



## Headcount modelling

Optimisation tool

Consulting

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# Goals and objectives of headcount modelling


## What is headcount modelling?

Headcount modelling is about creating and using an analytical tool (a headcount model) to look at the current personnel structure and develop headcount forecasting.

## Tasks


The modelling process can be used as the basis for solutions to a number of important operational and strategic considerations for an entity:

- 
**As-is headcount analysis**

Consolidating headcount data into an integrated database and analysing the current headcount against the company's structure, functions, grades, age groups, etc.
- 
**Increase in efficiency and headcount optimisation**

Identifying and prioritising areas for headcount optimisation through increased productivity, personnel structure changes, etc.
- 
**Headcount demand forecasting**

Target headcount forecasting based on production programmes and strategic indicators.
- 
**Headcount supply forecasting**

Identifying internal and external sources for the satisfaction of headcount demand according to qualification and function.
- 
**Recruitment needs and personnel development forecasting**

Analysing imbalances between current personnel supply and demand, and preparing hiring plans.

## Who is this relevant for?

Leaders and specialists who use headcount analysis to make management decisions:

- HR leaders and employees
- Leaders of business units and asset managers
- Leaders responsible for mid and long-term planning
- Specialists responsible for the optimisation of business processes etc
- Entities engaged in mining and mineral resource processing.
- Large companies with high production capacities.
- Banks and other financial institutions with a developed retail chain.
- Retail networks etc.

Entities and holdings with a well-developed network of assets, branches and business units:

## What this brochure is about?

This publication covers the approach used to develop headcount models for companies in various industries handling a broad range of management tasks using headcount modelling, including examples of the tasks completed and results achieved.

# As-is headcount analysis

Consolidating headcount data into an integrated database and analysing the current headcount against the company's structure, functions, grades, age groups, etc.

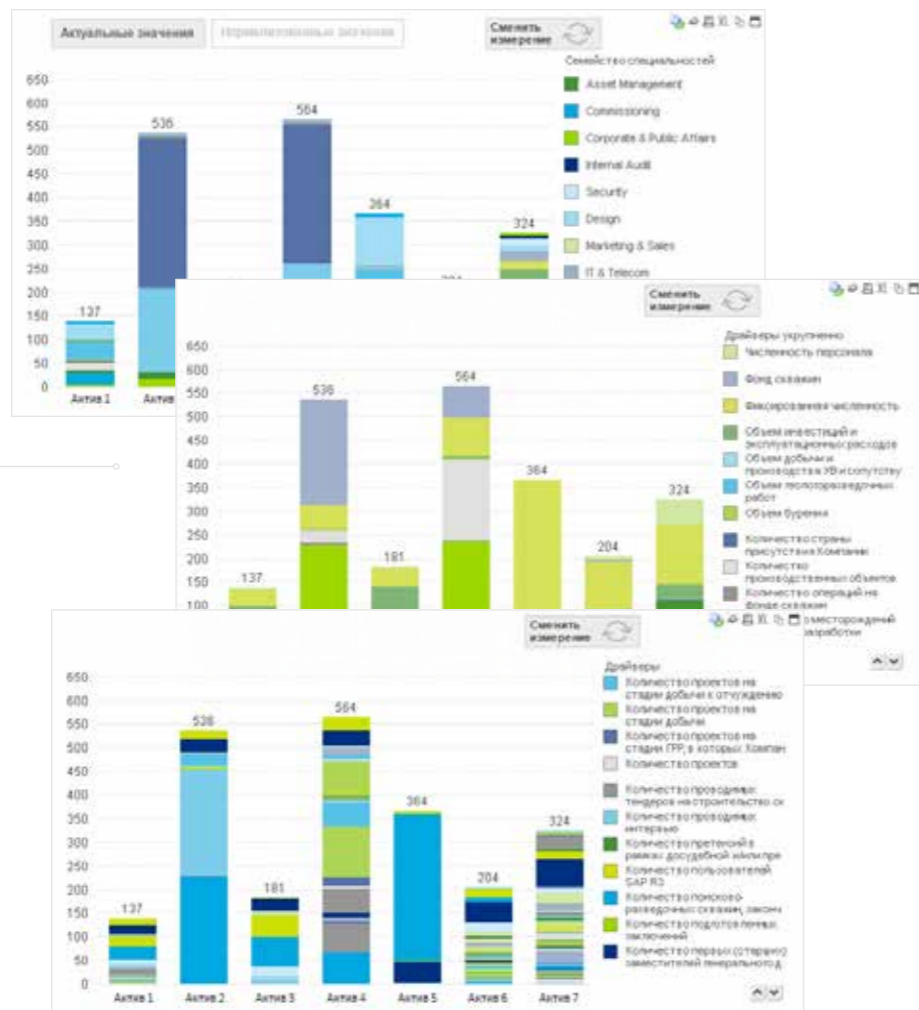
**The model provides insights into the following key questions:**

- 01. What is the existing headcount structure broken down by function, organisational level, grade, etc.?
- 02. What is the current personnel age structure?
- 03. What is the headcount structure broken down by other specific categories used by the company?
- 04. What do the headcount key performance indicators indicate?

