

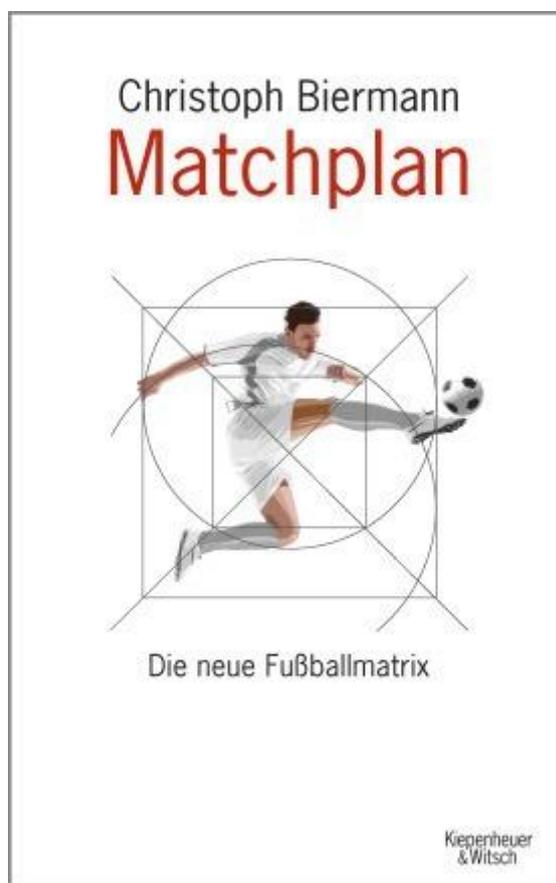
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MATCHPLAN

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*“How football has changed!
Everything has become more complicated – and more beautiful.”*

Xabi Alonso

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Preface

The adventure begins

In early spring of 2011, I was sitting in Wembley Stadium with tears in my eyes, overwhelmed by the magnitude of the moment. Four decades after I had first entered a ground, I realised with every minute of this Champions League final that I had never before seen such a good game of football. Manchester United, then still managed by Sir Alex Ferguson, may have been sublime against Pep Guardiola's FC Barcelona but ultimately without a chance. Led by Lionel Messi, who was voted Man of the Match, the Catalans had fantastic players in their line-up. Granted, so did United, but on that night, it was not only the players' art that mattered. Instead, it was the fact that during the biggest match of the year, Barcelona were showcasing football on a new level of evolution. Guardiola brought together his players' genius in a plan so sophisticated and perfect, the likes of which I had never seen. While they merely lost by 3-1, Manchester United were hopelessly inferior.

Although planned, this kind of football was light and free, playful and elegant. It was not wearing a tight corset but rather created a frame for the players' creativity. While it looked brand new, there were deep roots to it, reaching all the way back to 1960s Holland, when Johan Cruyff was learned *totaalvoetbal* and became the latter's catalyst. Influenced by these ideas, Cruyff had come to Barcelona, where he further developed his principles of the game and so critically shaped the club's academy work.

In late summer of 2017, I was back in London — this time, not in a stadium filled with jubilant, ecstatic people but in the conference room of a co-working space by the Thames. Around me, young people demonstrating equal amounts of deliberate coolness and utter seriousness were working on digital projects. The coffee was good — everyone was allowed to help themselves — and soon, I was gazing in amazement at a computer screen showing me a most intriguing fusion: I was able to watch a football match from various camera angles, almost as if a broadcasting van had been shrunk to fit inside the laptop.

Along with the images, you could call up different files gathered from this game, collected by the spotters of professional data companies or by the tracking systems' thermal imaging cameras. Every move on the pitch, every movement, every path had been gauged and counted. Here, images and data were intertwined in a way I had never seen in football.

Originally, the company SBG had developed the software for Formula 1, where they work with half of all the racing teams. F1 is the most thoroughly-engineered sporting event on the planet. The cars are fitted with dozens of sensors; ten terabytes of data are gathered during each race. On race day, 200 specialists assess the stream of information; every manoeuvre on the track is calculated and analysed. In autumn 2014, during the Abu Dhabi race, SGB modelled the software for the emirate's sheiks. The latter, owners of Manchester

City, coveted the same thing for football, and so came into existence what I was now admiring in this windowless conference room.

