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A non-profit think tank for climate adaptation in real estate, construction, infrastructure and energy. Enabled by PT1, the European VC upgrading the physical world, and DWR eco.

Heat as an Economic Factor: Why Climate Resilience Is the Asset Class of the Coming Decades

A special episode of the Startup Insider podcast with **David Wortmann** (DWR eco) and **Nikolas Samios** (PT1)
Recorded on 30 June 2026, immediately after the historic European heat weekend.

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TL;DR

- A single 30 °C day costs Germany's economy around **€431 million** — roughly 97% of it lost productivity, not sick leave.
- The late-June 2026 heat weekend broke records across Europe; such days are now about **10× more likely by day** and **over 100× by night** than in 2003.
- Rail, bridges, power grids and hospitals were built for a climate that no longer exists — the existing stock becomes **"stranded infrastructure."**
- Capital markets, insurers and the ECB are repricing climate risk: ECB Banking Supervision calls it "a shock that only moves in one direction"; the EIB and WEF speak of a new **asset class** (> $100tn).
- The opportunity lies less in new construction than in **upgrading** — climate resilience / AdaptationTech as possibly the largest asset class of the coming decades, alongside defence and AI.
- Startups mentioned include ecoworks, autarc, Voltfang, Dryad.

> *Edited transcript. Smoothed for readability and trimmed of filler; statements and meaning have been preserved. Figures, studies and technologies are documented in the source appendix at the end. Record, mortality and damage figures reflect the preliminary status as of 30 June 2026. The audio recording is authoritative.*

Why this special episode?

David Wortmann: Nikolas Samios and I got together at short notice — for a special edition on the current climate events. Why are we discussing climate here at Startup Insider? We

already have various formats for it, but not on these breaking events. Hello Nikolas, good to have you!

Nikolas Samios: Hello David, great to talk to you.

David Wortmann: What made us sit down at such short notice — right after this very historic heat weekend?

Nikolas Samios: You just said it: a historic heat weekend. And if we dwell on that word for a second — was it truly historic, or do we have to assume this is the new normal? That's the big question. We're not meeting here in some environmental-activism channel; our angle is: what does this mean for the economy, for Germany as a business location, for VC and for startups? And I'd cheekily say: a whole lot.

David Wortmann: We'll get into the detail shortly. The reason it's the two of us: I've been working on climate technologies for over 20 years, and you come from the infrastructure and investment side. This is exactly where the two threads meet. What we're witnessing almost in real time is that the climate developments are real — but the infrastructure we could use to adapt to them lags behind. Partly because we perhaps don't recognise quickly enough how big the problem is; partly because infrastructure simply takes a lot of time. But first, the facts: what happened over the weekend?

The facts: a spell, not an outlier

Nikolas Samios: Anyone in Europe experienced it live. An unusually early heatwave — we're still in June — with new records almost daily, some of them the highest in a century. A few examples: Saarbrücken 41.3 °C, Saxony-Anhalt 41.5 °C, Brandenburg 41.7 °C. Nobody can seriously claim these were misplaced thermometers. It was the same abroad: records in the Czech Republic at 41.9 °C, in Poland at 40.5 °C, London sweltering. The whole system came in over France, which was hit first, with up to 44 °C around Bordeaux.

And it wasn't just isolated days — it was a spell: this weather pattern sat almost stationary over Europe. That's the second point — not the single temperature spike, but the sustained heat stress on every kind of infrastructure, and on people, agriculture and hospitals that are only partly air-conditioned. It's so severe precisely because it lasts five or six days and the nights are tropical too — no longer cooling below 20 °C. Records were pulverised there as well. On 27 June alone, around 193 million people in Europe were exposed to more than 35 °C.

David Wortmann: So this isn't a one-off weather event — there are large-scale phenomena behind it. To name them: El Niño is one such effect. The other is the Atlantic Meridional Overturning Circulation, also called the AMOC. Heat is transported north through the Atlantic to our latitudes — and that mechanism is at risk of weakening. Neither of us is a meteorologist, and we shouldn't try to explain this in detail; there are far better experts. But the fact is: these are not anecdotes, they are longer-term trends.

