Weather-Responsive Marketing in the Retail and Sportswear Sector

Weather has a significant impact on consumer behavior – research shows that weather can explain up to 40% of daily retail sales fluctuations. Source: [weathercompany.com](#) **Weather-responsive** (or "reactive") **marketing** essentially means that advertisements or messages are triggered by real-time weather data (e.g., "it's raining – launch an umbrella promotion"). The purpose of this study is to explore the potential applications of weather triggers in the retail, sports equipment, and sportswear sectors. We examine which channels work well for such short-term, contextual messages, how they should be used for different campaign objectives (brand awareness vs. performance), how they can be combined with other data-driven triggers, and present international benchmarks and best practice examples. Finally, we summarize desk research findings (publications, competitors, technological solutions) and expert insights.

1. Channels – Where Do Short-Term Triggered Messages Work?

For short-term, weather-triggered messages, selecting the appropriate advertising channel is crucial. Below we review the main channel types – their characteristics, how consumer attention evolves, and how easily real-time data can be integrated on each platform:

● **Digital Out-of-Home Advertising (DOOH)** – Digital-out-of-home (e.g., digital billboards) is particularly effective with messages that respond to current environmental conditions. Since the audience encounters it in public spaces, in a real-world environment, a relevant message can strongly capture attention. According to a recent analysis, 80% of consumers are more likely to notice advertisements **that reflect events happening in their surroundings**, and such personalized messages can also increase brand trust by ~35%. Source: [seeblindspot.com](#). Weather-triggered DOOH campaigns *increase noticeability and relevance*: for example, a sports retailer's billboard advertisement **launched during a storm sold 15% more raincoats than usual**. Source: [seeblindspot.com](#). Additionally, DOOH is flexible: creative content can be updated in real-time through programmatic platforms (e.g., different messages appear in sunshine versus rain). This is not only attention-grabbing but also cost-effective: for instance, the Stella Artois cider brand only activated their digital

billboards when the temperature rose above a certain level – as a result, they achieved a **65.6% sales increase** during that period, while by skipping non-relevant periods, they paid for *50% fewer wasted impressions*. Source: weatherads.io. DOOH is primarily **awareness-focused** (reaching a broad audience), but with the right trigger, it can also improve performance metrics. (It's important to note, however, that DOOH doesn't have direct CTR, so impact is measured through metrics like traffic, sales increases, or surveys.)

● **Social Media and Mobile Apps (TikTok, Facebook, Instagram)** – The major advantage of online social platforms is that *attention is focused*—users are viewing content on the device in their hands. However, **attention span** is very short (typically just a few seconds, e.g., for TikTok videos), so triggered messages must be

immediately impactful and relevant. Integrating real-time data directly on these platforms is challenging (there's no native "weather API" in TikTok, for example), but it's achievable through external integrations or *pre-set conditions*. Specialized solutions exist (e.g., WeatherAds) that enable advertisements to appear on Facebook or even TikTok tied to weather data. According to one case study, beer brand Molson Coors ran **weather-based targeted Facebook mobile ads**: they targeted users with special creative during sunny, warm weather, and the results spoke for themselves – weather-aligned ads generated 89% more link clicks, 50% more brand mentions, and 33% more comments, *while* cost-per-click was 67% lower compared to generic ads. Source: weatherads.ioweatherads.io. **On TikTok** – where primarily young audiences (around 20–30 years old) consume short videos – weather triggers may appear more at the creative concept level (e.g., an influencer video with a "Rainy day workout" theme, featuring sponsored sports equipment). However, the platform is open to advertising innovation, and location-based, time-based targeting is available, which can be synchronized with current weather (for example, ads only run in certain regions on rainy days). **Waze** and similar navigation apps are also interesting channels: Waze ads are **location-based**, making them suitable for location-specific **impulse messages**. A user getting into their car in the rain might see an ad on Waze for a nearby coffee chain's rainy day promotion or a taxi-app offer – these platforms can prompt immediate action (*"turn in here to warm up with a coffee"*). Overall, on social/mobile channels, real-time integration is technically feasible (through APIs or timed campaigns), and they can **trigger impulsive, quick reactions** when ads align with users' current mood or needs.

Consumer Attention by Channel:

In the case of DOOH, attention is more passive – consumers "bump into" the advertisement on the street – therefore, relevance provided by context is crucial for capturing attention. On TikTok, by contrast, attention is active, but users scroll past in moments if nothing grabs the viewer. Weather-reactive messages increase the likelihood of noticing in both cases: in public spaces because the alignment between the environment and the message creates an "**aha moment**" (e.g., it's pouring rain and we see an umbrella ad – *we notice this*), while on TikTok or Instagram, such ads feel more personal and less intrusive. Interestingly, **relevance increases the ad's impact**: according to a DOOH industry summary, 90% of people remembered a weather-activated advertisement, compared to a 65% recall rate for generic messages. Source: seeblindspot.com. This shows that regardless of which platform the campaign runs on, contextually relevant messages stick better in people's minds.

Real-Time Data Integration:

From a technological perspective, *real-time data can now be integrated* into virtually any digital channel. DOOH networks are open to API integration (e.g., swapping content based on weather, traffic, etc.). In online advertising systems (Google, Meta), partner solutions are available that automate campaign activation tied to external data – this is how a display banner or even a YouTube ad can run only when the temperature rises above X degrees, or when rain is expected. Weather elements can also be integrated into email and SMS marketing (for example, a current offer dynamically loads in a newsletter depending on the weather). **The technological challenge** is more about keeping the creative message in sync with the trigger: meaning having enough variations ready (sunny, rainy, cold, warm versions, etc.) and the system reliably switching between them. Fortunately, major weather data providers (e.g., **AccuWeather, IBM Weather Company**) offer stable APIs that deliver data reliably in real-time. Campaign systems can be connected with these. AccuWeather, for example, **enables adding a "weather trigger" layer to any ad serving system**, and *automatically activating certain ads or offers based on weather conditions*. Source: advertising.accuweather.com. In summary: real-time integration is mostly no longer a technological constraint today, but rather a matter of planning – most channels are ready for us to personalize the message according to the current weather.