Eight years ago, in my book *The Football Matrix*, I wrote that 'Football has become a game of numbers.' It had certainly looked that way at the time, but it was not yet true. I had been taken in by a forgery when first I sat before those many pages filled with numbers, brought forth by every match played in the Bundesliga or by the national team. Every shot was counted, every pass, every sprint, and so much more. There was one problem, though: often, the numbers and the game did not come together but rather faced each other instead, in parts puzzled and perplexed. The same was true for those who collected such data, and those who ran the game.

Here in London, however, I realised that something revolutionary was happening. Ever since computer scientists and statisticians have been poring over match data, led by football experts, there has been growth not only in its mass but also in the way it is made accessible. Nothing is readymade, but things are on the table; it's your own fault if you won't seize them. Whether we like it or not, football's digital transformation has long since begun.

In the spring of 2017, I took the ferry from the Icelandic mainland across the stormy North Atlantic to the island of Vestmannaeyjar in order to meet Heimir Hallgrímsson. He is national coach of Iceland, the most sparsely-inhabited country to ever qualify for the World Cup. On Hallgrímsson's laptop, there are no crazy tools for analysis like I would see in London. Most of his players are under contract with rather plain clubs and do not play in the Champions League. When the national team travels abroad for away games, they do so in economy. Hallgrímsson showed me the little island where he still works as a dentist, whenever time permits it. (He also removed my tartar, but that's a different story.) The next day, we drove through Reykjavik, the country's capital, to watch a few academy matches. You can learn as much about football from Heimir Hallgrímsson as you can from Pep Guardiola, though not in the same way. Because the Icelander is forced to work with less-talented players and, by all accounts, limited resources, he knows how to handle deficiency. As a result, he is alert to even the smallest advantage he might secure for his team.

In fact, Hallgrímsson has managed to find a crucial advantage, which is why he fits in so nicely with the other unusual heroes in this book: There's the English professional gambler who has bought his childhood club, and the German American psephologist who became a football manager. There's also the Northern Irish bank assistant who brilliantly analysed Borussia Dortmund, and the club's shock-headed, always unshaven scout who moved to Arsenal for a seven-figure transfer sum. Finally, we meet an erratic manager who unhinges all statistics, and two Bundesliga players who became researchers of the game.

I didn't search for them, these exceptionals, the waywards, and the oddballs. We came across each other almost automatically as I moved through terrain which is nowhere near mapped conclusively. You recognise from the fact that they have more questions than answers, and that they want to understand the world rather than explain it. They are

adventurers, and the adventure has only just begun. They're all driven by the same desire as Heimir Hallgríms: giving themselves an edge through the use of data and the potential of digitalisation.

Occasionally, I am transfixed by the kind of high-end football Barcelona played it in 2011, just as I am drawn to the glittering promises of the digital age. But really, since I can remember, I have taken an interest in the underdogs and especially those who handle this role with cunning.

Ultimately, that's what I was looking for when I visited the world's largest sports analytics conference in Boston; a tiny club in Denmark; or Hamburg-based Jörg Seidel, who could convert little information into irritatingly-exact information. Or when I went to SC Freiburg to find an answer to the question how this club keeps withstanding in light of superior competition.

Eight years ago, I also wrote the following sentence: 'Data are part of a far from completed development in football, in which the latter changes from a game of opinions to one of knowledge.' Above all, this expressed a hope, because opinions in football had already often annoyed me back then, as they're so arbitrary and disposable. When I wrote that sentence, however, I had no idea of the adventurous way in which we humans come by our decisions — not just in football. That's why this book also touches on ways to change and better this, both in us as fans and in those in charge of the game. Because the future in football is not simply going to belong to those with access to data but to those who extract the best conclusions from that information. And in this respect, football doesn't differ from other aspects in life.

Berlin, January 2018

Scouting in the digital realm

Sven Mislintat is the answer to the question why we are suddenly talking about scouts and even pay transfer fees for them. He left Dortmund for Arsenal, who bought an entire data company to add to their system. But there is also an outsider with surprisingly conclusive data profiles.

