Benefits for the users of the PrO4Bake computational tool

1. **Reduction of the total lead time of the production programme** for a day by organising the different products into an optimal sequence (by at least 7% - to be verified).
   This will result in a **proportional reduction of energy consumption** (at least 7% by calculation). This is particularly important (a priority!) at the time of the high energy prices and the risk of energy shortage.
   Further benefits associated with the shorter operation time of the ovens:
   - **reduction of the labour costs** (proportional) if the remaining time of the staff can be used for other tasks or reduction of the overtime of the staff.
   - **reduction of the carbon footprint** (proportional to reducing the operational time of the ovens/lines. (by at least 7% by calculation)
   - **an increase of the production capacity without additional investment**, if there is a demand for more products (by at least 7% by calculation)
   - **proportional reduction of the maintenance cost, increase of the lifetime of the machinery** (by calculations, 7%)
   - Opportunity to **identify the potential bottleneck** of the optimal production scheduling

Additional functions:

   - It is possible to build in **specific customer requirements** on a set, the latest delivery time of certain products
   - Based on modelling of the heating up and cooling down of the oven(s) used by the client, the possibility to **predict the optimal time for switching on and switching off the ovens** (if this practice is accepted or followed by the client), which will result in further reduction of the energy consumption.

2. More **accurate forecasting of daily/weekly product demand** (type, volume) than the client's current (manual) planning. This will result in the reduction of the amount of unsold, rapidly staling" daily" products that end up in the waste and reduction of the product shortages caused by potential underproduction (% varies bakery to bakery

Further benefits associated with the reduction of unsold products:

   - **reduction of material, energy, labour and maintenance costs** associated with the unsold products (5% by calculation)
   - **reduction of the carbon footprint** associated with the unsold bakery products (by at least %-by calculation)

3. The introduction is assisted **by training and consultancy services** on the use, the data collection and the interpretation of the results. This will help customers to achieve the gains/benefits easier at less input of labour time.

4. Training of the demand forecast model with the data of a new customer if necessary.

5. Gains for which the customers will not pay – this tool is a suitable means of **educating the staff on the benefits of using digital tools.**