

# Chapter 7

## Business, Market and Press Information

### 7.1 Digital Information Products for and about Business and the Press

We will begin our discussion of information goods with digital business, market and press information. Scientific information are factored out and will be discussed separately, in the context of STM information (Chapter 9). In this chapter, we will address three kinds of information: business information, structural and market information as well as press information (“news”). This information is available both in text form and in the form of numerical data (Ainsworth, 2009). Figure 7.1 sums up our breakdown of business and press information.

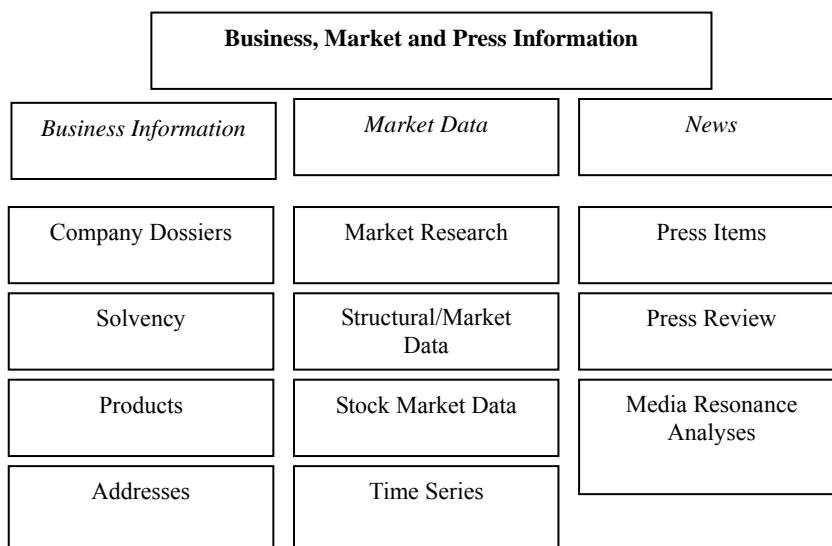


Figure 7.1: Classification of Digital Goods of Business and Press Information.

## 7.2 Clients on the Market for Business, Market and Press Information

On the demanders' side of this submarket of digital information we almost exclusively see companies. Knowledge-intensive service providers in particular, like banks, insurance companies, large offices or management consultancies, as well as knowledge-intensive industrial firms (such as major enterprises in the chemical and pharmaceutical industry), are the main group of customers.

Business and press information serve, on the one hand, to monitor known enterprises, and on the other, to scan new companies previously unknown to the researcher. Reasons for the **monitoring** of known companies include assessment on the part of new business partners (or—if this has not happened prior to the beginning of a contractual relationship—in case of outstanding charges to a business partner) as well as the ongoing observation of companies directly above and below one's own in the value chain (suppliers and clients). Added to this is research in case of planned investment or takeovers and for observing competitors, respectively. Monitoring is in the name of the company, or its number in company databases (such as the D-U-N-S number of D&B, previously Dun & Bradstreet, which definitely identifies every company). In **scanning**, we do not know the company name (yet), which is why any search must be performed via characteristics. Scanning can be used to spot new players on one's own market, locate new suppliers and clients as well as contact persons and their addresses for mailing purposes (Stock, 2001). Apart from the monitoring and scanning of companies, there is also research for markets and industries, one's own and neighboring. Aspects of science and technology, such as the surveillance of competitors' patenting activities, can also catch the eye of the researchers. Since these are STM information, we will discuss this aspect in Chapter 9.

We can observe three **organization strategies** for dealing with business and press information (and perhaps any further information, such as STM) in demanding companies. (1.) Companies rely on end consumer research. Information professionals or knowledge managers make the suitable information services available in the company in short-term projects, train employees and then withdraw from the daily running of the research. The "end consumers", i.e. the staff, look for information on their own. (2.) Companies bundle information know-how in an individual work unit (with a name like "Information Research Center", "Knowledge & Research Center" or "Research & Information"). Generally, its task is to both manage internal knowledge and to consult—just-in-time—external knowl-edge. The objective is not (or not only) to research documents and make them available to specialists, but to process found information. Noack, Reher and Schiefer (2009, 430) emphasize, for management consultancies:

The fundamental objective is to first purify information and then pass it on. Simple information transmission is no longer the main concern, since by now, pretty much everyone is capable of finding information. The actual value added by an IRS [information retrieval service, A/N] is

the compression of information, which consultants seldom have time to do.

Noack, Reher and Schiefer (2009, 425) report, for German consultants, of a build-up (however reticent still) of staff numbers in such work units. For British companies, Foster (2009, 19) points to the outsourcing of several information tasks, preferably to Asian countries (particularly India). Organization variant (3.) is a compromise between (1.) and (2.) end consumers assume light research tasks, the result of which flow directly into their work; the difficult, or company-critical work of information compression is left to information professionals.

### **7.3 Business Information**

What is business information? We will adhere to the definition by Corsten (1999, 5):

Business information refers to all information that can be gathered (...) about a company without having to visit their premises or talking to its staff.

Digital Business Information—which is the only kind that interests us in this book—is business information available via the WWW (or CD-ROM, in exceptional cases).

Although a lot of business information are scattered throughout the Web, general search engines are little suited to the required research. Statements by companies themselves (apart from annual reports) are entirely unverified, crucial aspects (like solvency) go unreported on the internet and search engines do not allow some necessary formulations, such as “all companies within an industry, from a certain level of manpower and income upward”. This is rather the domain of professional providers of business information in the four market segments (Stock & Stock, 2001a, 2001b):

- Company Dossiers (with relevance for the German information market: Creditreform and Hoppenstedt, among others),
- Solvency Information (Bürgel, Creditreform and D&B),
- Product Information (e.g. Kompass and Wer liefert was?),
- Addresses (AZ Direct by Bertelsmann and Schober).

