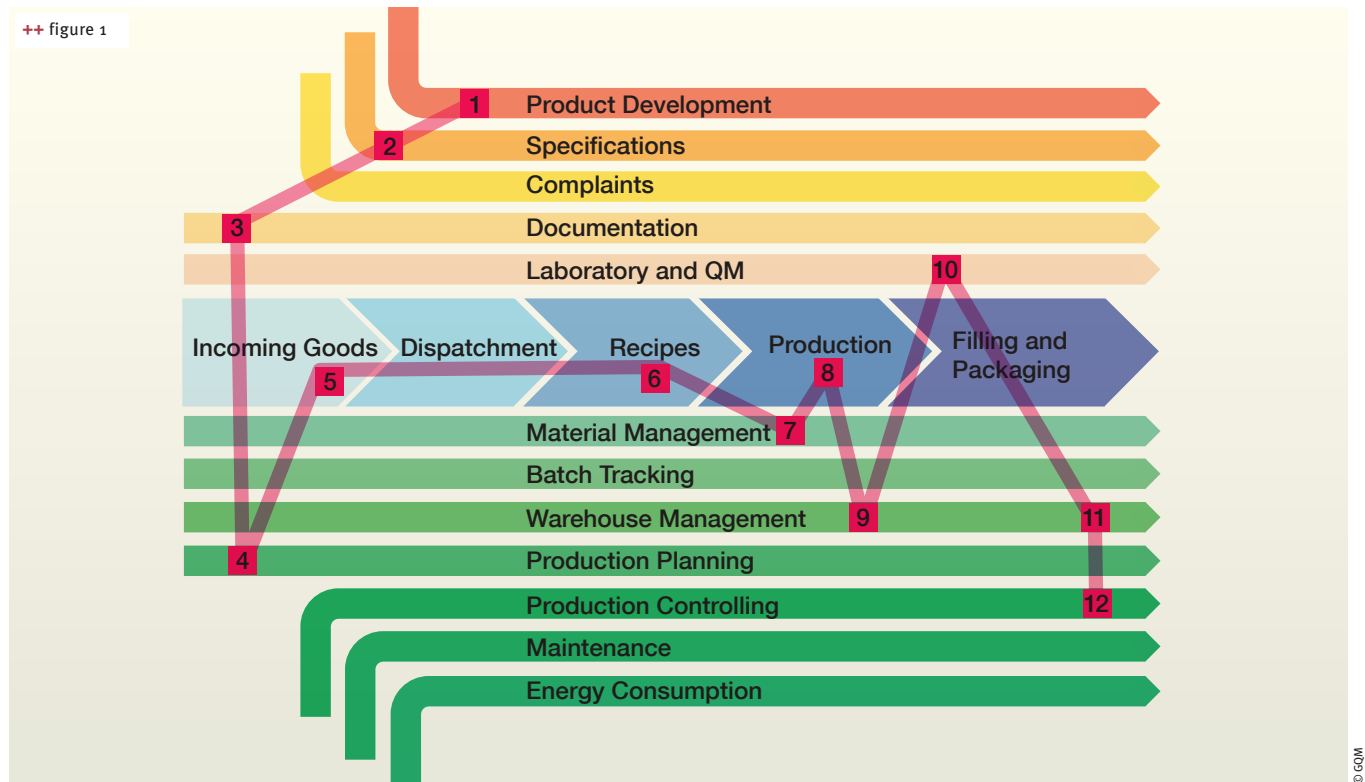


MES – a growing system

COMPLEX COMPUTER SYSTEMS THAT SERVE THE PROCESS-ORIENTED CONTROL AND ANALYSIS OF MULTIFACETED PRODUCTION MANAGEMENT ARE REFERRED TO AS MANUFACTURING EXECUTION SYSTEMS (MES). THEY ALSO ALLOW MEDIUM-SIZED BUSINESSES TO PLAN, DIRECT AND CONTROL THE PRODUCTION PROCESS IN REAL TIME



