

Unlocking Insights from the World of Placemaking

DIGITAL ECO-LOGIC

How digitalisation and sustainability become partners





INTRODUCTION Where trends meet spaces

inSites is the new online format from umdasch The Store Makers. It deals with developments, trends and innovations in the creation of spaces. The name says it all: the format aims to provide in-depth insights into different places (sites) - be it retail spaces, offices, food courts or other exciting meeting spaces. inSites shows what moves the placemaking industry: it uncovers backgrounds, sheds light on complex topics and focuses on the people who work every day to make spaces more functional, aesthetic and sustainable - in short: better.

inSites goes green in 2024

Sustainability is the main theme running through 2024 inSites, with everything revolving around the umdasch Sustainability Guide. This was created by the Store Makers after the umdasch exhibition at EuroShop 2023. Under the motto "Plant an idea", visitors to the most important industry event for the retail sector were invited to record their ideas for a sustainable point of sale on the umdasch Sustainability Tree.

Many exciting and valuable contributions were collected, from which a comprehensive guide with six sustainability focal points was created - with the most important resource at the centre: people. Because successful, sustainable spaces can only be created through joint action.

Your Store Makers from umdasch wish you inspiring reading!

EXECUTIVE SUMMARY

The third edition of the umdasch online format inSites is dedicated to the topic of digitalisation in four chapters and deals with how digital solutions can be operated innovatively and sustainably at the point of sale and in other spaces.

Under the title <u>"When virtual and real merge"</u>, Building Information Modelling is presented as a software-based working method for the networked planning, construction and management of buildings and spaces. <u>"Innovative, digital, sustainable</u>", this inSites provides insights into the smart world of digital-sustainable offerings based on three specific solutions (Electronic Shelf Labelling, Smart Bakery Box, Liquid Dispenser) from umdasch The Store Makers. The importance of energy-efficient lighting is emphasised in the chapter "<u>Light, smartly staged</u>". The focus here is on aspects such as saving electricity and light-controlled well-being. How digital signage solutions can be designed in an ecological and resource-saving way is discussed under the heading "<u>Green signposted</u>".

The "<u>Conclusion</u>" summarises why smart digitalisation and sustainability are not opponents, but rather inseparable partners on the path to the future.

UMDASCH SUSTAINABILITY GUIDE The Way to Sustainable (Retail) Environments

The six focal points do not stand alone, but are interlinked. Follow the lines in the guide to see which topics influence the area of digitalisation. These lines will lead you to the individual sub-chapters of the Trend Paper.



BUILDING INFORMATION MODELLING (BIM)

WHEN VIRTUAL AND REAL MERGE

When it comes to the construction and design of buildings and retail spaces, there will be no way around Building Information Modelling, or BIM for short, in the future. According to experts, the economic and ecological added value in construction and design projects is beyond question.



"These virtual replicas of physical spaces allow us to simulate real-life scenarios, proactively identify potential problems and optimise performance."



EMILIAN-TEODOR POP TEAMLEAD BIM/CAD UMDASCH THE STORE MAKERS It almost sounds like something from another era: a thoroughly digitalised, networked working method for the planning, construction and management of buildings and spaces. All relevant building data is digitally modelled, combined and recorded. The parties involved in the process are also networked, from the client to the architect to the traditional trades and those responsible for the construction site. They all have real-time access to the system data.

BIM not only stands for sophisticated software, but much more for a methodical system that can be used in every phase of a project. In the software itself, highly precise modelling tools enable engineers, architects and designers to take a close look at the interactions of their design with the environment.

BUILDING INFORMATION MODELLING (BIM)

The use of BIM software is diverse. It ranges from drawing programs that assist with design, to visualisation tools that bring the future building to life, to software for project management and maintenance planning. BIM is everywhere and it gives users the opportunity to act proactively.

umdasch The Store Makers is also proactively addressing the topic of BIM, as Emilian-Teodor Pop, Teamlead BIM/CAD, emphasises: "BIM is becoming the cornerstone of our project management and design workflow, enabling precise planning, collaboration and efficiency from conception to completion of spaces. By creating a comprehensive digital representation of physical spaces, we can optimise their layouts, streamline communication between stakeholders and reduce errors throughout the construction process." With BIM, the goal of creating high-quality, innovative retail environments that inspire customers and promote business success can be achieved more efficiently than ever before.

