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**COHERENT INDICATOR SETS, THE DUTCH CASE**

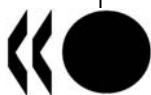
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*This document has been prepared by Floris van Ruth and Symon Algera, Statistics Netherlands and will be presented under item 10 of the draft agenda.*

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## Coherent indicator sets, the Dutch case.

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**Statistics Netherlands**  
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### Introduction

There is an urgent need of quick and reliable information to monitor the current crisis and with which future crises can be signalled earlier. Many users consider the Quarterly Accounts too slow for this purpose. On the other hand the various monthly indicators are considered to be too fragmented. It is often unclear which monthly indicators should be monitored, and what the overall situation is.

In order to monitor the crisis, Statistics Netherlands has developed an intermediate product, which combines the timeliness of the monthly indicators with the summarizing properties of the Quarterly Accounts, this is the Business Cycle Factsheet (BCF). The BCF and its components can be considered as coherent indicator sets.

This article first shows the position of coherent indicator sets in the system of statistics, then it describes shortly the storytelling with this coherent indicator sets in general terms. In the following an explanation will be given of the BCF and its components. The last section deals with the policy of Statistics Netherlands and some future plans.

### Position of coherent indicator sets in system of statistics

The Dutch system of statistics can roughly be described by a matrix with the rows containing the time dimension and the columns the degree of integration. The matrix shows in a glance the main characteristics of the various statistics and the interrelationships between them.

*Statistical matrix (with some relevant examples)*

<i>Time</i>	<i>Degree of integration</i>		
	<i>Single</i>	<i>Combined</i>	<i>Integrated</i>
Future	Tendency surveys	<i>Business Cycle Factsheet and coherent indicator sets</i>	
Month	Short-term statistics		
Quarter			Quarterly national accounts
Year	Structural business statistics		National accounts

The *time* column distinguishes statistics relating to future, monthly, quarterly and annual data.

Under degree of integration:

- the column headed single contains statistics which are obtained from a single survey of statistical units. The data are simply the survey findings;
- in the combined column the statistics are the outcome of combining different statistics (and different surveys), but are not yet integrated;
- the integrated column contains data that are the outcome of an integration process involving detailed checks of all available information. The national accounts and the quarterly national accounts are examples of integrated statistics.

Such a matrix can be used to explain some relevant aspects of coherence. Reading from top to bottom of each column, the reported results become more reliable and detailed, but take longer to publish. Reading from left to right, the data become more comprehensive and reliable, but again as a rule are published later. Moreover, as a consequence, the quality of statistics can be assessed in two ways, one in terms of predictive power (the columns of the statistical matrix), the other in terms of consistency (the rows of the statistical matrix).

The Business Cycle Factsheet and its components (Business Cycle Tracer, BCT indicator, Business Cycle Dashboard and the Exports Radar) are based on tendency surveys and monthly statistics and on compound indicators/infographics. So, within the matrix above, the Factsheet is located on the rows *future* and *month* and in the column *combined*, in the shaded area. Though not being fully integrated, the Factsheet provides a first insight into the development of variables in the integrated statistics. Structuring indicator sets, the intermediate stage of integration, is a way to achieve some of the advantages of National Accounts style integration, but with greater flexibility and timeliness. Because of their more qualitative nature, indicator sets can potentially be produced with little or no additional computations needed, as they are based on existing (short-term) statistics. It is also possible to construct indicator sets for different economic phenomena, not just national production. This approach has also been described as statistical storytelling. Its essence is selecting and structuring statistical information, thus making connections visible and yielding a comprehensive picture of the central theme. At the same time, a shift in emphasis is occurring from reporting numbers to offering alternative presentations and analytical tools. This has been made feasible by the possibilities the internet offers for constructing interactive and dynamic applications. These are two mutually reinforcing developments. Statistical storytelling and coherent indicator sets give meaning to interactive applications and the applications allow for new methods of presentation. Dynamic and interactive options allow the users to explore the phenomenon and connections for themselves. The next sections of this article will present the components of the Statistics Netherlands Business Cycle Fact sheet, which are concrete examples of how coherent indicator sets and statistical storytelling can work in practice.

