Documentation Pandora ERP system.

6. Works and financial accountability.

The tables will be printed only for external works.

Internal works.

Budgeted costs:
The budgeted costs and working hours are determined by the clustercalculation
See here the Documentation **4. Calculation, material, work rates and services.**
The working hours are split up in setup hours and hours / piece. The costs of work charge are determined by setup hours + piece hours * amount * surcharge factor.
The surcharge factor is the field overhead_factor table params_hours , belonging to the relevant employee pay group.
See table lonen (wages) field werkuur (working hour) and params_hours.
Thurdermore the materials + storage surcharge (table params_finance) used are calculated.
Profit is already calculated in overhead_factor table params_hours.
For **Actual Costs** and other information see **External works**, for is likewise except services (diensten)

External works.

Table werken:

```
bisystem=# \d werken
                          Table "public.werken"
        Column         |         Type          | Collation | Nullable |   Default
-----------------------+-----------------------+-----------+----------+------------
 werknummerID          | integer               |           | not null |
 werkomschrijving      | character varying(50) |           |          |
 aanneemsom            | double precision      |           |          | 0
 kosten_lonen          | double precision      |           |          | 0
 kosten_materialen     | double precision      |           |          | 0
 kosten_inhuur         | double precision      |           |          | 0
 kosten_leiding        | double precision      |           |          | 0
 kosten_huisv          | double precision      |           |          | 0
 kosten_overig         | double precision      |           |          | 0
 meerminderwerk        | double precision      |           |          | 0
 voortgangstatus       | character varying(1)  |           |          |
 statusweek            | character varying(6)  |           |          |
 betaald_bedrag        | double precision      |           |          | 0
 begr_huisv            | double precision      |           |          | 0
 begr_leiding          | double precision      |           |          | 0
 begr_overig           | double precision      |           |          | 0
 begr_constr_uren      | double precision      |           |          | 0
 werk_constr_uren      | double precision      |           |          | 0
 begr_mont_uren        | double precision      |           |          | 0
 werk_mont_uren        | double precision      |           |          | 0
 begr_retourlas_uren   | double precision      |           |          | 0
 werk_retourlas_uren   | double precision      |           |          | 0
 begr_telecom_uren     | double precision      |           |          | 0
 werk_telecom_uren     | double precision      |           |          | 0
 begr_bfi_uren         | double precision      |           |          | 0
 werk_bfi_uren         | double precision      |           |          | 0
 begr_bvl_uren         | double precision      |           |          | 0
 werk_bvl_uren         | double precision      |           |          | 0
 begr_spoorleg_uren    | double precision      |           |          | 0
 werk_spoorleg_uren    | double precision      |           |          | 0
 begr_spoorlas_uren    | double precision      |           |          | 0
 werk_spoorlas_uren    | double precision      |           |          | 0
 begr_reis_uren        | double precision      |           |          | 0
 werk_reis_uren        | double precision      |           |          | 0
 kosten_vervoer        | double precision      |           |          | 0
```

```
 beton_bvl         | double precision   |    |    | 0
 kabelwerk         | double precision   |    |    | 0
 grondverzet       | double precision   |    |    | 0
 kosten_materieel  | double precision   |    |    | 0
 begr_inhuur       | double precision   |    |    | 0
 begr_vervoer      | double precision   |    |    | 0
 begr_beton_bvl    | double precision   |    |    | 0
 begr_kabelwerk    | double precision   |    |    | 0
 begr_grondverzet  | double precision   |    |    | 0
 begr_materieel    | double precision   |    |    | 0
 begr_materialen   | double precision   |    |    | 0
 begr_lonen        | double precision   |    |    | 0
 startweek         | character varying(6)  |    |    |
 opdracht_datum    | character varying(10) |    |    | ''::character varying
 begr_voeding_uren | double precision   |    |    | 0
 werk_voeding_uren | double precision   |    |    | 0
 calculatienummer  | integer            |    |    | 0
Indexes:
    "werken_pkey" PRIMARY KEY, btree ("werknummerID")
Referenced by:
    TABLE "dienstenmutaties" CONSTRAINT "werken_WerknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
    TABLE "artikelmutaties" CONSTRAINT "werken_werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
    TABLE "orders_inkoop_diensten" CONSTRAINT "werken_werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
```

