

Qmetrix

> the queue management tool by XIMES



- > Uses a Simple Measurement Principle
- > Is Fast and Easy to Deploy and Run
- > Improves Productivity and Service



> www.qmetrix.com



Qmetrix – a simple great idea

A new and Innovative System for Managing your Queues

Productivity

- › **Qmetrix** improves your productivity. Where your customers are queuing, **Qmetrix** accelerates the whole service process (service times and transit times). This improvement can be measured 24/7 and reported. There is no need for Pushers and Flow walkers.

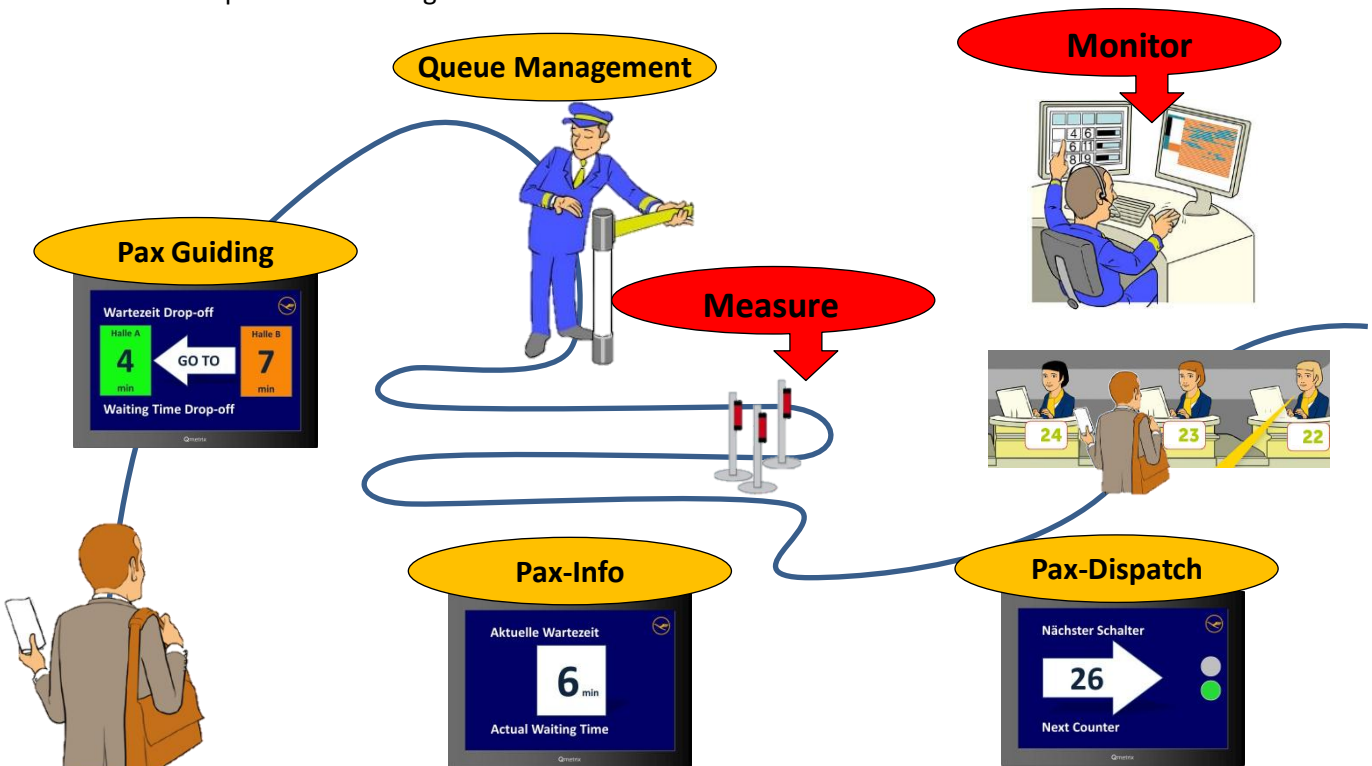
Service quality

- › Apart from productivity **Qmetrix** improves the service quality for your customers. Relevant information about waiting times reduces perceived waiting time.

Simplicity

- › **Qmetrix** is easily integrated, deployed and run. It manages your queues throughout the whole airport. Possible areas are:

- › Check-in/Drop-off facilities
- › Transfer desks
- › Immigration
- › Security control
- › Lounges
- › ...



