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TurkStat's experiences on mapping business processes using GAMS0

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Abstract: TurkStat decided to implement a process-oriented production system. For this purpose a national version of GSBPM has been prepared for statistical production processes. Using a process architecture software, process flows for activities are modelled, workflows for each product are mapped and also statistical products/activities are modeled in accordance with the Classification of Statistical Activities (CSA). However, the production process also covers activities on human resources, international relations, strategy, etc. In order to map the whole system of processes including statistical and non-statistical activities, GAMS0 could be used by NSOs. The paper focuses on the experiences of TurkStat' modelling of the non-statistical activities and mapping these activities using GAMS0.

TurkStat work on business process management

The major focus of TurkStat's process modelling is to establish standardized business architecture with a dynamic documentation and to establish a well-structured metadata and quality management system.

In this context business process modelling studies have been initiated in 2011. The work was done in two stages. The first stage was statistical business process modelling and the second one was non-statistical business process modelling. Non-statistical process modelling especially covers activities that support the statistical production.

In order to establish a process-oriented business architecture design, the first major study was to collect several kinds of information from subject-matter units (their activities/job steps, inputs and suppliers, outputs and users, system tools, executers etc) which were called process components. These job steps were standardized and modelled according to TurkStat GSBPM to prepare the generic workflows. Custom workflows for each individual product are also kept as they are.

We have a list of approximately 500 statistical products and non-statistical supporting services. It was necessary for us to classify these products/services. To categorise the statistical products we used CSA (Classification of Statistical Activities)¹ which is based on SDMX.

We also made a list for all products according to their data sources (primary, secondary and mixed mode). By doing this we created a complete inventory of products according to their data sources, their generic processes and job steps. We preferred this approach since the process flows may change when the data sources are different.

¹<http://www1.unece.org/stat/platform/display/disa2014/Database+of+International+Statistical+Activities+%28DISA%29+2014>

In order to establish the object-oriented components (modelling the processes and establishing all the relationships with all inputs and outputs through the process), a business architecture software was required. For this reason business architecture software was purchased. Modeling was done by using function allocation diagrams, EPC and value added chain. On the software the following studies were done;

- TurkStat statistical business processes and non-statistical processes were transferred to the program and mapped to reference model.
- Process flows between activities are modeled.
- Custom workflows for each products and services are drawn.
- A map for statistical activities in accordance with CSA was modeled.
- Organization chart is modeled to be used in process flows.
- All the standards and conventions are documented as “User conventions handbook”

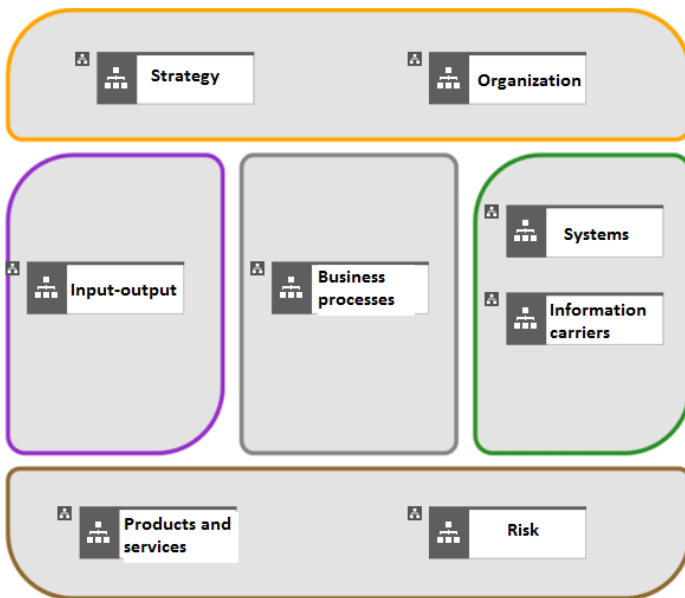


Figure 1.1 TurkStat Statistical Business Process Model

In addition, other process components such as input/output architectures, systems used in statistics production, risks, strategy are planned to be modeled.

Now the program covers TurkStat Statistical Business Process Model including the end to end structure, and the products which are classified according to CSA and services (Figure 1.1).

In this model there are 3 layers. Top layer includes strategy and organization, middle layer includes business processes and bottom layer includes products/services and risks. Every box has different contents and every small icon is the gate way for lower level (Figure 1.2).