Nikolas Samios: Exactly. Simplified: we have a weather phenomenon — the more or less random distribution of heat, cold and water. It has been hot before. But when you look at the statistics, at the data series, you see clearly that climate change is legible in the numbers — and that it dramatically increases both the amplitude and the frequency of these phenomena. Statistically, daytime heat of this kind is now roughly ten times more likely than in 2003 — and the nighttime heat, which is especially hard on people, more than a hundred times more likely.

Factor 10, factor 100: those are not cosmetic changes. And the sentence that always sounds so cute — "the world is getting 1.5 degrees warmer" — actually means Europe heats up more, and cities much more still, with heat-dome effects. This is a substantial shift that will affect all our lives and how we do business for decades.

Heat mortality and infrastructure failures in daily life

David Wortmann: All of this is captured in what's called attribution science — a whole research field that can demonstrate that these changes aren't simply millennia-long cycles, but can be traced back to human-made climate change, above all the burning of fossil fuels and the resulting CO_2 emissions. But what does it mean in concrete terms? We both live in Berlin — how did you experience it?

Nikolas Samios: The most telling anecdote: I've just moved my 83-year-old mother from Munich to Berlin. At 83 your health isn't quite what it was. She has a lovely assisted-living apartment in Grünau, south of Köpenick — all wonderful, but on the sunny side. And the building, brand new though it is, has no air conditioning. The elderly residents there, some over 90, sit in what feels like 50 or 60 degrees if you do nothing. I actually managed to source one of the last PortaSplit AC units online — one of those devices you can set up quickly without a permit, to bring the room temperature down to around 27 degrees. That's a highly privileged position; many others can't afford it.

The news is only coming in now — we're recording on Tuesday, 30 June — but we can already see that heat mortality has risen sharply: cities across Europe are reporting a huge surge in hospital admissions, and there are many deaths. On top of that, the severe problems in agriculture: a large part of France has effectively been through an air fryer, and the harvest of grain and similar crops is badly hit. And don't forget the animals: pollinating insects are essentially "fried" above 40 to 42 degrees — bee die-off, with all the knock-on effects for humans. It shows how changes at the small scale can have massive consequences for our lives and our economy. Anyone can share anecdotes — we somehow got through the weekend. But in sum: we're only at the start of summer. If the forecasts hold, this was the coolest summer of the rest of our lives. It will get harder — and we have to engage with these uncomfortable realities calmly, without hysteria.

David Wortmann: Health, deaths, circulatory collapse, agriculture — those are examples. Others affect public infrastructure: rail and public transport. In Leipzig the entire tram service was suspended because the sealing compound between the rails and the asphalt liquefied and clumped. We heard similar reports from Essen. In Sweden an entire freight train derailed due to heat-induced track buckling. Roads and bridges too: in the Netherlands, steel bridges had to be sprayed and cooled with water cannons from boats — otherwise the steel would have expanded so far that the (movable) bridges could no longer be operated. So this genuinely reaches into our real lives. It's not merely "it gets a bit hot and a few elderly people without AC collapse" — which would be bad enough — it affects all of us.

Why our infrastructure can't cope with the climate

Nikolas Samios: Correct. Put simply: in Europe — and not only in Europe — we operate infrastructure that was never built for this climate. A classic German example, the kind that always makes the tabloids, is the "blow-ups" in motorway asphalt: the surface temperature is far high-

er than the air temperature, and the surface bursts open. That can be lethal — suddenly you have a little ski jump on the motorway. These kinds of damage aren't just annoying because people sit in traffic; they are maximal productivity killers. If you can no longer move goods from A to B, if people can no longer work — in a double sense, because it becomes inhumanly hot on the building site, or because they can't even get there since both public transport and roads are down.

And one more layer: it gets truly dangerous when the energy infrastructure buckles on top of that. The physics of heat means power lines sag more — and at the same time the peak load is on, because everyone needs electricity, for cooling among other things. An unfavourable combination when lines then have to be switched off or transformers fail in the heat. The classic example: many conventional power plants have to be cooled; they sit on rivers, and when there's low water or the water is too warm, they can no longer draw cooling water and have to throttle back. We may have been spared that this time, but in Texas or Australia it has happened very often historically. You also see it on the power markets: prices were at peak levels in recent weeks, in places a factor of 10 to 15 above normal — because, somewhat counter-intuitively, power availability drops during these heat phases. Some call it a "heat lull," because on top of everything there's often little wind. These are issues that aren't merely personally inconvenient; they touch the functioning of a country and its economy at the core.