++ figure 1
Overview of all the basic processes of GQM MES (blue: production processes, green: logistics and production planning, and production support processes, beige: quality assurance, quality management and product development with service functions)

+ MES are divided into different levels, such as the automation (machine) level and process (line) level, on up to the operational and corporate level. Each MES is designed individually and consists of individual components and interfaces. The principle here is “as much standardization as possible, as much individuality as necessary.” Since a complete MES is very complex, it is especially necessary to use practical experience and proven basic concepts for medium-sized businesses. In addition, it is necessary to have the planned uses fully described by the contracted professionals by means of expense or requirement specifications. It is sensible to divide the introduction into individual blocks, which

are transparent and understandable for the user and will be checked as to their functionality.

1. Each MES is unique
2. As much standard as possible, as much individuality as necessary
3. Gradual introduction, which is also recommended for cost reasons

In the following, these three features will be pointed out by means of a practical example using GQM MES for the introduction in the areas production, logistics and production planning.

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Studies in Agricultural Science/Food Technology and PhD in Business Administration at the Technical University of Munich Weihenstephan, development of *QUALIFAX*®/MES from GQM in 1985 – Establishment of the GQM mbH in 1993 – Appointed professor at the University of Fulda, Chair for the food industry, in 2001. Currently: Overall business management for the GQM group with focus on internationalization and partner sales, www.gqm.de. +++



The selection of industry-specific MES

First of all, an industry-specific MES, containing all relevant and sector-specific basic processes must be selected. An overview of these processes (figure 1) is shown for the GQM MES. All these processes are applied in their basic structures as data and functional models. The individual functional areas are often referred to as “modules”. Each basic process includes a number of individual processes that use the data model. The individual processes are combined with the use of the system within the business-specific work processes.

Example: from product development to production controlling

The specific work process, marked in red, can serve as an example for clarification: [1] In product development, new (or modified) products are generated and then [2] they are provided with an exact specification. The corresponding sequences are exactly [3] documented and released for production. For the production of these products, a corresponding [4] production or detailed production planning, possibly with ordering, follows. According to the verified goods receipt [5] using the production recipes the goods will be [6] produced [8] and packed and transferred to the warehouse [7] [9] [11]. Quality tests [10] accompany the whole process, together with a real-time production controlling it [12].

Industry-specific functionality and data model

At the beginning of the project, this industry-specific “function model” must be sufficiently, accurately and company-specifically defined by the use of multilevel structured lists with function lists and function descriptions. The graph in the form of process flow diagrams clarifies the complex relationships. These functional descriptions are the basis for the derived data model. It is important to include appropriate interfaces to adjoining systems.


The approach illustrated by the example GQM MES production planning/production/logistics

The implementation of integrated branch-specific software systems can be illustrated by using the example of the work processes, production planning – production – logistics, within MES. Figure 2 shows the result of the previously described analysis of the functions and data structures of the work processes, production planning – production – logistics, in GQM MES. The “touch screen” shown in figure 2 shows:

- + A so-called Gantt chart with a sequential schedule for detailed planning of production orders on individual lines
- + Indication of the current status of the ongoing production orders (planned quantity, plan-time, actual quantity, current actual time, estimated end time) planned unit allocation hours, shift times