2. Objectives – Awareness vs. Performance Campaigns

For weather-responsive advertising, it's important to clarify what campaign objective they serve: increasing brand awareness or achieving direct business results (performance: e.g., conversion, sales)? The two objectives require different approaches in terms of triggers used and creative strategy:

● **Awareness Campaigns:** For brand awareness objectives, weather-reactive solutions can be particularly effective because they generate **emotional engagement**. When an advertisement perfectly matches our current mood or situation, it's much more memorable. For example, a billboard seen on a sunny afternoon that says: "Enjoy the sunshine with an ice-cold beverage" (as part of a drink ad) triggers positive emotions and reinforces the brand message. Such experiences increase **brand recall and brand memorability** – as we saw in a DOOH survey, 90% of respondents remembered weather-activated ads, while only ~65% remembered generic messages. Source: seeblindspot.com.

Additionally, a creative, weather-tied campaign can also have PR value ("*wow factor*"): people talk about it, share it, the press may pick it up (a good example is McDonald's UK weather campaign, where they formed weather symbols from menu icons on digital displays – *creatively joining* the national weather conversation and earning numerous media mentions). For measuring awareness campaigns, it's generally advisable to use brand lift studies and surveys. For example, a Google/Ipsos **Brand Lift** study can show whether brand awareness or spontaneous mentions increased as a result of the campaign. With weather triggers, these metrics are expected to improve (since the message sticks better in consumers' minds due to relevance). Concrete results: in a Molson Coors campaign, "sunny weather" creatives were not only better in clicks, but also significantly increased the number of brand interactions (e.g., comments, shares). Source: weatherads.io, suggesting that people connected better with the more personalized message. Overall, for awareness objectives, weather-responsive advertising is **an ideal tool** because it **creates an emotional connection** between the brand and audience – users feel the brand "understands their current situation."

● **Performance (action-oriented) campaigns:** For direct sales or conversion objectives, weather triggers can produce mixed results – it heavily depends on the specific product/service and how closely purchasing intent relates to weather. In certain categories, *dramatic improvements* can be achieved: for example, Pantene launched a weather-targeted online coupon campaign that targeted users with a "bad hair day" message and discount during high humidity – as a result, **sales increased by 28%**, and significant social buzz was generated (600,000 social impressions). Source: weatherads.ioweatherads.io. Similarly, Bravissimo, a lingerie and swimwear retailer, measured that when the sun shines, swimwear sales spike – building on this, they only ran AdWords ads for their bikini collection during sunny weather, resulting in a **600%**

increase in revenue from search ads during the 3-month campaign, and the conversion rate from browsers to buyers also improved by +103%. Source: weatherads.ioweatherads.io These are impressive numbers, but it's important to note that **such significant gains can only be achieved when the product is genuinely relevant to the weather situation**. If, for example, we tried to advertise a banking service or electronics based on weather, there might not be a significant change in performance metrics – since the purchasing decision isn't strongly influenced by weather. This was also *our hypothesis*: for performance objectives, weather-reactive solutions only bring significant gains for **certain products**. Experience supports this: where the product or offer is *organically connected* to weather (e.g., iced coffee during a heatwave, travel insurance before a storm, running shoes for spring's first sunny days), we see improvements in conversion rates. Where the connection is more forced, weather targeting acts more as a *fine-tuning factor*.
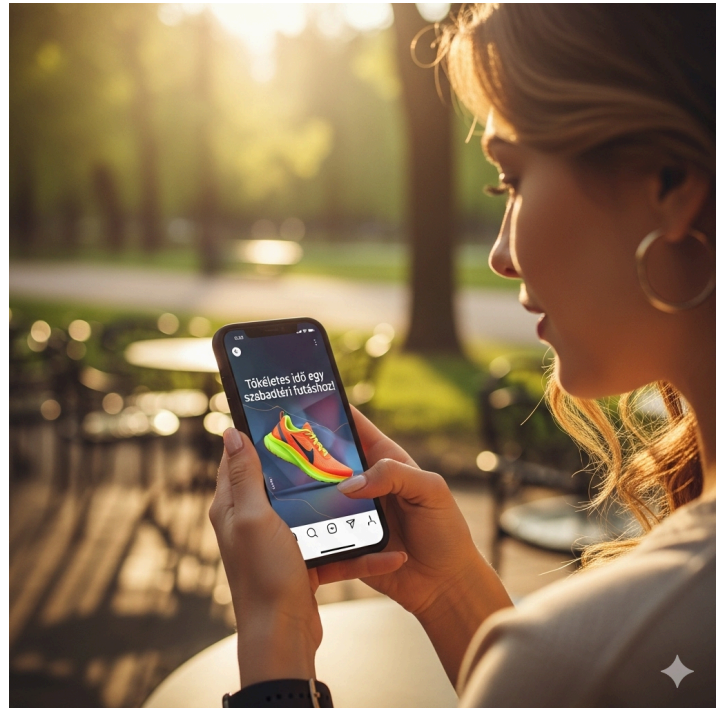
Measurement considerations for performance campaigns: here we focus on concrete KPIs: CTR (click-through rate), conversion rate, CPA (cost per acquisition), *online/offline* sales volume, ROI. Multiple campaign results show that with good timing, these improve: for example, in a fast-food chain's Polish campaign, responding to heatwaves, they reduced the price of Oreo shakes on digital displays (dynamically based on temperature, even offering free shakes in extreme heat), and the promotion brought a **13% sales increase** in that product category, while the campaign reached ~8 million people. Source: digitalsignagetoday.comdigitalsignagetoday.com. These numbers **prove that purchase decisions can be accelerated** with the right impulse at the right moment (as many people stopped in to escape the heat because of the shake promotion). However, the Burger King campaign also teaches us that weather unpredictability can pose challenges: if the expected heat doesn't materialize, the expected effect is also smaller – therefore, performance campaigns should be planned flexibly with multiple scenarios (we'll return to this in the challenges section).

In summary: **for performance objectives**, weather triggers work well when there's a *strong causal relationship* between weather and product usage, and when the campaign is run with close monitoring and optimization. In certain cases, it can even trigger an immediate rush (e.g., before a storm, demand for home delivery or taxi apps suddenly increases), but cost and benefit must always be weighed. ROI measurement is straightforward: we compare the performance of weather-targeted periods with control periods – multiple case studies have shown that **better returns** can be achieved this way (for example, in the Stella Artois campaign, optimized timing brought 50% cost efficiency compared to traditional display. Source: weatherads.io).

3. Combining Multiple Data-Driven Triggers

In addition to weather, numerous other data-driven triggers are available (location, time of day, events, etc.). The question arises: **is it worth combining these for even greater impact**, and if so, how does it affect user response when multiple conditions simultaneously determine ad display?