At the centre of BIM are virtual models of a process or product that connect the real and virtual worlds as digital twins. To this end, physical objects are equipped with sensors to provide data on performance aspects and feed the virtual model. This allows computer simulations to be carried out, for example, in order to test how changes to individual parameters affect overall performance. The idea behind this is that potential problems can be understood and dealt with before they even occur in reality. The computer simulations help to predict and plan the future, so to speak.

A major advantage of working with digital twins, which are increasingly being used in industry for the design of energy systems or cars, for example,



BIM in a country comparison



The UK is the leading country in Europe when it comes to the use of BIM technology. Around 80 per cent of all construction companies there rely on the digital building twin. In Germany, BIM has been mandatory for all public contracts since 2022. In Switzerland, BIM will be mandatory in the public sector from 2025, while there is no legal obligation in Austria. However, the standards of the ÖNORM A 6241 series provide a framework for companies to work with.

Source: PlanRadar

BUILDING INFORMATION MODELLING (BIM)

is that the virtual representations can be used to map the entire life cycle of a product – from planning, construction and maintenance through to conversion, recycling, any rebuilding work or demolition. According to Emilian-Teodor Pop, digital twins also represent the next stage in the design and maintenance of retail shops.

One of the main objectives of the BIM methodology is generally to achieve sustainable effects along the process chain. By precisely planning the use of materials, not only can costs be reduced, but waste can also be minimised. If the use (location) and life cycle of components that are as environmentally friendly as possible are taken into account, their durability, replaceability and reusability can be optimised. And if the long-term condition and performance of buildings can be forecast using predictive AI analyses of 3D building models, this opens up the opportunity to plan preventive maintenance measures and thus avoid cost-intensive repairs that disrupt operations.



BIM expert Emilian-Teodor Pop concludes: "umdasch's customer-centred approach ensures that every project is tailored to the individual needs and wishes of our customers. By utilising cutting-edge technologies such as BIM, we are able to push the boundaries of retail design and construction, generating significant added value."



MORE INFORMATION IN INSITES NO. 2

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Issue 2 of inSites looks at the relationship between existing buildings and energy consumption.





MORE INFORMATION IN INSITES NO. 5

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Read more about Building Information Modelling in the next but one issue of inSites (No.5).

IINNOVATIVE, DIGITAL, sustainable







Three smart solutions from umdasch show how digitalisation and sustainability can be intelligently combined. A look at Electronic Shelf Labelling, the Smart Bakery Box and the Liquid Dispenser. The common denominator: in terms of innovation, they increase efficiency in day-to-day business and make a sustainable contribution to environmental protection.

ESL - the digital all-rounder

What sounds a bit unwieldy in terms of terminology is actually very efficient in everyday use: we are talking about <u>electronic shelf labelling</u>, or ESL for short, and the quality gains achieved when switching from printed price tags to digital price labelling.



The advantages of the technology really are obvious. The ability to change prices at the touch of a button and in a matter of seconds, whether store-wide, regionally or globally, opens up new opportunities, especially in sectors that thrive on rapidly changing promotions.

"The shop staff are relieved of the constant task of replacing paper labels and can devote more time to serving customers. And when it comes to sustainability, ESL scores points because perishable goods can be easily sold at a reduced price before the expiry date, meaning fewer products have to be thrown away," says Franz Kendler, Business Development Manager Digital Solutions, summarising the key benefits. Further advantages: Customers and employees can access additional product information via QR and smartphone, and

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With regard to the profitability of ESL as a function of the size of retail companies, there is a simple rule of thumb: the larger the retail chain, the more profitable ESL is. This is because the initial one-off costs for the individual location are less significant with a large number of stores.

According to Kendler, the break-even point for investments in ESL rollouts can be calculated using an ROI calculator developed by umdasch.

internal processes such as inventory management and stocktaking are made easier.