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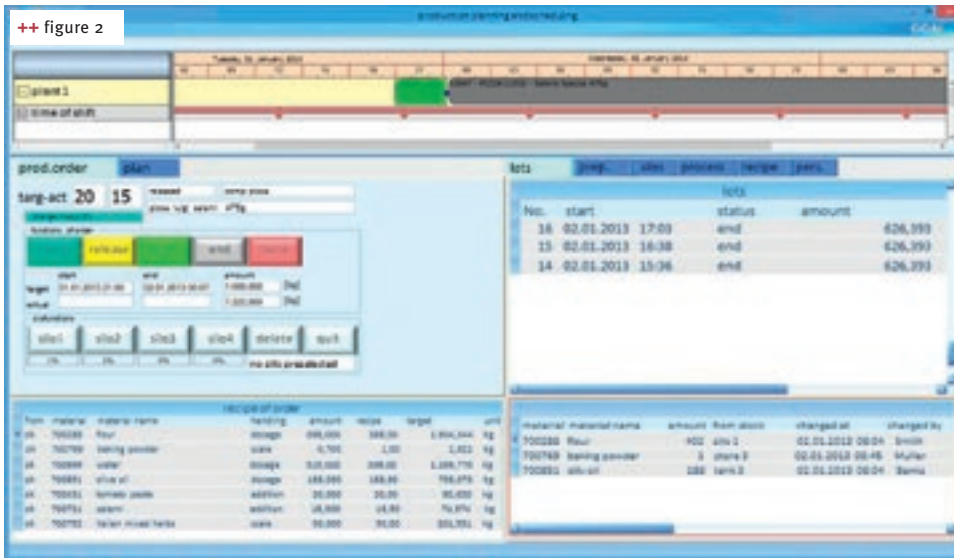
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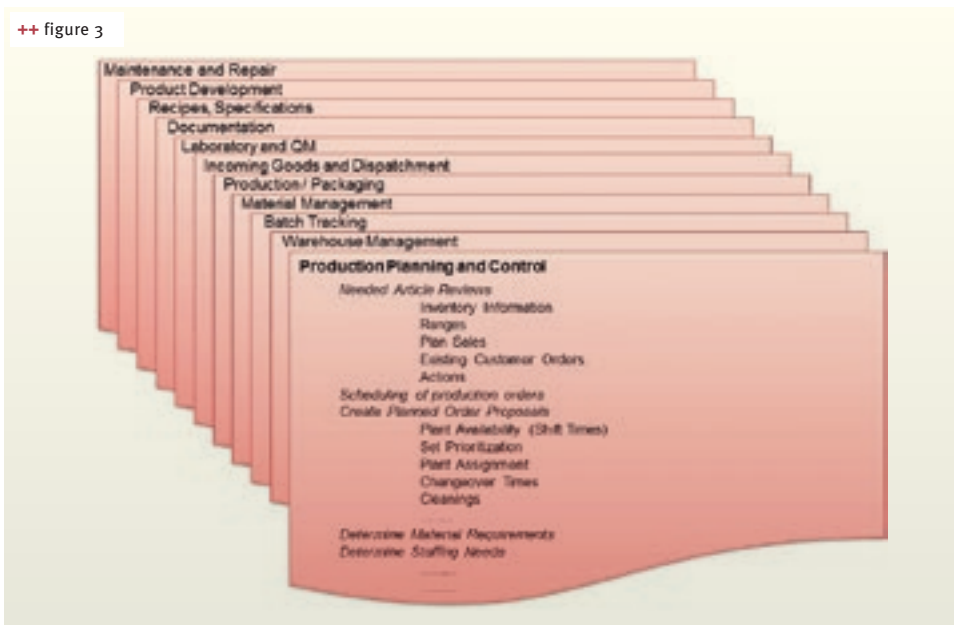
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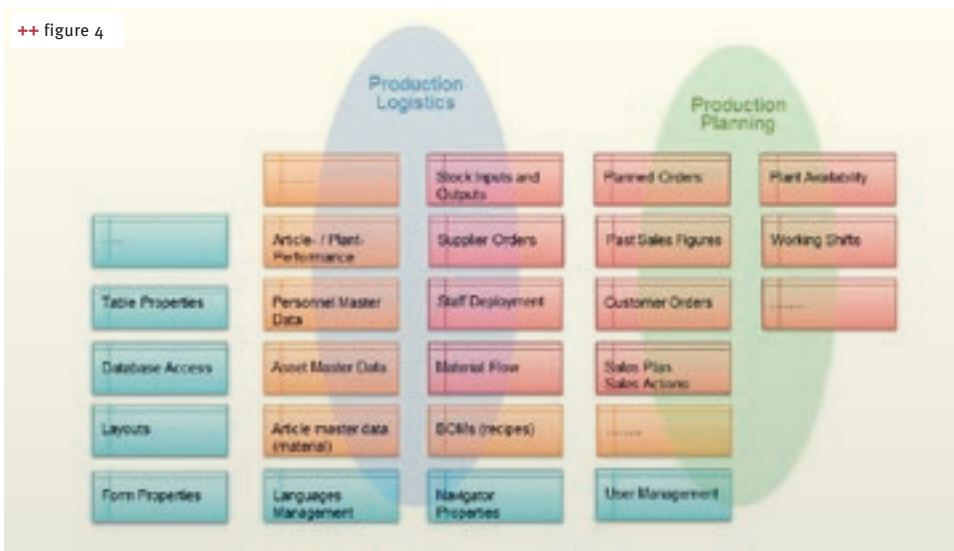
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++ figure 2
Work processes "production planning – production – logistics" at the production terminal