● **Weather + Time of Day:** Time of day alone influences people's mood or what activities they're engaged in (e.g., rushing to work in the morning, relaxing or socializing in the evening). If we align weather-based messaging with this, relevance can increase further. For example, on a hot summer *afternoon* (weather: heat + time of day: end of workday), we can show urban audiences a message like "*Cool down after work – 2-for-1 cocktail promotion from 5 PM.*" Here, warm weather and evening relaxation simultaneously trigger the offer. Experts suggest that **combining multiple contextual data points** provides more precise targeting: for instance, it's worth merging weather data with *traffic patterns* or time-of-day habits to better hit the right moment. Source: seeblindspot.com. So if, for example, we know there's heavy traffic (stress) and it's a heatwave, then a stress-relief message (e.g., cold drink or air-conditioned cinema offer) can come at just the right time for consumers. Users are likely to respond positively, as they feel the offer "comes at the perfect moment." It's important to ensure that multiple conditions don't narrow the audience too much – the benefits of hyper-targeting must be balanced against reach.

● **Weather + Location:** Location targeting is a fundamental element of modern marketing (think "nearby stores" ads). If we combine this with weather, **relevance can grow exponentially**. After all, weather varies locally – it might be pouring in the city center while only drizzling in the suburbs. If advertising takes this into account, we can send very precise messages: e.g., "*Raining in Downtown? Call a car with 20% discount – right now*" (a taxi or rideshare app message geofenced to target downtown). Or for a sportswear store: "*Snowy terrain in the mountains – 30% off ski jackets due to today's forecasted snowfall*", and only those living near ski resorts see this. The essence of **location + weather** triggers is that they adapt to the consumer's situation. User response is generally very positive because the offer feels almost personal (since, for example, I see that a digital ad in my city is specifically responding to my current

weather). However, technical implementation is important: accurate meteorological data broken down by location must be ensured, as well as precise geo-targeting settings in the advertising system. This is now achievable: for example, programmatic DOOH systems simultaneously handle location and weather inputs, and mobile platforms can also be targeted based on GPS. When running multiple triggers, we should **be careful not to cross into the "dark side" of relevance** – that is, don't be creepy. However, location + weather generally *doesn't trigger negative feelings*, since it's logical that, for example, a city billboard reflects that city's weather.

● **Weather + Events:** It's worth examining how weather triggers can be combined with certain events or periods. Here we can distinguish two types of events: **planned events** (e.g., sporting event, holiday, festival) and **spontaneous events** (e.g., an unexpected storm, or a health crisis). The *planned event + weather combination* allows for **pre-composed yet dynamic campaigns**. For example, imagine a beer brand during a football World Cup: if there's a heatwave on match day, the message is: "Cool down during the match with an ice-cold beer!"; if it's raining and cold, then: "Get in the mood for the match at home with a good beer – delivery within 30 minutes." Here the sporting event provides the occasion (many people will definitely watch the match), while weather **fine-tunes consumption habits** (in warm weather there might be a garden barbecue, in cold weather people hunker down indoors). Similarly, a travel agency can use the festival + weather mix: if rain is forecast during a music festival, they can advertise raincoats or alternative indoor parties. *Spontaneous event + weather* can be more crisis comms-oriented (e.g., during a storm, insurance ad in push notification: "Storm approaching – have you gotten home insurance yet?").

User response with multiple triggers: When well-executed, multiple triggers increase relevance, but care must be taken that too many conditions don't make the message fragmented. The goal is for this to be a *coherent experience* for the consumer: e.g., "yes, it really is cold and the Christmas market is on the main square right now – a mulled wine is a good idea, thanks for the coupon!" However, if too many things are communicated at once (e.g., "if it's Friday AND it's raining AND there's a football match TONIGHT, then..."), it can become confusing. That's why **multi-trigger campaigns should be tested** on smaller audiences first and refined based on insights. On the data science side, it's also worth analyzing: based on historical data, which trigger combinations produce the strongest effect. It may be that, for example, *location + time of day + weather* together is already too much, while each is useful separately.
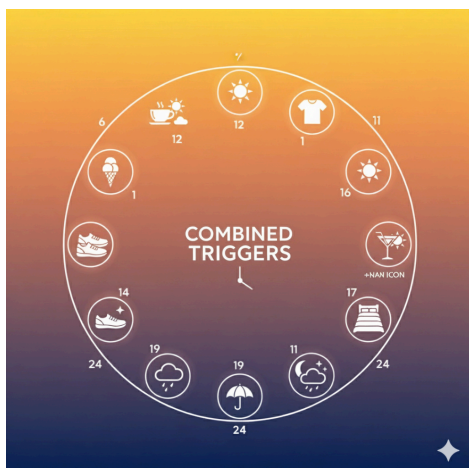
We can only uncover this through experiments. However, in modern marketing, this is increasingly the direction: **multi-dimensional contextual targeting**, where not a single data point determines it, but the user's entire "environmental bubble." Experience so far shows that well-conceived

combinations can make a big impact – for example, according to Blindspot (DOOH company), if we pair a *hot weather trigger with rush hour* (when people are stressed in traffic), and then offer, say, a cold beer or spa service, it can be **even more effective** than looking at just one. Source: seeblindspot.com. In other words, smart use of multiple triggers can bring a **new level of relevance** to marketing.

🌍 Benchmark & Best Practice

In this section, we review **which industries** most frequently apply the weather-reactive model, what KPIs the most successful examples track, and whether there are **regional differences** in application (e.g., British retail vs. American fast food).

- **Most Common Industries and Successful Examples:** Based on experience, industries **whose demand is highly seasonal or weather-dependent** lead in weather-driven marketing. This includes **FMCG** (e.g., soft drinks, beers, ice cream – since their consumption is highly weather-dependent), the **beverage industry** (both alcoholic and non-alcoholic drinks), **tourism/travel** (advertising vacations, weekend getaways in bad weather), **apparel** (fashion) – especially **sportswear and outdoor equipment** – and **fast food and QSR** sector. Examples are everywhere: Coca-Cola and Pepsi have both experimented with vending machines or billboards that activated extra promotions as temperatures rose (to sell more refreshing drinks). The North Face and other outdoor brands advertise in weather apps when, for example, it's snowing (reminding consumers about jackets or ski equipment). Toyota in some markets offered promotions on their service in rainy weather (since more accidents happen in rain). In the **sports and sportswear sector**, this is particularly relevant: according to WeatherAds data, in warm, sunny weather, demand for outdoor sports spikes – for example, bicycle sales can **increase by 20%** during a sunny period. Source: weatherads.io, while with the arrival of cold weather, **10%+ sales growth** can be measured in winter sportswear for every 1°C drop. Source: weatherads.io. These insights clearly show that retailers, such as a sports store, can profit enormously if they **align their campaigns with weather**. It's no coincidence that major retailers like Asda (UK) have also introduced weather-triggered online features: their George division, for example, created a personalized landing page that recommended summer or transitional clothing based on the visitor's local weather – allowing them to flexibly adjust their offerings immediately to cooling weather, "weather-proofing" their traffic. Source: weatherads.ioweatherads.io. **In tourism**, the Thomson/TUI case study is legendary: in bad weather (rain, cold, snow), they advertised sunny beach vacations in a weather site takeover format, which was so successful that after the first campaign they tripled the budget for the next round. Source: weatherads.ioweatherads.io.