Organization model: TurkStat’s organizational chart includes central and regional units.

Input-output model: This model includes data attributes (documents, technical terms, objects etc.).

Bussiness processes: Includes end to end TurkStat Statistical Business Process Model and non-statistical business processes.

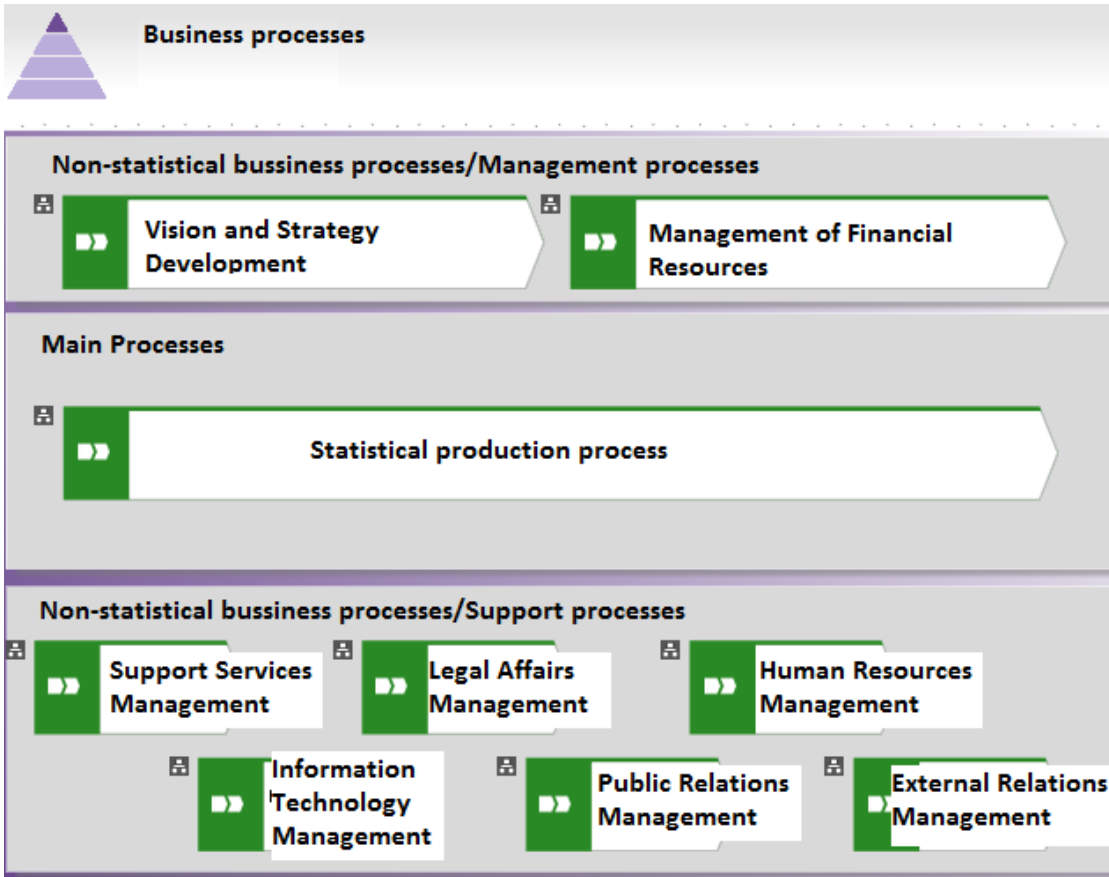


Figure 1.2 Business processes in Turkstat

Every part in the model has detailed processes. For example end to end TurkStat Statistical Business Process Model is in the “Statistical production process” part and under the “statistical production process box” we can reach the end to end TurkStat Statistical Business Process Model (Figure 1.3).

