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The New Economy And Official Statistics

Federal Statistical Office, Wiesbaden

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For several years, against a background of profound changes in the economy and society, much of the scientific and political discussion has been about the new economy or Internet economy. On the one hand, we think of the unusually long-lasting economic recovery in the United States with its positive effect on the job market. On the other, these terms relate to the extremely rapid developments in information and communication technology or even biotechnology and the penetration of these new technologies into nearly all areas of the business world, or the increasingly information/Internet-based and connected economy. The German government announced its aim of promoting the Internet economy, and the Council of Economic Experts treated the subject of "The New Economy – A New Hope?" in detail in its Annual Report 2000/2001.

There is no clear definition of these terms so far; and furthermore, opinions are divided over whether it is a permanent or only temporary phenomenon.

The following paper shows what indications the bodies of official statistics can give with the existing data and/or where the statistical instruments must be supplemented in order to improve the data resources.

by Dr. Susanne Schnorr-Bäcker

1 Structural Change in Society and the Economy

For some time there has been a structural change in society and the economy, which, depending on the focus of observations, is described with key words like "information or knowledge society", "new economy" or "Internet or network economy".

This paper describes which indications the statistical offices, the largest provider of statistical data, can already give and in what way the statistical programme needs to be modified or expanded to make the required detailed statistical information on the scope and extent of that structural change available on a permanent basis. As far as possible, the analysis is based on existing statistical data. The length of the time series used varies depending on the latest data available in each case.

Characteristic of the structural change are its complexity and range and the enormous speed with which it occurs. The terminology used is not uniform across the different countries, although one might suppose that English, as the language of the Internet, contributes to standardisation. Nevertheless it can be observed that original English terms are often subject to a national semantic change, or new words are created.

Even though a description of this change and its determining factors is essential, no attempt will be made at a precise definition of the different terms since so far there are not even uniform and generally recognised definitions in theory, let alone practical ones for official statistics, i.e. operable versions.

There is no doubt that the structural change is essentially due to the ever faster distribution

of electronic media. The first automated calculating machine was indeed developed over half a century ago and the Internet has already been used for a long time particularly in scientific and military areas. Nevertheless, the beginning of the age of electronic communication penetrating all areas of the economy, society, science and politics with the introduction of the world wide web (www) dates to the early 1990s. The widespread use of the Internet for the mass market is essentially determined by four factors:

- the rapid technological developments in the information and communication sector, together with enormous cost reductions; "Moore's Law", according to which every 18 months the capacity of chips doubles while the cost halves, continues to apply.¹ Closely linked to this is the miniaturisation of input factors, working materials and appliances in the information and communication sector, which are also used in other areas,
- the world-wide acceptance of standards regarding the use of the Internet, its applicability etc.,
- the constantly new employment of most modern information and communication techniques in all areas,
- the ever increasing digitisation of information of all types, in particular of words, pictures and sounds.

Regardless of the controversial discussion about whether the Internet economy is a genuine economic revolution like for example with the transition of the agrarian society to the industrial society - examples often stated are the development of the steam engine or the introduction of electrical light -, it is certain that the Internet is the most rapidly expanding medium in history.

Information on the equipment of households with personal computers has been collected regularly by the statistical offices since the mid-1980s.² Within a period of only ten years, about 50% of all households - with the exception of those pertaining to household type 1 (2-person households of recipients of pensions) - had a home or personal computer (see chart 1). Equipment with mobile telephones rose even more rapidly - just in the period from 1998 to 2000 it increased from 9.5% to almost 30% (see chart 2).

The fact that the equipment of households with these potentially Internet enabled devices is taking place so rapidly is also due to the decrease in prices of these goods and the infrastructure services required. The basket of commodities of the consumer price index, which serves to measure the development of consumer prices, contains among other things "data-processing devices" and "communications". While the overall index rose to 106.9 in the period 1995 (= 100) to 2000, the partial index of "communications" sank to 84.5 (2000) and that of "data-processing devices" to 77.6 (in 1999) (see chart 3). It is mainly due to this decrease in prices³, which is expected to continue in the future, that the equipment of German households with the abovementioned goods is still on the rise.