## **Business Cycle Factsheet**

At Statistics Netherlands a program is underway to provide access to important statistics via interactive and graphical applications. These range from dynamic maps, via customisable graphs to somewhat more novel applications. This article discusses a number of graphical tools developed for the presentation and analysis of business cycle related statistics. Those already in production have recently been grouped in a business cycle fact sheet website, which has been created especially for monitoring the evolution of the current economic crisis.

The visualisations currently published there focus on analysing the current state of the business cycle and conditions for Dutch exports. The first graphical tool developed by Statistics Netherlands to support the reporting on current economic conditions was the Business Cycle Compass. It has now been succeeded by the more advanced Statistics Netherlands [Business cycle tracer](#) (see Annex 1).

The Business Cycle Tracer is the central tool at Statistics Netherlands for analysing short- and medium-term economic developments. It has been especially constructed to give a timely indication of the current state of the Dutch business cycle. It consists of a set of fifteen carefully selected and filtered macro-economic indicators, which are placed in a diagram according to their medium-term development (above or below trend) and their short-term development (increasing or decreasing). The diagram is in fact a graphical representation of the concept of the business cycle: each quadrant represents a distinct phase of the cycle. The location of the indicators in the diagram reflects their position in the cycle, and the whole reflects the current state of the Dutch business cycle. The dynamic properties of the tool allow the user to choose a point in the past, see the corresponding state of the Business Cycle Tracer and watch a replay of the evolution of the business cycle. This graphical representation and visual interpretation is often easier and quicker to understand than a table or even a textual analysis. At the same time, the structure of the diagram and the indicators selected transfer a lot of information concerning the business cycle process.

Here, the storytelling component comes into play. Not only does the composition of the Business Cycle Tracer show which indicators are important for analysing business cycle developments, but it also shows that different economic indicators have different relationships with the business cycle. This is made explicit in a recent addition to the Business Cycle Tracer, the [Business Cycle Dashboard](#) (see Annex 2). This shows the cycles of the individual indicators jointly and in a structured fashion. The indicators are divided into three groups: sentiment, economic and labour market indicators. A simple colour code, corresponding to the colours of the business cycle phase in the Business Cycle Tracer, characterises the phase of each individual indicator. The differences in development of different types of indicators become visible at a glance. The interactive element of the Business Cycle Tracer allows users to analyse the behaviour of individual indicators compared to the group as a whole and to other individual indicators. Thus, the existence of leading, coincident and lagging indicators is shown explicitly, as are connections among business cycle indicators themselves.

The next component of the business cycle fact sheet is more conventional. The [Business Cycle Tracer indicator](#) (see Annex 3) is the simple average of the component indicators of the Business Cycle Tracer. It represents the Dutch business cycle, and is therefore a coincident composite indicator. Though not visually exciting, this type of aggregate indicators can be very useful, as they are able to summarize the information present in potentially large and diverse sets of indicators. The resulting composite indicators tend to be easier to interpret than a set of separate indicators, and they show the communality of the individual indicators.

The final component of the Business Cycle Fact Sheet is more innovative. It is the [Exports Radar](#) (see Annex 4), a visual tool for analysing export conditions. It consists of six economic indicators, all relevant for Dutch exports. Together, they show whether conditions are favourable or unfavourable for Dutch exports. Using the time function, it is also possible to see whether conditions have improved or deteriorated compared to the previous month or any earlier time period. Fundamental to this concept is the identification of factors which determine the development of the economic phenomenon to be tracked, in this case exports.

For Dutch exports, the main factors are competitiveness and developments in the major markets, Germany and the rest of the Euro zone. The next step is to select the most relevant indicators representing developments in these factors. Thus, this Exports Radar becomes an analytical tool. Its main function is to assist in analysing export development. It places export developments in context and assist in answering such questions as “why have exports grown/declined (this much)?”. The graphical format makes interpretation easy and intuitive; a wider diagram means more favourable conditions. At the same time the Radar also has a strong statistical storytelling aspect: it shows how exports are related to other economic indicators, and which are the most relevant.

