**DIGITAL AGENDA**

**Thematic area addressed: II. Quality in official statistics and stakeholders**

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**Abstract**

Digitisation offers the opportunity for the Federal Statistical Office (Destatis) to better fulfil its role as leading provider of high-quality statistical information about Germany. The Digital Agenda sets out a clear objective and describes core principles for digitalisation as well as fields of action for concrete digitalisation measures. It is aligned with the strategic goals of the Federal Statistical Office and provides the strategic framework for the process of digital transformation.

**Keywords**: digitisation – e-government – agile working – culture change –learning culture – data hub

1. **Need for digitisation**

Quick and easy communication, ever-easier access to information, location-independent work, learning and research, networked and thoughtfully home, leisure and health devices, and even smarter tailor-made industrial production are all examples of the opportunities digital transformation offers to increase prosperity and quality of life. The Internet of the future not only connects people with people, but also with things and machines. It also networks things and machines with other things and machines (The Federal Government, 2014).

In the digitized world, the rapid availability of quality-assured information in all areas of politics, society, business and science as a basis for decisions continues to gain in importance. In this context, the Federal Statistical Office has the ambitious task of preparing a variety of different data from different sources, quality assurance and evaluation. New digital data will not be able to completely replace previous survey data. In the future, "blended data", a combination of primarily collected data, administrative registers and new digital data, will be the basis for official statistics.

In a highly technical and digitized world, users expect customized statistical analysis at the push of a button, which they ideally do not need to procure on their own, but are offered to them when they need it.

1. **What does "digitisation" mean for the Federal Statistical Office?**

Until recently, "digitisation" essentially meant the one-to-one transfer of paper-based processes to the electronic world. Today it is clear: digitisation is more. Successful digital transformation requires a much broader approach: digital transformation is a holistic transformation. It consistently focuses on the needs of users and employees, and supports them in the best possible way through seamless electronic processes and new tailor-made offers. In order to be able to quickly implement the associated potential in the Federal Statistical Office, it is necessary to redevelop abilities, to create organizational and technological conditions and to initiate a cultural change.

A digitisation program consists of a variety of digital use cases that are identified and developed together with the needs of users and employees. In order to implement these application cases in a short time, new skills and organizational framework conditions are needed. Agile working methods can be used to quickly implement some solutions: the specialist and information technology departments work closely together. They develop and improve prototypes in rapid successive cycles, regularly provide feedback and engage users.

Last but not least, cultural change is a key success factor. For example, a "learning culture" is needed: In order to learn and without having to fear that they will suffer disadvantages in case of failure, employees can introduce and implement new ideas – so they take risks. Employees would also no longer think and act in old structures and strictly separated according to organizational units (departments, groups and units). Such old "silos" would be broken up and new ways of working promoted, for example in interdisciplinary teams.

The path of digitisation can be subdivided into five degrees of maturity (levels) for the Federal Statistical Office. Employees at all levels are an important factor in successfully implementing a digital transformation.

1. **First successes and further challenges**

Digitisation and the strict sense Automation is no new topic for the Federal Statistical Office - many "digitisation measures" have already been implemented. While a few years ago, many companies still reported their data in paper form, today the data reports are received digitally in the Federal Statistical Office. For this purpose, an online reporting requirement was adopted for the company statistics and consistently enforced; the administrative effort involved in data collection could be significantly reduced. In addition, all data is available electronically and can be further processed immediately.

The Federal Statistical Office has also developed new products as part of innovative presentation formats for users. With the application "Migration.Integration.Regionen" an interactive map offer was published, which offers an overview of the regional distribution of foreigners as well as persons seeking protection in Germany at district level. The application was developed in close cooperation with the Federal Employment Agency and the Federal Office for Migration and Refugees. The selected information is now available for the first time in combination on the interactive map, making regional analyzes and comparisons easier.

The previous measures of digitalization were limited to individual areas or process steps of statistical production. A comprehensive ambitious target image and a master plan were missing so far. In order to remain a leading provider of information services in the 21st century, the holistic Digital Agenda serves to bring the digital transformation to the organization in a comprehensible manner. This means explaining the automation of process steps and the cultural change required for digitisation and depositing them with tangible measures.

1. **Core principles**

Digitisation at the Federal Statistical Office is based on five core principles:

* The starting point for digitisation is the strategy of the Federal Statistical Office

The Digital Agenda is integrated into the official strategy. With a view to digitisation, it sets the direction of development for the fields of action quality, reputation, structures and processes, partnerships and employees.

* The focus is on users and employees

Digitisation is not an end in itself. It creates measurable added value for all stakeholders. Based on their requirements or their applications, the processes are digitized.

* Digitalization affects everyone

The Digital Agenda is more than a mere IT topic. It pursues a holistic approach and requires a change in culture and work processes of the entire Federal Statistical Office.