++ figure 3
Excerpt from a function list of the GQM MES



++ figure 4
Excerpt from the data structures of the GQM MES

- + Recipe specifications for the anticipated contracts, alternative recipes
- + Production batches to the production orders with production quantity and batch time, incidents and downtime
- + Machine and process data for the orders
- + Data Quality, QA inspections, measured values
- + Actual use of materials for production batches and production orders, material postings, material losses
- + Stocked materials on location/supply areas, silo and tank inventory, batch information for stocked material
- + Staff deployment

The presentation of the information is based on predefined data structures that will be customized or changed. Hardware requirements (screen sizes, user interfaces, mobile device models, etc. ...) will be taken into consideration. The use of the on-screen functionality will be set accordingly for the work station, and represents an individual plant selection from the standard range of functions offered by the system.

It is clear that, in reality, a variety of individual functions, individual data and connections are integrated in an entire production model and thus must be implemented in a practice-oriented MES system that analyzes according to a specific industry. This is the basic idea of GQM MES. In addition, sufficient time should be available, adequate effort needs to be planned and the appropriate knowledge of the industry for the introduction must exist. This is the only way to reduce costs for the introduction and have quality objectives achieved. +++

Several times a week, the **news portal of baking+biscuit international** provides up-to-date articles from the baking industry about ...

Australia: Bread production market to increase in 2013

Food market
The Australian bread production market has reached a valuation of AUD 3.01bn (approx. British news portal bakery explains that consumers. The bakery with supermarkets of bread sold. Trends (including in-st...

RONDO: Dr. Michael Robert Rohrer

Warburtons acquires Giles Foods

Friday, 7 June 2013 baking industry
Warburtons Limited from Bolton has acquired Giles Foods Limited in both UK, a manufacturer of unbranded specialty bread such as garlic balls, French and Italian breads and pastries, tarts and buns. The product to retailers, restaurants, pub chains and catering companies. It is the acquisition for more than 20 years. The family-run business Giles Foods employs 300 people across two sites in Milton Keynes and Warminster, and has a turnover of GBP 26m (approx. EUR 30.4m). The company will remain a family business, with the current management team staying in place.

... joins "Partners in Food Solutions"

June 2013 supplier
... AG, Uzwil, Switzerland, has joined "Partners in Food Solutions (PFS)" as a company. PFS is a nonprofit organization founded by food company ... which also includes Cargill and Royal DSM of the Netherlands. It ... with the development organizations U.S. Agency for International Trade and the nonprofit organization TechnoServe. The aim is to make the ... and business expertise as well as other resources of the companies ... accessible to small and growing food ... countries through voluntary em ... further information: www.bubli...

