

PRICING MODEL IN KRONOS2

DANMARKS NATIONALBANK'S KRONOS2 COST RECOVERY

According to Danmarks Nationalbank's practice for cost recovery in relation to the payment infrastructure:

- account holders cover external costs for the RTGS and collateral management systems, including the technical infrastructure;
- Danmarks Nationalbank covers all internal costs.

Hence, Kronos2 participants must, as a main rule, cover external costs related to the operation, management and further development of the Kronos2 platform.¹

However, the overall Kronos2 platform supports not only account holders' business, but also that of Danmarks Nationalbank, and most of the external costs cannot be attributed unambiguously to the business of either the account holders or Danmarks Nationalbank. Accordingly, a pragmatic cost sharing solution has been applied.

By the implementation of Kronos2 in 2018, the overall Kronos2 platform was deemed to benefit the account holders and Danmarks Nationalbank more or less equally. On that background, it was decided that all external costs related to the operation and management of Kronos2 should be shared fifty-fifty. The ratio will be continually reassessed.

The fifty-fifty ratio applies to operating and management costs. The sharing of further development costs will be determined on a case-by-case basis.

The pricing model for account holders in Kronos2 is described below. The model distinguishes between Kronos2 and Kronos2 T2S. Costs distinctly related to T2S are to be covered by the T2S participants alone.

¹ The initial development costs have been settled with the account holders as a non-recurring payment for Kronos2 and Kronos2 T2S, respectively.

THE PRICING MODEL IN KRONOS2 AND KRONOS2-T2S

All account holders are charged a monthly account holder-specific *Kronos2 fee*.

In addition, account holders participating in T2S are charged a separate *Kronos2 T2S fee* and a monthly payment on account to cover the participant's own consumption of Information services on the T2S platform.

Each fee is debited from the settlement account on the first banking day of the month to which the fee pertains. The invoice is created at the time of debiting and will be available via the Kronos2 user interface.

The Kronos2 and Kronos2 fees

Fees are fixed for 12 months at a time and adjusted as of 1 April. By March each year, Danmarks Nationalbank will announce the fee for the next period.

Amounts will not be adjusted during the 12-month period. Any changes in the cost expectations or the income base will be taken into account when calculating the fee for the next year.

The annual fee calculation includes determining the *charging basis* for the coming period, i.e. the total amount to be covered by the account holders during that period. In addition, the *distribution key is recalculated*. In both cases, a distinction is made between Kronos2 and Kronos2 T2S.

The *charging basis* is made up of the following:

- Next year's expected total operating and development cost to be covered by the account holders.
- Adjustment to take into account the difference between last year's expected and actual costs.
- Adjustment to take into account the difference between last year's expected and actual revenue, thus allowing for any account holders who have entered or left Kronos2.

The *Kronos2 distribution key*² is calculated as follows:

- 1 per cent of the total charging basis is distributed equally among all account holders, only exempting account holders with 106 or fewer transactions and a transaction size of kr. 2 million or less in the year of calculation.
- The remaining 99 per cent is distributed based on the account holders' equally weighted share of the total *number* and the total

² The model corresponds to the one developed by Finance Denmark to distribute the initial Kronos2 development cost, supplemented by a minimum payment of kr. 300 per month.

value of transactions in Kronos2 in the year of calculation. All transactions in the current account are used as a measure of the transaction volume.

- No account holder at group level is to pay more than one third of the total amount. If the payment for a group exceeds one third, the payment for the largest of its institutions is reduced.

The distribution key is calculated based on the transaction activity in the preceding calendar year.

The minimum fee is kr. 300 per month.

For *Kronos2 T2S* the cost to be recovered by the participants is relatively low. Consequently, the total amount is distributed equally among all Kronos2 T2S participants, i.e. the same monthly fee applies to all participants. Should the cost level increase significantly, Nationalbanken will reconsider the distribution model.

Payment for Information services on the T2S platform

Danmarks Nationalbank is charged on a monthly basis by the European Central Bank, ECB, for the Danish participants consumption of Information services on the T2S platform (requests for reports, statement of accounts etc.). The price list is available on ECB's website.