Table wnrwrkln:

```
bisystem=# \d wrkwnrln
                        Table "public.wrkwnrln"
     Column      |         Type          | Collation | Nullable |        Default
-----------------+-----------------------+-----------+----------+-----------------------
 wrkwnrurenID    | integer               |           | not null |
 werknemerID     | integer               |           |          |
 boekdatum       | character varying(10) |           |          | ''::character varying
 aantaluren      | double precision      |           |          | 0
 werknummerID    | integer               |           |          |
 bruto_loonbedrag| double precision      |           |          | 0
 meerwerkstatus  | boolean               |           |          | false
 soort           | character varying(15) |           |          | ''::character varying
 tabelloon       | double precision      |           |          | 0
 reisloon        | double precision      |           |          | 0
 loonID          | integer               |           |          |
Indexes:
    "wrkwnrln_pkey" PRIMARY KEY, btree ("wrkwnrurenID")
Foreign-key constraints:
    "lonen_loonID_fkey" FOREIGN KEY ("loonID") REFERENCES lonen("loonID")
    "werknemers_werknemerID_fkey" FOREIGN KEY ("werknemerID") REFERENCES werknemers("werknemerID")
```

Table materaallijsten (article lists):

```
bisystem=# \d materiaallijsten
                        Table "public.materiaallijsten"
      Column         |          Type          | Collation | Nullable |         Default
---------------------+------------------------+-----------+----------+------------------------
 matlijstID          | integer                |           | not null |
 calculatie          | integer                |           |          |
 artikelID           | integer                |           |          |
 hoeveelheid         | double precision       |           |          | 0
 artikelprijs        | double precision       |           |          | 0
 subtotaal           | double precision       |           |          | 0
 resterend           | double precision       |           |          | 0
 afroep              | double precision       |           |          | 0
 icalculatie         | integer                |           |          | 0
 werknummerID        | integer                |           |          | 0
 categorie           | integer                |           |          | 0
 reserverings_datum  | character varying(10)  |           |          | ''::character varying
 orderinkoopID       | integer                |           |          | 0
 levertijd_begin     | character varying(10)  |           |          | ''::character varying
 levertijd_end       | character varying(10)  |           |          | ''::character varying
Indexes:
    "matlijstID" PRIMARY KEY, btree ("matlijstID")
    "fki_calculaties.calcID_fkey" btree (calculatie)
Foreign-key constraints:
    "artikelen.artikelID_fkey" FOREIGN KEY ("artikelID") REFERENCES artikelen("artikelID")
```

Table dienstenmutaties (services mutations):

```
bisystem=# \d dienstenmutaties
                     Table "public.dienstenmutaties"
    Column     |         Type          | Collation | Nullable |         Default
---------------+-----------------------+-----------+----------+------------------------
 mutatieID     | integer               |           | not null |
 werknummerID  | integer               |           |          |
 orderinkoopID | integer               |           |          |
 boekbedrag    | double precision      |           |          | 0
 boekdatum     | character varying(10) |           |          | ''::character varying
 btw_hoog      | double precision      |           |          | 0
 btw_laag      | double precision      |           |          | 0
 leverancierID | integer               |           |          |
 werkomschr    | character varying(30) |           |          | ''::character varying
 regel         | integer               |           |          | 1
 omschrijving  | character varying(50) |           |          | ''::character varying
Indexes:
    "derdenmutaties_pkey" PRIMARY KEY, btree ("mutatieID")
Foreign-key constraints:
    "leveranciers_leverancierID_fkey" FOREIGN KEY ("leverancierID") REFERENCES leveranciers("leverancierID")
    "orders_inkoop_orderinkoopID" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
    "werken_WerknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
```