David Wortmann: On top of that come wildfires, which we haven't even mentioned yet — and they'll increase, not only in Germany but across the European continent, and globally in any case.

€431 million in damage — per heat day

David Wortmann: So heat has genuinely become an economic factor — in a negative sense. We did some research on the quantifiable damage. Sum it up: how much does one such heat day cost us?

Nikolas Samios: There's a recent study that puts the economic damage of a single heat day in Germany at €431 million — and that's for a 30-degree day; a 40-degree day is surely a multiple of that. The interesting part: the bulk of the damage doesn't come from everyone calling in sick — that comes on top — but 97 percent is simply lost productivity, because people can't work as productively in the heat. You know it from school: shortened lessons, days off for heat. There are also rules on how hot a workplace may get. It becomes extreme outdoors, where you can't cool or shade — sometimes into wet-bulb temperatures, where it turns life-threatening and even healthy people can collapse.

But back to that number: every one of these heat days costs us real money. And that brings us neatly to the crux: the popular argument "sorry, we can't invest in climate-change prevention and adaptation right now, we have other worries" — isn't that extremely short-sighted? Because it will cost us, as an economy, vastly more *not* to invest in resilience and adaptation.

David Wortmann: Those are per-day figures — extrapolate them and you reach several billion euros a year. And it hits precisely the sectors you actually need in order to do the adapting and to upgrade infrastructure: construction, agriculture and forestry, industry, transport. These sectors are affected on the one hand and — because much of the work is physical — can't upgrade the infrastructure fast enough on the other, precisely because the heat causes productivity losses there.

Nikolas Samios: Exactly. What always fascinates me: on topics that get hyped up politically, ideologically, as part of a culture war, it pays to take a step back and look at why the largest, smartest investors in the world are focusing on them — because they act in a very data-driven way. They can't afford a completely wrong investment decision out of party preference. Large reinsurers and banks in particular have the relevant data models, and their view is very clear-cut. We have statements from chief economists at various banks who talk about a major mis-pricing situation — the risk is, in part, not priced into the assets. That automatically prompts the regulators to step in: the ECB assumes that over 90 percent of banks are highly exposed to these climate risks, and that they are not yet properly priced. So there will be further ECB regulation. The ECB is the roof; it trickles down to the banks and then into the real economy. The pricing of these risks will therefore increase sharply. Which also means: this anecdotal figure of €431 million a day will by no means be the only number we hear over the next year or two — and the others will probably be considerably higher. So the — interestingly, capitalist — consensus is settling on the view that something is lurking beneath the surface that needs to be uncovered. That's the qualitative shift in the debate that even conservatives can't escape — and an important signal for anyone involved in capital allocation.

Germany's struggle with climate adaptation and bureaucracy

David Wortmann: That may even be the glimmer of hope: that the more conservative camp — historically cautious on climate — is now the one saying this has become a hard economic factor. Against that backdrop — and this is coming in as a news ticker right now — the statements from the Chancellor and the government spokesperson sound almost antiquated: that climate protection is being made a top priority, but that this "won't change the weather." Weather and climate are being nicely muddled there. And the government spokesperson, Stefan Kornelius, says at the same time that there is no additional major need for action, that there are good heat-protection plans and a federal climate strategy. There's quite a gap between political and economic reality.

Nikolas Samios: Absolutely. Without spending three hours on political communication: we're seeing another entry in the series "the enemy image, the culture war between the green camp and the conservative camp, must be kept alive at all costs." If you go on Twitter/X these days — and it spills over onto LinkedIn — you get the impression that the right wants air conditioners and the left wants heat pumps, and each thinks the other is foolish, without realising they're talking about the same piece of equipment. An exhaustingly polarised debate that costs us time and energy as a society. My hope is that the economic and technical consensus in the background prevails — because if you look at it, it's very clear where things are heading. Politics sometimes seems out of step, still nursing phantom pains from the election campaign. But that "noise" isn't all that relevant if you focus on the underlying trends and data, and on how capital flows work. I'm no turbo-capitalist, but I do believe capital markets are usually fairly efficient — and there you see quite quickly where the journey is going.