¹ See Picot, A./Neuburger, R.: "Die Bedeutung des Internet" in Wirtschaftsdienst 10/2000, p. 591 ff.

² In the sample surveys of income and expenditure/the family budget surveys, equipment with home computers has been shown for the first time in 1986. In line with technological progress, about a decade later this variable was covered with a much higher degree of differentiation and lately at shorter intervals (in the family budget surveys). This is an example of the moderate way in which new developments are recorded as they progress in the sphere of official statistics.

³ In the field of communications, the substantial declines in prices are mainly due to the liberalization of the telecommunications market. To account for this development, the price indices of telecommunications services calculated regularly since the 1950s as part of the programme of price statistics were reformed, on the subject see also Beuerlein, I.: "Neuberechnung des Verbraucherpreisindex für Telekommunikationsdienstleistungen auf Basis 1995" in Wirtschaft und Statistik 4/1999, p. 329 f. (English version: "New computation of the consumer price index for telecommunications services on base 1995"), and Beuerlein, I.: "Neuer Preisindex für die Internet-Nutzung" in Wirtschaft und Statistik 3/2001, p. 176 ff.

2 Internet Economy

2.1 Characteristics of the Internet Economy

To describe the current structural change in society and the economy, various but not clearly defined terms are used. Although the term “new economy” is widespread, the following remarks refer to “Internet economy” as this term helps to present the phenomena to be examined in a more general and above all neutral fashion.

The Internet is first of all only a new medium. It is determined by

- material goods, the “hardware” (such as personal computers, servers, telecommunication systems, etc.),
- immaterial goods such as software (operating systems and user software) for the actual purpose,
- other services; these are in particular
 - infrastructure services, such as the provision of corresponding networks,
 - advisory services, for example in the form of user training,
 - services for designing the Internet representation of users thus operating in the market, i.e. “content” services, like for example the design of websites.

The Internet makes it possible to connect all areas of a national economy (see chart 4).

What distinguishes this new form of economy from the classical, well-known economic transactions and what are the consequences? The classical industrial society was characterised by physical working processes performed on material goods, which were likewise delivered physically to the buyer via physical sales channels. It was the same with services. With the Internet economy, these physical processes are overlaid by digital processes. The Internet is becoming the central means of transporting information and thus the engine of global networking:

1. Everyone can be contacted everywhere.
2. Theoretically, Internet-based transactions can be carried out from any location and at any time, thus they are ubiquitous goods. This applies to both the suppliers’ and the demanders’ sides.
3. Information is no longer an exclusive good in short supply; even the latest information can be made available extraordinarily quickly by the Internet.

Thus information is assuming great importance in all areas of a national economy and a state.

The Internet economy makes it possible to dematerialise goods which have been available only in physical form. That is already practised in the production of software, books, pictures or music. You can download user software, and reconvert books if necessary into material goods by printing. The reproduction of digital goods and their marketing can be taken over by nearly everyone via the Internet. It is almost the same with all information-based working processes, also in the “old economy”, i.e. in the industrial as well as the traditional service sectors.

This brings about changes, not least for the working world. The Internet makes it possible to do away with the clearly separated spheres of work and leisure time. Since in some areas work is no longer necessarily bound to a specific place of work in an enterprise but can also be carried out at home, as it were online, these borders become blurred. The term work requires a new definition.

2.2 Consequences of the Internet Economy for the National Economy

It is generally maintained that the employment of modern information and communication technologies, first of all the Internet, is becoming the growth engine of the industrial nations. The United States are always stated as an example of this. During a period of nearly ten years, the economy, productivity and employment grew considerably there without serious dangers of inflation arising, despite almost full employment.⁴ The increasing use of new technologies in economy and society is given as the main reason for this.