* Measurable goals ensure success

All digital measures must be geared to a measurable target image of digitisation. The prioritization of the measures depends on their contribution to the achievement of the goals.

* Learning from mistakes

Long concept phases are a thing of the past. Solution approaches are quickly developed using proof of concept (PoC) and pilot projects. In this way, possible errors in the implementation can be identified and eliminated at an early stage.

1. **Target image**

The Federal Statistical Office is the leading information service provider and data manager for Germany in the 21st century, providing relevant information to politics, business and society. The Federal Statistical Office uses digitisation to automatically prepare, integrate and analyze quality-assured data from respondents, registers and other external sources. This data is quickly and easily made available to its users in a manner tailored to their needs.

With regard to the target image, the Federal Statistical Office has set five concrete goals for digital transformation by 2020:

* Improve quality of statistics and all other offers

The high quality of statistics and evaluations must be sustainably ensured and further improved. Media breaks and manual process steps are potential sources of error. These can be reduced by automation, increasing the quality of the analysis results. Through an automatic quality control in the statistical production processes, the Federal Statistical Office can further improve quality.

* Provide complex new information and statistics faster and agile

The digitisation of manual processes makes it possible to provide new complex information much faster. New agile ways of working enable short reaction times to changing requirements.

* Provide relevant information offers and profile as a central data manager

The Federal Statistical Office integrates self-collected data, data from registers, third-party data and "New Digital Data" at a central location. The effort for the data message is reduced as much as possible. A modern registry landscape provides the administration with pre-existing data for statistic generation and avoids duplicate surveys. The large amount of centrally available data is used to provide users with precisely tailored information.

* Develop digital organization and skills

The employees are prepared for the digital change process by continuing education and training. New digital talent complements the workforce. As a result, skills required in the house can be further developed.

* Establish a partner network

At the national and international levels, the Federal Statistical Office is expanding existing partnerships and concluding new partnerships in order to exchange expertise in the field of digitisation and to exploit synergies.

1. **Fields of action**

In order to reach the target image of the Digital Agenda, eleven digital fields of action were worked out with the participation of all departments of the organization. Together they cover all business processes of the Federal Statistical Office and take into account all identified challenges. Of the eleven digital action areas, seven refer to steps of the core statistics generation process (based on the Business Process Model - Official Statistics - GMAS), four relate to support processes (based on the Generic Activity Model for Statistical Organizations - GAMSO).

1. **Prioritized measures**

The digital action fields that cover the need for change are backed by a total of 59 concrete measures. The head office and the departmental management of the Federal Statistical Office evaluated and prioritized these measures according to their benefits and costs. The result: 24 measures have priority and will be tackled as early as 2018. The prioritized measures are intended to achieve both rapid success (for example through pilot projects on mobile data) and to lay the foundations for later success and digital large-scale projects (for example, for the register-based census after 2021). The annual work planning discussions for 2018 further specified these measures and their objectives. The implementation of the prioritized measures is regularly monitored.

1. **Lighthouse projects**

Of the 24 prioritized measures, some stand out as they exemplify the goals of digitisation. They have a signal effect for the entire digital transformation: They illustrate how great the potential of digitisation is for the Federal Statistical Office as well as beyond the house borders. At the same time, they cover together a multitude of new possibilities of digitisation (for example, machine learning, new partnerships and integration of data as well as improvement of internal processes).

* 1. **Proof of Concept for Machine Learning**

A pilot project on machine learning aims to highlight its potential for business statistics. Application examples include binary classification tasks, such as the identification of craft businesses and the mapping of companies into sectors, as well as the broadening of the analysis potential of earnings statistics by transferring characteristics from external data sources. Such a pilot project serves as a source of inspiration for other specialist areas of the company, such as how they could prepare their data more precisely through machine learning.

* 1. **Evaluation of mobile data**

The Federal Statistical Office is already working together with a large German mobile communications provider on the exchange of mobile data (Wiengarten / Zwick, 2017). This partnership must be maintained and expanded. The use of mobile data is intended to make official statistics production faster, more accurate and more cost-effective and to relieve the respondents. The time required for primary statistical survey methods can thus be minimized. Constellations that are to be described statistically can also be modeled by combining different data sources. Furthermore, these data help to use existing surveys more widely, for example in the context of small area estimates for small regional areas. The aim of a first project is to depict the residential, daily and working population as valid. Residential and working regions can be localized on the basis of mobile data, as these areas have a higher or lower average population density during the course of the day. Among other things, cartographic core density estimates are carried out and their results then compared with the values ​from the census.

In close cooperation with the Federal Network Agency and the Federal Commissioner for Data Protection and Freedom of Information, procedures will be further developed jointly with the mobile service provider in order to promote the integration of mobile data into official statistics. However, this requires a legal regulation, which provides official statistics with permanently regulated access to the data in companies for public purposes. New data sources and partnerships allow even more and more accurate data to be used, laying the foundation for contemporary statistics of the future.

