and what was provided to DPU was a model with acknowledged data gaps that require to be addressed prior to full implementation. Note: All Management Actions dates are dependent on the development of the COVID-19 response due to both DPU's continued commitment to analysis for Op Talla command and the inability to baseline key demand data which cannot be done during the crises due to abnormal demand profiles. **Action 1:** to continue review of the RAM for Local Policing and outline a plan for the remainder of 2020/21 around incremental implementation of the RAM with a corresponding data improvement plan. This includes a review of measures and assumptions per Objective 2 below. Plan to be presented to Director Business Integration.	3	Head of DPU	**Action 1:** August 2020 **Action 2:** October 2020

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
		Action 2: Communications plan to be developed to ensure stakeholder engagement and provision of organisational learning outcomes to governance groups.			
1.2	The DPU should develop a plan setting out how the RAM will be applied across all areas of the force. This should involve engagement with the Strategic Workforce Planning (SWP) Project Team and Strategic Resources and Resilience Group (SRRG) to ensure that key assumptions are aligned. The plan should outline the resources needed to carry out this work, and reflect any key dependencies and timescales between the work of the two groups.	Management accept the recommendation and recognises that the recommendation from MAP 1.1 should inform the direction for expansion of RAM (or similar demand models) to other parts of Police Scotland. **Action 1:** Following DPU RAM review (and implementation of RAM) conduct an exploration exercise with SWP team of other business areas to consider the potential alignment and impact of the review findings. **Action 2:** Present joint findings and recommendations for rollout/modelling to SRRG ensuring best use of resources.	3	Head of DPU	October 2020
2.1	We recommend, as noted at MAP 1.1, that the DPU carry out their planned review of the RAM methodology as soon as resource allows, ensuring input is captured from key stakeholders within local policing. This review should consider whether existing measures need to be refined, but also consider whether the measures present a	Management accepts the recommendation and will include measures in the review process as outlined in MAP 1.1 and MAP 1.2. **Action 1:** To ensure that comms plan (MAP 1.1) includes engagement with key stakeholders, including SWP. **Action 2:** DPU to engage with the SRRG in relation to review findings and identify areas for improvement related to measures.	3	Head of DPU	October 2020

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
	balanced picture of productivity across local policing, taking cognisance of any such review work already undertaken in the course of the design of the RAM methodology.				
4.1	We endorse the work ongoing within the DPU to develop their Target Operating Model and recommend that this is completed timeously. This should include appropriate provision for ongoing training and be reviewed periodically to ensure it remains appropriate.	Management accept this recommendation in recognition that this forms part of the redesign and will continue to contribute to the transformation of Police Scotland's analytics. **Action 1:** DPU will develop a matrix of the training/development requirements for each of the role profiles. **Action 2:** DPU will ensure that role profiles align with best practice and clearly identify skill /training requirements. **Action 3:** DPU to include reports on training at Departmental SMT	2	Head of DPU	**Action1:** August 2020 **Action 2:** September 2020 **Action 3:** September 2020
5.1	We recommend that the DPU team expand their use of completeness checks and other controls to all systems used within the data repository where possible. This review of the completeness of data should be performed on an ongoing basis so that the DPU team can	Management accept the recommendation and will engage with Chief Data Officer in managing and escalating of DQ matters through the respective Governance processes. **Action 1:** Profile / develop reports which detail deficiencies in the quality of data used within DPU data sources (e.g. SEBP) to provide visibility of basic data	2	Head of DPU	**Action 1:** August 2020 **Action 2:** October 2020 **Action 3:** December 2020

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
	gain assurance that the data being used for analysis purposes is of sufficiently quality. We also recommend that the DPU Team performs an exercise to identify data quality issues that may impact upon the accuracy and completeness of demand reporting. These should be assessed and prioritised in line with guidance provided by the Data team before being submitted to the Data Governance Board for them to determine when data quality issues will be addressed.	quality dimensions (e.g. completeness, validity, accuracy). Prioritise critical data first. **Action 2:** Regular analysis of regular statistical work to identify any potential statistical outliers which may reveal hidden data issues **Action 3:** Identify impact of potential data quality issues on decision-making, escalating to via the Data Governance process (e.g. Data Owner Groups, Data Governance Board) where necessary. (Date corresponds with 6.1 and establishment of various CDO workflows)			
6.1	We recommend that the Chief Data Officer establishes an organisational approach to data with the aforementioned policies being approved and implemented in a timely manner. The minimal data standard including the documenting of data dictionaries and maps should be expanded to different data including the	Management accept the recommendation and will liaise with Chief Data Officer to ensure DPU considerations are included in the development of wider organisational strategies. **Action 1:** Ensure DPU representation at the Data Governance Board **Action 2:** Ensure DPU representation at each of the Data Owner Groups. **Action 3:** Formalise Data Strategy to include existing Data Governance plans, Data	2	**Actions 1&2:** Chief Inspector DPU **Actions 3&4:** Chief Data Officer	**Action1:** September 2020 **Action 2:** September 2020 **Action 3:** March 2021 **Action 4:** March 2021

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
	other systems incorporated within the demand analysis to ensure a more consistent level of data quality across all the relevant systems. Priority should be given to that data which is most important in supporting decision making. We recommend that the Demand and Productivity Unit should have representation on the Data Governance Board to ensure awareness of the impact of any decisions on demand analysis and vice versa is considered when decisions are made. The team should liaise with this body and the newly defined data owners to improve any current identified data quality issues that limit demand analysis and a clearly defined approach and methodology to resolving data quality issues should be established.	Owner Groups, more detailed Data Quality plan, 2-3 year Roadmap Plan (including investment plan, DDD, etc.). **Action 4:** Create a new overarching Data Policy for Police Scotland, covering areas like data quality, data standards, data accessibility, metadata, as well as traditional compliance requirements such as retention, protection, security.			

| 6.2 | The DPU Team should establish an awareness of the data quality of all sources used in their analysis. When data quality issues are identified, the impact of these should be determined before their continued use in decision-making and the effects of this should be documented and a caveat placed on all affected analysis. This may take the form of a "health warning" on the data used in analysis to allow visibility of issues that may affect decisions.

In order to support this visibility of data quality issues, a Data Quality Register or equivalent can be used to record all identified issues. This should allow oversight of data quality issues including the impact, dependencies and progress in resolving these issues. This Register can be used as a management tool to allow the DPU team to prioritise and monitor issues to be resolved through the | Management accept the recommendation and will engage with Chief Data Officer to support DPU implement these actions.

Action 1: Define a data quality management process to identify and manage data quality issues with DPU data sources (e.g. SEBP), which will include clear visibility of DPU-related data quality issues.

Action 2: Create a DPU Data Quality Register to catalogue the known data quality issues, and use as a management tool to prioritise, monitor and escalate via the Data Governance process (e.g. Data Owner Groups, Data Governance Board), where necessary.

Action 3: Assess options to recognise the potential impact of poor data quality on decision-making, and develop an integration plan based on identified data quality issues. Make this transparent to decision-makers who consume the data.

Action 4: All products produced which use data with known issues must have caveats written in to make it clear to the intended audience of what these issues are and the associated implications. | 2 | Head of DPU | **Action 1:** August 2020

Action 2: August 2020

Action 3: September 2020

Action 4: September 2020 |

Action No.	Recommendation	Management Response	Grade	Action Owner	Due Date
	Data Governance Board.				