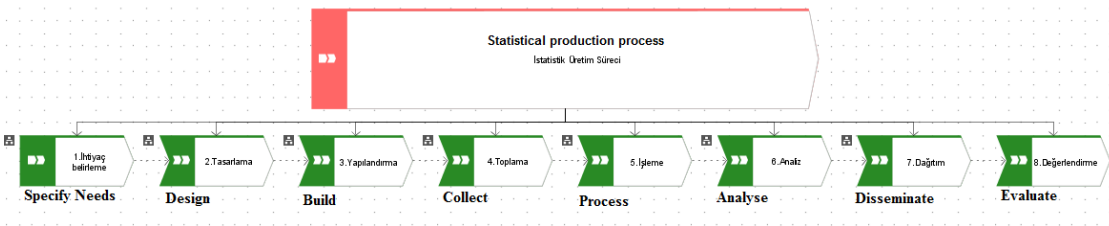


Figure 1.3 Statistical production process

Every first level process phase has its own second level, every second level process phase has its own third level and every third level phase has its own standardized job steps (Figure 1.4, Figure 1.5, Figure 1.6). Our future plan is the process improvement. Though we started these evaluations for some specific processes.

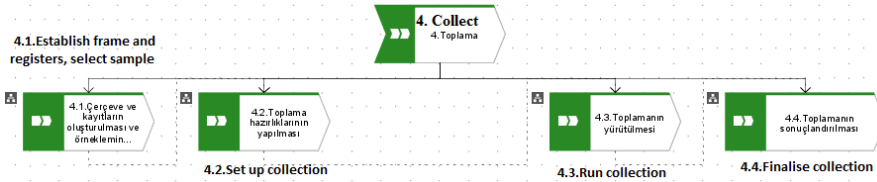


Fig 1.4 Second phase of Statistical production Process (4. Collect)

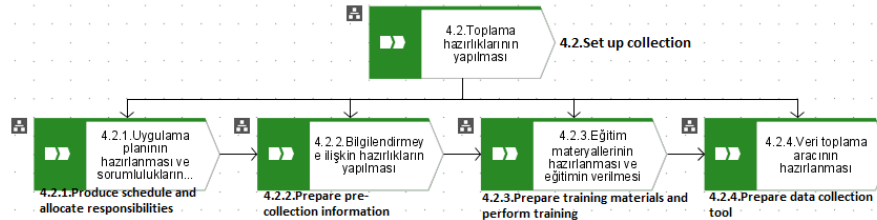


Fig 1.5 Third phase of Statistical production Process (4.2. Set up collection)

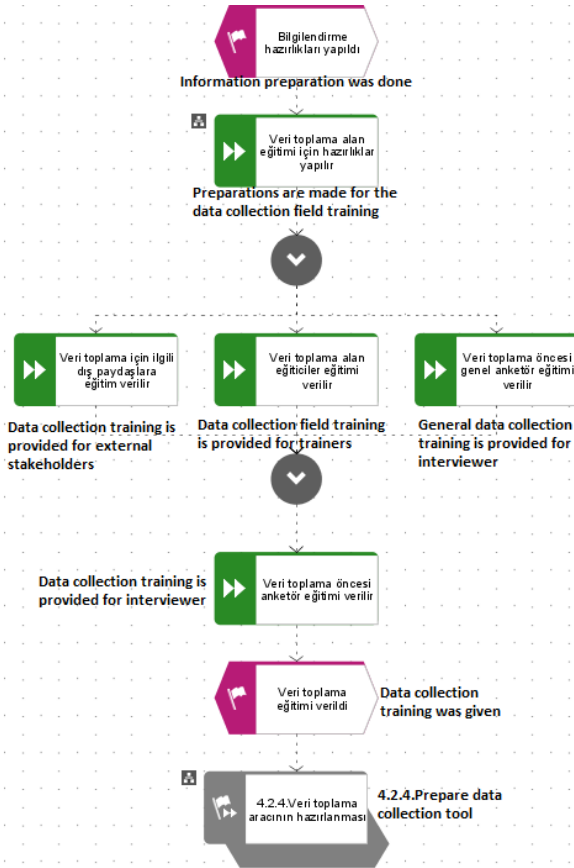


Figure 1.6 Standardized workflow step for third phase of Statistical production Process (4.2.3. Prepare training materials and perform training)

Product and services: It covers products and services produced by TurkStat and it has 3 levels.

Process structure for the “prison statistics” can be seen in Figure 1.7. In the figure, prison statistics refers to “product”. Products are classified according to CSA and finally one can reach the end to end process for prison statistics (Figure 1.7).