"We don't currently see any other digital technology with a similar investment volume," says Franz Kendler. ESL has succeeded in providing answers to essential questions in the retail sector. These questions primarily include increasing sustainability, helping to address staffing shortages in stores and improving price visibility for consumers, as well as providing reassurance to legislators in terms of product price labelling obligations.

Intelligent stock management

Digital transformation combined with sustainability is also the focus of a smart umdasch solution in the food sector. "<u>Smart Bakery Box</u>" is the name given to a modular furniture that is used to present bread and baked goods and at the same time relies





Intelligent shelving, known as smart shelf solutions, offer completely new possibilities for retailers.

on integrated weighing functionality and intelligent data utilisation.

The functional principle is as simple as it is efficient. A weighing function integrated into the furniture detects the current stock level in real time. Thanks to continuous analysis of removal quantities, out-of-shelf situations are avoided. The data collected can be used to optimise upstream and downstream processes – for example, when it comes to controlling ovens more efficiently, establishing a link to cash register and merchandise management systems or ensuring the freshness and quality of baked goods by recording the display time.

"The Smart Bakery Box enables weight-based stock monitoring in real time, reduces food waste and guarantees product freshness," says Nina Christandl, Product Manager at umdasch Multistore Solutions, summarising the benefits. For retailers, this means that they can make the desired quantity of baked goods available to their customers at the right time, in the right place and with optimum freshness.

Small footprint, big impact

The <u>Liquid Dispenser</u> is another retail technology that serves the cause of sustainability. "We have developed a system for refilling liquids that enables efficient refilling of standardised product packaging and thus contributes to CO₂ savings," says Nina Christandl.



achfüllstation

IN DETAIL

"Always stay liquid" is the motto for consumers, who, like retailers, can enjoy making a contribution to environmental protection. An example calculation shows just how concrete this is: with an average of 500 refills per month and 65g per bottle, almost two tonnes of plastic waste are saved within five years.

Sustainability has never been easier – for producers, retailers and customers. Customised to match your brand and products, the Liquid Dispenser blends in perfectly with your existing store design.







How it works is easy to explain: the customer scans the product packaging they have brought with them or the empties they have bought on site and starts the filling process for the cleaning or care product of their choice – the IoT (Internet of Things)-enabled liquid dispenser does the rest, precisely and without dripping. A cross-selling video can be played to make the most of the waiting time during the filling process. Staff maintenance is also very simple, requiring only the cleaning of the dispensing taps and removable drip plates.



NINA CHRISTANDL PRODUCT MANAGERIN UMDASCH MULTISTORE SOLUTIONS



LIFE CYCLE OF THE LIQUID DISPENSERS

DESIGN & DEVELOPMENT R&D in Austria

END-OF-LIFE DISPOSAL Service by umdasch With a useful life of five years and 500 refilling processes per month, refilling will save 2,260 kg CO₂ equivalents – corresponding to the climate-relevant effect of a private car after 12,000 kilometres – and thus more than the average citizen will drive during a year

RAW MATERIAL SOURCING

Regional retailer & supplier network from Austria & EU Use of PEFC-certified wood materials



PRODUCTION

High-quality assembly in Austria. Location certified in accordance with ISO 14001

100% USER-FRIENDLY

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Maintenance service by umdasch throughout the entire useful life

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TRANSPORTE Short transport routes from the manufacturer to the store branch

LIGHT, SMARTLY STAGED

With rising energy prices and the threat of energy shortages, the issue of energy efficiency has moved high up the list of priorities. Lighting plays a special role in the retail sector. The focus is on energy-saving measures, light-controlled well-being and light as a data carrier.

Showcasing displays and products in the right light is a basic requirement for shop operators, and keeping an eye on potential savings is more important than ever. There are plenty of ways to optimise energy consumption. To this end, the lighting experts at umdasch The Store Makers recommend a mix of measures, as described in detail in the





"Energy" issue of inSites under the title "Efficient bright spot". Among other things, it is important to choose the right light source (keyword LED luminaire) and lamps with maximum luminous efficacy, well thought-out lighting management based on requirements and the time of day, as well as clever planning of the natural incidence of light.