The scout as the hero

In recent years, the scout has been discovered as one of the last great romantic figures in football: a lonely man on an endless journey, on an uninterrupted search for that one talent overlooked by all. With *Mroskos Talente*, German author Ronald Reng dedicates an entire book to the account of largely-unknown Berlin scout Lars Mrosko. Meanwhile, Michael Calvin accompanies *The Nowhere Men* across English non-league grounds, telling 'The unknown Story of Football's True Talent Spotters,' as advertised in the subtitle. Both books were voted Football Book of the Year in their respective countries — Calvin in 2014, followed by Reng two years later. Twice, an image was conjured of a world of passionate men in an often little respected and usually poorly-paid line of work, who were rewarded nevertheless with their predictions of a nameless player rising to stardom.

At about the same time as these stories the legend of the super scout was born; an unknown man acting pulling the strings in the background, by recognizing several talents in a row and thus making a club big. A world-famous example of this is Steve Walsh, who detected the key players of Leicester City's league-winning side for a laughably small amount of money: Jamie Vardy, Riyad Mahrez, N'Golo Kanté, and Christian Fuchs. Vardy came from League One outfit Fleetwood Town, and Mahrez from France for €500,000, even though Walsh had been wanting to scout a different player. While the Austrian Fuchs came from Schalke 04 on a free transfer, Kanté was another French arrival, this time with a nine million euro price tag. Following Leicester's winning season, the midfielder went to Chelsea for four times the price, where he swiftly won the league once more.

One year on, the Portuguese Luis Campos was hailed a genius for putting together the AS Monaco side that managed to reach the Champions League semi-finals in 2017. At this point, the club had been through a stretch of wild transfer politics, during which it had realised astounding sums. In 2013, Campos had left Real Madrid, where he had worked as talent and tactics scout for José Mourinho, and had joined Monaco, who had been bought by Russian oligarch Dimitri Rylowolowew two years before. In his first season, Campos spent a staggering 169 million euros on players like James Rodriguez and Radamel Falcao, and with their first attempt, Monaco finished second in France's Ligue 2. Merely one year later, however, such investments were no longer possible — on the contrary: Now, the club was

selling players for 50 million euros more than it was spending on new signings. Indeed, during the following season, 2015-16, the principality-based outfit realised the highest total ever achieved by any club: almost 108 million euros. Their expenses, on the other hand, nearly amounted to 100 million. By radical means, the club had become a flow heater for highly-talented players, who were sold on at a high profit. There was sporting success, too: In 2017, Monaco won the league again for the first time in 17 years, with a fantastical goal tally of 107. Following this, Kylian Mbappé moved to Paris Saint-Germain, and the club's sales record was broken again.

The list of super scouts also includes Sven Mislintat, even though the latter vehemently denies such attributions: Always unshaved and unpretentious, Arsenal's Head of Recruitment is far too down-to-earth for that. Mislintat is originally from Kamen, a town just behind Dortmund known for its motorway junction. He used to be an amateur footballer himself and has supported Borussia Dortmund since childhood. In order to understand why the Gunners even paid a seven-figure transfer sum to sign Mislintat in late 2017, one has to make themselves aware of the kind of work he used to carry out on the fourth floor of the club's headquarters. Sparsely decorated with a large, very neat desk, a TV on the wall, and a framed picture on the opposite wall, Mislintat's office had an impressive view of Dortmund's stadium some 500 yards away. Next door housed Michael Zorc, director of football and Mislintat's superior, with members of the scouting department only a few steps down the hall.

Sven Mislintat is a legend among European scouts, for who else had the idea to search Japan's second division for players in 2010? It was there that Mislintat had found Shinji Kagawa and urged Dortmund to sign the 21-year-old on a free transfer from Cerezo Osaka. Two years later, the Japanese, now two-time German champion and crowd favourite, joined Manchester United for the sum of 16 million euros. While this was the dream of every scout employed by the industry, it was more than a mere anecdote: During the ten years that Mislintat worked for Dortmund, the club ran the most successful personnel policy of all professional German outfits. This becomes apparent when the transfer balance (i.e. the margin between revenues and expenditures divided by transfer sums) is set in relation to the development of the players' market value. Here, the data is taken from transfermarkt.de, whose surveys certainly don't withstand scientific standards, but they do give an indication as to where thorough work is being done and where not.

Between 2012 and 2017, the market value of almost all Bundesliga clubs rose, with the exception of those who had been relegated. The fact that Bremen and Hamburg saw their value decrease without relegation can only be attributed to poor performance. While other clubs might have had considerable surges in this area, these were bought almost exclusively through transfers. VfL Wolfsburg, for instance, spent approximately 135 million euros more on transfers than they were bringing in. At the same time, however, their market value was increased by a mere 135 million, which meant a negative net-trend.