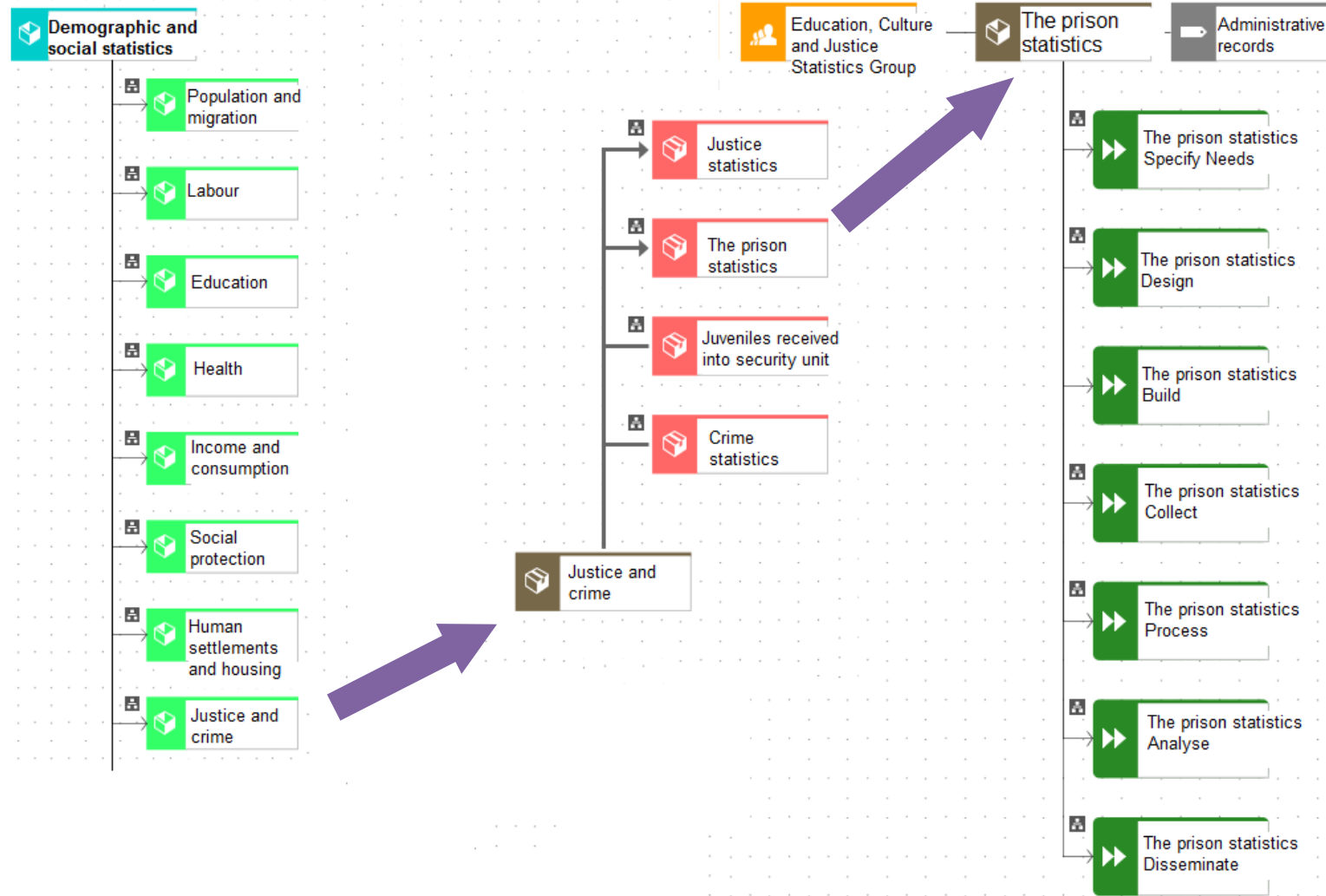


Fig 1.7 Process mapping structure for justice and crime statistics

Administrative and supporting business processes

Studies were initiated in 2015 to determine the non-statistical business processes. Meetings were held with the related departments. Their working routines, methods and IT tools were questioned on the basis of their activities and services. The information obtained from them have been reviewed, standardized, and categorized according to APQC's-PCF² (American Productivity and Quality Centre-Process Classification Framework) and GAMS0. We have eight main titles in which six of them is administrative, one is strategic and one is financial (see Fig 2.1).