Table materieelmutaties (equipment mutations):

```
bisystem=# \d materieelmutaties
                          Table "public.materieelmutaties"
           Column          |        Type         | Collation | Nullable |   Default
---------------------------+---------------------+-----------+----------+--------------
 mutatieID                 | integer             |           | not null |
 servicesID                | integer             |           |          |
 werknummerID              | integer             |           |          |
 order_inkoop_materieelID  | integer             |           |          |
 uren_geboekt              | double precision    |           |          | 0
 boekbedrag                | double precision    |           |          | 0
 boekdatum                 | character varying(10)|          |          | CURRENT_DATE
 meerwerkstatus            | boolean             |           |          | false
 leverancierID             | integer             |           |          |
 orderinkoopID             | integer             |           |          |
Indexes:
    "materieelmutaties_pkey" PRIMARY KEY, btree ("mutatieID")
    "fki_L" btree ("leverancierID")
Foreign-key constraints:
    "leverancierID_fkey" FOREIGN KEY ("leverancierID") REFERENCES leveranciers("leverancierID")
    "order_inkoop_materieelID" FOREIGN KEY ("order_inkoop_materieelID") REFERENCES orders_inkoop_materieel("order_inkoop_materieelID")
    "servicesID_fkey" FOREIGN KEY ("servicesID") REFERENCES params_services("servicesID")
    "werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
    "orderinkoopID_fkey" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
```

Budgeted Costs:
The budgeted costs, working hours and equipment hours are determined by the clustercalculation
The provisional cost

See here the Documentation **4. Calculation, material, work rates and services.**
The surcharge factor on the wages is the field overhead_factor in table params_services, belonging to the relevant employee pay group.
See table lonen field werkuur (working hour) and params_hours.
Thurdermore the materials, services and equipment + storage surcharge (table params) used are calculated.
Profit is already calculated in overhead_factor.

Actual Costs:

Muteren materialen (mutation articles)
The quantity of product will be callup with the table materiaallijsten. (bills of materials)
In this lists on other things the callup, delivered and remaining is established
This list is also used by Accountancy.
With this callup a picklist is composed.
In the warehouse the products are picked and send to the workplace.
If the products are picked the reserveringsaldo (reservation balance) in the table artikelen (articles) and materiaallijsten (bills of materials)   is reduced and the voorraad (stock) is reduced in table artikelen (articles).
The picklist is also reduced. The costs of the products are added in werken (works) table field kosten_materialen (cost of materials)

Muteren lonen (Mutation wages)

Transactions working hours. Menu Mutate hourly consumption. (Transaction working hours)
The total workrate (wages * rate factor) per employee is added in the table werken (works) field kosten_lonen (costs of wages) per work. The working hours are added in the field werk_xxxxxxx_uren (work_xxxxxxx_hours) in the table werken (works).
(Whereas xxxxxxx stands for working group)
The employee is linked to the working group, so the hours are booked on the right fields.
It the employee does replacement work, a possibility is present in the table werknemers (employees) to give a temporarily pay group to the employee, so the internal invoicing remains, while the payments keep as it is.

The total individual mutations of all hours (present + absent) per employee per work are added with the mutation date in the table wrkwnrln. (work-employee-wages)
This table is basis for wages and accounting.
In the table werknemers (employees) the total amount of hours (present + absent) per employee is added in the field saldo_uren_geboekt (balance hours booked).

Mutate provisonal costs

Table orders_inkoop_diensten

```
bisystem=# \d orders_inkoop_diensten
                       Table "public.orders_inkoop_diensten"
     Column       |         Type          | Collation | Nullable |        Default
------------------+-----------------------+-----------+----------+----------------------
 orddienstlevID   | integer               |           | not null |
 orderinkoopID    | integer               |           |          |
 aanneemsom       | double precision      |           |          | 0
 acceptatie_gereed| double precision      |           |          | 0
 acceptatie_datum | character varying(10) |           |          | ''::character varying
 werknummerID     | integer               |           |          |
 omschrijving     | character varying(50) |           |          | ''::character varying
 plan_start       | character varying(10) |           |          | ''::character varying
 werk_start       | character varying(10) |           |          | ''::character varying
 plan_gereed      | character varying(10) |           |          | ''::character varying
 werk_gereed      | character varying(10) |           |          | ''::character varying
 werkomschr       | character varying(30) |           |          | ''::character varying
 regel            | integer               |           |          | 1
 meerminderwerk   | double precision      |           |          | 0
Indexes:
    "orders_inkoop_diensten_pkey" PRIMARY KEY, btree ("orddienstlevID")
Foreign-key constraints:
    "orders_inkoop_orderinkoopID" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
    "werken_werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
```