Bayern boasted the highest development in terms of value but overpaid it on the transfer market. RB Leipzig, on the other hand, invested aggressively but created value in the process.

	Club	Transfer balance	Market value 09/12	Market value 09/17	Market value development	MV development and transfer balance
1	Borussia Dortmund	38	210	392	182	220
2	1. FC Köln	18	25	106	81	99
3	Bayer 04 Leverkusen	25	130	189	59	84
4	TSG 1899 Hoffenheim	44	87	120	33	77
5	Hertha BSC	11	37	90	53	64
6	SC Freiburg	31	46	73	27	58
7	Mainz 05	21	45	72	27	48
8	RB Leipzig	-148	6	189	183	35
9	Borussia Mönchengladbach	-34	89	157	68	34
10	Eintracht Frankfurt	-18	45	84	39	21
11	FC Augsburg	-12	41	57	16	4
12	SV Werder Bremen	10	82	72	-10	0
13	FC Schalke 04	-14	152	155	3	-11
14	VfL Wolfsburg	-41	116	143	27	-14
15	VfB Stuttgart	6	94	64	-30	-24
16	Hannover 96	-32	77	49	-28	-60
17	FC Bayern München	-236	416	581	165	-71
18	Hamburger SV	-85	109	69	-40	-125
	Average	-23,11	100,39	147,89	47,50	24,39

Data provided in million euros / Source:transermakt.de / Latest version: 1.9.2017

Now, it certainly wouldn't be appropriate to interpret this table exclusively as a reflection of successful scouting. For a start, the signing of players already requires good interaction of directors and managers as well as an inherent idea which kind of football is favoured and how new signings might fit into that idea. In addition, of course, data is also created by managers developing their players.

The discovery of Shinji Kagawa was aided by coincidence, too. In Europe, the striker had been looked after by the company of agent Thomas Kroth, who specialised in Japanese players. Traditionally, Kroth has had a particular closeness to Borussia Dortmund because he used to play there himself and his business was based in the city. It was Kroth, then, who had brought Kagawa to Mislintat's attention. The scout recognised something in the player's

videos that prompted him to make the journey to Japan in order to watch him in person. Afterwards, Mislintat did not stop pestering manager Jürgen Klopp, director of football Michael Zorc, and CEO Hans-Joachim Watzke to sign Kagawa, even though they had been at rather a loss to assess the player's potential on the basis of the videos. The standard in Japan's second division was so modest that the trio didn't quite dare imagine what Kagawa might be capable of in the Bundesliga. 'Their tackles looked more like volleyball than football,' said Zorc. Jürgen Klopp, too, couldn't help make a mocking comment: 'How am I supposed to tell a Japanese from the second division that he's not playing?' When he saw Kagawa for the first time in training, however, Klopp was delighted.

In 44 games, Kagawa had scored 27 goals, making him top scorer of the J2 League. On its own, this statistic sounded good enough, but as it is the case with many international transfers, the question arises how much the performance from another league is still worth: Is a champion winger from the second division still a champion winger in the first? Does a Norwegian keeper save as well in the Premier League as he does in his native country? How much, for that matter, are goals from Japan's second division worth in Germany? In Kagawa's case, one would have to say, *a lot*. For one thing, he helped Dortmund win the league twice. In his first season, reduced to only 18 matches due to severe injury, he scored eight times; his second season saw 13 goals and 12 assists in 31 games.

Directors as well as scouts like Mislintat, however, are constantly faced with this question of translatability, because football has become a global game. The latter isn't just a cliché, due in particular to the contributions of a certain company over the last decade: Wyscout from the Italian town of Chiavari. 400,000 players from 215 leagues in 106 countries are recorded in its database. Users can access videos of 220,000 games; 1,500 are added every week. The material is already labelled, so users can search for a player's scenes via tags: shots, tackles, or passes. This means that every manager in the world is able to get an initial idea of a player within the space of a few minutes — even if that player hails all the way from Japan's second division.