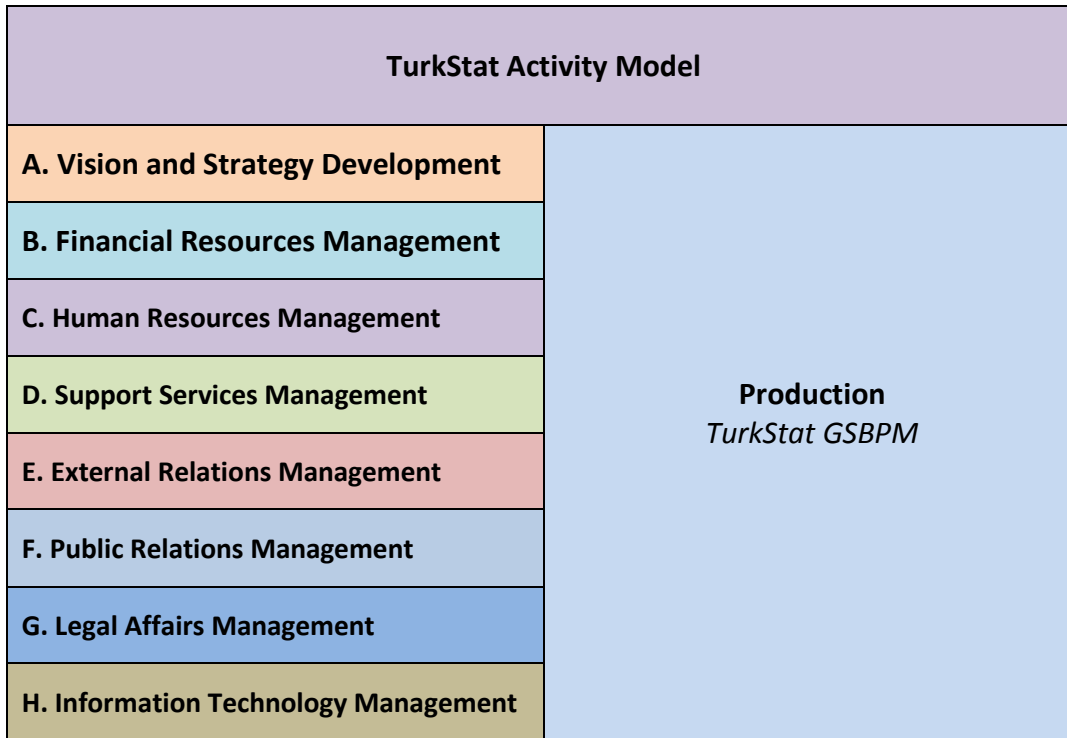


Fig 2.1 TurkStat Activity Model

However, a high-level model is required to map the non-statistical activities. Within this context we examined APQC's-PCF. This framework is prepared for the process classification of the organizations operating in the private sector. TurkStat Activity Model (see Annex 1) inspired from APQC's-PCF used to model administrative and support processes. While designing the model, job descriptions of administrative and support units were examined. APQC's-PCF comprises twelve hierarchical levels for administrative and supporting processes, however TurkStat Activity Model comprises eight hierarchical levels, twenty two sub-activities and ninety-seven third levels. The third level is the description of the activities.

3. Challenges on mapping the processes

GAMS0 describes and defines the activities that take place within a typical statistical organization³. TurkStat activity model inspired primarily from APQC and a high-level mapping to GAMS0 was done. It was seen that there are some overlaps between sections of the GAMS0. Also some

² American Productivity and Quality Centre - Process Classification Framework

³ The Generic Activity Model for Statistical Organizations Version 1.0:1 March 2015

activities listed under 4 main sections in GAMS0 may change between the sections depending on the scope of these activities.

1. Although Human Resource Management activities covered in Corporate Support in GAMS0, it could also be in “2.3 Monitor capabilities” under Capability Management in terms of evaluating and promoting capabilities of human resources.
2. Advisory activities (advisors to the President of TurkStat) could be classified under “Ensure general coordination and alignment” section of Strategy and Leadership as well as in “Plan capability improvements” under Capability management section.
3. “Build and maintain internal statistical and professional excellence” part of Strategy and Leadership has strong relationship with the Capability management. Therefore this relationship needs to be defined clearly.
4. It is not clear how we can separate “Support operations” in Capability management from the activities in Corporate support.
5. The activities listed under “Manage statistical methodology”, “Manage quality” “Manage information and knowledge” in corporate support is directly related with the statistical production processes. Therefore these activities are handled in Production – GSBPM part of GAMS0 and should not be included in Corporate support section.
6. “Manage business and performance” and “Manage finances” in Corporate support could be moved to Strategy and Leadership section of GAMS0.
7. It was observed that GAMS0 does not have any level about Supportive services such as dentistry, health care, catering services, security and cleaning. But TurkStat Activity Model comprise 4.2.4 Health care, 4.2.5 Catering services, 4.2.1 Transport, cleaning and security services successively in Support Services Management.
8. It was observed that GAMS0 does not have any level about legal affairs like lawsuits against the institution, internal penalties etc.