## 1 Comparative as-is headcount analysis broken down by various data sets

The model allows the as-is headcount to be visualised according to:

- Business unit and asset
- Function/process
- Qualification

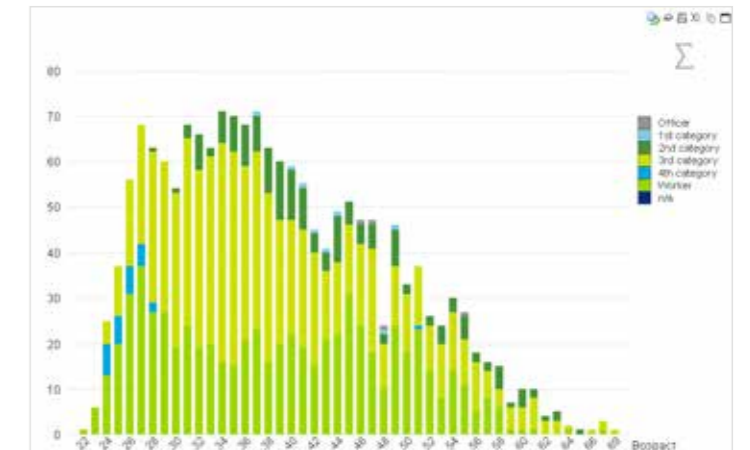


Clicking the chart reveals the headcount details by category.

A personnel imbalance for a function, qualification, etc. may be identified by using a combination of analytical breakdowns and comparing the assets and business units.

## 2 As-is headcount analysis by age group

The model allows the headcount structure to be visualised by age group with additional data breakdowns: by grade, process, etc.



Analysing the personnel age structure helps management identify the optimal approach towards internal processes (for example, communications), corporate programmes, etc.

## 3 Headcount analysis using specific filters

The model allows any set of filters to be applied to current headcount analysis:

- Local/seconded
- Open/closed vacancies
- Gender, age, etc.

The screenshot shows a filter panel with several sections:
 

- Отображать численность:**
  - Закрытые вакансии: 3,145
  - Открытые вакансии: 1,389
- Местные / Командированные:**
  - Вакансия не занята: 1,387
  - Командированные: 1,058
  - Местные: 2,089
- Категории:**
  - Officer: 6
  - 1st category: 30
  - 3rd category: 1,713
  - 2nd category: 269
  - 4th category: 47
  - Worker: 1,080
- Пол:**
  - Мужской: 2,857
  - Женский: 288
- Процессная область:**
  - Операционные процессы
  - Процессы поддержки
  - Процессы развития
- Процесс 1-го уровня:**
  - Управление ИТ
  - Управление коммуникациями
  - Управление корпоративными финансами
  - Управление персоналом
  - Управление энергетикой
- Семейство специальностей:**
  - Project Control: 200
  - Budget Planning and Report...: 35
  - Reserve Estimation & Audit: 726
  - HSE - General: 33
  - Environmental Protection: 45
  - HSE - Operations: 172
  - Health & Safety: 65

## 4 Review of the entity's key performance indicators

The model enables the user to see the company's key performance indicators on the same screen in a dashboard format.

The dashboard format can be used for current headcount analysis, target headcount forecasting and efficiency enhancement.



# Increase in efficiency and headcount optimisation

## 1 Internal and external benchmarking

Identifying and prioritising areas for headcount optimisation through increased productivity, personnel structure changes, etc.

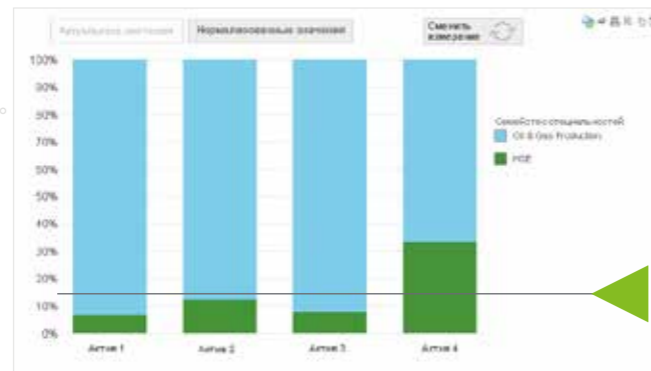
The model provides insights into the following key questions:

- 01. What are the internal and external benchmarks for increased productivity and personnel structure?
- 02. What is the potential for the headcount optimisation due to the productivity increase up to the level of the best practices?
- 03. How to prioritise areas for the headcount optimisation?

The model defines the maximum productivity for functions or processes according to the set of assets/business units.



The model enables the headcount structure to be analysed by various categories to identify any imbalance between the categories.



The model enables external benchmarking by strategic and operating indicators.



Reviewing the implementation of a process in an asset where the productivity is higher compared to other assets allows an entity to use its experience for similar processes in other assets to increase their productivity.

## 2 Determining the potential for headcount optimisation

The model enables several scenarios to be established, which all include criteria for the statistical selection of productivity based on internal benchmarking results



The model enables the as-is and target headcounts to be compared by:

- Company/asset
- Process/function
- Business unit, etc.



A factor analysis allows the entity to detail changes in processes, business units, etc.



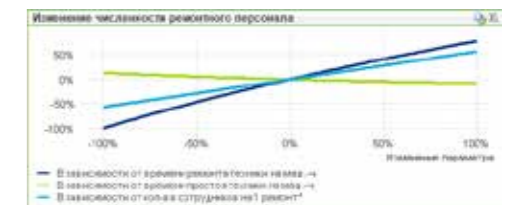
Aside from allowing increases in productivity to be assessed, the model enables the assessment of headcount optimisation through:

- Outsourcing functions
- Not implementing a number of projects, etc.