Wyscout was founded in 2004 by Matteo Campodonico, a former business analyst who used to work in the strategy department of a bank. In the early years, the company changed its name and focus multiple times — until March 2008, when it finally became apparent what the conclusive purpose would be: a scouting tool. In addition to statistical information about players from all corners of the world, Wyscout offered customers the use of DVDs that were delivered by a courier. Only half a year later, dispatch was already no longer necessary: match videos could be viewed on the company website. The definitive name was chosen in 2010, and since then, Wyscout has been a digital platform.

Wyscout is by no means the only provider on the market, however. Scout7, their British counterpart, has been around for nearly the same time, offering a similar service, while STATS from the US and InStat from Russia are also on the list of renowned vendors. Data provider Opta, in turn, collaborates with American enterprise TruMedia in order to

combine its information with video sequences. Ultimately, in every case, it's a matter of merging the most comprehensive and effectively-tagged video material with the most extensive data.

About 2,500 players are offered to a club like Borussia Dortmund each season, many of them are at best candidates for the club's reserve team in the fourth division. They need to be combed out first — a task which is usually accomplished swiftly, thanks to the available videos and data. Gone, then, are the days when shrewd agents could make an average player look like a world star by using videos with snazzy cuts and funky music. In reaction to an interesting offer, Dortmund's scouting department can create an ample digital information package within 24 hours, including the player's most important data and a 15-minute video with all relevant scenes from at least three matches. This way, the scouts have been spared many a futile drive for observation.

Early on, however, Mislintat decided not to rely exclusively on the advancement of commercial providers when it came to the digitalisation of scouting work. He wanted to operate on the global market in a way that would allow him to keep up with the big international clubs — a virtually impossible feat. In Dortmund, Mislintat coordinated the work of ten scouts, which is remarkable in contrast to the German competition but rather laughable compared to competition found in the Champions League: Top clubs from England, Spain, and Italy send up to 50 scouts into the world. Manchester City, for example, employs spotters who specialise in Scandinavia, African youth football, and top leagues in Japan, Korea, and China. Clubs like this won't miss out on prime talent, because they have experts everywhere who know the market very well. Hence, Mislintat had to come up with something.

Finding Dembélé, and the Sobiech-Paradox

The big day went smoothly, really. In February 2013, Sven Mislintat presented a project to his bosses on which he had been working for two years — in his spare time. Borussia Dortmund's head scout had joined forces with a computer scientist as well as a sports scientist who had been trying for some time now to document football matches statistically. With the help of intelligently-used data, they aspired to breakdown the gigantic global supply of players in a simpler fashion. To this end, it was crucial that the players' activity data be combined with the place where the action had taken place. In order to do this, they had divided the pitch into 100 even squares and assigned different values to each one. After all, it is obvious that winning a tackle in the six-yard box is more important than winning one in the centre circle. The same applies to completed passes and, of course, attempts on target, as we've seen with the concept of 'expected goals' and Daniel Links' model of 'dangeriousity'. Using historical match data, Mislintat and his fellows had determined the value of these squares and created an algorithm that was eventually supposed to lead to a player's value.

The goal, then, was a player index. This idea wasn't new and neither was it limited to closed footballing circles: Already in 2009, automotive lubricant manufacturer Castrol was both sponsor and namesake for an index commissioned by FIFA. It was around this time that media outlets began having their own indices created to tell their readers who had played particularly well or otherwise. After all, it was more convincing to present them a supposedly objective value rather than a reporter's subjective grade. An index does, however, depend crucially on the question which data are weighted, for ultimately, an algorithm reflects the way its creator imagines a game — which is why different indices may deviate from each other as much as player grades in a newspaper.

Dortmund's bosses were quite impressed by the presentation they were given, but from one moment to the next, a problem became obvious. 'Everything was fine until we presented our top 11,' says Mislintat. One of the two centre-backs in the trio's 'team of the season' was Lasse Sobiech. He originated from Dortmund's academy, and after being sent to St. Pauli for match practice, was loaned to then-relegated side Fürth. Without doubt, Sobiech was a solid player, but certainly no high-flyer. Aghast, Zorc and Watzke shook their heads: How could the system have identified this player as one of the Bundesliga's two best centre-backs?