According to TurkStat experience Capability Management’s title were covered by Strategy & Leadership in GAMS0. This confusion made statistic offices prevents mapping their activities on. “Supportive services such as dentistry, health care, catering services, security and cleaning” and legal affairs did not locate on it. Both of the activities could be in the model. Statement “manage” were used every level of GAMS0 and this made the model complicated and incomprehensible. In light of this information GAMS0 could be redesigned considering statistic offices experience.

4. Conclusions

Generic Statistical Business Process Model (GSBPM, 2013) describes and defines the set of business processes needed to produce official statistics. GAMS0 extends and complements the Generic Statistical Business Process Model (GSBPM) by adding additional activities needed to support statistical production. It is indicated in GAMS0 (V.1:0, 2015) that, the over-arching GSBPM processes (quality and metadata management) have a cross-cutting nature and influence GAMS0 in different layers.

GAMS0 is an activity model, on the other hand GSBPM is a process model. Their structure is different; therefore the process flow structure in GSBPM may not be adopted to the GAMS0.

GAMSO reflects the organisational activities as a whole, while GSBPM reflects the statistical business processes. For the modernisation roadmap, both GSBPM and GAMSO are the models that are proposed to the statistical community. Between these two models there should not be any overlaps like methodology, metadata or statistical quality. In order to avoid confusion and increase the usability, the distinctions between these models should be clearly made. In addition there is a need for clarification of the activities in GAMSO.

References

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Generic Activity Model for Statistical Organisations

COŞKUN Y. 2014, Expertise Thesis: Technical And Administrative Process Analysis Of Regional Offices, Turkstat press.

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A. Vision and Strategy Development

Vision and Strategy Development Management is broken down into 3 sub-activities. Each activities has own third level.

A. Vision and Strategy Development		
A.1	A.2	A.3
Strategic planning	Performance	Internal Control
A.1.1 Management information system	A.2.1 Employee satisfaction survey	A.3.1 Establishment of an internal control system
A.1.2 Strategic management	A.2.2 Determination of criteria	A.3.2 Monitoring compliance with the internal control system
A.1.3 Monitoring the results of the plan	A.2.3 Observing and evaluation of performance	A.3.3 The execution of internal audit preparation
		A.3.4 The conduct of the external audit preparation

Fig 3.1 Vision and Strategy Development Management

B. Management of Financial Resources

These activities cover the Turkstats continuing use of financial and accounting services. Management of Financial Resources is broken down into 3 sub-activities.

Management of Financial Resources		
B.1	B.2	B.3
Controlling of Financial Resources	Using and Planning of Financial Resources	Monitoring of the using of Financial Resources
B.1.1 Preliminary financial control procedures	B.2.1 Planning Budget	B.3.1 Evaluation of investment
	B.2.2 Revolving fund budgets	B.3.2 Financial assessments
	B.2.3 Preparation of spending programs	
	B.2.4 The execution of financial transactions	B.3.3 Financial Expert opinion on the Tender Commission
B.1.2 Follow-up Receivables process	B.2.5 Preparation of the investment program	
B.1.2 Follow-up Receivables process	B.2.6 Preparation for provincial grants	B.3.4 Financial management consulting
	B.2.7 Cash transaction request	

Fig 3.2 Management of Financial Resources

C. Human Resources Management

Human Resources Management include education, career development, retirement, Resignation, recruitment, disciplinary action ans etc. Human Resources Management is broken down into 5 sub-activities.