These examples have hopefully shown that visualisations can be powerful tools for communicating statistical information, especially when interactive options allow the users to explore the data and their interconnections themselves. The main message, however, is that presenting statistical indicators in a structured manner can greatly enhance their value, while at the same time transferring important knowledge, often latently present in statistical institutions, about economic structure and relationships.

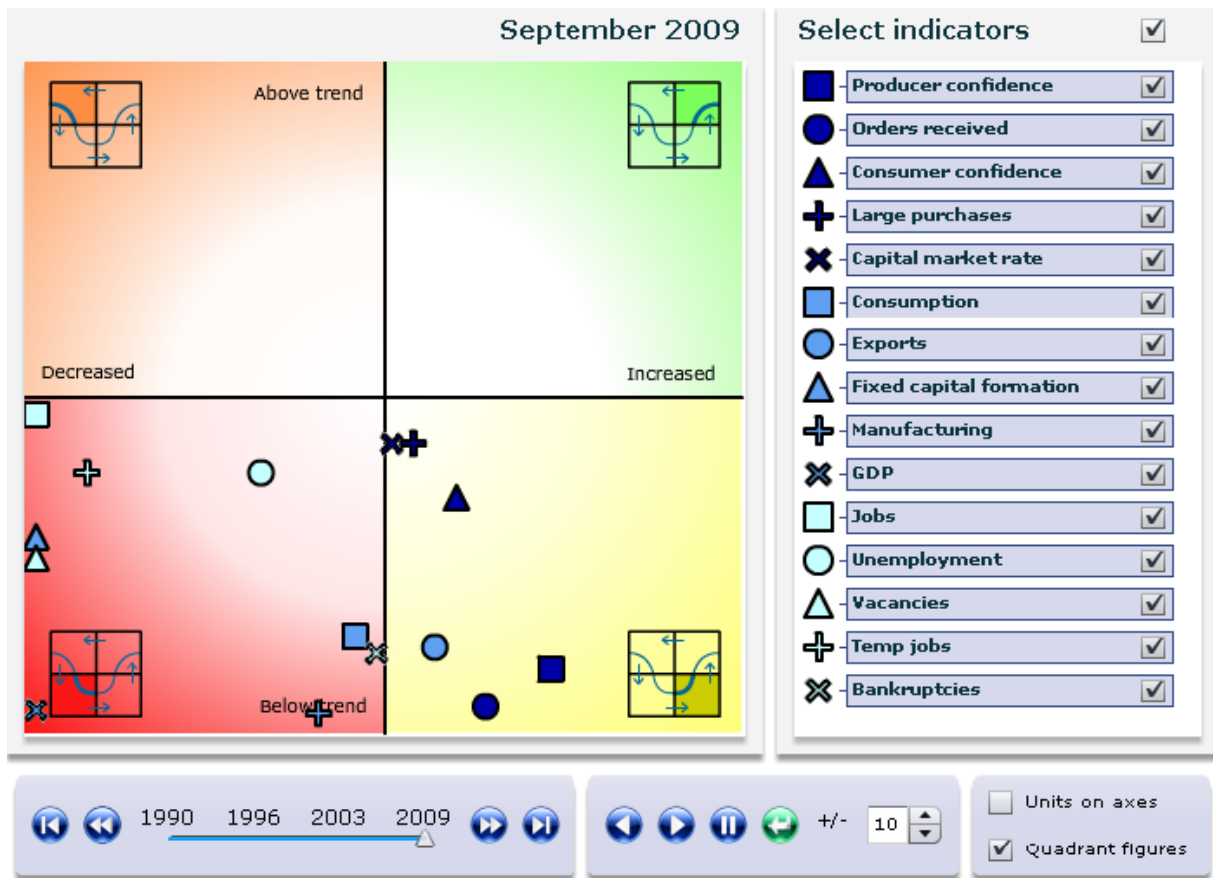
Detailed methodological information concerning the components of the BCF can be found at the BCF website of Statistics Netherlands