Mislintat was aware that Sobiech was no top defender, but not until later did he realise how the player had benefited from the algorithm. At the time, Fürth's defence was very deep, allowing their opponents the most crosses throughout the league. Since Sobiech was very strong in the air and cleared a large number of those crosses, his value shot upwards. The three developers had not thought to scale players' data in connection with their teams. Hence, when a side like Fürth had a total effort of 1,000 defensive moves with Sobiech contributing 200 of them, this made up a fifth of the defensive sum. Bayern, in contrast, as a top team playing a high defensive and not allowing their opponents as much space, showed only 200 defensive moves. As a result, 50 moves by Jérôme Boateng amounted to a quarter of the team's sum, so more than those made by Sobiech. This relativisation does, of course, apply to forwards in reverse, since players in Bayern's attack are naturally more likely to get chances than those at Freiburg or Mainz.

It was too late to make this correction during the presentation, and as a result, the project became unsteady. Following two years of preparation, Mislintat and his colleagues were looking for an investor, and Borussia Dortmund was the logical first contact. Those in charge at the club did not think they should put money towards a scouting programme that identified Lasse Sobiech as a top defender in the Bundesliga. How was this software supposed to help find fitting talent in Spain or even Chile if one didn't know the players suggested by the system with an obvious imbalance? Mislintat therefore made contact with

other clubs in Germany and England, but none were willing to invest. What, then, was to be done?

During the failed presentation in Dortmund, a structural problem in football manifested itself: Almost daily, professional clubs are assailed by providers trying to sell them would-be innovations and promising them a supposed competitive edge. This may take the form of training equipment, nutritional concepts, physiological and psychological support, or indeed data analysis. Of course, no sports manager could assess with absolute certainty whether this food supplement, that training equipment, or this software really does create an advantage. Thus, if clubs are in funds, they will often buy something merely because that's what everyone else is doing at the moment. A club will give in to 'social proof', and at times, what was bought with a lot of money ends up in a corner, gathering dust. Needless to say, this fate does sometimes befall people: Big clubs in particular will not have it said that they don't take every step necessary to achieve success. Many a data analyst at a Premier League may have a nominally great job, but may well be producing reports and results that aren't read by anyone.

Sven Mislintat's learning curve included realising how important it is to edit conclusive results in an optically appealing manner. Defiantly, he and his colleagues had continued their company, Soccermetrics, without investors. Another statistician had joined the team as well as a young data visualist from Berlin, who saw to an attractive front end for which they even won an award. 'Ever since it's looked like this, everyone wants it,' says Mislintat. 'When the same stuff was presented in an Excel sheet, no one was showing any interest. A director of football using his iPad needs to understand immediately how the system works, and this is now the case.' This is just one of the reasons Soccermetric now has clients in various countries, although each one may only have a single club per season using the software exclusively for a quarter of a million euros. It is not disclosed which clubs are given this privilege. A special agreement was reached with Dortmund, noting that Mislintat will use the generated data during his work but won't grant everyone in the club access to the software. The agreement lapsed with Mislintat's move to London, forcing Dortmund to reorganise.

Before the digital filter

I found it incredibly fascinating to watch Mislintat work with his programme by the name of Scoutpanel. It was as if a game of Football Managers had been brought to life. To demonstrate how the system is brought into operation, we simulated the search for a left-back during my visit in the spring. For this purpose, there began a filtering process of

altogether more than 13,000 players from all over the world. The corresponding data was bought from providers such as Opta and then refined by the algorithm. The first filter was the period of play, which we fixed at a minimum of 200 minutes, already causing 3,000 players to be combed out. The next factor was age: 16 to 23. Then, we activated the filter 'defensive winger left', wherein the positions Full Back Left and Wing Back Left were pooled, i.e. left-backs in a back three and a back four.

The range was reduced drastically when Mislintat began to apply quality filters. First, there was a total rating derived from the sum of all elements which represented the overall score, controversial in Lasse Sobiech's case above. To this end, we set particularly high targets for 'take on', the value for a player's conduct during one-on-ones. The 'shoots' field reflected the number of finishes a player managed. Finally, when we entered the peak value for crosses, there were only very few names left. The list included Raphaël Guerreiro from FC Lorient, who Dortmund had signed for 12 million euros at the start of the 2016-17 campaign. A player from Belgium club KAA Gent appeared too, but how did Mislintat compare his performance in Belgium to that in Germany? 'Our calculations use factors based on the club's success in each European league,' he says. The smallest factor was 0.7, while in the top leagues, it remained steady at 1.0. Mislintat did, however, switch off this filter during the search a lot, because he worried that some talent might slip through his fingers otherwise. The top value in his system is ten, but if a player in a weak league constantly scored a ten, the system would classify him as a mere seven — just above average. 'I like to leave it to my subjective impression whether or not a Dutch player with top marks in his league would adapt here,' explains Mislintat. 'Whether they do adapt to higher league depends on their mental state.' Just like with Kagawa, then.