### **7.4 Company Dossiers**

Company dossiers fall into various different categories, which provide, in total, a (more or less) satisfactory representation of the enterprise. **Financial information**

is ideally gleaned from balance sheets, which are annual accounts with a comparison of the forms (assets) and sources (liabilities) of property, statements on receipts and expenditures as well as further economic characteristics. Balances of companies that are required to publish, but also those of several other companies, are entirely retrievable via balance databases. Depending on the country, there are different laws regulating the publication requirement. Green (2007) distinguishes between countries with a more protestant tradition (such as the United Kingdom), in which many company data are publicly accessible, and others, who tend to retain data. The purposes of publishing company information differ relative to the group a country belongs to (Green, 2007, 91):

*Anglo-Saxon countries* [including Denmark and the Netherlands, A/N]: to provide existing or potential shareholders with a true and fair view of the company.

*Continental countries*: to provide the authorities with information for taxation and statistics and to offer a protection to the credit grantors.

In Germany, companies are required to publish by the Transparency and Disclosure Act, if two of the three following traits are in evidence (PublG §1 (1)):

- the total of the annual statement exceeds €65m,
- sales revenue exceeds €130m,
- the company employs more than 5,000 people.

**Allgemeine Angaben**

Volltext:

Unternehmen:  Internet-Adresse:

Person:  E-Mail-Adresse:

Crefo-Nr.:  WKN/ISIN:

Gründungsdatum von:  Gründungsdatum bis:

Umsatzsteuer Ident-Nr.:

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**Branchenauswahl**

Suchbegriff

Figure 7.2: Search for Company Information with Creditreform (Extract). Source: Creditreform.

The reports are published in the Federal Gazette. In the U.K., all “limited companies” are required to disclose. These reports are then stored in “Company Houses”.

For all companies that are not required to disclose, the producers of business information are called upon to at least research fundamental financial information themselves.

Although business information is fixated upon the financial situation of companies, further **basic data** is collected additionally. The key data are: official business name (perhaps the business number), legal form, object of the company, address, bank connection, memberships, production sites and branches etc. This is supplemented by information concerning the industries in which the company is active (indexed via industry classification systems), statements about investments and acquisitions (Mergers & Acquisitions: "M&A Data"), information about ownership and management as well as employee numbers over the last few years (Stock, 2001, 27).

For German companies, the **sources of company dossiers** are, apart from annual reports in the Federal Gazette, voluntarily published business reports, all information in the commercial and insolvency registers, reports in the economic press as well as—extremely importantly—self-disclosure of parties concerned. Dossier databases for German firms are, among others, "Firmenwissen" of Creditreform or the "Hoppenstedt Firmendatenbank" (Stock & Stock, 2001, 28-30; Stock, 2002).

For the data pool of economic information services, **quality criteria** apply (Stock, 2001; Stock & Stock, 2001a, 2001b):

- completeness,
- up-to-dateness,
- correctness,
- indexing depth and consistency,
- adequate retrieval interface.

Completeness consists of two dimensions: on the one hand, there is the coverage of registered companies as against all the companies in the country (degree of coverage), on the other hand, there is the ready availability of as many data as possible about a company (dept of analysis). Considering the country-specific variants of duty to disclose and readiness to inform, the degree of coverage of business information varies considerably. For example, the large financial databases of Bureau van Dijk contains more than 2.2m dossiers about British companies, but only around 800,000 about German companies. Up-to-dateness means a database producer's ability to react to changes in the observed companies. The ability to react depends on the number of sources as well as their speed of evaluation. For seldomly requested company dossiers, the data pool is only updated when a specific research is on hand. Correctness is if the statements in the unit of documentation match reality, as well as the clear definition of what is being registered in any given instance (as in the statements concerning manpower: are persons being counted, who are, after all, able to work part-time, or full-time equivalents?). Indexing depth and consistency concern the allocation of suitable classes to company activities. This relates to both the knowledge organization systems used (can these even represent all industries and markets?) as well as their application (is every economic activity represented adequately and consistently?) The retrieval interface

represents the intersection with the customer. Are all fields searchable via adequate operators (such as Boolean or algebraic operators)? An example of a system's retrieval interface for searching business information is provided in Figure 7.2.

Does digital business information facilitate the development of a "transparent" company? For Corsten (1999, 51), the answer is no: "There still exist too many black spots". For large companies, the state of information is generally better than for mid-size or even small firms. "But the data that a company wants to keep secret at any price can seldom be ascertained" (Corsten, 1999, 51).

## 7.5 Credit Information

Databases with credit information enrich company dossiers by stating each respective firm's solvency. At this point, we would like to represent the solvency index of Creditreform (Creditreform, 2009). The demander receives a characteristic value, which, apart from "normal" financial information, also takes into consideration the company's payment record. Research into a business partner's solvency is inevitable, particularly in the case of new suppliers or clients, or for outstanding charges. The same goes for any kind of credit transaction.

The solvency index considers both qualitative and quantitative risk factors, which enter the final statement weighted according to their relevance. The following factors are considered (their weighting, as percentage, in brackets):

- subjective credit opinion (25%),
- payment method (20%),
- corporate development (8%),
- order situation (7%),
- legal form (4%),
- industry (4%),
- age of the company (4%),
- revenue per employee (4%),
- equity (4%),
- asset turnover (4%),
- payment performance of the company (4%),
- payment performance of the clients (4%),
- shareholder structure (4%),
- revenue (2%),
- number of employees (2%).

Creditreform obtains the important data concerning the payment method from the accounts receivable departments of certain member companies. The data available is by no means complete, but is a (more or less pertinent) sample at best. It must additionally be taken into consideration that the industry risk—which does not regard the specific situation of the company in question at all—also enters the score. A value of between 100 and 600 will result from the sum of all weighted risk fac-

tors. The solvency index correlates with a company's default risk. For an index value of between 100 and 149, the default risk (within one year; all figures for 2008) is at 0.09%, a medium solvency of between 251 and 300 points to 1.36% default risk and a very weak solvency (351-499) carries a default risk of more than 13%. For the year 2008, the average default risk in Germany was 2.22% (Creditreform, 2009).