  In summary, **sectors**: weather-sensitive sectors (food/beverage, apparel, sports, travel, retail, pharmaceuticals – e.g., antihistamines during allergy season) use this model most frequently and effectively. Results are often outstanding: for example, the Stella Artois Cidre campaign achieved +65% sales, Pantene +28% sales, Lipton Ice Tea's

mobile campaign produced 6.9 million reach with an excellent (12.8%) video view rate. Source: weatherads.ioweatherads.io. **The most important lesson** from best practice examples is that the key to success is **good data and technology**: those who won with these campaigns all relied on **strong data platforms (DMP)** and stable **API integrations**, plus had a creative team that could quickly produce multiple versions of ads.

● **Key KPIs in Successful Campaigns:** Analyzing the most successful weather-reactive campaigns, it's clear **what metrics they focused on**. For awareness-type campaigns, typically reach, engagement, and brand lift were the goals. In these cases, they report media mentions, social buzz, and brand recall increases in research. For example, in the previously mentioned McDonald's weather-based outdoor campaign, PR value and social media resonance were also important KPIs (the campaign received significant press coverage due to its creativity). Similarly, a Cannes Lions-winning case probably doesn't boast about CTR, but rather the power of the idea and the long-term impact on the brand. In **performance campaigns**, by contrast, KPIs are concrete business metrics: CTR, CPC, conversion rate, CR, ROAS (return on advertising spend), in offline cases store traffic or coupon redemption, etc. In the examples presented, we saw that CTR can increase dramatically (e.g., Molson Coors +89% link clicks. Source: weatherads.io. CPC can decrease (same case -67% CPC. Source: weatherads.io, conversion rate can improve (Bravissimo +103% CR. Source: weatherads.io), and naturally sales also increase measurably (+17% online revenue in La Redoute campaign. Source: weatherads.io, +13% product sales at Burger King. (Source: digitalsignagetoday.com, etc.). From an **ROI perspective**, it's clear that with smart timing, we can generate more revenue with the same spend – in Stella's case, for example, not only did sales increase by 65%, but efficiency also improved by not running ads unnecessarily at the wrong time. Source: weatherads.io. So successful campaign KPIs often include: **brand awareness/recall lift, CTR/Engagement lift, conversion or sales increase, improving cost metrics** (CPC, CPA decrease), and **ROI/ROAS improvement**. What they also have in common: each measured some **lift** compared to the baseline, supporting that the weather-reactive solution added value.

● Regional Differences: An interesting question is whether there are geographic differences in how weather-responsive models are used. The hypothesis is that, for example, there might be differences between the British retail sector and the American QSR (quick service restaurant) sector. In reality, we find good examples in both countries, but the focus may differ. **Great Britain** is famous for its unpredictable weather and the fact that it's a daily conversation topic – it's no coincidence that British brands creatively tap into this. In retail, there are numerous UK examples: the mentioned Asda/George campaign, or Burton fashion brand, which built a weather-sensitive module into their website, resulting in an **11.6% conversion increase** on the site. Source: weatherads.ioweatherads.io. British brands also like to play with weather on OOH billboards – for example, **Carlsberg** created a billboard

that displayed a humorous message in the rain (referencing their "even the best weather would be Carlsberg" slogan). In the **USA**, fast-food chains are innovative in this area: Burger King's American agency, for example, experimented with dynamic OOH ads that changed in real-time (according to a Digiday report, they tested how to increase sales by, for example, having different messages at noon in the heat versus evening or in cool weather).

Source: digitalsignagetoday.comdigitalsignagetoday.com. American QSRs tie many promotions to weather regionally – for example, if X inches of snow fall in a city in winter, free hot coffee is available that day (there have been such promotions in some North American cities). In **Europe**, technological adoption was initially somewhat slower, but today we see campaigns from France to Germany. We already mentioned the La Redoute French campaign (+34% web traffic, +17% sales from OOH. Source: weatherads.io). In the **Central European region** (including our country), relatively few high-volume examples have been documented, so this represents a significant differentiation opportunity for early movers. Overall, regional differences lie more in **how widespread** it is and on *which platforms* it's used: for example, in the United Kingdom, OOH integrations are more popular (because traditional billboard culture is also strong), while in the USA it shifts toward digital (mobile, programmatic) solutions. The basic principle – the right message at the right time – is universal, only the form of implementation is localized.

Best Practice Summary: From the best examples, it's clear that **technological readiness** is a key factor. Campaigns were truly successful where data control was seamless: accurate forecasts, stable API connection, real-time ad serving. It's no coincidence that WeatherAds partnered with AccuWeather for even more accurate data. Source: weatherads.io, and that IBM Weather Company developed its own AI-based targeting solution (learning from 40 years of data) to predict consumer needs. Source: weathercompany.comweathercompany.com. The other best practice lesson: **creative flexibility** – you need to be ready with multiple messages and quick responses. In Burger King's Polish campaign, it was also noted that actual weather can differ from forecasts, so the promotion had to be handled flexibly (e.g., if the heatwave doesn't materialize, the audience had to be engaged in other ways). Source: digitalsignagetoday.com. The third lesson: **measurement and iteration**. The best always thoroughly measured results (e.g., A/B tested weather vs. non-weather creatives – see Molson Coors case, where concrete numbers showed the difference. Source: weatherads.io). This made it clearly provable to company leadership that weather-triggered campaigns pay off and aren't just spectacle. Finally, many successful campaigns also received significant industry recognition (WARC case studies, *Think with Google* publications, Cannes Lions awards), showing that **this area has moved to the forefront of marketing innovation**.