Human Resources Management				
C.1	C.2	C.3	C.4	C.5
Education	Planning of Human Resources	Career Development	Personnel Affairs procedures	Health and Permissions

C.1.1 Evaluation of Education	C.2.1 Determination of HR needs	C.3.1 Foreign language score update	C.4.1 Candidate officers procedure and confirmation	C.5.1 Permit procedures
			C.4.2 Military procedures	
			C.4.3 Retirement procedures	
		C.3.2 Promotion and Title Change	C.4.4 Change in position	
			C.4.5 Resignation / ending the Task	
			3.4.6 Staff relocation procedures	
		C.3.3 Being expert procedures	3.4.7 Registration Process	
			3.4.8 Assignment for selection	
D.1.2 Statistical research journal	3.2.2 Identifying roles and responsibilities in HR	C.3.4 Student internships procedures	3.4.9 Union procedures	C.5.2 Permanent staff sanitary permit (report) transactions
			3.4.10 Pumping operations	
		C.3.5 Sending personnel abroad for education	3.4.11 Agency personnel death procedures	
			3.4.12 Recruitment	
		C.3.6 Sending personnel abroad funding Jean monnet	3.4.13 Disciplinary action	
			3.4.14 Declaration of Assets	
		C.3.7 First aid training	C.4.15 Temporary staff actions	
			C.4.16 Passport Processing	
			C.4.17 Official appointments and holidays	

**Fig 3.3 Human Resources Management
D.Support Services Management**

These activities cover maintenance of the budget, support services, building, documentation, purchasing materials, health and catering services. . Human Resources Management is broken down into 4 sub-activities.

Support Services Management			
D.1	D.2	D.3	D.4
Budget and Accrual	Support Services	Recording and Archiving	Materials and Purchasing
D.1.1 Staff salary payments	D.2.1 Transport, cleaning and security services	D.3.1 Document registration and archiving processes	D.4.1 Direct provide and tender
	D.2.2 Communication services		D.4.2 Purchasing of goods and services
D.1.2 Bill payment transactions	D.2.3 Printing services	D.3.2 Movable registration process	D.4.3 Building lease transactions
	D.2.4 Health care		D.4.4 Building purchase and maintenance
	D.2.5 Catering services		D.4.5 Purchasing of services with the needs of social facilities
D.1.3 Domestic / Abroad payment of provisional duty allowances	D.2.6 Technical services	D.3.4 Movable property operations	D.4.6 Accounting operations
	D.2.7 Advisory activities		D.4.7 Transfer and unit domestic consumption
			D.4.8 Scrap and disposal

Fig 3.4 Support Services Management

E. External Relations Management

These are the high-level External Relations Management comprises whole relationship between Turkstat and National statistic offices. External Relations Management is broken down into 2 sub-activities.

E. External Relations Management	
E.1	E.2
E.1.1 Multi-beneficiary programs	E.2.1 International Relations Newsletter publishing activities
E.1.2 Implementation of national program activities	E.2.2 Development of international relations services
E.1.3 International technical cooperation services	E.2.3 Monitoring coordination of compliance with international norms and standards

Fig 3.5 External Relations Management

F. Public Relations Management

This activity cover the relationships and communication with public and media. Public Relations Management is not broken down into sub-activity for now.

F. Public Relations Management
F.1
F.1.1 Media and Public Relations Management
F.1.2 Public relations
F.1.3 Media relations management

Fig 3.6 Public Relations Management

G. Legal Affairs Management

These activities cover legal affairs like internal penalties, lawsuits against the institution, etc. Legal Affairs Management is broken down into 2 sub-activities.

G. Legal Affairs Management	
G.1	G.2
Follow-up and coordination of proceedings	Criminal procedures
G.1.1 Administrative cases	G.2.1 Legal Affairs
G.1.2 Judicial proceedings	G.2.2 Legal opinions and advice operations
G.1.3 Enforcement proceedings	G.2.3 Administrative investigation procedures

Fig 3.7 Legal Affairs Management

H. Information Technology Management

These activities cover coordination and management of information and technology. Information Technology Management is broken down into 2 sub-activities.

H. Information Technology Management	
H.1	H.2
Management of Data	Network and Systems Management
H.1.1 Databases management	H.2.1 Management of enterprise servers
H.1.2 Management of Web services	H.2.2 Management of storage
H.1.3 Management of data warehouse	H.2.3 Management of disaster recovery center
H.1.4 Configuring the data processing and analysis tools	H.2.4 Management of network-based system
H.1.5 Management of statistical disclosure control	H.2.5 Management of network security

Fig 3.8 Information Technology Management