Solvency information about German companies is offered, apart from Creditreform, by the information producers Bürgel as well as D&B (Stock & Stock, 2001a, 26-28).

## 7.6 Product Information

Some databases give a detailed representation of the products of the companies they index. Generally, this involves business-to-business products, and not wares for end customer markets. As product databases always inform about the companies that offer the products, they are also carriers of general company information.

Product information services' criterion of demarcation from other company information is the presence of a specific knowledge organization system of product classes and single products. The classification system of the information service Kompass works with three hierarchy levels. On the top level are (marked in double digits) the industries (e.g. 44 for *Machines and Facilities for the Pulp, Paper and Printing Industry; Office Machinery and Facilities for Electronic Data Processing*), the medium level allocates product groups (in triple digits) to their industries (44141 for *Printing Presses and Accessories / Part 2*), and level 3 records (in double digits once more) the single products (4414151 for *Cylinders for Printing Presses*). Additionally, a user of Kompass can research importers (I) and exporters (E) on the product group level, and for producers (P), distribution companies (D) and service providers (S) on the product level. Particularly in product searches, it is important to distinguish producers of an economic good from their dealers and service companies.

Figure 7.3 is an extract from a unit of documentation, which was found in a search for *Producers of Corking Machines for Bottles*. We are told that the indicated company is an exporter of, among other products, filling plants for bottles and that the line of products it manufactures goes from bottle cleaning machines to crown cap machines. Additionally, the company acts as dealer (and exporter) of metal caps for bottles. Apart from self-disclosures, which are of equal importance here, Kompass conducts after-investigations in various sources to safeguard the correctness of the statements as far as possible. Providers of product information are, other than Kompass, Sachon Industriedaten as well as Wer liefert was? (Stock & Stock, 2001a, 30-32).

<b>&gt;&gt; Haupt-Produkte und Dienstleistungen</b>	
<b>Kompass-Produktbezeichnung</b>	
⊖	<b>E Maschinen und Anlagen für das Abfüllen von Flaschen</b>
└	P Flaschenabfüllanlagen, komplett
└	P Reinigungsmaschinen und Waschmaschinen für Flaschen
└	P Trockenmaschinen für Flaschen
└	P Kontrollmaschinen für Flaschen
└	P Flaschenabfüllmaschinen
└	P Abfüllmaschinen und Abkapselmaschinen für Flaschen
└	P Kapselmaschinen für Flaschen
└	P Korkmaschinen für Flaschen
└	P Kronenkorkmaschinen / Kronenkorker für Flaschen
└	P Verdrahtungsmaschinen für Flaschenkorken
└	P Verschliessmaschinen für Flaschen
└	P Flaschenkapseln, Herstellungsmaschinen
└	P Aufsetzmaschinen für Flaschenkapseln
└	P Förderanlagen und Beschickungsanlagen für Kronenkorkenverschlüsse
└	P Ausrichtmaschinen für Flaschen
└	P Flaschenabfüllanlagen und -ausrüstungen für die Getränkeindustrie
└	P Sterilisiermaschinen für Flaschen, für die Getränkeindustrie
└	P Abfüllanlagen und -ausrüstungen für Weinflaschen
└	P Flaschenabfüllanlagen und Zusatzausrüstungen für Brauereien
<b>&gt;&gt; Weitere Produkte und Dienstleistungen</b>	
<b>Kompass-Produktbezeichnung</b>	
⊖	<b>E Verschlüsse, Kappen und Verpackungstuben aus Metall</b>
└	D Kapseln, Metall
└	D Kapseln, Metall, für Flaschen
⊖	<b>E Maschinen und Anlagen für die Weinerzeugung, Kellereimaschinen</b>
└	P Schaumweine / Sekt, Herstellungsmaschinen und Herstellungsanlagen
└	P Förderanlagen und Transportanlagen für Sektflaschen
⊖	<b>E Etikettiermaschinen und Markiermaschinen</b>
└	P Etikettiermaschinen für selbsthaftende Etiketten
└	P Etikettiermaschinen für Flaschen
⊖	<b>E Maschinen und Anlagen für die Nahrungsmittel- und Getränkeindustrie, Handel</b>
└	D Maschinen und Anlagen für die Weinerzeugung / Kellereimaschinen, Handel

Figure 7.3: *Product Display of a Company in Kompass. Source: Kompass.*



» Hier wählen Sie Ihre Kriterien aus: Firmenadressen Deutschland

**1 Branche** [Suche über Branchenbaum...](#)  
[Branchen ausschliessen...](#)

Hier Suchbegriff eingeben » 'Suchen' klicken

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**2 Betriebsgröße und Merkmale** [weiter](#)

» **Betriebsgröße:**  Alle  Großbetriebe  Mittelbetriebe  Kleinbetriebe

» **Beschäftigte:** von  bis

» **Firmensitz:**  Alle  Ohne Filialen  Hauptverwaltungen

» **Rechtsform:**

<input type="checkbox"/> GmbH	<input type="checkbox"/> AG
<input type="checkbox"/> KG	<input type="checkbox"/> OHG
<input type="checkbox"/> GbR	<input type="checkbox"/> e.K.
<input type="checkbox"/> e.G.	<input type="checkbox"/> e.V.

» **Gründung:**  Alle  letzte 6 Monate  letzte 12 Monate  letzte 24 Monate

» **Kommunikation:**  nur Firmen mit Telefon-Nummer berücksichtigen

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**3 Region** [Suche nach Orten, Bundesländern...](#)

Deutschland gesamt

» **PLZ:**

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**4 Führungskräfte/Entscheider** [Suche nach weiteren Kriterien...](#)

<input checked="" type="checkbox"/> Unternehmensleitung	<input type="checkbox"/> Verkauf/Vertrieb	<input type="checkbox"/> Marketing	<input type="checkbox"/> Einkauf
<input type="checkbox"/> Produktion/Technik	<input type="checkbox"/> Finanzen/Verwaltung	<input type="checkbox"/> Personal	<input type="checkbox"/> EDV

Figure 7.4: Searching for Addresses on Schober. Source: Schober.