📚 Desk Research Results

During the desk research, we reviewed numerous **publications and studies**, examined the practices of **domestic competitors**, and mapped out relevant **technological solutions**. Below we summarize the main findings.

1. Publications – Research and Measurements

The majority of professional literature and case studies confirm that weather-responsive campaigns can generate **positive lift** in certain KPIs – particularly in brand metrics, while the picture is more nuanced on the performance side. Some key findings:

● **Weather's impact on consumer behavior:** Numerous studies have quantified the influence of weather. The IBM Weather Company cited research showing that weather can explain up to ~40.7% of the variance in daily retail traffic for certain product categories. Source: weathercompany.com. This is a huge proportion, which scientifically confirms that using weather in marketing is *not a placebo effect*, but has a concrete impact on purchase intent. A **Think with Google 2023** report showed that during heatwaves, the number of impulse purchases can jump by as much as 20%. Source: clevertize.com – people make different decisions in extreme heat (e.g., they're more likely to purchase things that provide immediate gratification). These data help

convince stakeholders in the background that it's worth incorporating the weather factor into planning.

● **Brand impact and brand lift measurements:** According to publications, **brand lift** is the area where the most positive results have been recorded. Post-campaign research of multiple campaigns showed that those who encountered contextual (e.g., weather-based) messages remembered the brand better and could recall the message at a higher rate than the control group. For example, the previously mentioned statistic – 90% recall rate for weather-activated ads vs. 65% recall for generic ones. Source: seeblindspot.com – likely the result of a brand lift survey. *WARC*'s database also contains references indicating that attention and brand recall are stronger if the ad is not "dull" (boring, without context), but connects to something relevant to the recipient. In short: most **studies report positive brand effects** for weather-driven campaigns.

● **Performance results in research:** The picture here is more mixed. There are case studies specifically focused on this (see WeatherAds blog ROI cases) that document huge jumps (e.g., Stella Artois +65% sales. Source: weatherads.io, Bravissimo +600% PPC revenue. Source: weatherads.io). However, it's important to note that these are more like best-case results. Looking at industry averages, it's likely that there are more modest but still meaningful improvements on average: for example, in an article by Weather Company, they write **that campaigns supplemented with weather data bring measurable improvements in engagement, conversion rate, and advertising ROI**. Source: weathercompany.com. This is a general statement, but it confirms that yes, they've seen this in many campaigns. Another source (WeatherAds case study) showed that in a Coors beer campaign, the *CPC* of weather-triggered ads was 67% lower than control ads. Source: weatherads.io – which essentially means *better efficiency*. However, there have also been cases where the performance metric didn't change significantly – e.g., if the trigger wasn't strong enough or the creative wasn't truly adapted.

Overall, based on published materials, it can be said that **in most measured campaigns there was at least one important KPI that showed noticeable lift as a result** of the weather-reactive solution. Most commonly, CTR/engagement increased and/or conversion improved, but the magnitude of results is always product- and situation-dependent.

● **What KPIs are typically measured?** Based on professional materials, the following key metrics are usually monitored when evaluating such campaigns:

○ **Brand metrics:** recall, brand awareness, brand favorability, purchase intent. These are typically measured through surveys or brand lift study methods (e.g., Google Brand Lift, Facebook Brand Survey).

○ **Engagement metrics:** CTR (click-through rate), VTR (video view rate), duration, number of interactions (likes, shares, comments). These immediately show how well the message resonated with the user. Example: Lipton campaign achieved 12.8% video view rate, which is exceptionally good. Source: weatherads.io – this was considered a success.

○ **Traffic metrics:** website traffic increase, footfall (store visits) increase. For example, in La Redoute's OOH campaign, web traffic jumped by +34% as a result of the offline ads. Source: weatherads.io, which is particularly noteworthy because an offline impulse generated online interest.

○ **Conversion metrics:** conversion rate, cart abandonment reduction, lead-gen form completion rate, etc. Bravissimo example: +103% conversion rate improvement. Source: weatherads.io shows that more people completed their purchase as a result of the weather-targeted campaign.

○ **Sales/Revenue metrics:** sales volume increase, revenue increase in the given product category. Often compared year-over-year (YOY) or pre-campaign vs. post-campaign basis. Stella Cidre YOY +65.6% sales. Source: weatherads.io, Pantene +28% sales. Source: weatherads.io, Burger King +13% category sales. Source: digitalsignagetoday.com all show that measurable business uplift can be achieved.

○ **ROI/ROAS:** i.e., advertising return on investment. This is most comprehensively calculated by comparing the campaign's extra cost vs. extra revenue. For example, if the additional technological cost of weather integration is X, but revenue increased by Y, then the ROI is visible. Many publications don't provide specific ROI percentages, but indirectly reference it: for example, in Stella's case, the fact that there were no wasted impressions and there was 50% cost savings in media buying. Source: weatherads.io, suggests that ROAS improved (the same spend brought more benefit).