### **Statistics Netherlands policy and future plans**

It is policy at Statistics Netherlands to develop more coherent indicator sets /infographics like these. More specific: the “Radar concept” (which is already presented for exports) will also be applied for other relevant macro and meso variables. For instance: Radars will be developed for Household consumption and Fixed capital formation (expenditure side of the economy) and Manufacturing and Construction (production side of the economy). By doing so emphasis is placed on coherence in statistics, the output of statistical institutes is expanded without additional response burden and better use is made of existing data sources. The main benefit is that the usefulness of statistical information for large groups of users is enhanced, at little additional cost.

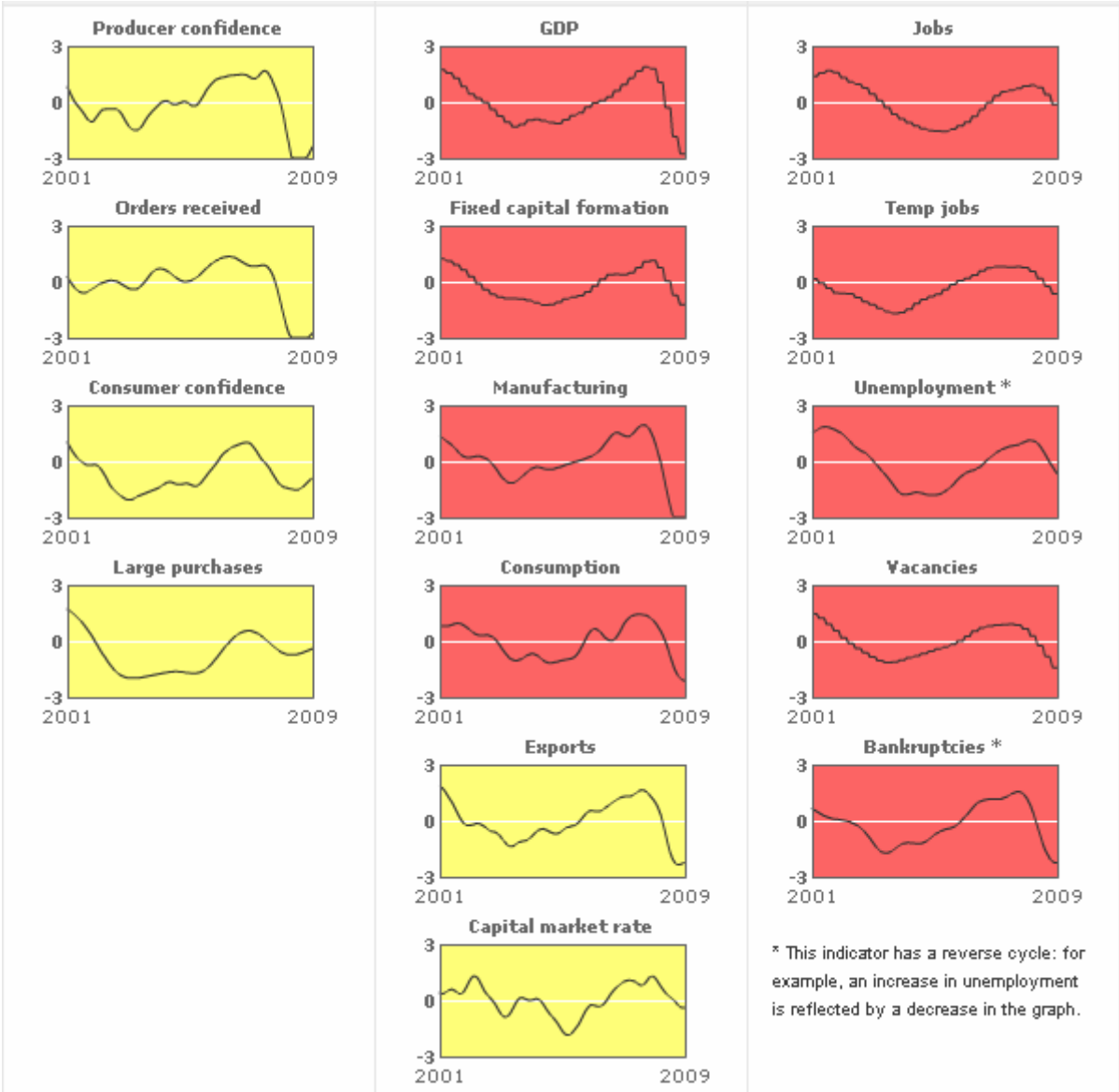