## 7.7 Addresses

When using address databases, the customer's goal is normally a marketing activity. For a mailing campaign, one requires private or company addresses, in the latter case as accurate as possible, including contact person. In addition, one can either use information services with company dossiers (such as the Hoppenstedt Company Database or Creditreform's Firmenwissen) or the respective marketing divisions from these databases (e.g. the product MARKUS by Bureau van Dijk on the basis of data from Creditreform). Marketing databases have, compared to "simple" address databases, the advantage of including analytic tools for data preparation (such as the geographic distribution of customer addresses as points on a map), thus providing raw materials for market research.

Address databases like AZ Direct by Bertelsmann Avato or Schober (Stock & Stock, 2001a, 32-33) allow searches by industry (but not by product), region, company size and management. Important for the applications are places where research results intersect—e.g. via Comma Separated Values (CSV)—with Office applications, in order to be directly embedded in form letters.

## **7.8 Market Data**

Market and industry documents in text form can be found with providers of “Market Intelligence Reports”. Profound offers reports by Frost and Sullivan or Data-monitor, for instance, which are offered as either complete documents or chapter-by-chapter/chart-by-chart. These reports contain processed data from secondary research as well as data producers’ own data (primary research). Additionally, there are information products on marketing (e.g. the database FAKT; Stock, 2000, 208 et seq.), which separate specific rankings (e.g. the top 20 ads on TV, separated by industry) or time series (e.g. the development of German chemical companies’ employment records 1994-2008) from specialist literature and offer them separately on the information market.

If a customer does not want to access processed data, he has the task of acquiring the pertinent numerical information from digital information services. Here we distinguish between (general) structural, market and industry data, numerical information on individual companies (stock market information) and time series for products, industries and parameters of national accounts, such as official statistics and research institutes have available.

## **7.9 Structural, Market and Industry Data**

As an example for the fundamental structural, market and industry data required by marketing, we will sketch the information products provided by GfK GeoMarketing. The GfK (previously “Gesellschaft für Konsumforschung” = Society for Consumer Research) is one of the largest market research companies worldwide. Among its information products are, for instance, data on purchasing power and population structure in Germany.

Information on purchasing power and regions’ as well as municipalities’ retail turnover, respectively, are a tool for companies’ location planning as well as the performance reviews of field service. The databases on purchasing power indices are arranged by region (in Germany) and postcode areas. They represent an indicator for the economic attractiveness of a location. The single databases each register different aspects of purchasing power:

- retail-relevant purchasing power (demand-oriented part of purchasing power),
- point-of-sales revenue for retail.

Our example in Figure 7.5 is the result of a search for the retail-relevant purchasing power of the community of Wandlitz in the state of Brandenburg, researched with the information provider GENIOS. We receive numerical information about population and household numbers, their purchasing power (absolute and relative values) and index values (where the average of all German citizens has been set to 100).

#### Ebene Gemeinde

#### Gemeinde/Gebiet Wandlitz

Gebietsschlüssel 12060269

Stand (Jahr): 2008

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<b>Einwohner:</b>	<b>20760</b>
<b>Einwohner in Promille:</b>	<b>0,252</b>
<b>Haushalte:</b>	<b>9441</b>
<b>Haushalte in Promille:</b>	<b>0,241</b>
<b>EH-Kaufkraftsumme in Mio. EUR:</b>	<b>109,6</b>
<b>EH-Kaufkraft in Promille:</b>	<b>0,238</b>
<b>EH-Kaufkraft je Einwohner:</b>	<b>5279</b>
<b>EH-Kaufkraftindex pro Einwohner:</b>	<b>94,2</b>

GfK Einzelhandelsrelevante Kaufkraft nach Verwaltungseinheiten  
8600, GKER, 06.02.2009, Words: 1, NO: 12060269

Figure 7.5: Data of Retail-Relevant Purchasing Power According to GfK. Source: GENIOS / GfK GeoMarketing.

Comprehensive basic information on the population of single areas, with special allowance made for household size, age of “heads” of household, their status / net income as well as buildings in the region is promised by GfK’s population structure database. Figure 7.6 exemplifies the variety of this data with reference to the example of Wandlitz.

Area Code 12060269 Region of Wandlitz  
Population: 20,760  
Population per mille: 0.252  
Households (01/01/2006): 9,441  
Average household size: 2.20  
Single households absolute: 3,128  
Single households, proportionately: 33.13