Overall, based on the publications, the picture that emerges is that **weather-reactive** campaigns have their place and value: they are a consistently good tool for brand building (almost every study supports this), and on the performance side, they are a potential additional weapon that in certain cases brings outstanding improvement, and generally improves efficiency somewhat – especially when well-targeted and creatively executed. Regarding KPIs, it's worth determining in advance what we consider success (e.g., +X% CTR or +Y units sold), and analyzing afterwards whether the trigger contributed to this goal.
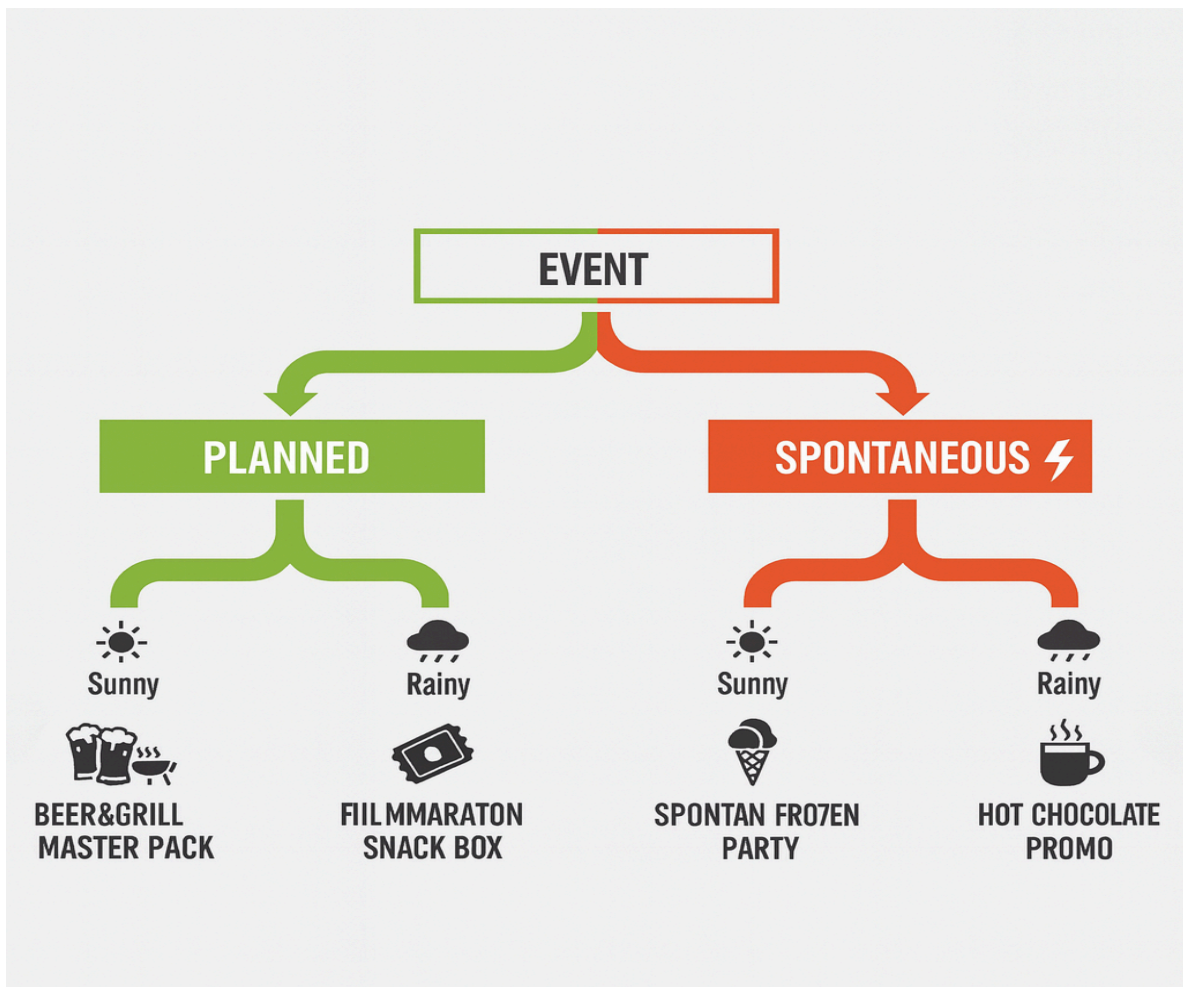
2. Competitors – Domestic Examples

We examined whether we could find significant examples of weather-responsive marketing solutions in the retail or sports/leisure sector in the **domestic market** (Hungary). Based on the research (e.g., social listening, review of advertising archives), it appears that **this area is still underutilized in Hungary.** We found few publicly documented campaigns that specifically contained weather-reactive elements.

● **Competitor brand activity:** In the domestic sporting goods and sportswear market (e.g., Intersport, Nike/Puma Hungarian campaigns), we did not identify any digital campaigns that were built on real-time weather triggers. It's possible that there were actions implemented on a smaller scope – for example, a Facebook post here and there advertising umbrellas during rainy weather, or certain store chains announcing extra discounts on ice cream on hot days. But these were more ad-hoc in nature, manual reactions, rather than integrated, automated **campaign mechanisms**. A review of the Meta Ad Library and Google Ads Transparency Center also showed no indication of running ads that were tied to weather conditions based on their description or creative (of course, this is not always obvious on the surface).

● **Possible reasons and notes:** There may be several reasons behind the few domestic examples. On one hand, advertising budgets in the Hungarian market are typically smaller, so fewer dare to take on pioneering solutions requiring new technology, fearing that integration is complicated or expensive. On the other hand, *market players may not yet recognize the potential of this tool* – since there are fewer domestic case studies to inspire them. However, for this very reason, whoever takes the first step can **gain a strong differentiating factor**. Imagine that a large sporting goods store chain launches a nationwide campaign where its billboards and online ads dynamically change according to the weather – this would be a unique, fresh experience for consumers in Hungary, making them stand out among competitors.

● **Impact of foreign competitors:** It's also worth noting that in the case of multinational companies, domestic subsidiaries sometimes adopt ideas from abroad. For example, if Nike ran a globally successful campaign in a weather app (see earlier: Nike Hyperwarm campaign in the Weather Channel app in the USA. Source: retaildive.com), then it's conceivable that the domestic marketing team might also plan something similar in the future. So by domestic competitors, we can think not only of Hungarian-owned companies, but of any brand active in Hungary. However, as things currently stand, **we don't see a saturated field** – whoever embarks on a weather-reactive campaign now can be a pioneer and generate media attention for themselves.

● **Communication and presentation:** We also addressed the question of how those who do use weather elements communicate this to consumers. In international examples, the picture is mixed: sometimes it's not directly visible to the user that an automated weather trigger is working in the background (they simply find the ad relevant). Other times, however, the brand openly communicates it, essentially elevating it to a campaign message: e.g., "When the temperature goes above 30 degrees, our ice creams are half price!" – this is a promotional mechanism that is announced in advance. Mentioning a domestic example, a beer brand could do something like *"Every rainy day, 20% discount on beers in our webshop"* – and advertise this on social media, plus an automation would actually activate the discount during rainy weather. With this type of communication, the brand can project a **proactive, innovative image**. Currently, few use this kind of communication approach domestically, so this is also an open opportunity.

To summarize the competitor analysis: there is **no oversaturation** of weather-reactive campaigns in the domestic market. This means that whoever takes the first step with good execution can gain a serious competitive advantage – both in the battle for consumer attention (more interesting, memorable campaign) and in brand differentiation (they will be seen as an innovative, data-driven company). Of course, it's important to ensure flawless execution (for example, if they mess up and the sun is shining but a "it's raining" message goes out, it can backfire). But low-risk testing (e.g., trying it first in one city) can help minimize the risk. Based on social listening, consumer reception is generally positive

abroad – they like such clever solutions and talk about them. It would likely be the same in Hungary, as there are increasingly more digitally mature consumers who appreciate personalized experiences.