Qmetrix benefits

Measure › Monitor › Manage

Arrival Profiles

- › Qmetrix measures and monitors arrival profiles of your customers

Waiting Times

- › Get live waiting times to react or waiting times from the past to meet your KPI

Service Times

- › Get 24/7 data of you service times (incl. transit times)

Inform you Passengers

- › Improve your service quality by informing about waiting times.

Guide Passengers

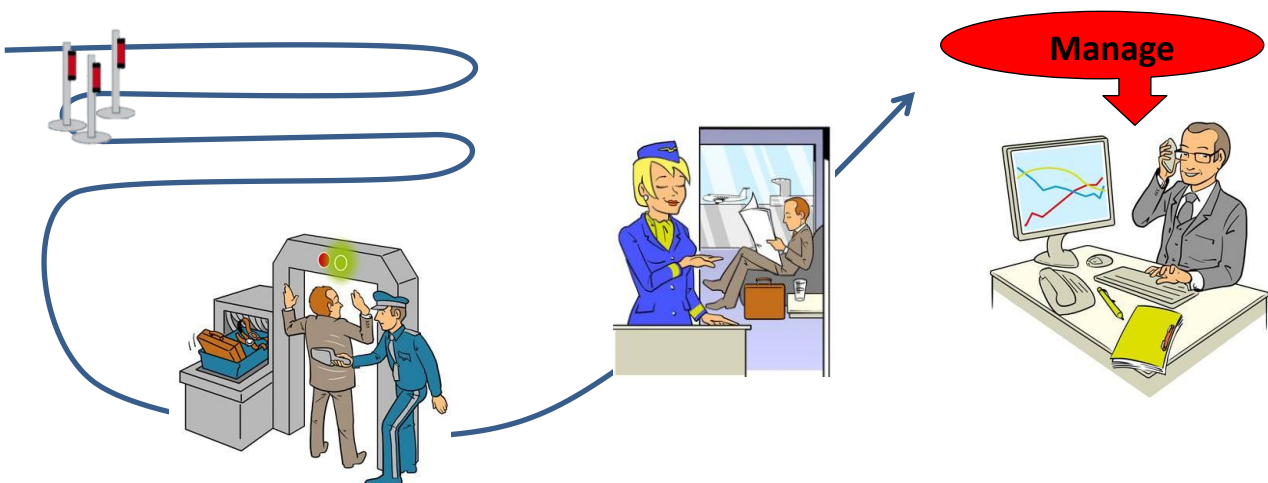
- › Inform your passengers about the fastest terminal and the next available counters

Improve your queue designs

- › Get recommendations how to set up your queue.

Improve productivity

- › Improve your manpower requirements planning by using the Qmetrix data.



Qmetrix

Measure – Monitor – Manage

- › Fulfilling the service-level promise at the first point of customer contact is a goal worth aiming for. Opening and closing the right number of counters to keep waiting times as well as cost under control can be a difficult balancing act.

Measure

A virtual turnstile

- › The **Qmetrix** Wireless Queue Sensor (WQS) works like a turnstile with a virtual arm length of 150 cm (up to 200 cm possible on request). Every passing-by is recorded with time stamp, speed and direction. Detection is based on a simple infrared beam-break with sophisticated processing. Passengers are counted and results are transmitted to the coordinator. Priority events can be transmitted in real-time.

A wireless solution

- › **Qmetrix** requires no power cords and data cables. Thus, there is no need for expensive and complicated installations. This is a real



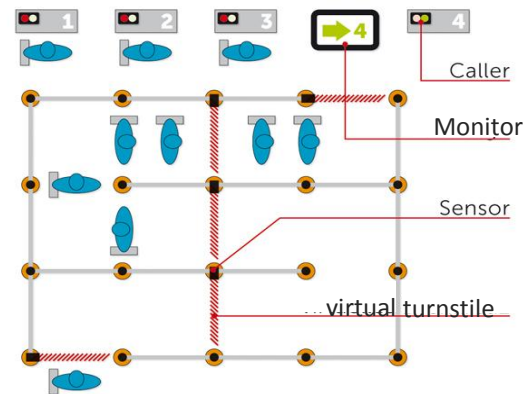
advantage in today's highly segmented asset structures of airports. Sensors are simply mounted to the guiding posts of a queuing system and radio transmit queue length data in real-time to a Central Data Coordinator (COR). Batteries last up to three months and can be

changed easily without tools. The advanced data radio system of Qmetrix allows for a practically unlimited number of Sensors or other Qmetrix field equipment like the Caller Buttons (CAR) or the wireless Guiding Monitor (GUI) to be combined to an integrated measurement system.

