

# **DATASET E-ZINE**

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### www.data-set.eu



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The DataSET Project consortium welcomes the spring 2020 with a new issue of its biannual e-zine, dedicated to highlighting the achievements within our project and bringing the awareness of the need to instil the so-needed data skills among entrepreneurs. We are proud to showcase that our project team have finilised the development of 102 DataSET Open Educational Resources and the launch of 103 Online course.

## Greetings from DataSET!

In addition to sharing the news from the consortium, we aim to highlight the importance of building data literacy in Europe by bringing you the articles from our partners. Read about why data skills are more relevant than ever before and how GoDataDriven Academy proves it (p.8), how a seasoned mentor of entrepreneurs in Madrid sees the data skills gap (p.10), and an example from Spotify on their use of big data (p.12). Do not miss a discussion on how big data collected by the government is being used for businesses in Northern Ireland (p.14) and strengthen your own data protection bases with this quick review of the data protection regulations (p.16). As a bonus, check out a like-minded initiative Generation Data and learn more about smart data management (p.20). Dive deeper into the topic with our selection of recent books and check out relevant events in the upcoming quarter (p.22).

We hope that this magazine will inspire you to analyse your own approach (or create one) to your company's data or for your student-entrepreneurs. If you are interested in learning more about the DataSET project or would like to share your perspectives, get in touch with us. We wish you a pleasant read!

DataSET Consortium

**SME MANAGERS** who need to learn how to grow their smart data capacity even with limited resources.

ENTREPRENEURSHIP EDUCATION PROVIDERS who recognise big data is as an important trend, but lack understanding of its relevance to their daily work, as well as the pedagogical strategies to teach it to others.

### OUR GOAL:

The Data Set Project will improve the quality and relevance of entrepreneurship education by improving the ability of VET and HEI policy makers and practitioners to understand, teach and develop smart data, thus providing business owners, early stage entrepreneurs and students with solid smart data skills training which they will use to help grow their businesses.

### **OUR OBJECTIVES:**



Synthesise a Guide to Data Skills Development



Create a DataSet Training Course



Train the first generation of DataSet business trainers



Establish an Online Learning Platform for self-learning

### "We should teach students, as well as executives how to examine data, and how to use these tools to make better decisions"

### Dan Ariely

### DATASET OUTPUTS WILL BENEFIT:

EARLY STAGE ENTREPRENEURS AND BUSINESS STUDENTS who need to know how to build data skills into their business plans from the get go

#### ENTERPRISE AND ECONOMIC DEVELOPMENT STAKEHOLDERS who need scalable strategies for upskilling our populations in data skills

and digital competencies in general.



### DataSET **Online Course**

We are proud to present you the final output produced by the project partners -The Data Set Online Course. The objective of the course is to provide a multilingual, interactive learning course enabling direct access to educational resources and skills development activities for entrepreneurs wishing to improve their skills in data generation, management and analysis.

The Online Course is largely aimed at SMEs and business owners wishing to improve their knowledge, skills and confidence in order to grow their business and become more innovative entrepreneurs. For too long, big data has been perceived as a subject only for large corporations, but in recent years the cost of data analysis has dropped considerably and it is an opportune time for SMEs to learn how to use data to stay ahead of the curve. While there are many generic digital competences courses for entrepreneurs, this is the first online course dedicated

especially to smart data skills.

to commit to the course? It is delivered in lifestyles. a five-module format and is designed in each module in detail, giving them a greater understanding of the course in general. The course is modular and the participants can dip into and out of the modules as they choose. Each module comprises a main presentation of the topic and then a set of extra resources such as guizzes, learner's workbook, and videos.

Module 1	Introduction to Big Data: Provide an overview of the basic information on big data.
Module 2	Improve your business with your own existing data: Gain an overview of how to use the data you already have available in order to improve your business.
Module 3	Improve your business using external data: Gain overview of how to utilise data available outside of your company to improve your business.
Module 4	<b>Legislation:</b> Gain an overview of the ethics surrounding big data and the legislation that governs it.
Module 5	The Future of Big Data: Provide an overview of what the future impacts of big data are likely to be.