Single households, index: 86.7  
 Multi-person households with no children, absolute: 3,096  
 Multi-person households with no children, proportionately: 32.79  
 Multi-person households with no children, index: 107.1  
 Multi-person households with children, absolute: 3,217  
 Multi-person households with children, proportionately: 34.07  
 Multi-person households with children, index: 109.3  
 Immigrant households, absolute: 116  
 Immigrant households, proportionately: 1.23  
 Immigrant households, index: 15.4  
 Age of head of household under 30, absolute: 1,086  
 Age of head of household under 30, proportionately: 11.50  
 Age of head of household under 30, index: 100.2  
 Age of head of household 30 under 40, absolute: 1,458  
 Age of head of household 30 under 40, proportionately: 15.44  
 Age of head of household 30 under 40, index: 88.4  
 Age of head of household 40 under 50, absolute: 2,750  
 Age of head of household 40 under 50, proportionately: 29.13  
 Age of head of household 40 under 50, index: 137.0  
 Age of head of household 50 under 60, absolute: 2,248  
 Age of head of household 50 under 60, proportionately: 23.81  
 Age of head of household 50 under 60, index: 142.9  
 Proportion age of head of household 60 years and more, absolute: 1,899  
 Proportion age of head of household 60 years and more, proportionately: 20.11  
 Proportion age of head of household 60 years and more, index: 60.7  
 Average age of head of household: 48.91  
 Status low: HH net income of no more than €1,100, absolute: 585  
 Status low: HH net income of no more than €1,100, proportionately: 6.20  
 Status low: HH net income of no more than €1,100, index: 44.1  
 Status medium: HH net income of between €1,100 and €1,500, absolute: 647  
 Status medium: HH net income of between €1,100 and €1,500, proportionately: 6.85  
 Status medium: HH net income of between €1,100 and €1,500, index: 56.2  
 Status medium: HH net income of between €1,500 and €2,000, absolute: 1,009  
 Status medium: HH net income of between €1,500 and €2,000, proportionately: 10.69  
 Status medium: HH net income of between €1,500 and €2,000, index: 79.5  
 Status medium: HH net income of between €2,000 and €2,500, absolute: 1,609  
 Status medium: HH net income of between €2,000 and €2,500, proportionately: 17.04  
 Status medium: HH net income of between €2,000 and €2,500, index: 115.3  
 Status high: HH net income of between €2,600 and €4,000, absolute: 4,158  
 Status high: HH net income of between €2,600 and €4,000, proportionately: 44.04  
 Status high: HH net income of between €2,600 and €4,000, index: 175.6  
 Residential buildings, total: 6,542  
 Mixed buildings commercial/private: 59  
 Commercial buildings: 235  
 Proportion of 1-to-2 family homes, absolute: 6,119

Proportion of 1-to-2 family homes, proportionately: 93.53  
 Proportion of 1-to-2 family homes, index: 113.0  
 Proportion of 3-to-6 family homes, absolute: 324  
 Proportion of 3-to-6 family homes, proportionately: 4.95  
 Proportion of 3-to-6 family homes, index: 44.5  
 Proportion of 7 and more family homes, absolute: 97  
 Proportion of 7 and more family homes, proportionately: 1.48  
 Proportion of 7 and more family homes, index: 26.5  
 20 and more family homes, absolute: 2  
 20 and more family homes, proportionately: 0.03

GfK Population Structure Data per Administration Unit  
 8600, GKBR, 02/26/2009, Words: 439, N°: 12060269

Figure 7.6: Population Structure Data of the GfK. Source: GENIOS / GfK GeoMarketing.

The individual numerical information (on single households, multi-person households with and without children, immigrant households etc.) contain both absolute values (for example, there are 3,128 single households in Wandlitz), relative values (33.13% of all households in Wandlitz are single households) and index values, measured against the German average (with an index value of 86.7, there are significantly fewer single households in Wandlitz than in the average German community).



Figure 7.7: Stock Market Information Alongside Links to Financial Blogs and Digital News. Source: Google Finance.

## 7.10 Stock Market Information

Price information on listed companies are available (as with the commercial provider Bloomberg) from a multitude of stock markets or—for free—from Web search engines (James, 2009a, 2009b, 2009c). The data are both historically oriented (course movements over the last years) and in real time, i.e. they are published directly from the stock market system. Generally, providers additionally furnish their customers with current news and analysts' reports on the company (Figure 7.7). A portfolio tracker, as offered by Bloomberg, serves as an alert service for all companies one wishes to survey.

## 7.11 Time Series

Time series are collections of numerical values, arranged according to time. Thus for instance, the number of unemployed people in Germany between the years 1960 and 2010 can be represented as a time series with the respective yearly averages. In the economic sector, the basic values for time series are collected both by official statistics and by economic research institutes. Official statistics refers to its legislative mandate: those asked *must* answer. The other surveys are voluntary in nature, and response rates are generally below 100%.

The values of the time series can be compressed into different levels of aggregation, where values from subunits are summarized into wholes. Such a subunit can be, for instance, the volume of labeling machines exported from Germany to Japan; a superordinate aggregate would be the export of these machines from all EU countries to Japan, or the export of all engineering products from Germany to Japan.

Time series have different periodicities. Variables can be collected daily, monthly, quarterly or yearly. Via calculation, one can obtain rough coverage from a fine-grained one, but not the other way around, obviously. Generally, economically oriented time series have three aspects regarding content:

- region,
- industry or product,
- indicator.

Our example above thus refers to the regions of Germany and Japan, to the product labeling machine and to the indicator export volume.

Time series designate either absolute numbers (example: monthly income of an average German household for the years 1990 to 2010, expressed in Euros of the year 2008) or index values (here a value is standardized to 100 and all others referred to it). Partly, time series can be used to show seasonal influences that recur every year. Such distortions can be calculated out via statistical procedures. The time series that result from these then show seasonally adjusted values.

When researching time series, the demand for information is to be adjusted to the possibilities of these information collections: what region(s), industry(ies), indicator(s) are we dealing with? What level of aggregation is needed? What perio-

dicity? Absolute or index values? Is seasonal adjustment required? The spectrum of time series information is varied. It goes from detailed information (e.g. producer prices for milk) to highly aggregated macroeconomic data (Gross Domestic Product of Germany).

We would like to consider the construction of a time series more closely. We are dealing with an economic indicator for the German economy, collected by the ifo Institut für Wirtschaftsforschung (Institute for Economic Research) in Munich: the so-called “economic climate” (Goldrian, ed., 2004). This example is meant to demonstrate that a time series has various preconditions for definition, collection and calculation, i.e. that comprehensive prior knowledge is absolutely required for their interpretation or processing. This note should also be understood as a warning not to approach information from time series indiscriminately.

The ifo economic climate index is an early indicator for the economic development of Germany. In contrast to “solid” indicators, which are collected by the Federal Bureau of Statistics (e.g. the production volume of industries), for instance, these are “soft” indicators, based on personal opinions and hence representing a mood variable.