Monitor

Monitor customer and passenger flows in real-time

- › With **Qmetrix** it is possible to measure passenger flows in real-time and to identify specific customer groups, market factors as well as other influences in over time.



Typical Waiting Queue set-up

The data-coordinator (COR) processes all measured data and transmits it to the Calculator-Server (CAL).

The CAL Server prepares and presents the data in a webbased dashboard (Q-Board) or hands it over to other backend systems e.g. the "RealTime Modul" of Ground Star.



Through the combination of actual queuing time and check-in state of a flight, passengers can be prioritized in time. Qmetrix helps passengers not to miss their flights due to waiting queues.



Check-in Agents manage passenger flow

- › Qmetrix supports check-in agents to manage PAX flows. In fact – they love it, because they regaining control over the (mighty “yell and jump”) process. With the Caller-Buttons (CAR) at the check-in counters and the PAX-flow monitor at the exit of the waiting queue, passenger are guided to the next available counter by the system. Passengers can see on the overhead monitor, the next available counter.

Staff allocators can act

- › Qmetrix also supports the staff allocators. The real-time data displayed in the Q-Board enables the allocators to see actual queue length and waiting time for all their queues. So it is possible to turn reaction into action and open or close counters before service levels are missed .

Bereich	Geschätzte Wartezeit in Minuten	Besetzte Schalter	Leistungsfähigkeit in %
Halle A	< 2	4	
Halle B	< 2	6	
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Manage

Turning guessing into planning

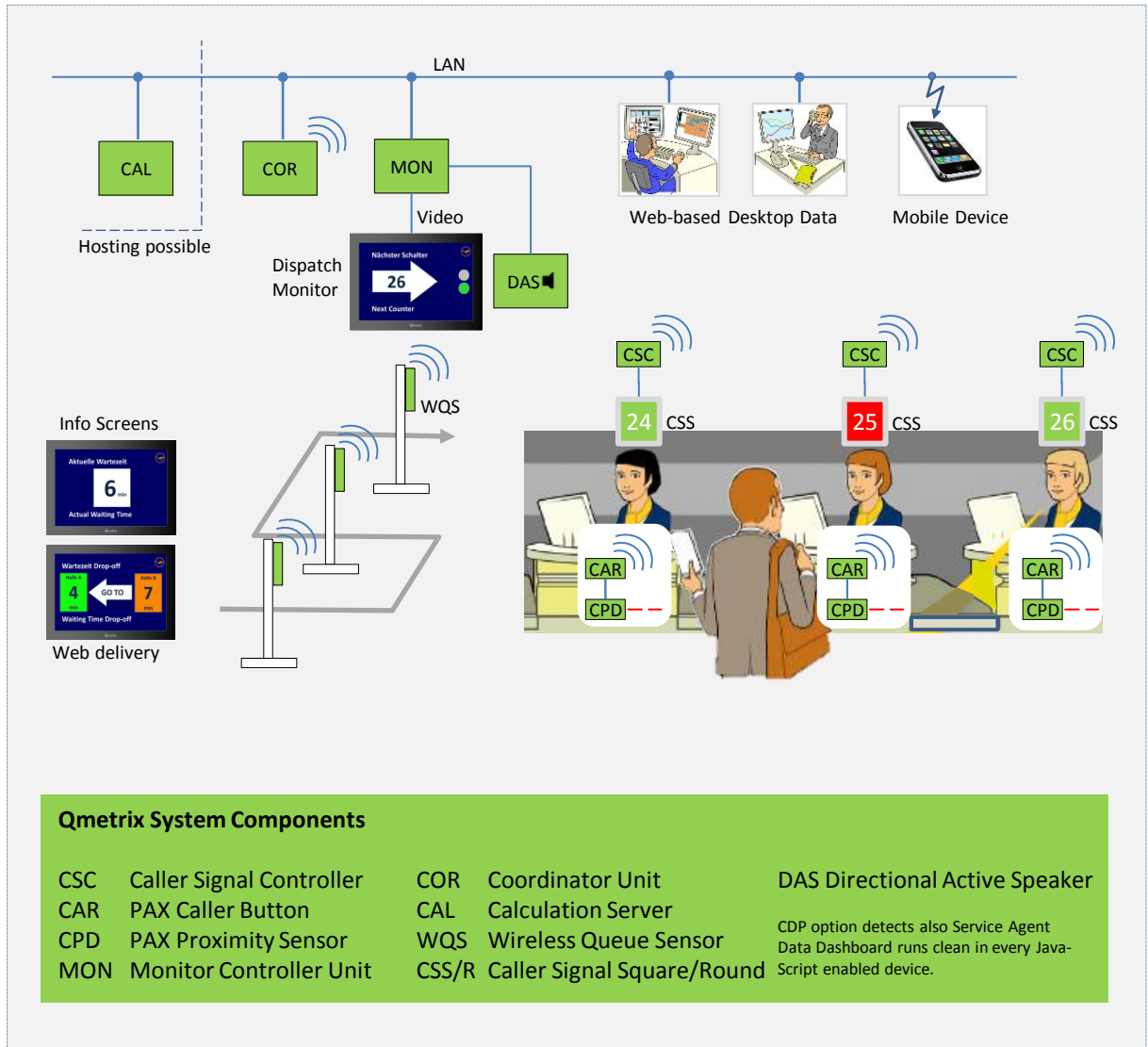
- › Qmetrix supports planners with their annual, monthly and weekly forecasts of counter allocation. If you have experienced the limits of manual data acquisition with tally sheets and hand counters, you will love Qmetrix. The possibility to analyze the vast amount of recorded passenger and performance data allows you to recognize inter-day profiles, weekly, seasonal and holiday patterns. The check-in behavior of customer groups and destinations will become visible and better plans will be possible.