The online course facilitates flexible, usercentric learning meaning users can jump straight to the modules they find relevant. We created a simple-to-use, mobile



friendly course meaning that their learning is portable and accessible for anywhere, to How much time do the participants need coincide with business owners' demanding

such a way to let the participants explore Access the online course here: https://www. data-set.eu/learning/





### **Data Skills:** More Relevant than Ever Before

If, by any chance, you feel that the acquisition of data skills is getting obsolete these days due to a thriving nature of the cloud technology, then you would better stop and reconsider your viewpoint, as GoDataDriven Academy can prove otherwise.

Giovanni Lanzani, Managing Director of the GoDataDriven Academy in Amsterdam, admits the ever rising dominance of the cloud technology that takes over seemingly menial tasks of processing the data. However, this fact does not eliminate the relevance of proficiency in data science and engineering these days. Giovanni gives three reasons for that. One is the lack of transparency and apparent biases in algorithmic decision-making that have already evoked public outcry several times. Two comes with the Internet of Things that is expected to generate 4TB of data per person on monthly basis. And finally, transfer learning takes a highly sophisticated algorithm and adapts it to an individual case. All these factors, once summed up, make data skills more relevant than ever before. journey, in its turn, suggests learning how to write a correct and clean code, how to quickly get familiar with larger codebases as well as understand the broad architecture of the entire code system.

GoDataDriven Academy, being a training service provider, operates on the basis of values that make educational process more comprehensive and easy to follow. The Academy does have a strong future outlook so that their learners will be able to apply newly acquired knowledge and skills in practice immediately after the course. To make sure that the delivered knowledge stays relevant, the teachers in the Academy are also the practitioners who work as consultants at top enterprises like Booking.com, ING, bol.com, Randstad, and Heineken. Learning-by-doing is the underlying motto of the educational processes in the GoDataDriven Academy what allows their learners to craft new data skills in hands-on labs. They tailor learning modes according to the needs of their clients: one can choose a classic classroom format and/or studying online from home. The Academy also offers incompany training what allows to tackle data challenges together with the people who understand them best - your colleagues.

The Academy divides their training services into two learning journeys: data science and data engineering. Data Science journey involves the basics, possibilities and trade-offs of data & Al. It expands the understand of the analytics approach, use case creation and idea prioritization. Leaners will analyze the challenges of ethics in data & Al along with how to overcome bias. Data engineering The interest in and the need for data skills training among non-data savvy folks have been gaining momentum for the last couple of years. Though traditionally expected to be taught at higher education institutions, today data scientists and engineers get crafted by private training providers like GoDataDriven Academy. Apart from equipping with theory, such training centres make a strong emphasis on the practical skills and specific professional context, their clients have to operate in, what makes their clients' learning journeys even more meaningful.

# GO DATA DRIVEN

Provided by: UIIN Logo Credit: GoDataDriven



## Interview: Mentor and Computer Scientist on Data Skills Development

Rafael Alcalde is a seasoned mentor of entrepreneurs in Madrid. He is a computer scientist, but also has an extensive work experience in recruiting and consulting, which gives him a broader perspective in what it takes to start up including finding the right talent for it. He is now specialized in bots, applying natural language modeling and analytics to serve customers or prospects better, in a semiautomated way. Many entrepreneurs come to him to get insights on the what and how of business models in which data is a key asset. We discussed the initial versions of the DataSET curriculum with him and the overall approach using the Business Canvas, and he shared some of his views with us.

# Tell us a bit about you, your current position and your experience in mentoring entrepreneurs.

Currently I'm CEO at <u>QrowdMakers</u>, a startup that specializes in developing

"bots" (or if you prefer a more formal name, agents for Intelligent Process Automation) for diverse applications and sectors. I've been mentoring startups since 2012 at IE Business School and in other incubators and business centers in the vibrant Spanish "entrepreneur scene" that you can find in Madrid.

### Have you mentored entrepreneurs in projects that were based on data technologies, e.g. machine learning, Big Data, etc.?

Yes, quite a few, for example in domains related to insurance and telco. It seems that entrepreneurs and students value my background in computing and that I am an "IT guy" in a sense, so I get many appointments from potential data-driven or data-focused business.

### In your view, which are the main gaps these entrepreneurs have in their skills to effectively propose business models that extract value from data and that are feasible? Which are the topics?