Considering the overall economic development in Germany over the last decade on the basis of selected indicators, we get the following picture (see also chart 5): The gross domestic product (GDP) as an indicator of economic growth increased in Germany at constant prices of 1995 by altogether 14.9% from 1991 to 2000. However, no clear tendency towards increasing growth rates can be observed over time. The case is similar with labour productivity (defined here as GDP at constant prices per person-engaged hour). Although it rose from DM 56 per person-engaged hour in 1991 to DM 67 in 2000, i.e. by altogether approximately 20%, no clear development is recognizable here either. If we take the gross national income per inhabitant (at respective prices) as an indicator of the (monetary) prosperity of a national economy, there is an increase from DM 36,700 (in 1991) to DM 48,500 (in 2000), but no acceleration in recent years.

Over the last decade, there were no lasting employment impulses on the job market. With 38.53 million, the number of persons engaged in economic activity was only slightly higher in 2000 than in 1991 (38.45 million - annual average of persons engaged in economic activity in Germany). However, an increase in the number of persons engaged in economic activity has been registered again since 1998, which may have various causes though.

The development of gross fixed capital formation may be indicative of the increasing importance of the Internet economy (see table 1). It is made up of gross fixed capital formation in machinery and equipment, gross fixed capital formation in construction, and of other products; a major element of the last category being intangible fixed assets, above all software. While gross fixed capital formation (at respective prices) rose by a total of about 22% since 1991, other products increased by approximately 85%. The difference is even greater after adjustment for price changes, (12% as opposed to 111%). Even though the share of other products in gross fixed capital formation is still small, the increasing importance of this category is obvious.

In conclusion it should be noted that looking at the German economy as a whole, no significant impulses of the Internet economy can be observed (which would be comparable to those recorded for the United States). Due to the complexity of economic processes

⁴ See also the Annual Report 2000/2001 of the Council of Economic Experts: "Chancen auf einen höheren Wachstumspfad", Wiesbaden, November 2000, points 199 f. ("Chance of a higher growth path" –summarized version); similarly the OECD study "Is there a new economy, first report on the OECD growth project", Paris 2000, OECD: "Measuring the ICT -Sector", Paris, 2000; Deutsche Bank Research: "Produktivitätswunder' in den USA: Nur ein Computer-Phänomen?", no. 151, 9/2000.

within a country, such an isolation of individual influences is extremely difficult empirically.

2.3 Advantages of Rationalisation

An important reason why enterprises participate in the Internet economy are the rationalisation and cost reduction advantages expected or hoped for. Cost structure statistics could provide information on the changes in cost structures. Such analyses will not be made here, however, as no significant results could be observed as yet for the overall economy even of the United States.

That substantial cost reductions and improvements in economic performance are possible with the Internet economy can so far be shown only for individual economic units and here particularly for enterprises in the field of information technology. With the help of the Internet, companies like Microsoft or Cisco were able to reduce their transaction costs in purchasing, sales and management considerably and thereby realise high profit margins.

So far these effects cannot be recorded to a significant extent for the overall economy. This is mainly due to the fact that in traditional lines of business, which do not trade in digital goods, only first signs of the Internet's productivity thrust can be observed at the most. At the moment these lines of business are still in the investment phase. They will be able to lower their transaction costs with the help of the Internet only once the large electronic market places are fully viable and when enough enterprises have digitised their traditional buying or selling transactions and are connected. It is assumed that this will take some more years.

3 The New Market

3.1 Definition

After focussing on overall economic developments, we will now look at those lines of business for which the Internet economy is already of great importance today. The technological development causes new economic branches to develop, particularly in the "new market". With a view to capital market innovations, these are referred to in the German business press as "TMT" (abbreviation for "technologies, media, telecommunication"). In the Anglo-American linguistic area - at least in institutions dealing with statistics - the abbreviation "ICT" ("information, computers and (tele)communication") is used. Basically, existing classifications of economic branches used by the bodies of official statistics are drawn upon for delineation purposes. At supranational level, above all the Organisation for Economic Co-operation and Development (OECD) has been working on a more exact description of the ICT sector for some time. They are trying to prepare a more differentiated definition of the statistically relevant economic branches using ISIC classes⁵ (see overview). Basically these are the production and marketing of data processing equipment and electrical devices, including necessary and associated services (e.g. renting of these goods).