The questions on the economy are embedded in the monthly ifo economic test. This survey has pursued two goals since its inception (in 1949). The ifo institute wants, firstly, to obtain information from German companies about their assessment of the economic situation and development on their markets. The companies then receive, secondly, information concerning the development of their markets (around 500 product groups at this time). This simultaneous give and (partly exclusive) take of information explains the great readiness of companies to regularly participate in the surveys. Around 7,000 German companies are surveyed; if the questionnaire is not submitted in time, there will be a telephonic follow-up. Not all economic sectors are covered by the ifo economic test. Collected are assessments about the industry, construction, wholesaling and retail. Agriculture and large areas of the tertiary sector are thus not represented.

The assessment of the economy may be distorted by short-term disruptive influences. The participants thus take care not to let seasonal fluctuations or irregularly high or low results affect their estimate. The results thus provide “monthly information about the current state of the economy and its current development that is more reliable than other indicators” (Lindlbauer, 1989, 123). The questionnaire is conceived so as to take as little time to fill out as possible. To safeguard this,

- only those variables that the management is already being constantly briefed on are asked about;
- the possible answers—mostly three—are already specified, the correct one only has to be ticked off;
- the questionnaires are kept as short as possible, one A4 page being sufficient most of the time (Lindlbauer, 1989, 125).

The questions are about the business situation (good / satisfactory (seasonal) / bad) and plans and expectations (mostly favorable / more or less the same / mostly unfavorable). The companies’ single reports are then processed. The statements are

given a different weighting, relative to company size. The single statements of a company are multiplied with a company-specific value, where the multiplier is set in dependence of the industry and the manpower class of the company. The following example should illustrate the procedure (cf. Lidlbauer, 1989, 126):

Company	Report	Weighting	Distribution of weighted answers		
			good	satisfactory	bad
A	satisfactory	6		6	
B	good	9	9		
C	good	3	3		
D	bad	2			2
<b>Sum:</b>		20	12	6	2
<b>Percentage:</b>		100%	60%	30%	10%

Four companies of different sizes submitted reports. One company (A) reports “satisfactory”, two companies (B and C) sum up their estimate as “good” and one (D) is doing “badly”. The different company sizes mean that the value “good” has a much higher weighting for the (large) company B than the value “bad” does for the (small) company D.

### Das ifo Geschäftsklima für die Gewerbliche Wirtschaft

(seit Jan. 1991)

Lange Zeitreihen für das ifo Geschäftsklima in der gewerblichen Wirtschaft Deutschlands und seine beiden Komponenten Geschäftslage und -erwartungen

#### Indexwerte (2000=100, Gewerbliche Wirtschaft, Deutschland, saisonbereinigt)

R 1 : Geschäftsklima  
R 2 : Geschäftsbeurteilung  
R 3 : Geschäftserwartungen

#### Salden (Gewerbliche Wirtschaft, Deutschland, saisonbereinigt)

R 4 : Geschäftsklima  
R 5 : Geschäftsbeurteilung  
R 6 : Geschäftserwartungen

Zeit	R 1	R 2	R 3	R 4	R 5	R 6
1,09	82,9	86,7	79,3	-34,7	-29,8	-39,3
2,09	82,7	84,3	81,1	-35,2	-34,6	-35,8
3,09	82,2	82,7	81,8	-36,1	-37,7	-34,4
4,09	83,8	83,5	84,1	-32,9	-36,1	-29,7
5,09	84,4	82,6	86,2	-31,7	-37,8	-25,4
6,09	86,1	82,5	89,8	-28,4	-38,1	-18,1
7,09	87,6	84,5	90,8	-25,4	-34,1	-16,1
8,09	90,7	86,3	95,3	-19,2	-30,6	-7,0
9,09	91,4	87,1	95,8	-17,8	-29,0	-5,9
10,09	92,0	87,4	96,8	-16,5	-28,4	-3,9
11,09	93,8	89,2	98,7	-12,9	-24,9	0,0
12,09	94,6	90,4	98,9	-11,5	-22,6	0,2

Figure 7.8: Time Series Display: ifo Economic Climate for the Year 2009 in Excel Format. Source: ifo Institut für Wirtschaftsforschung.



Balances are being calculated for the aggregation into product groups, industries etc., up to the two comprehensive economic climate indicators for the German economy. The median values, i.e. “satisfactory” for the current business estimate or “more or less the same” for expected future developments, do not enter the calculation. Such reports are deemed “neutral” and do not influence the result of the evaluation. The two other values are added, where the (already weighted) percentages for “good” and “mostly favorable” are regarded as a positive sign, respectively, and the percentage for “bad” or “mostly unfavorable” as a negative one. In our example, the result is  $+60-10 = +50$ .

The ifo economic climate consists of the two components “assessment of the current business situation” and “assessment of the business situation over the next half year”. Both balances are used to calculate the geometric mean, i.e. both balance values are multiplied and the square root drawn from the product. The two components of the economic climate, as well as the geometric mean, can vary between the extremes of +100 and -100. +100 is reached when all answerers vote positively; -100 when everyone’s vote is negative.