The main gap is in their lack of skills about concrete data management and handling tasks and technologies. They have typically read a lot about business value of data but almost nothing about the underlying technologies and methods. So, they are not able to create something valuable for the market and they spend and maybe waste money on IT people that is not sufficiently engaged with their project. In consequence, there is a huge problem and their expectations are not fulfilled. The problem essentially lies on a need to get a deeper understanding of the internals.

Particularly, some exposure at a high level to the processes and the pipelines needed to create machine learning models is extremely useful to understand possibilities and limitations. This does not mean teaching math or programming, it can be done nowadays with graphical, friendly tools of a complexity similar to that of a GUI-based Business Intelligence tool. Also, understanding the cloud as a computing platform, and the costs associated is required to be realistic especially if business scalability is key.

### Do you believe every entrepreneur should have some training or exposure to the impact, benefits and techniques available to get value from data, even if their business ideas are not related to machine learning or Big Data directly?

Sure, it's a must nowadays. If you are an entrepreneur you should be thinking how to develop a business idea through technology. There is a great opportunity using properly data Science or Al in many domains. We live in a new era and the most scalable and profitable business will come from these technology applications. Entrepreneurs do not need to become data scientist, but they need to understand what data scientists and data engineers do, and even incorporate some part of their jargon.

How would you think entrepreneurs should be trained in "data skills"? As part of their regular startup training/ mentoring process? As a separate course? Do you have some ideas on how to train them and the key topics



#### that should be addressed, e.g. using analytic models. the canvas, hands-on experiences, business case tutorials?

Schools typically do not include this training in their offering, and it will make sense to include it, maybe as a track for those entrepreneurs that really need it for their project, and not for everybody. This will avoid a lot of startup failures I've seen in the last 10 years. It's as important as the Lean Startup methodology is for some projects. So the idea of a concise canvas can be a good starting point, but then there is a need to cover the specifics of businesses based on data, including an account of enabling technologies, the role of different analytical techniques and a practical understanding of how data scientist work routinely and how to constantly evaluate, challenge and revise or in US in the 40's to 70s, investing a

### Do you think that innovation in Europe would benefit from entrepreneurs that are better trained in "data skills"? How do you see the situation particularly in your country?

It is indeed. Europe is maybe not the best place for technology startups as we would like it to be. Spain is not different in that, maybe in part because we have a culture of too much risk avoidance. But the future of any country depends on some people risking their time and work and eventually creating disruptive innovations or discoveries. Those innovations may become the engine for the next hundred years, as happened with sailors and discoverers in the XV-XVII century in Spain lot of money in R&D and supporting the activities of entrepreneurs. Data skills can be a fertile ground for such innovations, and developing human capacities is the only way to achieve them.







### **Spotify and Big Data** a Brief Example

Spotify is the largest on-demand music service in the world. It has a reputation of pushing technological limits and using big data and machine learning to drive success. The digital music company with more than 100 million users has been busy this year enhancing its service through several acquisitions.

When a service has millions of people listening to music almost every second of the day, it means they will have access to an astonishing quantity of intel, including what songs are played most, where listeners are streaming from and even what devices are being used to access the service. Hence, there is no doubt Spotify is a data-driven company and it uses the data in every part of the organization to drive decisions. As the service continues to acquire data points, it is using that information to train the algorithms and machinestolistentomusicand extrapolate insights that impact its business and the experience of listeners.

make recommendations for its users. With improving technologies and analysis techniques, data-driven customer experience will become the norm across most, if not all, companies in the years to come.

One example of how Spotify utilises their users Data to improve their listeners experience is through the popular feature, Spotify "Wrapped". The anticipation begins to grow for Spotify users when December arrives, as they wait for the music streaming service to deliver the Spotify "Wrapped", which reveals the avid music fans' favourite and most listened to songs/albums from throughout the year.

Spotify is one of many companies using customer and outside information to improve experiences for their customers. For their "Discovery Weekly" playlist feature, where every user gets a personalized playlist every week from Spotify of music that they have not heard before on the service, but that will be something the listener is expected to enjoy. Spotify is only using a few of the many possible techniques available to

Provided by: Canice Consulting



### **Publicly Collected** Data and its Uses

Big data is a general term for the massive amount of digital information from all various sources collected into databases using different techniques. 2.5 quintillion bytes of data added each day to these databases with the majority of the world's information collected in the last five years and with only 10% of that data being refined. 90% of the data is raw and unstructured just sitting there waiting to be analysed. This mammoth amount of big data, specifically gathered by means of online methods, mined by the government harbours the ability for businesses to use for a strategic or financial benefit. The government has begun to derive insight to help support business decision making in real-time from multiple sources, including the web, biological and industrial sensors, video, email, and social mediums.