## 3 Prioritising areas for headcount optimisation

Sensitivity analysis enables the selection of the most important areas for efficiency improvement and prioritisation in terms of the development and implementation of initiatives.

The model enables sensitivity analysis to be carried out, which is an assessment of the effect of changes in the model's parameters on the headcount.



The model allows the highest priority areas for headcount optimisation to be selected. Prioritisation criteria include:

- Absolute and relative headcount reduction
- Personnel cost reduction, etc.





# Headcount demand forecasting

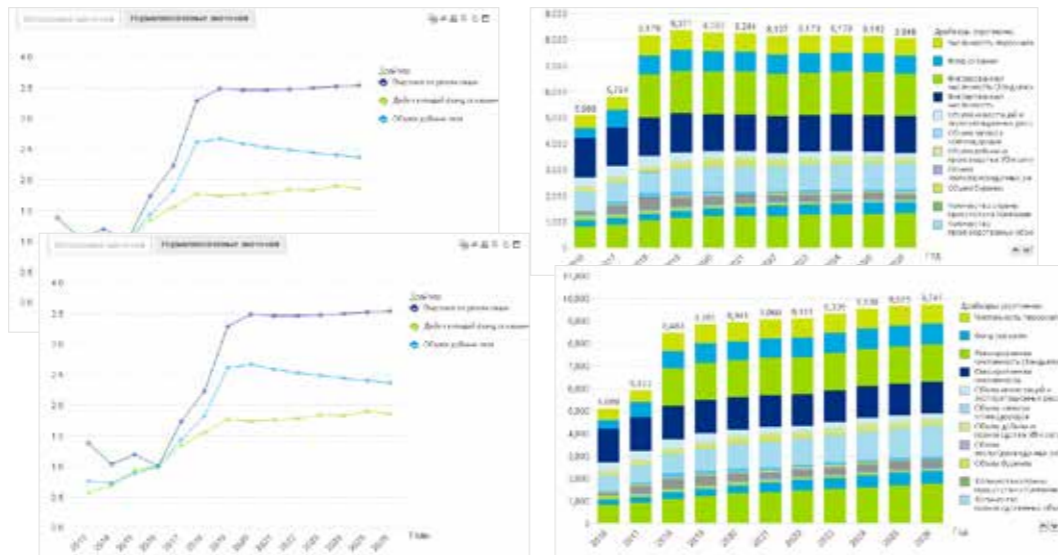
The model provides insights into the following key questions:

- 01. What is the headcount required for various strategic scenarios?
- 02. What is the headcount required for the implementation of the production programme?
- 03. What drivers impact the headcount demand and how?

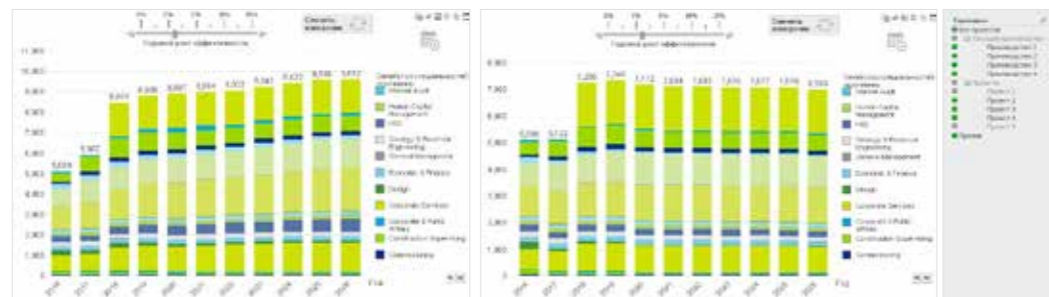
Target headcount forecasting based on production programmes and strategic indicators.

## 1 Headcount demand forecasting adjusted for changes in strategic indicators

The model allows the company to forecast labour input drivers and calculate demand based on the entity's strategic indicator plan for several scenarios.



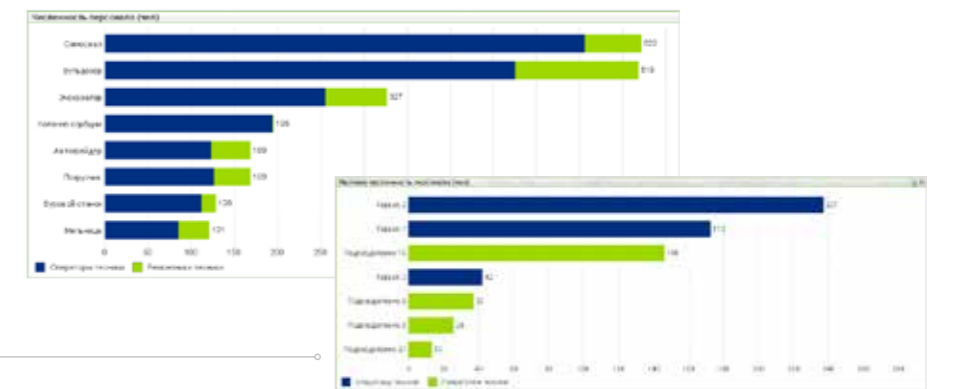
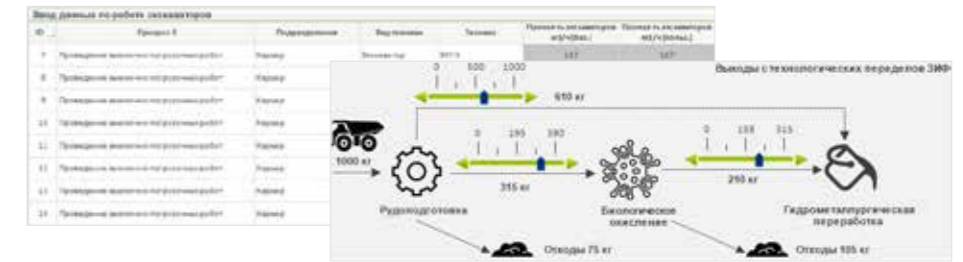
The model allows management to assess the effect of implementing or not implementing a capital or efficiency improvement project on headcount.