The lighting concept for Salon Verde, an inner-city florist concept by bellaflora for plant lovers in Vienna, is an example of how this can be implemented by the umdasch experts. In order to achieve the goal of a pleasant lighting atmosphere with energy-saving means, LED chips were used,

inSites | Digitalisation

ENERGY-EFFICIENT LIGHTING



which can be replaced quickly, cost-effectively and with minimal consumption of resources, as well as controlled spotlights that reproduce the natural course of light and shade and of light and dark.

When creating digitalised lighting concepts, special attention should be paid to the natural incidence of light, as numerous psychological studies have shown that people perceive daylight more positively than artificial light – which has an impact on both the well-being of customers and the productivity of employees. In addition, running electricity costs are significantly minimised if daylight is used longer and more efficiently.

Lighting creates zones and focusses attention on the essentials: The products. In August 2023, the Siemens showroom opened in the Stilarena in Vienna, covering 220 square metres. Getting to know the various household appliances becomes a special experience here. The umdasch Store Makers were responsible for the creation and realisation of the concept and shopfitting. The modern design perfectly showcases each product group and provides the perfect setting for the smart products from the household appliance manufacturer. Wooden slatted panels meet grey, beige and white surfaces and are complemented by plants as green splashes of colour. This composition creates a warm and friendly atmosphere. The centrepiece of the concept is the live cooking area, which is used for demonstrations, among other things. © BSH Austria/Photographer: Sabine Klimpt



© BSH Austria/Photographer: Sabine Klimpt



MORE INFORMATION IN INSITES NO. 1

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Issue 1 of inSites looks at the possibilities of modern light sources in store design.

ENERGY-EFFICIENT LIGHTING

Brightness controls with sensors, for example, are helpful in automatically dimming light in rooms near windows more than zones in the centre of the room.

The study "Potential for energy-efficient lighting systems" by Fraunhofer ISI and IREES (Institute for Resource Efficiency and Energy Strategies) emphasises that there is much more to digitalisation in the field of lighting than might initially be assumed. In the chapter "Smart lighting – intelligent lighting and lighting management systems", the so-called Visible Light Communication (VLC) is addressed, which allows optical data transmission over short distances.

VLC is a technology that uses visible light for data communication. Existing room lighting is utilised as "optical radio" to determine the position in buildings and interior spaces where GPS signals are blocked by walls or ceilings. The information collected is suitable for understanding customer movements and showing how and when parts of the building are visited.

"Lighting systems thus become a communication infrastructure. The data obtained can be used for optimal illumination, to control customer flows or to optimise shop or production areas," says coauthor of the study and IREES Managing Director Jan Steinbach. INNOVATIVE: VISIBLE LIGHT COMMUNICATION

Visible Light Communication (VLC) refers to the use of visible light as a transmission medium. The wireless communication technology uses LEDs to transmit up to 500 Mbit/s over short distances. One promising application of VLC in the retail sector is the Indoor Positioning System (IPS), which is designed for operation in enclosed spaces that are difficult or impossible to reach by GPS satellite transmissions.

VLC is also exciting from an economic and ecological point of view, as data transmission with light generated from LEDs requires little or no additional electricity. In addition, the installation costs are minimal if LED lighting is already available indoors.

Source: IREES



A balanced mix of natural and artificial light creates clarity in the room. © BSH Austria/Photographer: Sabine Klimpt



MORE INFORMATION IN INSITES NO. 2

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Energy consumption at the point of sale has many facets. Find out more in issue 2 of inSites.

ENERGY-EFFICIENT LIGHTING

Smart Lighting also helps with store design

The increasing digitalisation of lighting naturally also has an impact on the work of store designers, as Julia Mitteregger, Shop Consult Director at umdasch The Store Makers, confirms: "Lighting technologies and systems enable new and diverse design options in store design."

The integration of intelligent lighting systems can quickly and dynamically create different atmospheres and moods in the store by setting lighting scenarios, for example. In turn, customer interactions can be improved in the customer journey by incorporating lighting as an interactive element. In this way, the customer's attention can be drawn to areas that should be highlighted. "Personalisation is also possible with smart lighting," explains Mitteregger. Lighting can be individualised, for example. With the help of sensors and intelligent control systems, lighting settings are automatically adjusted based on factors such as interaction at certain touchpoints and the time of day.