Many white papers, journals, articles, and business reports have proposed ways governments can use big data to help them serve their citizens by providing businesses with an information reservoir that can be accessed with the desired outcome that businesses can profit from the information and stimulate job creation. This would be a motivation for the government as lower unemployment rates would mean a greater pool of people and profitable businesses to tax ensuring a healthy revenue stream to maintain social services. Like with any new uncharted advantage; however, there are many things to consider such as security. Any form of personal information is subject to classification and risk to a person's privacy. With greater risk that the information gathered can be used to impersonate an individual more complex methods of new technology will need to be used for security purposes to protect the big data.

It can be argued that highly sensitive personal data shouldn't ever be made

available for a business; however, with These initiatives realise market research proper precautions and fees in place, it is critical to companies' success. They can would seem like a wasted opportunity not help small and large businesses to plan and execute marketing activities effectively to. by providing in-depth information to help **Business and Government Compared** break into new markets. An example of The private sector is well known for a government initiative with the express making decisive decisions especially if it intent on gathering data would be Invest will maximise the profits in the short-term. NI in Belfast. Their headquarters has Whereas the public sector is known to take extensive market research and worldwide time making decisions that will affect its company directories that can be used for citizens in the long term. For that reason free to a point. Their range of business to reduce risk and increase the efficiency information includes details of trade fairs, and effectiveness of a decision. It follows guidance on import/export procedures, funding sources and legal agreements, that big-data applications likewise differ companies by sectors, their owners and between public and private sectors. In business, the main goal is to earn telephone numbers.

profits by providing goods and services to satisfied customers. The government's main goal is to maintain the welfare civil order of its citizens through sustainable services. Although the primary missions of businesses and governments are not supposed to be in direct conflict with one another, data that is gathered by the government, for public sector benefits, can be a for the private sector business strategy.

### **Big-Data Applications in Northern** Ireland

Northern Ireland sadly has an imbalance of public versus private sector work where it currently only sits at 40% of the sum total. This large public sector is subsidised by the taxes collected by the rest of the United Kingdom. It is therefore in Northern Ireland's best interest to encourage private sector growth as much as possible in the form of governmentfunded initiatives.

Provided by: East Belfast Enterprise



## **FACTSHEET:** Have you covered all your GDPR bases?

In 2018, on the 25th of May, a new European privacy law was adopted – the General Data Protection Regulation or GDPR, as we've all come to know it. In the EU, the regulation has been adopted in all privacy laws at the local level. The law applies to any company that stores personal information of EU citizens or commercializes any services or products to EU citizens, regardless of where in the world the company is based.

Essentially, GDPR guarantees that EU citizens have greater control over the personal data that companies collect from them and that their details are protected. A year and half after GDPR came into effect, there are still cases of very high profile companies that are sanctioned for not complying with GDPR. Such was the case of British Airways and Marriott International, which are facing fines.

What are the most important terms related to GDPR?

Understanding what each of the terms is a very important step. Here are some of the terms used in this article, which will help you have a better grasp on GDPR:

- Data subject a natural person whose personal data is processed by a controller or processor.
- Data controller the entity that determines the purposes, conditions, and means of the processing of personal data.
- Personal data any information related to a natural person or Data Subject that can be used to directly or indirectly identify the person.

• Data processor – the entity that processes data on behalf of the Data Controller.

# According to GDPR, what are the rights an individual (data subject) has?

According to GDPR, these are the rights a EU citizen has, which you, as a company operating in the EU, or "data controller", must respect:

**1.** The Right of Access - under Article 15, GDPR gives individuals the right to request a copy of any of their personal data which are being 'processed' (i.e. used in any way) by 'controllers' (i.e. those who decide how and why data are processed), as well as other relevant information. These requests are often referred to as 'data subject access requests', or 'access requests'.