Table dienstenmutaties

```
bisystem=# \d dienstenmutaties
                      Table "public.dienstenmutaties"
    Column      |         Type          | Collation | Nullable |        Default
----------------+-----------------------+-----------+----------+----------------------
 mutatieID      | integer               |           | not null |
 werknummerID   | integer               |           |          |
 orderinkoopID  | integer               |           |          |
 boekbedrag     | double precision      |           |          | 0
 boekdatum      | character varying(10) |           |          | ''::character varying
 btw_hoog       | double precision      |           |          | 0
 btw_laag       | double precision      |           |          | 0
 leverancierID  | integer               |           |          |
 werkomschr     | character varying(30) |           |          | ''::character varying
 regel          | integer               |           |          | 1
 omschrijving   | character varying(50) |           |          | ''::character varying
Indexes:
    "derdenmutaties_pkey" PRIMARY KEY, btree ("mutatieID")
Foreign-key constraints:
    "leveranciers_leverancierID_fkey" FOREIGN KEY ("leverancierID") REFERENCES leveranciers("leverancierID")
    "orders_inkoop_orderinkoopID" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
    "werken_WerknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
```

The types of services provisional costs provided are:
1. Hiring
2. Housing
3. Direction

4.Transportation
5. Earthmoving
6. Others

Before transactions are made the provisional sum must be assigned from the lines 1 -6
The purchase-order list can be printed if the order for the work is optained.

The transactions are stored in:

Table dienstenmutaties, (services mutations) and is approved for payment.
Table orders_inkoop_diensten (orders_purchasing_services) (where the field werkomschr
(description of work) refers to the type of services) and stored in acceptatie_gereed (acceptance
ready) (number) .
Table werken. Costs are added in their respective types of services.

Mutate equipment hours

Table orders_inkoop_materieel (orders purchase equipment)

```
bisystem=# \d orders_inkoop_materieel
                       Table "public.orders_inkoop_materieel"
         Column          |         Type         | Collation | Nullable |         Default
-------------------------+----------------------+-----------+----------+-------------------------
 order_inkoop_materieelID | integer             |           | not null |
 leverancierID           | integer              |           |          |
 werknummerID            | integer              |           |          |
 uren_opdracht           | double precision     |           |          | 0
 uren_uitgevoerd         | double precision     |           |          | 0
 bedrag_uitgevoerd       | double precision     |           |          | 0
 bedrag_betaald          | double precision     |           |          | 0
 besteldatum             | character varying(10)|           |          | ''::character varying
 datum_goedgekeurd       | character varying(10)|           |          | ''::character varying
 datum_afgemeld          | character varying(10)|           |          | ''::character varying
 datum_betaald           | character varying(10)|           |          | ''::character varying
 servicesID              | integer              |           |          |
 datum_opdracht          | character varying(10)|           |          | CURRENT_DATE
 meerminderwerk          | double precision     |           |          | 0
 services_omschr         | character varying(45)|           |          | ''::character varying
 bedrag_opdracht         | double precision     |           |          | 0
 plan_start              | character varying(10)|           |          | ''::character varying
 werk_start              | character varying(10)|           |          | ''::character varying
 plan_gereed             | character varying(10)|           |          | ''::character varying
 werk_gereed             | character varying(10)|           |          | ''::character varying
 status                  | integer              |           |          | 0
 werk_omschr             | character varying(45)|           |          | ''::character varying
 uurtarief               | double precision     |           |          | 0
 orderinkoopID           | integer              |           |          |
Indexes:
    "order_inkoop_materieel_pkey" PRIMARY KEY, btree ("order_inkoop_materieelID")
Foreign-key constraints:
    "leverancierID_fkey" FOREIGN KEY ("leverancierID") REFERENCES leveranciers("leverancierID")
    "orderinkoopID_fkey" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
    "servicesID_fkey" FOREIGN KEY ("servicesID") REFERENCES params_services("servicesID")
    "werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
Referenced by:
    TABLE "materieelmutaties" CONSTRAINT "order_inkoop_materieelID" FOREIGN KEY ("order_inkoop_materieelID") REFERENCES orders_inkoop_materieel("order_inkoop_materieelID")
```