## 2 Headcount demand forecasting adjusted for the entity's production programme

The model allows the specific features of the production process affecting the headcount to be taken into account.

Decomposition reveals the main labour input areas. By adding cost data to the model, it becomes possible to identify processes or business units with the highest personnel costs.



The model allows for headcount decomposition by:

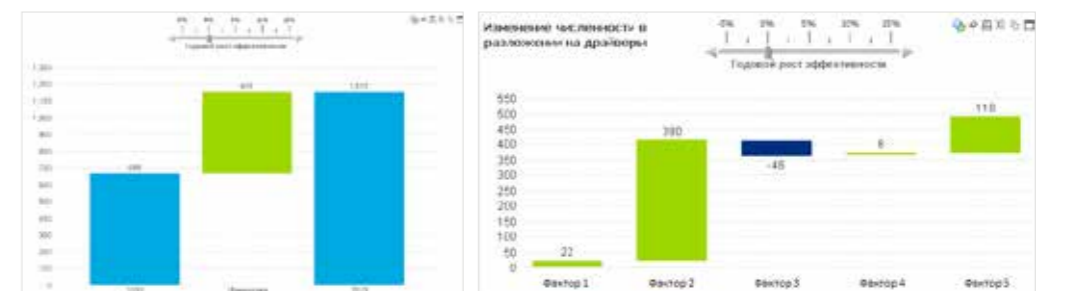
- Process/function
- Business unit
- Equipment type, etc.

The model makes it possible to calculate several scenarios for various production programmes and to compare the respective target headcounts.



## 3 Analysis of factors affecting changes in headcount demand

The model allows for the decomposition of headcount change by labour input driver.



# Headcount supply forecasting

The model provides insights into the following key questions:

01. How many current employees will the entity still have on staff in several years' time?
02. How will changes in career growth programmes impact upon the entity's grade structure?
03. How many employees will be retiring, leaving, moving to other departments, etc. per annum?
04. What is the nature of the external headcount supply from key higher education institutions, regions, countries and fields?

Identifying internal and external sources for the satisfaction of headcount demand according to qualification and function.

## 1 Identifying sources for the satisfaction of headcount demand based on existing resources, including dismissal

The model enables detailed personnel movement parameters to be set:

- Personnel turnover
- Retirement
- Vacancies filled using internal resources, etc.

**Прогноз по категориям**

Категории:  Officer,  1st category,  2nd category

Карьерный рост по категориям:  3rd category,  4th category,  Worker

Средний возраст выхода на пенсию женщин, лет: 50-60

Средний возраст выхода на пенсию мужчин, лет: 55-65

**Базовые настройки**

Текущая текучесть кадров: Worker = 15%, 4th category = 10%, 3rd category = 5%, 2nd category = 3%, 1st category = 5%, Officer = 5%

**Расширенные настройки**

Внутренний найм: Worker = 15%, 4th category = 20%, 3rd category = 20%, 2nd category = 30%, 1st category = 20%, Officer = 10%

Среднее время продвижения сотрудников, лет: 4th -> 3rd category = 4, 3rd -> 2nd category = 3, 2nd -> 1st category = 4, 1st category -> Officer = 5