## Annex 1: Business Cycle Tracer

The Statistics Netherlands Business Cycle tracer for September 2009: a transition from the recession quadrant (bottom left) to the upswing quadrant (bottom right) can be seen.



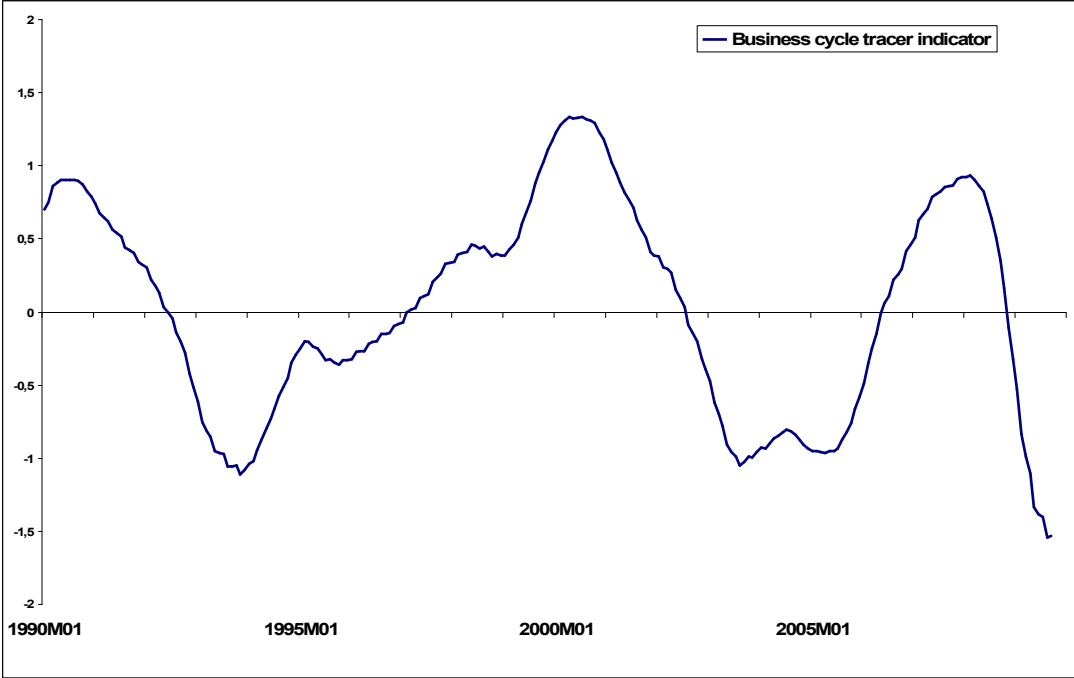
## Annex 2: Business Cycle Dashboard

Business Cycle Dashboard; the cyclical development of the component indicators of the Business Cycle Tracer. The colour of the graph corresponds to the colour code of the relevant business cycle phase from the Tracer diagram. Indicators are grouped into sentiment indicators, economic indicators and labour market indicators.



### Annex 3: Business cycle tracer indicator

The Business Cycle Tracer Indicator: the simple average of the component indicators of the Business Cycle Tracer. It reflects the stance of the Dutch business cycle and summarizes the information present in the individual business cycle indicators.



## Annex 4: Exports Radar

The Exports Radar; a graphical representation of a structured indicator set reflecting conditions for Dutch exports.