Another significant added value of digital lighting systems is the precise control and subsequently reduced energy consumption. Timetables, motion sensors and adaptable lighting save energy, making them an exciting solution for sustainable concepts. "In store design, smart lighting improves the customer journey, reduces operating costs and enhances the shopping experience."



JULIA MITTEREGGER SHOP CONSULT DIRECTOR UMDASCH THE STORE MAKERS

WHAT IS SMART LIGHTING?

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Smart lighting refers to networked lighting equipment that reacts to changes in the environment or user requirements. Smart light sources, intelligent LED luminaires or complex lighting management systems can be used. They can usually be controlled remotely via an app or voice control.

The combination of the two technologies LED and IoT (Internet-of-Things) leads to a development that ultimately generates a sense of well-being as well as having an ecological impact by reducing energy costs.

"GREEN" SIGNPOSTED

When power consumption tends towards zero with the colourful display of content, it's like a technical revolution. The latest generation of e-papers is regarded as an innovation in the digital signage sector that is fully in line with the sustainable zeitgeist. Intelligent automation is in turn required for the efficient networking of DS data.

Classic paper signs have had their day. Static images no longer do justice to the spirit of the times. Customers want to be informed flexibly. Those who want to communicate content dynamically therefore rely on digital signage – and are increasingly focussing on sustainability for both economic and ecological reasons.

The initial focus is on energy-efficient measures, and there are plenty of ways to do this. Choosing the right hardware, adjusting the lighting intensity and colour spectrum to the ambient light and sensibly regulating the operating times for screens can already save a lot of energy.



$\frac{\text{MORE INFORMATION IN INSITES NO. 1}}{\underbrace{\downarrow} \quad \underbrace{\downarrow}$

Issue 1 of inSites is all about sustainability from a hardware perspective.



$\frac{\text{MORE INFORMATION IN INSITES NO. 2}}{\underbrace{\downarrow} \quad \underbrace{\downarrow}$

Issue 2 of inSites looks at the topic of digital signage in the context of energy consumption.



The new generation of e-paper displays is a prime example of power-efficient innovation. At the beginning of 2023, the company PPDS was the first major manufacturer to present e-paper screens with a size of more than 25 inches and displays with 60,000 colours in the Philips Tableaux series. Other companies such as Sharp/ NEC have also presented their prototypes in the meantime.

Florian Rotberg, Managing Director of Munich-based management consultancy invidis consulting and publisher of the "Green Signage Handbook", explains why e-ink technology (electronic ink), which has become known for its use in e-book readers, opens many doors: "The advantages of e-paper displays, such as power

GREEN DIGITAL SIGNAGE

consumption only when changing motifs and good readability even in sunlight, make them ideal for a wide range of applications. The exciting thing: Many of these applications do not put e-paper in competition with LCD and LED, but with paper displays. There is a lot of interesting potential for the digital signage industry."

In addition to pure energy efficiency aspects, digital signage systems can also score points in terms of environmental friendliness. The reduction in paper consumption is obvious. Added to this are the advantages resulting from intelligent software-based control. Centralised control makes automated content management possible. If data is used in linked systems, the error rate can be reduced and time saved. Networking saves resources, allowing the company and its employees to focus more on their core business and customer contact. The simple handling and operation of smart digital signage solutions allows advertising messages to be played to specific target groups with little effort. If content is controlled via local players or a centralised content management system (CMS), its integration into a defined design is simplified with the help of ready-made templates.

This proves to be advantageous for franchise companies, for example. Local franchisees who access the CMS via a so-called dealer app benefit from this when booking promotions, maintaining prices and creating local content in a predefined layout. With the dealer app, store employees can change prices and the content displayed in just a few simple steps and without any prior graphical knowledge. Lengthy training programmes are not necessary, which frees up resources for other tasks.

SubstrateSubst

Shop window 2.0: extraordinary product staging with digital signage. Flexible product communication, inspiration and advertising opportunities for industry partners – highly visible and eye-catching at the point of sale with digital signage. For the hagebau Group, the digital professionals from umdasch were able to equip over 100 locations in Germany and Austria, such as the one in Bad Bevensen (DE), with digital signage.