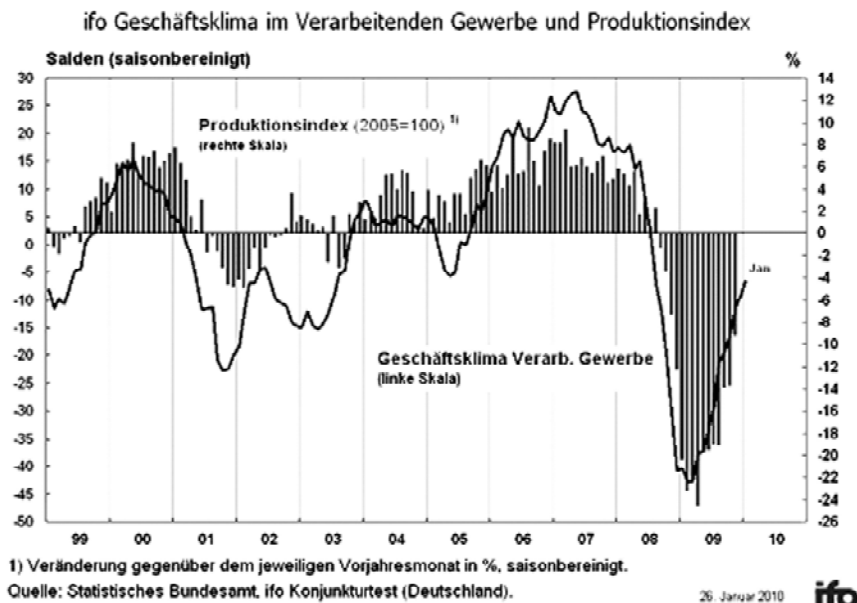


Figure 7.9: Time Series Display: ifo Economic Climate and Production Index as a Graphic. Source: ifo Institut für Wirtschaftsforschung.

The goal is to name a specific problem. Since it is impossible to draw the square root of a negative digit, the constant 200 is added to both balance values and then subtracted again from the result. This allows us to calculate freely, but seems counterintuitive. If, for example, the two balance values are +50 and -50, we expect the mean to be 0, just as we do for +100 and -100. However, the results are -6 for +50/ -50) and 27 (for +100/-100), respectively. Hence, the more different both balances are, the more the geometric mean deviates from the arithmetic mean.

The calculation path for +50/ -50 is:

- (1) +50 + 200 = 250
- (2) -50 + 200 = 150
- (3) 250 \* 150 = 37,500
- (4)  $(37.500)^{1/2} \approx 194$
- (5) 194 - 200 = -6.

**Tabellenaufbau**  
 61211-0005 Erzeugerpreisindizes landwirtschaftlicher Produkte:  
 Deutschland, Monate, Messzahlen mit/ohne Umsatzsteuer,  
 Landwirtschaftliche Produkte (Unterpositionen)

Wenn Sie keine Auswahl treffen möchten, können Sie den Werteabruf direkt starten.

Position	Code	Inhalt	Ausprägungen
<input type="checkbox"/>	61211	Index der Erzeugerpreise landwirtschaffl. Produkte	
<input type="checkbox"/>	DINSG	Deutschland insgesamt	
<input type="checkbox"/>	PRE018	Erzeugerpreisindizes landwirtschaftlicher Produkte	
<input type="checkbox"/>	JAHR	Jahr (3)	Zeit auswählen
<input type="checkbox"/>	MONAT	Monate (4 von 12)	auswählen
<input type="checkbox"/>	STEMW1	↳ Messzahlen mit/ohne Umsatzsteuer (1 von 2)	auswählen
<input type="checkbox"/>	PROAT5	Landwirtschaftliche Produkte (Unterpositionen) (1 von 117)	auswählen

Figure 7.10: Time Series Research. Search for Producer Price Indices for Milk in Germany. Source: GENESIS Online.

Time series with the geometric mean of the balances and the index values are shown in Figure 7.8. According to them, the balances of the economic climate and within them, the business expectations, developed positively over the year 2009. Looking at the index values (Basis: 2000), we can see that the values for 2009 are below those for 2000.

## ■ Tabelle

Erzeugerpreisindizes landwirtschaftlicher Produkte: Deutschland, Monate, Messzahlen mit/ohne Umsatzsteuer, Landwirtschaftliche Produkte (Unterpositionen)				
Index der Erzeugerpreise landwirtschaftl. Produkte Deutschland Erzeugerpreisindizes landwirtschaftlicher Produkte (2000=100)				
Landwirtschaftliche Produkte (Unterpositionen)	Januar	April	Juli	Oktober
	Indizes einschließlich Umsatzsteuer	Indizes einschließlich Umsatzsteuer	Indizes einschließlich Umsatzsteuer	Indizes einschließlich Umsatzsteuer
2007				
Milch	93,7	94,0	111,2	139,7
2008				
Milch	133,2	113,9	114,6	108,7
2009				
Milch	87,6	78,3	74,5	83,9

Figure 7.11: Time Series Display: Producer Price Indices for Milk in Germany. Source GENESIS Online.

It turns out (Figure 7.9) that the ifo economic indicators may be ahead of official statistics by a few months, which makes them suitable—with reservations—for prognoses (Vogt, 2007).

In Germany, the “solid” data of official statistics are available for research online via the GENESIS database of the Federal Bureau of Statistics. The search is oriented by charts (or their headings). In a second step, the values are adjusted (e.g. for yearly or monthly values) (Figure 7.10). The requested values are displayed as a chart (Figure 7.11). A local storage of the research results is available for further processing in different formats (as Excel chart, in HTML format or as CSV).

## 7.12 News

Press information comprises all articles in daily and weekly newspapers, consumer publications, business newspapers, industry newsletters and—published in real time and stored in archival databases—news reports from press agencies. News items initiated by institutions themselves may also be of importance, independently of whether a press outlet has reported on them or not. Several broadcast stations offer transcripts of their radio and TV programs, making these researchable also.

In news, we distinguish between three information products:

- press reports,
- press reviews,
- media resonance analyses.

In digital products for **press reports**, we can distinguish between two approaches. One, used by Google News, works with the concept of topic detection and tracking. A pool of selected digital sources—if available—is trawled for new topics and

the articles belonging to them are summarized into a unit of documentation. The source pool mainly comprises online versions of newspapers as well as a few blogs. The user always searches the articles' full text, the arrangement criteria are relevance (as also applied in Google) and date. Google News provides an alert service, which allows for the surveillance of a topic of one's choosing.