A system with connections

- › Qmetrix generates demand profiles which are compatible with the proven XIMES-Tools: Operating Hours Assistant® [OPA] for shift design optimization and Shift Plan Assistant® [SPA] for the preparation of frame shift rosters. The closed feedback loop controls and improves staff allocation, service levels and financial performance at the same time.

Qmetrix

System Map – functionality meets technology



WQS Wireless Queue Sensors

For measuring customer frequency

- › Qmetrix WQS (Wireless Queue Sensors) detect the arriving and departing customers/guests/passengers in the queuing system in real time. Every passage is recorded with a time stamp. A typical queuing system needs five to seven WQS Sensors depending on size, layout and flow. The usage of multiple sensors creates redundancy in the set-up. Shortcuts of the queue, which are in common use to shorten walking time in low frequency periods of the day, are detected



by the system. It even can tell you, when the queuing system is broken. WQS sensors work completely wireless. The acquired data is transferred via data radio. The battery works up to three months. Battery change is easy and there is no need for tools. The sensors are mounted on the poles with a lockable slide-in mechanism.

Two mounting points are fixed at the pole of the queuing line. Several mounting options with screws or clamps are available for different pole systems depending on the manufacturer.

- › The measured data is transferred to the central data-coordinator Qmetrix COR via radio. This enables the system to calculate access rates, queue length, waiting time and shortcuts in the queue.



CAR Caller buttons

For controlling customer flows by the service staff

- › Every counter or service desk is equipped with a Qmetrix CAR (Caller) button. This allows staff to call the next waiting passenger with the push of a button. CAR Callers have two ergonomically optimized buttons with tactile feedback. Furthermore the CAR shows the state of the calling system for the particular counter with a red and green traffic-style light. Green stands for “available”, red for “occupied”.



CPD Pax Detection Controller

For detecting passengers at the counter

- › Qmetrix CPD automatically detects your passengers at counters or service stands. The CPD is an infra-red proximity sensor. CPD can be used at counters where it is not possible for staff to use the CAR. Together with CAR, it enhances the functionality. Staff do not need to press the red button on the CAR when passengers are at their counter. The CPD can also be used to detect staff at their position (e.g. desk).



MON Monitor

For guiding the passengers

- › Qmetrix MON (Monitor) is a controller which prepares passenger flow-data graphically for the (usually existing) overhead monitor. The connection to the PAX-flow monitor or the airport information system can be made via analog or digital video cable (VGA, DVI, HDMI) or via a web-based interface. Audio based signal (“gong”) or automated voice announcements are available as well as the integration of video or web content (e.g. weather forecast at destination).