**Базовые настройки**

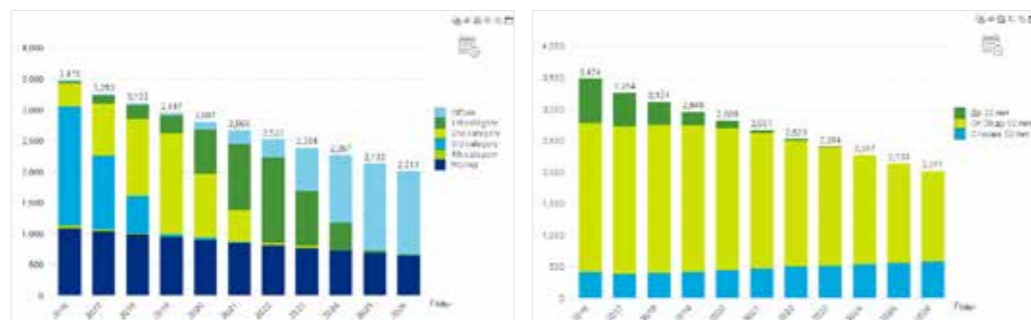
Текучесть кадров: 0% - 60%

Заккрытие вакансий за счет внутренних перемещений: 0% - 90%

Среднее время продвижения сотрудников, лет: 2 - 8

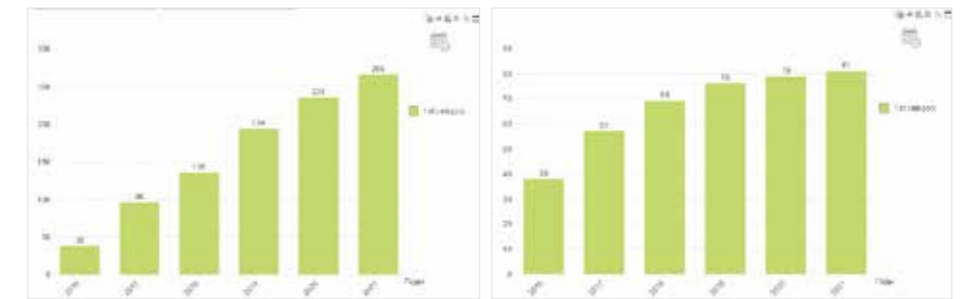
The model allows the entity to forecast internal headcount supply according to:

- Personnel category
- Age group
- Qualification, etc.



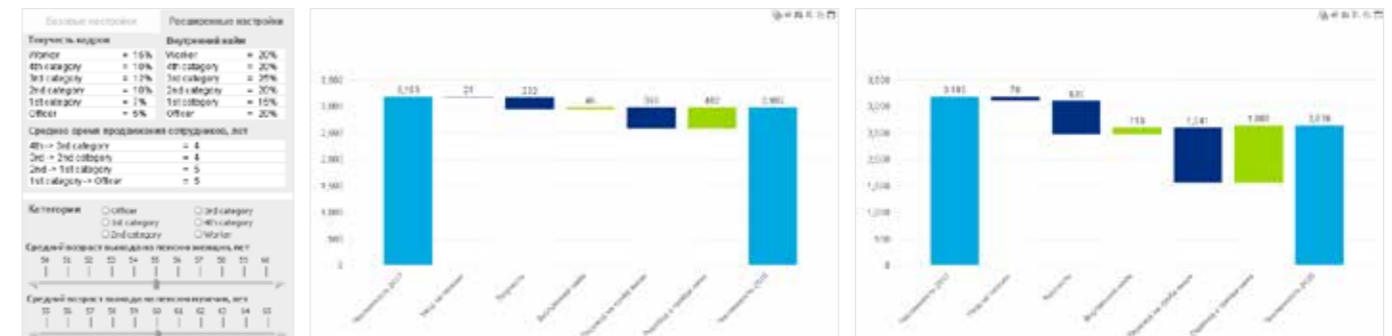
## 2 Analysis of career growth depending on various development plans

Fast promotions may result in rapid growth in the management headcount. An optimal career growth programme allows entities to avoid breaching their grade structures



The model can be used to analyse career growth programmes and select a programme that reflects the strategic objectives of the entity.

## 3 Analysis of factors affecting change in headcount supply



- The model allows for decomposition of headcount change according to essential factors (retirement, personnel turnover, promotion, etc.)
- The decomposition may be performed for any period using a full list of settings for supply forecasting.

## 4 Analysis of external headcount supply by target qualifications and areas

The model allows management to analyse external supply with respect to young specialists by core educational institutions.



# Recruitment needs and personnel development forecasting

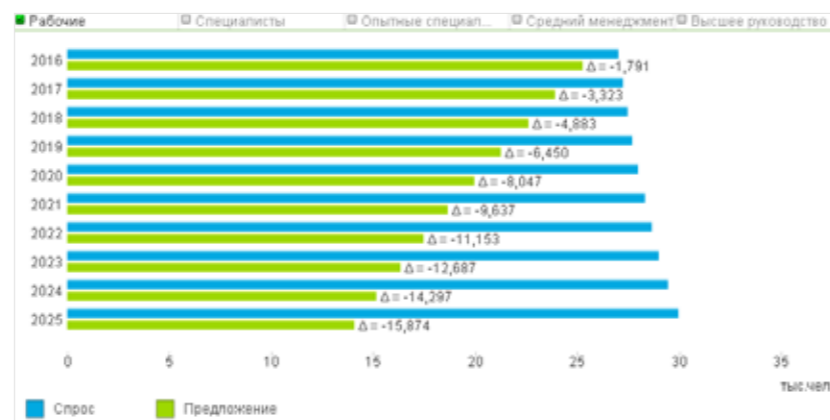
The model provides insights into the following key questions:

- 01. How many employees should be hired over the next few years to fulfil the company's requirements by function and qualification?
- 02. How will recruitment impact upon the entity's personnel structure?

Analysing imbalances between current personnel supply and demand, and preparing hiring plans.

## 1 Analysis of imbalance between the current personnel demand and supply

The output of the demand and supply models is displayed on a single chart for convenience of analysis.