If we delineate the economic branches in accordance with "ICT", the "new market" comprises above all new lines of business in the service sector, but also in production industries. It is typical of these lines that material and immaterial goods (in the form of software, advisory services and the like) are often offered in combination and for different

⁵ See United Nations: "International Standard Industrial Classification of All Economic Activities", Rev. 3, New York 1990.

purposes. Biotechnology^{6 7} may serve as an example here. This interdisciplinary field - like nanotechnology⁸ - is important for various economic branches. Mostly, physical goods are offered - in the case of biotechnology, for example, medicine or plant protection agents, products for diagnostic purposes, etc. - but also physical goods from the information and communication sector, platform technologies as well as software and advisory services.

If we apply the rules used by the agencies of official statistics to allocate an enterprise to an economic branch on the basis of its main activity, complete coverage and analysis are at the moment rather difficult, if at all possible.

Regardless of this problem, for which rules have to be found at a national and international level in agreement with the users of statistics, the economic press regards especially the following areas as part of the new market:

- information technology and its elements (manufacture of hardware as equipment, production of software for operating systems and of user software) and advisory services,
- media in the broader sense (such as entertainment, education, but also financial services) as well as
- telecommunications.⁹

3.2 Economic Significance

Generally it is supposed that the new market contributes ever more strongly to the creation of value added and that thus a higher growth path can be reached. Whether or not the economy is developing in this direction may be investigated particularly by means of the rates of change of the value added. In national accounting, the gross value added is a ratio characteristic of the economic performance of the individual industries¹⁰ and thus of their contribution to the gross domestic product. It covers the additional value created in the production process, broken down by economic branches. The gross value added is therefore of great benefit for structural analyses. This applies all the more as the development of the individual economic branches often diverges substantially in the course of time: structural change is a longer-term trend.

Looking at the different areas (see chart 6) we see that the production industry's share of the gross value added (unadjusted) of approximately a third (in 1993) decreased to 30% in 1999 to the benefit of the service fields (in 1993: 66%; in 1999: 69%). The same trend can be observed comparing the growth rates of both industries for the six-year period from 1993 to 1998. Thus there is an increase of altogether 22% for the service fields, but only 7.6% in production industries. The thesis of the transition from the industrial society to the

⁶ See Federal Statistical Office: "Ausgaben für biotechnologische Forschung", project report, Wiesbaden 1995.

⁷ "Biotechnology comprises all innovative methods, procedures or goods extensively using living organisms or their cellular and sub-cellular components, thus drawing upon findings of research in the fields of biochemistry, molecular biology, immunology, ... or environment and process engineering." From Deutsche Industrievereinigung Biotechnologie: Biotechnologie-Statistik, s.l., August 2000, p.2.

⁸ Nanotechnology deals with extremely small parts (in the millionth millimeter area) of living and inert matter. The results are used for instance in medicine, but also in other fields.

⁹ In the sphere of official statistics, these industries are already covered by existing classifications, namely the Industrial Classification of Economic Activities (WZ 93) at the national level, and the NACE Rev. 1 at EU level. However, there are two problems: first, these classifications are not detailed enough especially for the new market - slight differentiations have been envisaged for NACE Rev. 1 from 2002 above all for computer and related activities (Division 72) and wholesale trade (Division 51) for wholesale trade in information technology goods. Second, an enterprise is allocated according to its main economic activity, i.e. a well-known hardware manufacturer whose principal activity may be the production of electrical goods is recorded here with its entire economic performance. New ways to allocate enterprises on the basis of the actual situation must be found in particular for the new market, where many, and also traditional, enterprises are operating.

¹⁰ Delineated according to the Industrial Classification of Economic Activities with Explanations, 1993 edition (WZ 93).

service economy is thus confirmed also with this rather rough analysis.