David Wortmann: Do you think Germany is relatively well positioned despite everything? We do have a Climate Adaptation Act, in force since July 2024, obliging federal states and municipalities to draw up binding risk-provisioning and climate-adaptation plans — that should be in place by around 2026/27. Are we on the right track?

Nikolas Samios: Internationally, Germany is not badly positioned — partly because we're geographically fortunate, frankly. If we were having this discussion in Pakistan, or in countries

with entirely different climatic and geographic conditions, it would be something else altogether. We sit in a safer zone than others. And a fair amount is already in place in regulatory terms — usually not because they are German laws, but because EU requirements are being transposed into national law.

Where Germany could add a gear — and we could have this same discussion for any kind of renewables, battery storage or e-mobility — is that we need to shake off our attachment to the past far more decisively. Look at what's happening at VW: 100,000-plus job cuts, and probably the same again among suppliers. And not because regulation was bad, but because for decades we kidded ourselves that we could keep exporting combustion cars to China — while the markets shifted dramatically. Refusing to innovate is, as a strategy, a very poor economic adviser. Take battery storage: are these things sensible? Yes. And we don't even need to call them "green" — they stabilise market prices, physically relieve the grids, ensure the power doesn't go out everywhere at once, and make us less dependent on unpleasant countries we'd otherwise source fossil fuels from. A technology that ought to be supported across the entire political spectrum. But, as with the heat pump, there's still a sticker on it saying "this comes from the other political side" — so people balk. That's unnecessary, and it slows us down. Still, I anticipate that hard reality will win out: the next farmers' protest won't be "diesel is more expensive," it'll be "we have no water and it's too hot." Then you have to act.

David Wortmann: And the logical corollary has to be that it does have something to do with the climate. To sum up: with the Climate Adaptation Act we have certain plans — what's missing are the investments. How would you explain why our infrastructure currently isn't adapted to the changing climate?

Why infrastructure adapts so slowly

Nikolas Samios: Let me start with the air conditioner I got for my mother — a topic with the potential to become the next emotional debate, because supposedly air conditioners are "banned" in Germany, as some big American influencers write. A new bone of contention. In reality: if you combine cheap solar power — you can practically buy the panels at the hardware store or the discount supermarket — with simple battery systems (so you also have the electricity three hours later) and efficient cooling units, it's no problem at all. Nobody will object — whether in the office, the hospital, the daycare, the school, or at home under the roof. But it has never really been thought through holistically. Typically German: red tape, bureaucracy — which permits do you need? It's a quick win, and we'll see a great deal of it. In the medium term Germany will have an AC penetration similar to, say, Greece, where these climatic conditions have prevailed for decades.

And you can go through every area of infrastructure like this — water, electricity, transport. Everywhere there are low-hanging fruit, where technology is definitely not the bottleneck. The technologies exist, they're scalable. In sum we need one big push for knowledge, education and de-ideologisation, and to cut bureaucracy wherever possible, so this reaches the field and scales faster.

David Wortmann: And yet we see — even where the will is there, for instance in the expansion of renewables — that the infrastructure still isn't adapted sufficiently. With your extensive infrastructure experience, could you share a few theses on why infrastructure adapts so slowly — and what the cycles look like?

Nikolas Samios: Infrastructure, by its nature, consists of large, heavy assets — a bridge, a road, rail, power grids. Cumbersome works that take a long time to plan and build; in Germany, unfortunately, it's the planning rather than the physical building that's the problem. And because they're very expensive, they then have to function for many decades and generate returns for the investment to pay off.

The trouble is that over the past decades we built a lot of infrastructure on false assumptions: the climate scenario we now have, and will probably have for the next 10, 20, 30 years, was not the design criterion for the engineers who built steel bridges 100 years ago — bridges that now jam because steel expands; or rails that warp under heat, causing points failures; or the picture you described of the tram in various German cities. There are even images of traffic lights melting, because plastics are used that aren't suited to these temperatures. This is technically solvable, but it's gigantic in scale — which is why we need smart prioritisation.

The second issue is the power grids. We've failed, over the past decades, to invest consistently in digitalisation and capacity expansion, and to build more decentralised systems. On a small farm out in the countryside you can set yourself up entirely off-grid without a problem. But in a city, as a factory or a logistics depot, you sometimes wait ten years for a grid connection and have to cobble together a workaround — with solar in the field next door and a battery as a buffer. In terms of resilience, such little energy islands aren't a bad thing — but it's a poor testament that we didn't invest for decades, even though this is plainly the absolute bottleneck for the entire electrification. Even if there were fusion power plants tomorrow, we wouldn't get around it. A third dimension would be public transport. A fourth: the health system and social infrastructure, which you can also fold into a special investment fund. An enormous toolkit — and therefore an incredible playing field for founders and investors who move onto these trends early.