The screenshot shows the Factiva search interface. At the top, there is a navigation bar with 'Suchen' (Search) highlighted, and other options like 'Profil', 'Nachrichtenseiten', 'Gruppen-Nachrichtenseiten', and 'Administrator'. Below this is a secondary navigation bar with 'Freitext/Indizierung', 'Gespeicherte Suchen', 'Unternehmensraster', 'Kurse', 'Charts', 'Unternehmensreport', and 'Direkter Link'. The main area is titled 'Wählen Sie eine Kategorie aus:' and features a faceted search menu. The 'Suchen' (Search) facet is expanded, showing a tree structure of categories: 'Kraftfahrzeuge' (selected), 'Elektro-/Gas-/Biobrennstoff-Fahrzeuge', 'Freizeitfahrzeuge', 'Motorräder', and 'Nutzfahrzeuge'. Other facets include 'Branche' (Automobilbranche), 'Region' (Autohandel), 'Thema' (Fahrzeugsatzteil-/Reifenhändler, Fahrzeugvermietung/Fahrzeugleasing, KFZ-Reparatur-/Service), and 'Unternehmen'. Below the facets, there is a search input field for 'Freitext' and a dropdown for 'Nach Freitextbegriffen suchen in:' (Gesamter Artikel). There are also options for 'Quellen' (Alle Quellen, Ihre aktuell gewählte Quellenliste), 'Datum' (In den letzten 3 Monaten), and buttons for 'Zurücksetzen', 'Suche speichern', and 'Suchen'. At the bottom, there are options for 'Sprachen' (Standard, Alle) and 'Ausschließen' (Wiederveröffentlichungen).

Figure 7.12: Search Interface of the Press Database Factiva. Source: Stock/Stock, 2003a.

The second approach, as pursued in Factiva or LexisNexis, is based on the (mostly automatic) indexing of all articles via a faceted thesaurus (Factiva) or a classification system (Nexis). The user thus finds a controlled vocabulary on companies, industries, geographical terms and topics in "his" language, with which he can research all documents—no matter what language they are written in (Figure 7.12). Apart from all of the world's top economic newspapers (among them the *Wall Street Journal*), important agencies (like Dow Jones and Reuters), Factiva processes around 28,000 sources in total. Alerts are as common as the embedding of Factiva data sets into corporate knowledge management systems (Stock & Stock, 2003a). Generally, the unit of documentation only comprises the continuous text of the articles from the original print versions. All images are removed (and sometimes saved in a separate database), layout and placement in a magazine are no longer evident. Some providers (among them GENIOS for some of its sources; Stock & Stock, 2003b) proceed to keep available a PDF of the original

pages, or at least of the excerpt in question (as does the *New York Times*). Completeness cannot be expected by either Google News or the commercial information providers (Weaver & Bimber, 2008).

### 7.13 Media Observation: Press Reviews and Media Resonance Analyses

A **press review** is a periodical compilation of press articles on any one topic, often on one's own company, products and competitors. Press reviews are either compiled by the company in question itself, or commissioned from a service provider. The basis for research in German newspapers is the database of the PMG (Presse Monitor GmbH), which disposes of 568 of the 627 German newspapers online (beginning of 2010) and also holds the rights for licensing press reviews. In a simple variant, the articles that concern the topic in question are printed from the digital version. More elaborated variants have more user-friendly options:

The articles are researched via PMG, but digitally cut out from the digitized newspapers, leaving the article's layout intact.

If one wants to publish the press review very early (e.g. around 8am on work days), intellectual research (skimming newspapers) must likewise be made early—perhaps even as early as the previous evening.

The single press clippings also serve as the basis for **media resonance analyses** (Raupp & Vogelsang, 2009). The goal is an information compression of press reviews concerning the topic over time. The press presence is documented in presence reports. The topic's presence shares are calculated relative to all publications over a given period of time, as is the articles' distribution, e.g. by position on the page (relative to one's visual perspective), by category, region, form of journalistic representation and sentiment (positive, neutral, negative). The user is additionally provided with information about the circulation of the newspapers that discuss his topic and is thus able to estimate the scope of the information. Service providers in media observation generally do not restrict themselves to press reports, but also take into consideration contributions to Web 2.0 services (particularly blogs and evaluation services).

### 7.14 Providers' Pricing Strategies

Information providers pursue three pricing strategies: (1.) free offers, (2.) subscriptions and (3.) single sales of units of documentation ("pay as you go").

Market data such as stock market prices are, apart from free services like Google Finance, normally distributed as subscriptions (Ainsworth, 2009, 86). The basis for the calculations are the number of employees with access privileges (sometimes with simultaneous access privileges) and time, i.e. for five employees per month or year. As far as time series are offered by official institutions, like the Federal Bureau of Statistics, the customer can access them for free.

Media observation services principally work with the subscription model. There are hardly any free services for business information. In this area, professional special providers dominate, their pricing models being subscriptions and pay-as-you-go. Sometimes, you can find pared-down versions of databases (with far fewer search options, or less display fields), sort of like “appetizers”, for free on the Web—such as the Hoppenstedt Firmendatenbank (Stock, 2002, 23).

In pay-as-you-go distribution, the price span is very large per document. Newspaper articles go (beginning of 2010 from GENIOS) from €2.38 (e.g. for an article from *Rheinische Post*) and €3.87 (*F.A.Z.* article). The GfK offers its purchasing power and structure information for around €10 per data pool. A complete market research report from MarketResearch.com’s Profound service can go up to several thousand Euros, even though most clients do not buy complete reports but mainly single chapters. (In Profound, a certain sum is generally paid in advance per year, from which the single purchases are deducted; Nutting, 2009) A company dossier (from Creditreform, purchased via GENIOS) is set at €11.30, a balance sheet at €44.62 and solvency information at €59.50, each for a company with offices in Germany.

In the view of free products (such as Google Finance or Google News), information providers that charge money for similar content problems face. There is a predatory competition favoring providers of free information products currently at work on such submarkets for economic and press information. Certain providers, among them *Wer liefert was?*, have already ceased charging for content and gone over to exploiting users’ attention.

## 7.15 Conclusion

Only available in the printed version.
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## 7.16 Bibliography

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