Table 2 gives an overview of the value added of selected industries where many of the enterprises belonging to the “new market” may be found. Hardware production, as far as it is the main economic activity, is included for example in the “manufacture of office machinery, data processing equipment, electrical engineering”. Here, however, a decrease of altogether 4% can be observed for the six-year period from 1993 to 1998, despite a general 7.6% increase in the gross value added of production industries as a whole. Since the gross value added is only an indicator of what is produced within the domestic territory, it can be concluded from this development that most of the hardware used within the country is not manufactured there. This is confirmed by a look at export statistics (see chart 7). In the case of foreign trade in selected electronic high-tech goods, there is an import surplus in the period 1996 to 1999 for most of the goods considered - with the exception of telecommunications. This applies particularly to the trade with office machinery and computers. In 1999, imports were almost twice as high as exports in this field.

For service fields more closely linked with the Internet, particularly “computer and related activities”, the value added showed an above-average rise to a total of 73.4% in the period from 1993 to 1998. This is also reflected by the progressively increasing annual growth rates. Another important industry, “business activities”, shows a relatively high increase in the value added of altogether 23.8% for the six-year period from 1993 to 1998. Many lines of business relevant for the new, but also the old economy belong to this industry, for instance

- legal activities, tax consultancy (with for example tax structuring advice in the case of restructuring) and business and management consultancy activities (with for example the development of accounting systems, cost-accounting programmes, etc.),
- market research and public opinion polling (including, for instance, public relations),

but also

- architectural activities,
- investigation and security activities,
- photographic activities,
- industrial cleaning, and much more.

Thus traditional and rather modern, i.e. Internet-based industries, are grouped together under one heading. Therefore the influence of the Internet economy can be represented here only incompletely and inaccurately at present.

To summarize, despite many open questions, this rather selective discussion leads to the conclusion that some of the lines of business belonging to the “new market”, e.g. information technology and advisory services, the media and telecommunications already increasingly contribute positive effects to the growth of the national economy and will continue to do so in the future.

3.3 Foundations of Enterprises (Start-ups)

Since 1996, the registrations and deregistrations of enterprises submitted to the local authorities have been processed and evaluated by the bodies of official statistics. In this way, the founding and closing down of enterprises and local units and their demography within the economy can be shown. Start-ups or foundations of enterprises in the areas of the new market are a further indicator of its dynamics (see table 3). Only real start-ups are

considered in the following, i.e. the founding of enterprises or head offices, or of local units or branch offices by legal or natural persons. The latter must have been entered either in a register or in the Register of Craftsmen, or have at least one employee. Of the economic branches particularly relevant to the new market, “business activities” is the one with the largest share of real start-ups. This share rose from 13.2% (in 1997) to 15.5% (in 1999). In second place comes “transport, storage and communication” with 5.7% (in 1999) -an area which is becoming increasingly important for logistics providers and intermediate goods providers of Internet-based technologies. “Financial intermediation” with 2.5% and “computers and related activities” with 3.3% also account for another considerable share of start-ups in 1999, the latter even showing rapidly increasing growth rates. The economic branches with the largest shares of start-ups also show the highest annual rates of change in the period considered. In contrast, in economic branches comprising mainly hardware providers, such as “manufacture of office machinery, computers and other information processing equipment”, “manufacture of radio, television and communication equipment and apparatus” or “manufacture of machinery and equipment n.e.c.”, the number of start-ups is relatively small and even declining in the period considered. Thus the statistics of business notifications indicate, on the whole, that the new market has shown a certain dynamic in the recent past only in the service fields.

4 E-Business and E-Commerce

4.1 Terms and Nature

This section describes new features of the Internet economy that can be considered from functional points of view. These include above all the “electronic business”, or “E-Business” for short. This is to be understood here as a general concept for all activities which are conducted by means of Internet-based technologies (including suitable mobile telephones) between different (market) participants. The term E-Commerce, electronic trade, is closely related to it. So far there is no uniform and generally accepted definition of this term. A very narrow version is used for example by the American Bureau of the Census. According to this version, not only the offer of the E-Commerce provider, but the entire transaction including the conclusion of the contract on the part of the buyer, must be made online, i.e. via the Internet; all other variants are assigned to E-Business by definition. In the university of Texas¹¹ definition, however, the nature-determining features are taken into account, like for example

- a physically existing provider,
- the use of Internet-based technologies,
- intermediaries (e.g. in the form of “portals” providing access to markets within the Internet),
- on-line (trade) transactions.