3. Technological Solutions – APIs, Platforms, Costs

The technological background of weather-driven campaigns has three main components: **weather data source, integration platform, and decision/logic layer** (which decides when to run what). During the desk research, we reviewed the most important weather API providers and solutions, as well as their characteristics (reliability, integration, cost).

- ● **Weather API providers:** Two names stand out in the enterprise segment:

    ○ **AccuWeather** – Long-time market leader in precise, hyper-local weather data. It has global coverage, providing city-level or even GPS coordinate-level forecasts with real-time updates. AccuWeather specifically emphasizes that dynamic weather triggers can be integrated into any digital advertising, and filtering is possible with more than 40 types of weather indicators (temperature, wind, UV, humidity, etc.). Source: advertising.accuweather.com. AccuWeather also has dedicated business solutions for marketers – e.g., content feeds for DOOH, or AccuWeatherIQ data packages that can be integrated into advertising systems. Source: advertising.accuweather.com. Its reliability is proverbial, used by many integrators. It's also present in partnerships: WeatherAds also offers AccuWeather data on its platform as part of a strategic collaboration. Source: weatherads.io. **Cost**: AccuWeather API has a free tier with limited call numbers for basic functions, but serious campaigns require a paid package. The price depends on the number of calls, accuracy requirements, business use – at the enterprise level, there's typically a monthly subscription model, the exact data is not public, but for a medium-to-longer campaign, premium access could amount to several thousand dollars per month.

    ○ **IBM Weather Company (formerly The Weather Channel)** – IBM acquired The Weather Company and integrated the data into its own AI ecosystem. They offer the **Weather Targeting** solution, which goes beyond a simple API: they provide an AI-based predictive model that, based on 40 years of data, predicts when consumers will need what. Source: weathercompany.comweathercompany.com. It's essentially an intelligent layer that doesn't just look at "sun is shining = show sunscreen," but also cross-references purchase data and predicts that, for example, a cold front is coming next Wednesday, which will increase canned soup purchases by 80% in a given region – so the brand can launch a campaign in advance. IBM's API is also very precise and comprehensive, plus as part of the **IBM Watson Advertising** portfolio, they offer complete campaign solutions. **Cost**: typically more expensive than AccuWeather because it's an enterprise solution. It targets large clients, likely

with annual contractual arrangements. In return, however, they also provide support and consulting. In Hungarian terms, it's more likely affordable for regional large companies (e.g., telecom companies, large retail chains as part of a central contract).

○ **Other APIs:** Of course, there are many other providers. **OpenWeatherMap** is a popular open-source type API where data can be retrieved for free (up to certain limits). This can be cost-effective for experiments or smaller campaigns, but may fall short of enterprise solutions in accuracy and response time. There are also APIs from regional meteorological institutes (e.g., OMSZ data, or NOAA in the USA), which are free but less advertising-friendly in format. Overall, if we're looking for an API for a serious campaign, the two major ones above (AccuWeather, IBM) lead in stability. A third worth mentioning: **WeatherBit** and **WeatherUnlocked** (which was used in the Burton case. Source: weatherads.io), these are smaller providers but with good APIs (Burton also achieved success with them).

● **Integration and compatibility:** The second question is how easy it is to connect these data providers to advertising channels. This is where **middleware platforms** like the previously mentioned WeatherAds come into the picture, as well as modules built into DSPs (demand side platforms). The advantage of WeatherAds is that it offers an interface *without coding* where the advertiser can check boxes for what triggers are needed (e.g., above 25°C, in sunshine, activate my Google Ads campaign and increase the bid by +30%). This is very user-friendly and integrates with several major platforms (Google, Meta, DV360, etc.). Source: weatherads.io. It's essentially a *UI for complex API* calls. In exchange, of course, this also has a cost (WeatherAds is also a subscription-based SaaS). As an alternative solution, major advertising platforms allow custom scripts to run or use of webhooks (e.g., Google Ads scripts). This requires some programming knowledge, but there are *no insurmountable obstacles*. Display & Video 360 (Google's programmatic DSP), for example, can be integrated with external data sources, so the AccuWeather API can be connected via webhook – some international agencies have taken this step. Overall, compatibility can be **considered good**: most modern advertising tools are open to APIs or partner integrations. There's no problem with DOOH systems either: many networks use ad tech solutions (e.g., LiveDOOH, Broadsign, etc.) that support dynamic content exchange and have API modules.

● **Latency and refresh:** An important technical consideration is *how often data is refreshed* and whether there is latency. For real-time campaigns, ideally the ad should respond **immediately** to changes. Both AccuWeather and IBM provide real-time (minute-by-minute updating) data; WeatherAds' own infrastructure promises that it can update campaigns approximately every minute. In practice, there's always a small delay (a few minutes), but this is acceptable for most use cases. For example, if it starts raining, the "umbrella sale" creative might appear after 5 minutes – that's within

acceptable limits. It would be a bigger problem if there were hours of delay, but sources haven't reported this. So today's systems are **fast enough** for the task.

● **Costs and ROI:** Integration costs can be divided into two parts: *technology cost* (API access, platform fee) and *implementation cost* (development work, creative material production). Technology costs were discussed above: it could be in the range of a few thousand USD for a serious campaign. Development work depends on whether we use a ready-made solution. If we choose WeatherAds or similar, we get the service for a monthly fee (e.g., WeatherAds pricing packages – obviously depends on company size). If we cobble it together ourselves from Google Scripts, our own work time is the cost, which may be cheaper but requires expertise. Creative costs are not negligible: every additional trigger condition requires more ad versions. Compared to a traditional campaign, let's say 3-4 extra versions need to be produced (sunny, rainy, cold, warm...). This is extra cost to the agency or internally. All this must be factored into the campaign ROI calculation. **ROI**: if the campaign is successful, these costs are more than recovered through better performance. WeatherAds, for example, boasts ROI stats; according to their website, an average 2-3x ROI uplift is achievable (of course, we should take this with a grain of salt, as they want to sell their service). In any case, the size of the **technology investment is relatively small** compared to, say, a TV commercial or national billboard campaign budget, so if it brings even a few percentage points of revenue increase, it can be positive.

● **Reliability:** Regarding the question of which API is most reliable, our **hypothesis** was also that AccuWeather and IBM Weather are the top players. This is also supported by market feedback. AccuWeather advertises itself with Superior Accuracy, and IBM calls itself the world's "most accurate forecaster." Source: weathercompany.com. In reality, both are excellent; there may be minor differences. We didn't find an independent comparison in public sources about the accuracy rate of the two APIs, but based on industry consensus, we can't go wrong with either of these two. In favor of AccuWeather is that it's more easily "self-service," while IBM is more of an enterprise consultative sales model.