All attributes of the graphics display can be controlled by parameters and are adaptable with wallpapers, logos, colors and fonts to suit your corporate identity. The MON can either be integrated into the CAL (Calculator), COR (Coordinator) or set up as an autonomous unit. A cable-based network connection is required in that case.

DAS Directional Active Speaker

For audible notification

- › The DAS (Directional Active Speaker) is placed next to the MON. With an audio based signal (like a gong) or an automated voice announcement the appearance of the next available counter on the MON is enhanced.

- › Our experiences show that the awareness for the screen rises significantly with audible support. The specially selected speaker has a cigar shaped noise characteristic to point the announcement to the exit of the waiting queue and not disturb employees and other PAX.

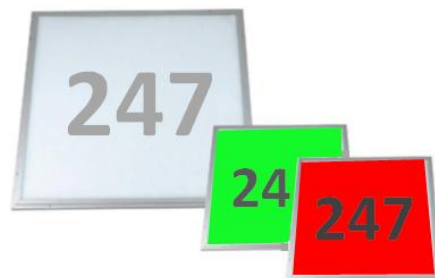


CSS/CSR/CST Caller Signal

Square/Round/Triangular

For signaling available counters

- › The status of the counters can also be signaled by CSS or CSR. These signals are placed above each counter and labeled with the counter number. Free counters are illuminated in green, occupied counters in red. Counters out of service can be turned off or in a pre-set other colour (RGB). CSS/CSR just needs power and is wirelessly connected to the COR. Experience show that this signal is even more intuitive than the MON. The Caller Signals can be delivered in square or round shape facing one or two ways



COR Coordinator and CAL Calculator-Server

For information and controlling of the passengers

- › Data sent by the WQS sensors and the CAR callers is received bei the COR (Coordinator) unit to be collected and prepared for further processing. The COR is connected to the CAL (Calculator) server via network intranet or internet. Depending on the local requirements, several options including cable based, UMTS and Wi-Fi are available for easy and fast deployment. The actual data calculation and storage as well as the presentation of data in graphical or numerical form is happening in the CAL Calculator Server. The CAL is also serving the Browser to display the web-based Dashboard Q-Board. The CAL can be deployed locally or hosted by XIMES.

CSC Caller Signal Controller

For signaling available counters

- › The CSC is connected to the CSS/CSR and controls the lights. It is seamlessly integrated into the CAR/COR radio. The CSC can also control third party signal lights. Power from the CSS/CSR and data to the CSS/CSR is transferred with one single cable depending on cable length.



Q-Board – the Qmetrix Dashboard

Access and understand your data

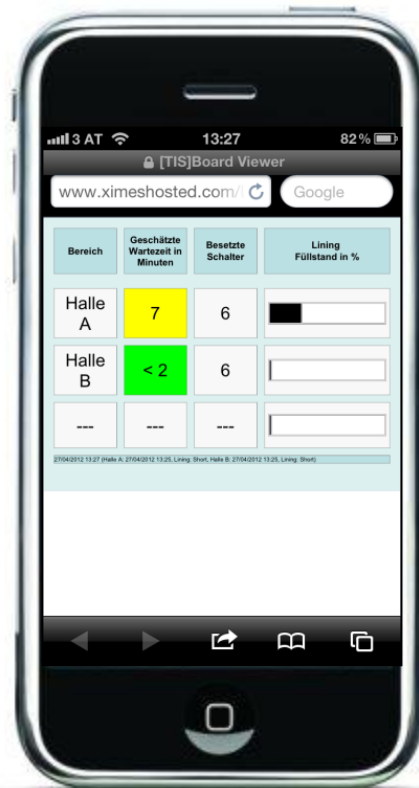
- › Qmetrix measures and records all system specific data of a waiting queue based service system in real-time 24x7. Based on this, all primary indicators as well as KPI based on the primary data can be calculated, displayed and reported.



The standard version of the Q-Board shows access- and exit rates, queue length in Pax and percentage, waiting time and number of open counters in separate and combined portlets (viewing screens).