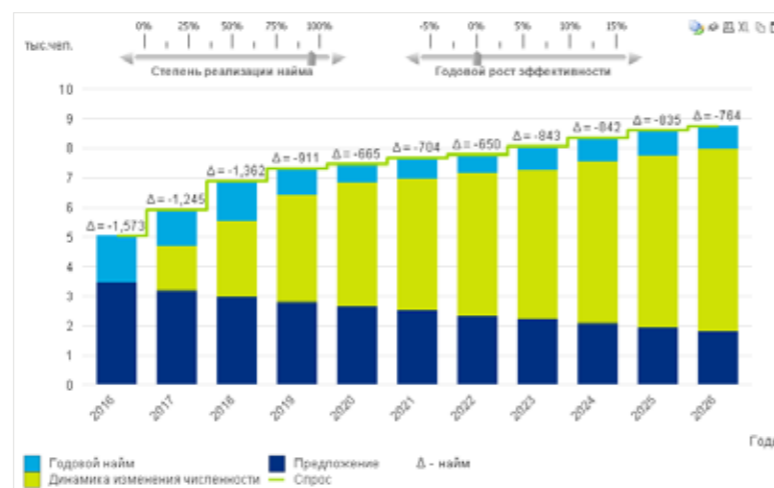


Analysing the balance of supply and demand allows detailed instructions for the HR recruitment function to be developed to encompass specific ranges of qualifications for specific business units.

## 2 Personnel structure analysis: experienced and new employees

The model can be used to display changes in the personnel structure by category:

- Current employees
- New employees
- Annual recruitment



By adding HR function cost data to the model, it becomes possible to prepare a detailed forecast of the HR function's medium-term recruitment costs for certain qualifications and business units.

# Additional options

Regardless of the main task that the headcount modelling is intended to solve, additional tools and settings may be included in the model to expand the capabilities of the headcount analysis, forecasting and calculation.

## 1 Regulation of work schedule and working hours

**Work schedule**

**Working hours**

- The model enables the headcount of personnel with non-standard schedules to be calculated (shifts, seasonal work, etc.)
- The model allows the entity to set working hours for a selected process, business unit, family of qualifications, etc.
- To account for the specific characteristics of the work schedule, the following made be included in the work model:
  - Number of employees on the payroll
  - Number of employees scheduled to work
- The model enables labour input changes in the event of changes in working hours to be analysed.

Using the model to test hypotheses about transferring personnel to different working regimes allows management to calculate the financial effect of the changes.

## 2 Accounting for the specific characteristics of the entity's organisational structures

**As-is headcount**

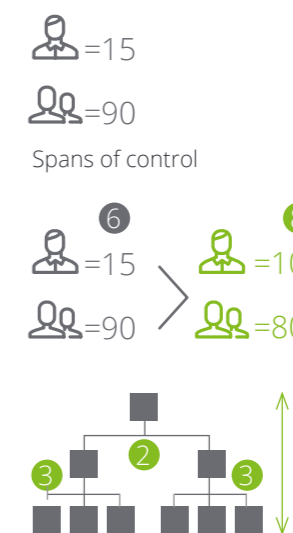
**Target headcount**

**Target organisational structure**

The model illustrates the current personnel distribution by the categories: "management" and "subordinates".

The model calculates the target headcount by category based on the target spans of control.

The organisational structure is integrated into the model with pre-set target values for spans of control and hierarchy levels.



Источники целевых значений норм управляемости и уровней иерархии:

- Текущие значения,
- Внутренний или внешний бенчмаркинг,
- Определение пользователем и др

Three levels of hierarchy



# Headcount modelling approach

The headcount modelling approach comprises four main development stages:



The timing of each stage depends on the current number of assets/branches/business units in the scope of the modelling, the details required and the number of model parameters. The scope of work and the approach to its implementation depend on the issues to be solved through headcount modelling.

## 1 Headcount modelling preparation: detailed analysis of the client's business 30-50 percent of the project time

### Key steps

- **Specification of the task**, including the determination of:
  - The list of functions and business units in the scope of the modelling
  - The headcount data sets
  - The depth of calculation detail, etc.
- **Interviews** with top and middle managers of functional areas in the modelling scope
- Review of the **current organisational structures** and staff schedules.
- Analysis of **production plans** and short and medium-term **management reports**.

### Stage deliverables

- Structure of labour input areas:
  - **Process model**, including the distribution of the current personnel by process
  - **Family of qualifications**, including the distribution of the current personnel by qualification and/or other factors.
- **Target organisational structure** and linked processes or qualification families and/or other factors.
- **Labour input drivers** for each labour input area (performance indicators determining labour input and, as a result, headcount).

## 2 Headcount modelling data gathering: data storage structure development 10-20 percent of the project time

### Key steps

- The following data is gathered at this stage:
- Current **labour input** (headcount)
  - Current **labour input driver values**
  - Data collection can be performed through various approaches:

### Stage deliverables

- Database** (as-is situation):
- Qualification
  - Work schedule (shifts)
  - Level of remuneration, etc.
- Detailed information on the current headcount by labour input area:
    - Headcount
    - Gender and age-differentiated characteristics
  - Current productivity values by labour input area

## 3 Headcount model design: analytical tool development 30-50 percent of the project time

### Key steps

- Labour input driver value** forecasting by area. Possible options include:
- Statistics
  - Forecasting based on strategic indicators
  - User-defined
- Determination of personnel **productivity values**. Possible options include:
- Statistics
  - External best practices
  - Industry regulations, etc.
- Additional options:
    - **Supply forecasting**
    - Supply and demand **balancing**
    - Identification of the **number of leaders** based on target spans of control
    - Accounting for **organisational structure** based on the target spans of control, hierarchy levels, etc.

### Stage deliverables

#### Headcount model

## 4 Analysis of the headcount modelling results: development of recommendations 5-10 percent of the project time

### Stage deliverables

- Depending on the goals set, the modelling can result as follows:
- Medium-term and long-term headcount **supply and demand forecasting**
  - List of **areas for headcount optimisation** prioritised based on various criteria, for example:
    - Absolute and relative headcount change
    - Personnel cost reduction, etc.
  - **Target headcount** for specified planned performance indicators
  - **Target productivity levels** based on internal benchmarking for assets, branches or business units, etc.