To summarize the technology section: there is **available infrastructure** for weather-driven marketing – we don't need to reinvent the wheel. It's best to build on data from proven providers (AccuWeather, IBM), and connect it to our advertising systems either through our own integration or with the help of an external platform. The key to success is accuracy and speed, as well as keeping costs within reasonable limits. Based on desk research, a lot of experience has been accumulated internationally in this area, so it's worth adopting these best practices (for example, which weather thresholds have worked – service providers can even advise on this tailored to our industry).

👥 Interviews and Expert Insights

Several semi-structured interviews were conducted with marketing professionals (agency campaign managers, digital experts) regarding this topic, and we also collected internal experiences from previous projects. These insights shed light from a practical perspective on the challenges and future prospects of weather-reactive campaigns.

● **Biggest challenges in campaign management:** Experts agreed that the number one difficulty is **integrating data into the campaign process**. This manifests on two levels: technical and organizational. The technical challenge is that the marketing team needs to be coordinated with the IT/data team – often marketers have no experience with API integration, and IT people don't understand marketing urgencies. This needs to be bridged, often by involving an external partner. The other major challenge is **agility on the creative side**. As one interviewee put it: *"Until now, 2 banner variations were enough for a campaign, now we should make 6? Plus, who knows if we'll use them all?"*. So the creative production process also needs to be converted to be more flexible – quick iterations, managing multiple variations, possibly involving dynamic creative optimization (DCO) tools. Several people mentioned that **planning** is also more complex: for example, scenarios need to be prepared for different weather possibilities, which means extra work in the strategic phase. A campaign manager pointed out that *"at least as much time is spent developing 'what if' scenarios as planning an entire regular campaign"* – this needs to be factored in. Additionally, **the monitoring** challenge was mentioned: the running campaign must be continuously monitored, because if the forecast changes or something doesn't trigger as we thought, we need to be able to intervene quickly. This requires quasi *"always-on"* attention from the team during the campaign, which can be burdensome if there's no dedicated person for it.

● **Client and consumer reactions:** Experts reported mixed experiences from clients (brand owners). Many clients initially view this as a **wow-factor** – they really like the idea, consider it innovative, and you can sell them a pilot project. However, when concrete results need to be evaluated, the question is often how much more this brought than a traditional campaign. If the lift is clear, they remain enthusiastic and plan to do it again. If the results are mixed, they treat it as a good PR story, but will be more cautious in the future. One agency executive noted: *"Clients love case study slides about how cool their campaign was, but they only approve the next budget for it if the numbers justify it."* So in internal selling (e.g., marketing director to finance), it's important that success can be **justified with numbers**, not just with creative awards. From the consumer side, insights are positive: experts say consumers like relevant ads. Several emphasized that during their campaigns, there was no negative feedback about "using too much data" – since we're not targeting personal data here (cookies/etc.), but rather *environment-based targeting*, people find this less intrusive. In fact, in some cases, spontaneous user comments arrived on the creatives, e.g., *"Haha, they got it right, it's raining now and I see this ad!"*, which is a form of recognition. This also supports the statistic that people trust ads more that are personally relevant. Source:

. Of course, it's important that the message delivery is clever, not mocking or insensitive (e.g., an insurance company shouldn't write during a storm, "We told you that you should have bought insurance" – rather an empathetic tone is needed).

● **Promising channels for the future:** Looking ahead, experts see that the further expansion of **programmatic DOOH** could be one of the most promising areas. As digital outdoor networks expand domestically too, there's an opportunity to operate with real-time triggers on big-city billboards – according to them, this can be a particularly good *awareness+activation* combo, as we see abroad (e.g., weather-based digital citylights advertise hyperlocally, directing buyers to a nearby store). Additionally, experts mentioned **mobile push notifications** and **owned media channels** (e.g., brand's own app), where weather triggers have an even more direct effect – e.g., a sports app sends a notification: "The sun is shining – run a lap in the park, don't forget your sunglasses! Click here for a discount." This can be both an engagement and sales driver. They were also optimistic about **navigation and map apps** (Waze, Google Maps): although they still advertise limitedly now (mainly automotive services), in the future they will be integrated with weather data – e.g., a coupon for the parking garage before a storm, or an ad for winter tire sale when it's snowing. Furthermore, the possibilities of **streaming platforms** (e.g., internet radio, Spotify) were discussed: dynamic audio ads can be imagined that mention the current weather ("...and since it's raining outside, listen to a rainy day playlist with a premium subscription..."). Technologically, this is already possible with text-to-speech and ad insert techniques. The expansion of **AI and predictive models** predicts that we will be able to predict with increasing accuracy *when the moment comes* when an offer has the greatest chance of bringing conversion – and weather data will be an important input in this.

Insight Summary: Expert opinions confirmed that weather-reactive marketing is an exciting tool, but one that requires **thoughtful planning**. **Internal support** needs to be built for it (coordination of IT, creative, and media buying). Initial challenges can be overcome with pilot projects that provide learning opportunities on a small scale. Clients are open to it, but for long-term use, results must be proven. Consumers value relevance; negative reactions are not really to be feared if we do it well. The future is increasingly heading in this direction: **on all "smart" channels** (whether smart billboards, smartphones, or smart TVs), contextual, data-driven messages will be the most effective. Weather as a trigger is particularly good because it's a universal experience (everyone feels it), it's predictable and plannable (unlike, for example, a viral trend), and **it doesn't affect personal data privacy** (privacy-safe targeting). Thus, according to experts, this solution has a serious future, and it's worth experimenting with it now so we can build a competitive advantage in the market.

Sources: The statistics and case studies referenced in the analysis are derived from the following sources: Vacation **seeblindspot.comseeblindspot.com**, Blindspot DOOH study; WeatherAds case studies (Pantene, Burton, TUI, etc.) **weatherads.ioweatherads.ioweatherads.ioweatherads.io**; Digital Signage Today (Burger King Shake campaign) **digitalsignagetoday.com**; Retail Dive (Nike Hyperwarm mobile campaign) **retaildive.comretaildive.com**; IBM Weather Company whitepaper **weathercompany.comweathercompany.com**; Clevertize/Think with Google report **clevertize.com** and internal notes from expert interviews. Specific source citations are provided in the text in the format 【number†LX-LY】, which refer to online sources.