**2.**Therighttobeinformed-Anyprocessing of personal data should be lawful, fair,

and transparent. It should be clear and transparent to individuals that personal data concerning them are collected, used, consulted or otherwise processed, and to what extent the personal data are, or will be, processed. The right to be informed, under Articles 13 and 14 GDPR, is a key part of any organisations obligations to be transparent.

**3.** The right to rectification - If an individual thinks their personal data is inaccurate, they have the right to have the data rectified, by the controller, without undue delay.

If an individual's personal data is incomplete, they have the right to have data completed, including by means of providing supplementary information. The right of rectification is restricted in certain circumstances under Section 60 of the Data Protection Act 2018, which provides for restrictions that are necessary for important objectives of public interest, and by Section 43 of the Act which seeks to balance the right of rectification with the right of freedom of expression and information.

**4.** The right to erasure - this is also known as the 'right to be forgotten'.

An individual has the right to have their data erased, without undue delay, by the data controller, if one of the following grounds applies:

• Where their personal data are no longer necessary in relation to the purpose for which it was collected or processed.

• Where they withdraw their consent to the processing and there is no other

lawful basis for processing the data.

• Where they object to the processing and there is no overriding legitimate grounds for continuing the processing. Where they object to the processing and their personal data are being processed for direct marketing purposes.

• Where their personal data have been unlawfully processed.

• Where their personal data have to be erased in order to comply with a legal obligation.

• Where their personal data have been collected in relation to the offer of information society services to a child.

5. The right to data portability - In some circumstances, an individual may be entitled to obtain their personal data from a data controller in a format that makes it easier to reuse their information in another context, and to transmit this data to another data controller of their choosing without hindrance. This is referred to as the right to data portability. This right only applies where processing of personal data is carried out by automated means, and where they have either consented to processing, or where processing is conducted on the basis of a contract between the individual and the data controller.

6. Rights in relation to automated decision making, including profiling -Automated processing is permitted only with an individual's express consent, when necessary for the performance of a contract or when authorised by Union or Member State law. Where one of these exceptions applies, suitable measures must be in place to safeguard the rights, freedoms and legitimate interests of people. This may include the right to obtain human intervention on the controller's part, the individual's right to present their point of view, and the right to challenge the decision.

7. The right to object to processing of personal data - An individual has the right to object to certain types of processing of their personal data where this processing is carried out in connection with tasks (1) in the public interest, (2) under official authority, (3) in the legitimate interests of others. An individual has a stronger right to object to processing of their personal data where the processing relates to direct marketing. An individual may also object to processing of their personal data for research purposes, unless the processing is necessary for the performance of a task carried out in the public interest.

8. The right of restriction - This right applies in four ways. The first two types of restriction of processing apply where an individual has objected to processing of their data under Article 21, or where they have contested the accuracy of their data. In these cases, the restriction applies until the data controller has determined the accuracy of the data, or the outcome of the individual's objection. The third situation in which an individual can request restriction relates to processing which is unlawful. In these cases, if they do not want the data controller to delete their information, they can request restriction of the personal data instead. The fourth type of restriction of processing applies where an individual requires data for the

purpose of a legal claim. In this case, they can request restriction even where the data controller no longer needs the data.

These rights all converge towards helping to give customer, individuals, prospective customers, employees or contractors more control over their data and ensuring the organisations that collect and process this data have less power.

#### How does GDPR affect how a company operates?

As we've established, GDPR gives consumers more power. Whose job is it to comply with these regulations? That responsibility falls on all companies established in the EU, no matter if the data collected is processed in the European Union or not. Also, a company established outside the EU which offers services or goods to EU consumers must comply with GDPR. What is more, under GDPR, all entities that collect and process personal data should appoint a DPO (data protection officer), who is in charge of GDPR compliance. Companies that are non-compliant with GDPR can expect fines of up to 4% of annual global revenue or 20 million EUR, depending on which is greater.