There is however also the view that E-Commerce is not an independent phenomenon. Those who hold this opinion believe that E-Commerce is merely another channel of distribution, a way to trade electronically. Such a view questions the entire phenomenon, whose existence should be generally recognised, and thus appears unsuitable for further analysis. It is undisputed that each attempt at defining the term has its pros and cons and that it is easy to find examples representing border-line cases between the “old” and “new” economies.

¹¹ See Rallet, A.: « E-Commerce quels faits? Quels effets ? » in Résumés des interventions, Paris 2000.

It can be noted that the phenomenon of E-Commerce is new in economic reality and can be realized only by means of Internet-based technologies. It is also undisputed that the dematerialisation or digitisation of goods by the Internet has produced completely new types of business and will continue to do so in the future. Especially in the fields of software or music - as already mentioned above - goods are offered to which the features of scarcity or increasing marginal costs at full capacity no longer apply. The costs of producing the initial good, for example the development costs of a certain applications software, are extraordinarily high. For each further product of this type these costs are almost zero. Consequently, as a first step, such goods can even be provided free of charge (such as applications software for Internet access or the extremely low fee, sometimes even zero, for mobile telephones of different network providers). The aim is to attract attention in order to enter new market segments rapidly, thus reach the break-even point, win and bind customers. Only in a second step - supported by suitable marketing measures - are proceeds obtained through, for example, the sale of additional services, updated and improved versions and the like. Whichever phenomena are placed in the foreground with E-Business or E-Commerce, there are activities of the individual enterprise which cannot be performed electronically, such as for example the physical delivery of tangible assets.

4.2 Manifestations

4.2.1 B2C (Business to Consumer)

Internet-based technologies are used to open up new markets, above all, however, for the rationalisation of operational tasks, in particular selling and buying. Electronic trade is already of special interest for the individual enterprise today. It first became popular with so-called online shops, where books, sound storage media and computer equipment can be ordered by private customers (also called "Business to Consumer" or B2C for short).

E-Commerce in the form of B2C should meanwhile have gained a foothold above all in retail trade, and in particular in the mail-order business. The value added in this area admittedly rose only slightly (about 24%) in the period from 1993 to 1998, but nevertheless above average (see table 2), with the annual rates of change of approximately + 1% in 1997 and 1998 being rather small. More precise indications could be supplied by the statistics of the different commercial areas

- retail trade
- mail-order business (as part of retail trade) and
- wholesale trade,

where E-Commerce may have an influence on the development of sales, but more still on investments (see table 4). The infrastructure for E-Commerce is very expensive.

Turnover statistics implicitly contain the B2C sales effected via E-Commerce, but so far these sales are not shown separately. Sales increases may be expected for the individual enterprise, especially if as yet regionally operating enterprises enter the global market. In the period from 1993 to 1997/1998, the different fields of trade do not show a significant increase in sales in the form of increasing annual growth rates. Increases and declines in sales alternate in retail and mail-order trade; only in wholesale trade do increases in sales dominate.

In trade, investments for Internet-based technologies can be entered under the following positions:

- transport equipment, furnishings, machinery, equipment and the like,
- noncapitalized economic goods under DM 1,000,

- expenditure for rented and leased tangible fixed assets.

The development of the first two positions shows a non-uniform picture for the period 1993 to 1997/1998, with on the whole declines in investment activity. This is not the case with the expenditure for rented and leased tangible fixed assets. In all three fields of trade, it increased significantly in the period under observation. A reason may be that due to the rapid technological development, renting is better than buying. The annual expenditure for this position exceeds the expenditure for gross fixed capital formation particularly in total retail trade for the entire period under report, and in the sub-category of mail-order trade for the first time in 1996. The bodies of official statistics can so far provide no differentiated data as to whether and to what extent this is due to investments for E-Commerce or E-Business in general. This is one of the reasons why the importance of E-Commerce for trade is being more closely examined by the Federal Statistics Office within the framework of a pilot study on behalf of the European Union.