Table materieelmutaties (equipment mutations)

```
bisystem=# \d materieelmutaties
                     Table "public.materieelmutaties"
        Column          |         Type         | Collation | Nullable |    Default
------------------------+----------------------+-----------+----------+--------------
 mutatieID              | integer              |           | not null |
 servicesID             | integer              |           |          |
 werknummerID           | integer              |           |          |
 order_inkoop_materieelID | integer            |           |          |
 uren_geboekt           | double precision     |           |          | 0
 boekbedrag             | double precision     |           |          | 0
 boekdatum              | character varying(10)|           |          | CURRENT_DATE
 meerwerkstatus         | boolean              |           |          | false
 leverancierID          | integer              |           |          |
 orderinkoopID          | integer              |           |          |
Indexes:
    "materieelmutaties_pkey" PRIMARY KEY, btree ("mutatieID")
    "fki_L" btree ("leverancierID")
Foreign-key constraints:
    "leverancierID_fkey" FOREIGN KEY ("leverancierID") REFERENCES leveranciers("leverancierID")
    "order_inkoop_materieelID" FOREIGN KEY ("order_inkoop_materieelID") REFERENCES orders_inkoop_materieel("order_inkoop_materieelID")
    "servicesID_fkey" FOREIGN KEY ("servicesID") REFERENCES params_services("servicesID")
    "werknummerID_fkey" FOREIGN KEY ("werknummerID") REFERENCES werken("werknummerID")
    "örderinkoopID_fkey" FOREIGN KEY ("orderinkoopID") REFERENCES orders_inkoop("orderinkoopID")
```

Muteren materieel (Mutation equipment)

The equipment items are:
1. Trencher
2. Pressing machine
3. Atlas crane
4. Crane Big
5. Mainliner
6. Ballast scraper
7. Wagon
8. Locomotor
9. Locomotive
10. Assembly Trolley
11. Stor mobile
12. Robel train

Transactions equipment working hours. Menu Mutate hourly consumption. (Transaction working hours)
The total workrate (equipment * rate factor) per equipment item is added in the table werken (works) field kosten_equipment item (costs of equipment) per work. The working hours are added in the field werk_xxxxxxx_uren (work_xxxxxxx_hours) in the table werken (works).
(Whereas xxxxxxx stands for equipment item)
The total mutations of all hours per equipment item per work are added with the mutation date in the table materieelmutaties. (work-equipment-supplier-employee-amounts)
This table is basis for equipment and accounting.

The works are classified in progress stages for financial accountability and control.

These stages are:

A. Work in preparation.
B. Work is started and thirst costs are made.
C. Booked costs have reached 33 % of the contract price (invoice submitted of 33%)
D. Booked costs have reached 50 % of the contract price.
E. Booked costs have reached 75 % of the contract price. (2nd invoice submitted of 33%)
F. Booked costs have reached 90 % of the contract price.   (3rd   invoice submitted of 20%)
G. Work is ready inclusive more / less work. (4th invoice of 14% + more /less work)
H. Work is technical and financial signed off.

With booking of costs is controlled or a change has happened in progressstate of the work and stored with the week of the year (yyyyww), that the changing has occurred.

This data is the base of the financial progress presented with graphs.
Countings are made in the table resultaten.
This countings has to be done weekly in Submenu Management Information, berekenen financiëele gegevens (Calculating Financial data).
The following graphs are present with this data:
Costs budgeted / real
Material budgeted / real
Labour costs budgeted / real
Services costs budgeted / real
Hiring costs budgeted /real
Other services costs budgeted / real

Project costs budgeted / real
Gross profit prognosis / actual
Work in progress value / Payments done
Proceeds / More – less costs

With this states also the bars and pie graph is presented.
Countings are made in the table resultaten_status (results status)