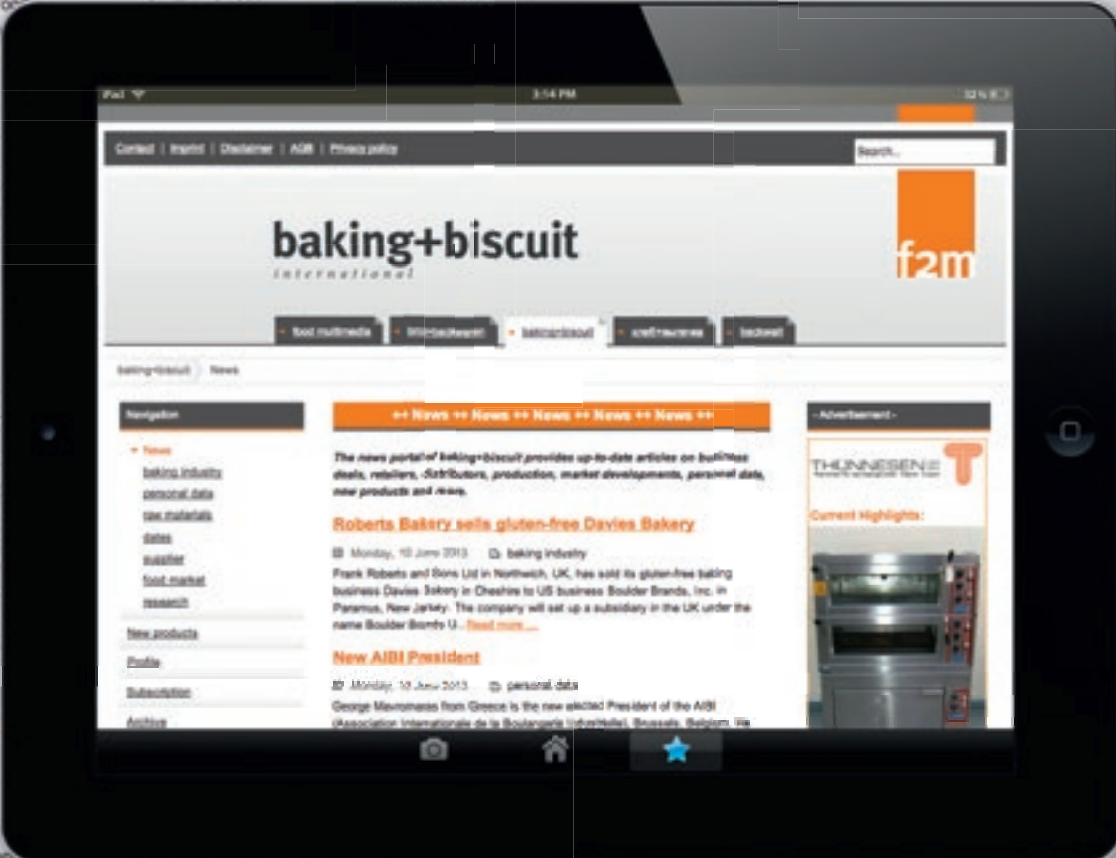
Monday, 10 June 2013
George Mavromaras (Association International de Boulangerie Industrielle) was elected by the members of the Association International de Boulangerie Industrielle for the first time.

Guidelines for easy

Thursday, 23 May 2013
A high-calibre work group tasked with the design and hygienic construction of bakeries in 2013. The "European Hygiene Guidelines" of experts from machinery and food industry and from research (www.ehdg.org) - officially established as its Chairman the expert Professor Dr. Stephan University of Technology. The sequence of the hygiene standards workshop during the Iba in September has already considered project "High Performance Manufacturing", "Further processing of bread", "The bakery of the future". The guidelines were prepared by manufacturers and companies Bakeries representative of the laboratory and the baking trade; the technical articles

Munich Airport catering

Tuesday, 28 May 2013
A current passenger consultancy Skytrax in the context of the "World Airport Awards" has revealed that Munich Airport offers the best catering of any airport in the world. Skytrax specialises in worldwide surveys of the subjective quality of international airlines and airports. The criteria for this questionnaire were selection, price, service, opening times and flavour. Munich Airport was able to offer 51 catering businesses across an area of 16,000 m² with culinary specialities such as typical Bavarian foods, Pasta & Pizza, Sushi & Curries, Steaks, Surf & Turf and Organic Food. Hong Kong, Seoul and Amsterdam airports were ranked next with regard to their catering facilities. Munich Airport also has the world's only airport brewery, the "Airbräu". Munich Airport occupied sixth place in the overall assessment of the "World Airport Awards".



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