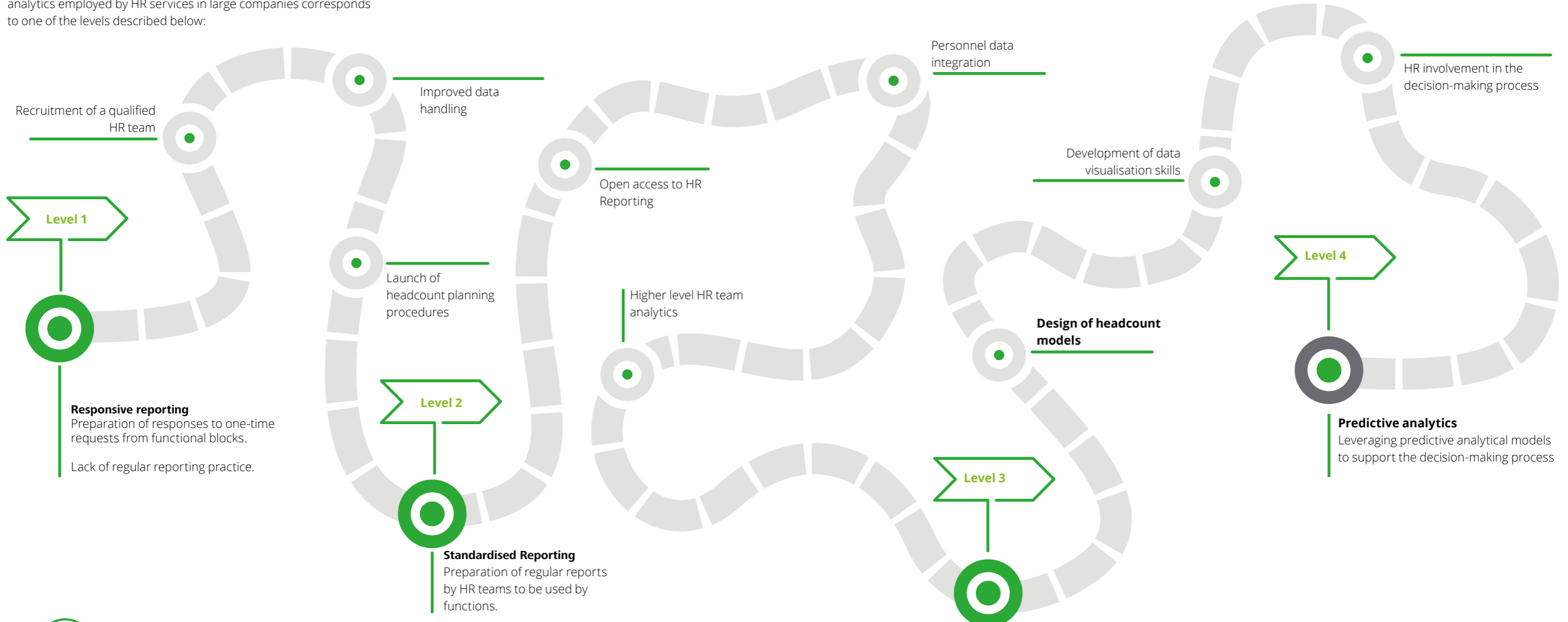
### QlikView: headcount modelling engine

- We use **QlikView**, a **Business Intelligence** tool and modelling engine that provides:
- Required computational speed by:
    - Using a relational database rather than separate tables
    - Featuring an innovative RAM-based computing process
  - A user-friendly interface for data visualisation and analysis:
    - Offering a fast recalculation process for charts and tables when other data dimensions or modelling parameters are selected
    - Supporting data export to Excel and other systems
- In 2011, Deloitte and QlikTech (the developer of QlikView) announced a global strategic alliance.



# Headcount modelling – the road to a high level of maturity for HR functions

According to Deloitte's experience, the maturity level of HR analytics employed by HR services in large companies corresponds to one of the levels described below:



According to global practices, companies that reached the top (fourth) maturity level of HR analytics, have the following advantages:



A key step towards the highest level of HR analytics maturity and a competitive advantage is the development and use of **predictive analytical headcount models** focused on the company's needs in terms of personnel management.