GREEN DIGITAL SIGNAGE

In general, it is worth taking a look at the entire life cycle of a screen in the digital signage sector. This can be optimised not only through the operation of the device, as explained in issue 2 of inSites. "Refurbishment of the devices also plays an important role here, keyword: planned obsolescence, i.e. the deliberately shortened service life of a product," explains Echnaton Carrera, Solution Designer at umdasch Digital Solutions.

According to the digital signage expert, repairing a device that only has a minor defect is always more sustainable than buying a new one, as it clearly reduces electronic waste. Refurbishment also aims to restore products – in this case screens – to a condition that is as close as possible to that of a new product. This applies to both performance and appearance.



Rauchecker Photography

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ECHNATON CARRERA SOLUTION DESIGNER UMDASCH DIGITAL SOLUTIONS

GREEN DIGITAL SIGNAGE – AT A GLANCE

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Energy efficiency: choosing the right hardware, adjusting the lighting intensity and colour spectrum to the ambient light, sensibly regulated operating times for screens, e-paper technology

Conservation of resources: reduction of paper consumption, data utilisation in linked systems, control via content management systems, dealer app





The award-winning Dealer App also comes with the right software. Store employees can change the content displayed in the respective shop in just a few simple steps and without any prior graphical or technical knowledge.

CONCLUSION Digital sustainability and sustainable digitalisation

For a long time, the advancing digitalisation of society and the world of work was primarily assessed from an economic perspective. The focus was on increasing the efficiency of processes and business models. In the search for solutions to the global climate crisis, the issue of sustainability has increasingly come into play in recent years. To ensure that digitalisation not only brings economic benefits, experts have called for it to be linked to sustainable development goals. The United Nations has defined digital public goods as a practical guide to how software, data, artificial intelligence models and other digital goods can be used to achieve the sustainability goals. The idea is that the world of bits and bytes and the world of nature and culture can only create economic, social and ecological benefits for all if they are considered together.

The advantages of closely interlinking sustainability and digitalisation are obvious, and the longterm development of digital technologies has now become a fundamental basis for sustainable development. Examples of this can be found in all areas of the economy.

The methodology of Building Information Modelling (BIM) and the use of digital twins, for example, offers a practicable approach to constructing, operating, reusing and recycling buildings and spaces in a way that conserves resources and protects the environment. Sustainability begins here in the digital planning stage. Digital tools for controlling light, keyword smart lighting, increase the potential for energy-efficient lighting systems and "green" digital signage solutions can also score points in terms of environmental friendliness beyond pure energy efficiency criteria.

Numerous smart innovations from umdasch The Store Makers also show how digitalisation and sustainability can be intelligently combined in the retail sector, as demonstrated in this issue using the examples of electronic shelf labelling, the Smart Bakery Box and the Liquid Dispenser.

If economic and ecological goals are to be achieved at the same time, the ideal direction for entrepreneurial measures is predetermined: It is all about digital sustainability and sustainable digitalisation. As the examples in this trend paper clearly show, the key to further development in this direction lies in digital innovations. They are what will make the future what it will be.

MEDIA OWNER AND PUBLISHER

umdasch Store Makers Management GmbH Josef Umdasch Platz 1 | 3300 Amstetten | Austria presse@umdasch.com | www.umdasch.com

AUTHORS Dominik Reichartzeder / Christian Lenoble

GRAPHIC DESIGN Denise Siegl **PROOFREADING** Mark Faithfull / Katrin Fischer

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umdasch THE STORE MAKERS

BRONZE | Top 35%

ecovadis

Sustainability Rating

MAY 2024

EcoVadis Bronze Seal for outstanding sustainability performance

umdasch The Store Makers has been awarded the bronze seal by the independent and renowned **sustainability rating platform EcoVadis** for its sustainability performance.

This recognition underlines The Store Makers' commitment to social responsibility, environmental protection and ethical business conduct. umdasch is thus among the top 35% of all companies participating in EcoVadis worldwide.