### company is GDPR-compliant?

• Providing training to employees - GDPR has a deep impact on how businesses operate. As such, the people working in your company need to fully grasp the importance of data protection and go through, at the very least, a training session on what GDPR is and what the basic principles are and the procedures you are implementing in order to comply. Data is one of the most valuable How can you make sure that your currencies in the world. GDPR has been developed to ensure the appropriate · Data mapping - Do you know how data moves in your company? Having a management of personal data by companies. As such, organisations that clear record of how data moves in your prove they value their customer's privacy company by keeping tabs on everything - beyond legal compliance - and who is a great start to proving that your handle data in a transparent way can company is complying with GDPR. There be seen as more trustful and have more are tools that are readily available to help loyal customers. you map the data in your company. This

is a good example. Using a tool like this might also help you find any problems you have, which is the first step in solving them.

• Privacy Policy - Make sure to review and update your company Privacy Policy, since this will be the natural place for those who access your website to check whether you are complying with GDPR. In this section you must let people know why you are processing their data, how long you will be keeping the data for, whether the customers can reach out to you if they are unhappy with how their data is handled, whether their personal data will be subjected to automated decision making and what rights they have according to GDPR. This must be presented in a way that is easy to understand and to the point.



# The GENERATION DATA Project

Generation Data is an EU Erasmus+ project bringing together project partners and experts from the Poland, Belgium, Lithuania, Spain, Denmark and Ireland. This project aims to provide training in Data management skills: analysis, credibility assessment, researching and logical thinking.

The GENERATION DATA Toolkit is the first output published by the project consortium. Its objective is to raise awareness about the increasing importance of smart data skills for current and future higher education students and provide knowledge about how to improve the teaching of smart data management. The Toolkit is primarily addressed to HE teachers and lecturers who teach management-related subjects but can be used also for technical disciplines having a management-related component. At the same time, it represents a useful tool for policy-makers and other stakeholders involved or interested in entrepreneurship education. The GENERATION DATA Toolkit has been developed as an innovative open resource and as such is downloadable for free from the project website.

The Toolkit highlights:

• The results of the data skills survey carried out by the partners in the initial project phase to find out which are the current needed skills and deficits of teachers and students when it comes to data skills.

• A review of the political and regulatory context governing data skills education at both EU and national/regional level.

• An introduction to strategies for teaching data skills to students and to early stage entrepreneurs, including best practices and testimonies.

The Toolkit strives to be an easy-to-use and informative document, useful to support teachers and lecturers who have little time to dedicate to professional training but are nevertheless interested in deepening their understanding of the smart data skills world and to learn how to improve their teaching of smart data use and management.

Built upon the EntreComp, DigComp and DigCompOrg frameworks, the Toolkit has been conceived keeping in mind its transferability potential: although the focus is mainly on data skills teaching in higher education, the material can be useful also for teachers and trainers working in other education sectors and in digital education in general.

# GENERATION DATA

USING DATA FOR PROFIT

Image Credit: Generation Data Project

### UPCOMING EVENTS

### DataScienceGO

DataScienceGO is a 3-day conference focused on career advancement for data science managers, practitioners, and beginners.

Location: Berlín, Germany



### Data Science: How to Get Started

Workshop by Dr. Tamara Clelford from Swampen Enterprises. Learn skills to get you started on your journey into data science.

Location: Stevenage, United Kingdom Date: March 31st 2020

#### Big Data Overview 1 Day Training in Amsterdam

This is an awareness course designed to provide you with an understanding of Big Data, the potential sources of Big Data that can be used for solving real business problems.

Location: Amsterdam, The Netherlands Dates: June 28th 2020, September 10th 2020, December 17th 2020





### SELECTED PUBLICATIONS





### Data Science for Beginners

In this book, you'll find methods and techniques to organize your data, extract the information and analyze it. There's a way to make sure your company is going in the right direction, and this book will reveal the secret behind a successful business.

Access the book

#### Machine Learning For Dummies

Covering the entry-level topics needed to get you familiar with the basic concepts of machine learning, this guide quickly helps you make sense of the programming languages and tools you need to turn machine learning-based tasks into a reality. Whether you're maddened by the math behind machine learning, apprehensive about AI, perplexed by preprocessing data—or anything in between—this guide makes it easier to understand and implement machine learning seamlessly.

Access the book



### **Applied Artificial** Intelligence: A Handbook For Business Leaders

Applied Artificial Intelligence is a practical guide for business leaders who are passionate about leveraging machine intelligence to enhance the productivity of their organizations and the quality of life in their communities.

Access the book



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### SOCIAL MEDIA:





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