The ECB charge will be re-invoiced to the Danish participants as follows:

- In the first quarter of each year, a monthly participant-specific payment on account will be determined for the period from 1 April to 31 March the following year.
- Each participant will be informed of the amount in March at the latest in the same e-mail that informs about the new monthly fees.
- Each participant's payment on account will be based on Danmarks Nationalbank's expectations of the participant's consumption of Information services on the T2S platform in the coming year, adjusted for the difference between the payment on account in the preceding year and the actual consumption. In general, actual consumption in the preceding year will be used as an estimate of consumption in the coming year.
- The amount on account will be charged in the same way as the fees, i.e. they will be debited to the settlement account on the first banking day of each month.

NEW PARTICIPANTS IN KRONOS2 AND KRONOS2 T2S

Admission payment

Any new account holder is charged a share of the initial development cost³ as admission payment, corresponding to the amount charged if the institution had participated since Kronos2 was implemented. The new account holder shall cover a share of the development cost, corresponding to the account holder's share in the distribution model used at Nationalbanken's recovery of the initial development cost:

- 1 per cent of the development cost is distributed equally among all account holders, only exempting account holders with 106 or fewer transactions and a transaction size of kr. 2 million or less in the year of calculation.
- The remaining 99 per cent is distributed based on the account holders' equally weighted share of the total *number* and the total *value* of transactions in Kronos2 in the year of calculation. All transactions in the current account are used as a measure of the transaction volume.

When entering Kronos2 the new account holder has no transaction history and hence there is no basis for calculating the final admission payment at that point. Therefore the new account holder is charged a temporary amount, based on the account holder's own estimated levels of transaction number and value. The minimum amount is kr. 2.000.

When the account holder has achieved a full calendar year of transaction history Nationalbanken will recalculate the admission fee and settle any difference with the account holder. The minimum amount is still kr. 2.000.

The admission payment from the new account holder will generate additional revenue for Nationalbanken. The amount will be included in the calculation of next year's fees for all participants, thus benefiting the account holders that covered the initial development cost.

The same principles will apply to new participants in Kronos2 T2S.⁴

Monthly fee

A new account holder in Kronos2 pays a monthly fee with effect from the first full calendar month of participation.

The model to calculate the monthly Kronos2 fee is described previously in this document. A new account holder - having no transaction history - will

³ The initial development cost for Kronos2 amounted to kr. 318 million. The amount is indexed by calculating the admission payment of a new account holder.

⁴ The initial development cost for Kronos2 T2S amounted to kr. 22,15 million. The amount is indexed by calculating the admission payment of a new account holder.

be charged a temporary monthly amount, based on the account holder's own estimated levels of transaction number and value. The minimum amount is kr. 300 per month.

In the first quarter of the year following the new account holder's entrance in Kronos2 Nationalbanken will calculate the account holder's share of the distribution key based on actual data. On this basis the account holder's monthly fee will be recalculated and any difference will be settled retroactively. The minimum monthly fee is still kr. 300.

In the first period, the fee from the new account holder will generate additional revenue for Danmarks Nationalbank. The amount will be included in the calculation of next year's fee, thus benefiting all account holders.

For *Kronos2-T2S* all participants are charged a fixed monthly fee, identical for all participants. The same fee will apply to any new Kronos2-T2S participant.

In addition, each participant is charged a monthly individual fee, based on the participant's historical use of information services on the T2S platform. For a new participant – having no history – the fee will be temporary and based on estimates to begin with.

ACCOUNT HOLDERS LEAVING KRONOS2

An account holder closing its account in Kronos2 pays the full fee up to and including the month in which the account is closed. The amount originally paid by the account holder to cover the initial development cost is not reimbursed.

MERGING ACCOUNT HOLDERS

When two account holders merge, the sum of the two original account holders' monthly fees is charged to the continuing account holder up to the next adjustment (1 April).

When calculating the distribution key for the next period, the sum of the two account holders' transaction activity is used to calculate the continuing account holder's share of the distribution key.