- › Derived standard KPI's are the statistical values of handling time and transit time (from customer call to start of service) as well as productivity measures.
- › All measures are available as time line graphs in a daily and weekly view or can be displayed tabular.
- › The software package TIS (Time Intelligence Solutions®) by XIMES can be used to plug into the Qmetrix data and can calculate demand forecasts or other statistical data analysis. TIS can be seamlessly integrated into the Qmetrix system and also is controlled via a web-based interface.

- › Data analysts and planners can use the Q-Board Dashboard to gain a real-time as well as a historic view on the data acquired by the Qmetrix system. Individual views can be configured in a very intuitive and easy to use browser application.
- › Q-Board runs clean (without any installation, no Flash® or any other plug-ins needed) on any JavaScript enabled browser or device, such as Internet Explorer®, Firefox®, Safari® and Chrome®, as well as on many smartphones from Microsoft®, Apple® or Nokia® including iPhone® and iPad®.



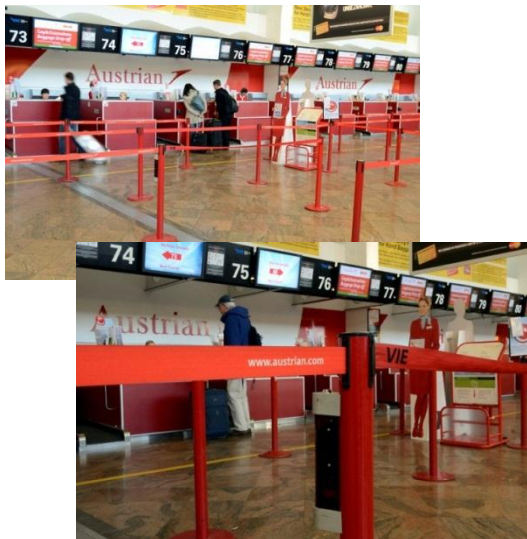
Qmetrix References

Qmetrix Has Been Implemented at 4 Airports in EMEA.
Here are Two of them.



Austrian Airlines – Vienna International Airport

- › Austrian Airlines were the first to implement Qmetrix systems. It has been enrolled at the Baggage Drop-off at Terminal 1 of their hub in Vienna.
- › 25 counters were equipped with CAR. In the queuing line 10 WQS were placed, at the exits two MON were installed. A DAS “Bing” signal supports the screens.
- › All Baggage-drop-off passengers of Austrian Airlines and some of their customer airlines are going through the queuing systems.



Lufthansa – Airport Frankfurt

- › In Frankfurt Qmetrix has been implemented in both check-in areas (Halle A & B).
- › There are approx. 70 counters equipped with CAR and 10 WQS were placed in two queuing systems, where one overhead monitor was connected to MON at each exit. Both were also equipped with a DAS loud speaker.
- › The combined queuing lines can hold up to 160 passengers.
- › Q-Board is used for real-time action (queue filling vs. open counters) and for reporting.



Qmetrix and XIMES

Time Intelligence for Optimizing your Queuing System

The roots of Qmetrix

- › Consulting projects in the field of aviation and retail generated the need for good actual data of customer frequency. The idea to measure queuing times to optimize working-time systems was born. The lack of easy-to-use, wireless and well-priced measurement systems was the initial trigger to develop Qmetrix.
- › The rapid development of the XIMES software framework **Time Intelligence Solutions [TIS]** generated more and more possibilities to calculate, combine and to easily display time-based data in a simple, easy to use web-application. A TIS solution was created which allowed to process measured queuing data in a way that a process could be monitored in real-time and capacity planning could be optimized.

Qmetrix was born.

Time Intelligence by XIMES

- › XIMES is on the leading edge in the field of working-time management. Our customers benefit from our software, hardware and our professional consulting services.
- › Our consultants daily job is working-time, typically bringing mathematical, legal and staff wishes to a common denominator. This happens for a very wide range of industries. For a practical and successful optimization of working time systems, XIMES offers the following software solutions:
 - Time Intelligence Solutions [TIS]** – the universal tool for forecasting, personnel-demand determination and service-controlling.
 - Operating Hours Assistant [OPA]** – the best personnel-coverage through optimized shifts.
 - Shift Plan Assistant [SPA]** – the creative tool for creative shift plan development.
- › The close link of consulting, in-house software-development and research cooperation with universities guarantees ongoing innovation. These facts ranks **XIMES** in the top in the field of working-times-management. We support modern companies on their way into a workable future – with **Time Intelligence©**.



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