# Tasks that can be accomplished by means of headcount modelling

- As-is headcount analysis by business unit, function, process, qualification, gender, age, etc.
- Visualisation of the entity's personnel-related key performance indicators
- Identification of areas, processes and functions with the highest labour input and personnel costs
- Internal and external benchmarking of productivity to extend best practices in process implementation to other assets/business units.
- Internal and external personnel structure benchmarking to identify imbalances between personnel categories by business unit, process, etc.
- Internal and external benchmarking on spans of control to optimise organisational structures
- Determination of the potential for headcount optimisation through productivity increased to the level of internal and external best practices
- Determination of the potential for headcount optimisation through outsourcing of functions
- Determination of priority areas for headcount optimisation through reductions in personnel, costs, etc.
- Sensitivity analysis of the entity's headcount-impacting performance indicators to identify areas for efficiency improvement initiatives
- Long-term headcount demand forecasting based on the entity's strategic indicators
- Short- and medium-term headcount demand forecasting based on the entity's production programme
- Headcount demand forecasting as regards implementing or not implementing major projects or efficiency improvement projects
- Comparison of production programmes in terms of headcount demand and personnel efficiency indicators
- Analysis of factors determining headcount demand
- Identification of sources for the satisfaction of headcount based on existing employees and internal reserves
- Selection of an optimal career growth programme in accordance with the entity's strategic objectives
- Personnel movement forecasting, including retirement, dismissal, career development, transfer to other business units, etc.
- Identification of factors affecting changes in the entity's internal headcount supply
- Analysis of the external headcount supply by key qualification, activity, higher education institution, etc.
- Forecasting of recruitment needs for selected qualifications and functionalities in the short-, medium- and long-term
- Analysis of costs on recruitment and training of new employees
- Testing of hypotheses about changes in working hours and their impact on headcount and personnel costs
- Analysis of the entity's current organisational structures
- Calculation of the headcount for the entity's updated organisational structure

Headcount modelling is not limited to use in carrying out the above tasks. A special approach can be developed for each new task related to headcount or personnel costs, the result of which will be a headcount model with the analytical units to solve the task.

# About Deloitte

## Our team:



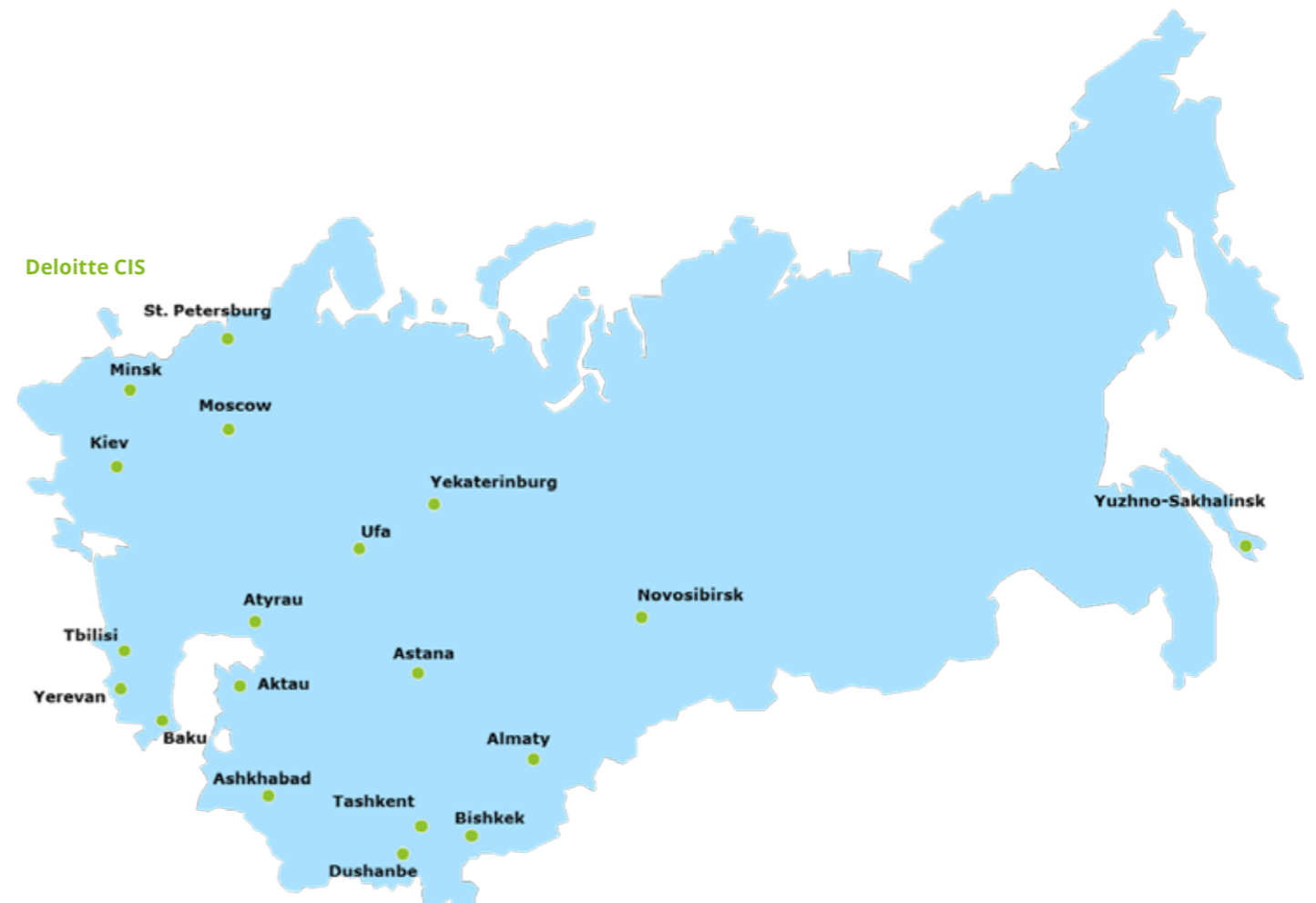
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CIS is a priority market for Deloitte. With more than 25 years in the CIS, we have completed a large number of projects adapting international practices to the Russian environment, and we have accumulated solid experience in serving local clients. Our understanding of the specific nature of the CIS market combined with our experience as a leading global firm enable us to apply our special knowledge and own methodologies when working with clients.



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