What fascinated me especially was the filter 'stability'. If a player achieves a high rating in almost every match, he scores high here. You might imagine this as the 'Philipp Lahm value', considering that the former Bayern captain's performance rarely ever fluctuated. Mislintat becomes alert, however, when a very young player shows very little stability but varies between average and absolute top performances: 'When he's young, I can turn him into a world-class player. That's the thought process behind this.' Evidently, this had already occurred to him with Osmane Dembélé, whom he had suggested a whole year before the Frenchman signed for Dortmund.

According to Mislintat, the factor 'similar players' is still in its infancy, currently following the Amazon logic: 'Clubs who have lost that player could substitute him with this one.' When a player with a particular profile leaves the club, one can check whether there is another footballer who might replace him exactly.

In recent years, there has been talk of Big Data in many areas of life, even in football. Much of it is hot air, but Soccermetrics genuinely showed me what can be achieved with large amounts of data. In addition, I discovered the basis for Borussia Dortmund's superior

transfers. What is also important to note is that despite his great affinity for technical solutions, Sven Mislinat is no data nerd but someone who understands football. He has a degree in sports studies and started analysing games for Dortmund on a freelance basis in 2006, becoming scouting coordinator a year later. An ex-player was supposed to join the club as head scout at the time, but he never turned up. Back then, Borussia Dortmund found themselves in an existence-threatening economic crisis, and there was little money left for scouting. As a result, Mislinat only worked with four members of staff — all of them over the age of 50 — and made himself into their student. ‘I told them very openly that I needed to learn how they worked,’ Mislinat tells me. He explained to them that while being an analyst enabled him to assess the quality of a player, he did not consider himself a scout. The chief scout thus learned scouting from the scouts — together, they contributed to one of the biggest success stories in football. One of their ranks is former Bundesliga manager Heinz Redepenning, who despite the proud age of 70 still travels across Europe to watch games. They have nicknamed him ‘Destroyer’, because his judgement is the harshest of them all. To this day, Redepenning makes a note whenever a player chews gum or spits onto the pitch. ‘If he says we should sign a player, we don’t really need to send in anyone else,’ laughs Mislinat. His team also includes a man in his late twenties who speaks the jargon of concept football. ‘We have a great profile of very diverse eyes, schoolings, and socialisations,’ he says. When a player was shortlisted, all the scouts considered him with their various vantage points and perceptions of the game. Picking great talent from the sea of data and having the player be analysed by a burly coach almost sounded like something that could’ve been dreamt up by the club’s marketing department.

At least since the episode with Shinji Kagawa, Dortmund are listening to this extraordinary squad. In contrast, scouts at other professional clubs are often marginalised groups — despite the romanticism surrounding their search for the perfect player — because many managers prefer to resort to their network of contacts to agents on their hunt for new signings. ‘It must never be just *Moneyball*,’ says Mislinat, ‘but we must never omit mathematics completely, either, because that will only leave you with subjective impressions.’ At times, though, the scouts had to note something that cannot be expressed in numbers. When a player has landed in the wrong team, for instance — a midfielder who is strong on the ball but who was in possession far too infrequently because the second-tier side he has signed with plays over midfield with long passes. This is Julian Weigl, who left 1860 München for Dortmund in 2015 and was a spectacular success in his very first season. ‘We had to recognise his qualities in the few moments in which he was in possession — like the fact that he has an unusual vision,’ says Mislinat. ‘This means that in every situation, he’s already raised his head three times and glanced over his shoulder, which is how he knew already what to do with the ball.’

No algorithm — no matter how sophisticated — will ever recognise this vision; this is human work. They have to develop a feeling for the player out there on the pitch, for his

passion, perhaps for his fears, too. With this in mind, it is quite absurd to scout for players without using the potential of digital pre-sorting. For Mislintat, the move to London meant the completion of an astonishing cycle. 'When I started, Arsenal used to be my benchmark,' he says. Back then, he wished for Borussia Dortmund to emulate Arsène Wenger: signing highly-talented players and turn them into big stars.