On the whole, the overall economic impact of E-Commerce is discussed controversially by practitioners and scientists. The prevailing opinion seems to be that electronic trade will make only a small contribution to overall economic growth in the long run and will instead lead to redistribution as competitors are driven out of the market.

4.2.2 B2B (Business to Business)

In the long term, buying and selling between enterprises (i.e. “Business to Business” or B2B for short) should be of greater importance for the overall economy. Many enterprises have already begun to restructure their business processes and make investments in order to operate on-line, even though today the main reason seems to be “me too”: everyone wants to take part. This applies particularly to enterprises of the “old economy” which want to keep abreast of recent developments. The enterprises expect, on the one hand, that the intensified use of information and communication technologies will provide a considerable potential for cost reduction. Physical processes can be shifted into the virtual area, particularly in buying (also called E-procurement), in sales or in research and development. Closely related are considerable time gains as well as the chance to save input factors. The time factor is particularly important for competitiveness in the age of the Internet economy because the Internet creates an extraordinary market transparency and makes quick reactions to changes in basic conditions possible for each participant. On the other hand, information becomes increasingly low-priced with the help of the Internet. Besides new information-intensive products such as software or advisory services, traditional products will also contain an increasing input of information.

These developments strengthen the enterprises’ inclination to focus on their primary activities and outsource supporting or auxiliary activities, i.e. to pass them on to third parties. Biotechnology is already an example of how value added chains can be broken up and transferred to the outside. On account of the Internet economy, all market participants act increasingly connected in the form of communities of interest. Economic reality shows that, external basic conditions permitting, competitive pressure in a globalized world leads to the full exploitation of all rationalisation potentials, especially on the part of public authorities.

4.2.3 Other Manifestations

For the sake of completeness it should also be mentioned that on the Internet, transactions can be conducted not only between enterprises and their customers, but that also forms like

- C2C (“Consumer to Consumer”, i.e. between final consumers) or

- E-Government, i.e. Internet-based transactions within the public sector as well as with citizens

are being discussed and partly already being implemented.

In the case of C2C, file sharing services are the centre of attention, in the recent past connected particularly with the name "Napster", a music file sharing service, which achieved great success in a very short time. This is another new feature of the Internet. Consumers themselves operate in the network as providers and often do not even demand payment for their services.

5 Importance for Official Statistics

The effects of the structural change are to a large extent contained in official statistics. For a differentiated view, particularly of the scope and extent of the electronification of business processes and their economic impact, the bases are still largely missing in the German system of official statistics. Initial approaches in the United States, Canada, but also in some European countries such as France, Great Britain and Northern Ireland as well as the Scandinavian countries Denmark and Finland, provide indications that can be used to promote our own efforts to improve the information situation.

The Service Statistics Law, which came into effect on 1st January 2001, will make more detailed reports about the service sector possible - as well as about modern services. The passing of this law after many years of discussion takes into account the increasing importance of the tertiary sector of the German economy and closes a large gap in the system of German official statistics.

Furthermore, it has to be checked in how far the classifications of commodities, of economic activities, and of occupations, which are essential for the system of official statistics, are of relevance for the coverage of new and economically important developments. Since the classifications used by the bodies of official statistics are closely linked to European and international classifications, primarily those of the United Nations, Germany can do preliminary work, but modifications can only be finally decided upon after intensive international discussion in the advisory bodies of the international organisations responsible. Particular methodological difficulties may arise here particularly with interdisciplinary economic branches, like for example biotechnology.

Irrespective of this rather medium-term revision of international classifications, the bodies of official statistics have the task to cover new social and economic phenomena statistically when they occur and when an urgent demand for information becomes evident. This requires on the one hand an evaluation of existing data from several fields in the light of new questions. On the other, it may become necessary to supplement existing surveys by selected variables relevant to the respective phenomenon. In individual cases, another option is conducting small sample surveys at short notice in accordance with § 7 of the Federal Statistics Law.