How private capital is mobilised for climate resilience

David Wortmann: Infrastructure has a lot to do with permits — overburdened permitting authorities also add to the delay. You keep coming back to investment. Who invests beyond the state — under what incentives and rules? Can more private capital be raised? And what do the amortisation cycles and ROI expectations for infrastructure projects look like?

Nikolas Samios: Classic infrastructure investors are relatively conservative. They want cash-flow-generating assets, not to invest heavily in technology innovation. Take battery storage: three or four years ago it was too early, too risky for them — not bankable, not insurable. You couldn't find anyone to guarantee that the storage systems — whether from CATL, Tesla or Voltfang — would run for 20 years under full load; then you can't finance it. These are relatively conservative players — that's important to understand.

And now I'm talking about private money: every big platform — Partners Group, KKR, Aviva, Allianz — has multi-billion funds sitting there, just waiting to be deployed. But that money needs a project setup and an environment with long-term predictability. That predictability arises, first, from technologies being mature and available, so that the necessary minimum returns and the safety on the technical side are there. That's the case for many asset classes now — think of our friends at ecoworks, who do serial renovation of buildings: it's no longer rocket science; fiddly in the detail, a great feat, but with no major technology risk. The same goes for battery storage or the electrification of trucks. That can be financed at scale.

Now for the "but": it has to be a stable business case over 20 years. If the regulatory framework keeps changing, that's difficult. For these large — and international — pools of capital that we absolutely need (the transformation cannot be paid for out of the state coffers; everyone agrees on that, regardless of party), we have to offer stable framework conditions. That was a core strength of Germany and Europe for decades. We're at risk of undermining it with highly volatile regulation and subsidy regimes — some reputational damage has already been done. And that's the most important point: not to jeopardise the fundamentally important, long-term location factors through too much political activism and short-term campaign noise — the factors that allow us to mobilise the investments we need in the first place. Because whether we set up €100 billion, €500 billion or a trillion in special funds — it falls short by a factor of 10, 20, 100. We have to put private capital to work.

David Wortmann: To sum up: we don't actually have too little infrastructure, but simply the wrong infrastructure to adapt to the new reality. The task is to rebuild infrastructure, not just build anew. And with those €400-plus million a day — several billion a year — this is really no longer a cost item, but one of the largest asset classes of the next 20, 30, 40 years.

Technologies and startups for a climate-resilient future

Nikolas Samios: Exactly. The good news: this consensus has also reached high finance. The World Economic Forum talks about insurers, pension funds and similar players channelling over 100 trillion dollars into this area — for all the reasons mentioned: because it makes economic sense and prevents damage. The environment is starting to move in this direction. And, bitter as it is: climate change is probably the most durable trend you can bet on for the coming decades — which, for an investment decision, is something positive.

David Wortmann: Then let's talk, to close, about which technologies and startups we mean. Where should you look, as a founder or as an investor?

Nikolas Samios: Let me give a few examples — some perhaps surprising, because you wouldn't immediately file them under "AdaptationTech" or "resilience tech." Yesterday came the news that Enpal, together with the law firm Freshfields, produced a legal opinion arguing that the Building Energy Act, in its planned form, is probably not constitutional and violates EU law. Why does Enpal concern itself with this? Because they roll out solar and heat pumps at scale. The interesting thing: heat pumps can cool very well. We have several startups in our portfolio that started out similar to Enpal, but whose primary case is now no longer more efficient heating but more efficient cooling. The further south in Europe you go — and France is Ground Zero here, climatically almost southern Europe in summer already — the more it's about rolling out decentralised cooling.

Companies that enable tradespeople and installers to handle such processes end to end and to collect the available subsidies — in our portfolio, for example, autarc — profit precisely from that consumer demand. Another example: a holding in the UK doing something similar; and we're currently looking at an opportunity in France — companies reporting live "from the front." I mentioned ecoworks: they do this on a larger scale — retrofitting multi-family homes with a second façade so they're warmer, but also cooler, depending on the season.