* 1. **Open Data Platform**

In cooperation with the Federal Agency for Cartography and Geodesy, the Federal Statistical Office will develop an open data platform that will allow our users to access open data from the federal administration. Model is the US-American portal "data.gov". For such a platform interfaces for third organizations have to be developed. In addition, the unprocessed data must be anonymized and processed in such a way that it can be used by third parties. In the long term, the Federal Statistical Office can position itself as a data manager and actively help to shape digitisation in Germany.

1. **Digital assessments**

In order to concretely enter into the digitisation of the core processes of the Federal Statistical Office, so-called digital assessments were carried out in two important statistics: the foreign trade statistics, the largest and most complex central statistics, and the cost structure survey in the manufacturing sector, which is a rather typical central business statistics. The aim of the digital assessments was to develop a package of measures for these two statistics, the implementation of which leads step by step to a fully digitized statistics production process. The starting point for this was a "yardstick" that defines the production process as a thought experiment and detached from currently existing restrictions. In several interviews with specialist statisticians, the realized actual processes were documented. Subsequently, target processes were modeled in two workshops and the places where there was a need for action were identified. As a result of the Digital Assessment, there are 15 measures to be implemented in these two statistics, as well as two exemplary target processes that go into the development of a digital model process.

In order to drive digitisation consistently, digital assessments must be carried out in additional statistics.

1. **Success factors of digital transformation**

The Federal Statistical Office has set itself very ambitious digitisation goals. They can only be achieved if the cultural transformation succeeds.

"Many companies still attach too little importance to the human factor. Companies that consider this aspect just as strongly as the technology itself prove to be particularly successful on the way to becoming a digital enterprise. They adapt the management style and create a culture of trust that allows mistakes and integrates employees in change processes at an early stage. "This is the conclusion a study by Capgemini Consulting (2017), which shows that the most advanced companies make digitisation and digital culture a top priority. A lack of communication with the employees and an inadequate handling of their fears, on the other hand, slow down and create uncertainty. Only those who present the advantages of digitisation credibly to all employees will solve the fear of change and will gain the insight that the innovations benefit everyone. The study results also show that digitally progressive companies invest in their employees and provide resources for appropriate coaching and training as well as knowledge management. In addition, companies are promoting their digital character by attracting and hiring more talented people with a strong digital culture understanding. New approaches that make progress measurable also serve as proof of success and provide motivation for further steps.

In the future, measures and projects should - wherever possible - be processed using agile ways of working. For this purpose, the formation of agile teams is planned, which work in a two- to four-week sprinting schedule. The employees of these teams are largely released from their line activities. At the end of each sprint or work step, a review takes place, in which all players can contribute their suggestions for the next sprint. The topics for the next sprint will be determined accordingly and implemented by the team on their own responsibility. Each team has a technical project manager who is responsible for the results. This way of working transfers more responsibility to the teams, which can increase the motivation and commitment of the participants and at the same time make it possible to achieve better-fitting project results. This requires more flexibility from the employees and a departure from the so-called silo mentality; on the part of the executives it requires a renunciation of direct control. This requires a change in the work and leadership culture.

1. **Outlook**

Now it is time to implement the prioritized measures on the path of digital transformation in the Federal Statistical Office. For this purpose, the measures in the context of the annual work planning discussions in 2018 were specified by work schedules and schedules.

The Federal Statistical Office will tackle the following overarching measures in 2018:

* Digitisation is anchored in the organization.

The responsibility for digital transformation must be anchored in an organizational unit. This office has an overview of all ongoing digitisation activities, coordinates them, drives them where necessary, and develops the Digital Agenda. In addition, new digitisation measures will be initiated.

* First small successes are achieved, then projects are scaled.

Agile approaches apply to new projects. After a proof of concept and pilot projects with a successful degree, the whole house is expanded. In addition, digital assessments will be carried out on all statistics produced centrally by the Federal Statistical Office.

* The organizational culture is being developed further.

Fault tolerance and personal responsibility characterize the cooperation. The executives play an exemplary role here. The steering staff of the Federal Statistical Office is continuously involved in the ongoing processes. There is a systematic internal and external communication.

* Employees are kept informed.

Employees are taken from the beginning on the digitisation journey. An open and regular communication of the background and progress in digitalization is crucial for this. On the intranet, digitisation is established within the official strategy. Employees are informed and involved in brief information events in innovative formats about new developments and upcoming topics.

In addition to the digital transformation within the Federal Statistical Office, the challenge for the next few years is to promote digitisation together with the statistical offices of the federal states. In a first step, the trunks of the statistical offices of the German federal and state governments will design a digital agenda for the statistical network in a joint workshop and, based on this, initiate further measures for digital transformation.

The Federal Statistical Office is determined to make use of the advances made in digitisation and thus further consolidate its role as Germany's leading provider of information services in the coming years.

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