The second big theme is the whole grid area, so we get more stable — and, by the way, cheaper — energy systems; the price spikes arise precisely from over- or under-supply depending on time of day and geography. Steadiness would save all of us money. That includes not just storage but also demand response: how do you better coordinate loads and generators to reduce

spikes at the source? Voltfang is one example — and there's a whole ecosystem of startups in this space.

On water, agriculture and wildfires, briefly: on wildfires we'll be seeing an enormous amount of news over the coming weeks. As a layperson you ask: why don't we have aircraft or large drones dropping water? In Brandenburg these fires often break out in forests where there used to be military training grounds and there's still unexploded ordnance in the soil — nobody is allowed in, so you have to let it burn out; hardly a concept either. One idea would be to use sensor technology to detect wildfires early — because by the time you see the plume of smoke, it's effectively too late. There's a Brandenburg startup, Dryad, whom we've interviewed for our podcast: they build cheap mesh-network sensors that you distribute across a large forest area — no Wi-Fi, powered by small solar cells — to detect very early, via a kind of gas sensor: something is smouldering here, before there's even a flame. Then you can either drive out the traditional way or, with drones, fight it autonomously while it's still a small seat of fire.

And, to tie back to insurance: today it would be unthinkable to insure an office building without fire-protection measures — fire safety is one of the thickest tomes in German building law. For forests we don't have that yet. It may soon be the case that, as a forest owner, you can only get insurance if you have an active fire-protection system — which wouldn't be far-fetched and would create a gigantic market for startups.

David Wortmann: All of that — observation and monitoring systems, but also infrastructure measures, for example to cope better with heavy rainfall — belongs to climate adaptation. We've talked a lot about heat today; the other side of the coin is heavy rain and flooding, as in the Ahr Valley a few years ago. Alongside all these adaptation technologies, it has to be said: every euro invested in technologies that halt climate change — that reduce or replace CO_2 — is still money well spent. Both have to happen: two sides of the same coin. An enormous sector, an enormous opportunity.

Why climate adaptation is the investment of the coming decades

Nikolas Samios: That's why we, as a venture-capital investor — early stage, pre-seed and seed — look at this investment universe very early. Our thesis is "upgrading the physical world," and one sub-area is precisely this infra-tech and resilience theme. We've been professional trend-readers for years and saw early that we have to become more climate-resilient, and that this AdaptationTech universe will soon enjoy — the wrong word — but see very high demand. We started early. Interestingly, a year or two ago not many players had the topic properly on their list. So we thought: let's create some awareness around it. We launched a website — HEAT.VC — as a home for the topic, with a free whitepaper, articles, startup content and podcasts; and last year we ran a conference on it. Because in the end it's essential — for founding teams as much as for investors, whether VCs or the big investors in physical assets — to engage with the topic early. And, without wanting to come across as merely alarmist: it's also economically attractive.

David Wortmann: To underline that: the whitepaper produced jointly by PT1 and DWR eco is a kind of foundational paper our teams put together to introduce a framework — feel free to download it at HEAT.VC. Nikolas, to close: we should state clearly what we're actually talking about here — that this heat is a warning shot, also aimed at our investment behaviour, and that the climate topic is really a capital-allocation topic.

Nikolas Samios: It is. And when you look at the long-term trends, it is, sadly, one of the most certain — which predestines it for both small and large investors to move in. To draw the arc, finally: in Europe right now there's a lot of discussion about defence — hugely important — and about AI, which for me is more of a cross-cutting technology that's in everything. Alongside those stands resilience as a third major pillar, at least as important and probably even larger — simply because we find the world's largest asset classes in the built substance. And, as you said, it's usually not about new construction but about upgrading. We have to upgrade existing infrastructure, existing cities, the existing agricultural base. I can hardly imagine a larger asset class, and truly struggle to think of a more attractive one, for founding teams and investors to engage with over the coming years. And — I'll say it one last time — we still have to minimise every bit of CO_2 we emit. But realistically we have to recognise that we're long past the 1.5-degree path we spoke about for decades. So we have to prepare for this more uncomfortable world — as we do geopolitically — without despairing personally.

David Wortmann: Right — and it's probably not even three topics standing side by side (defence, climate adaptation, resilience). We have many dual-use, perhaps even triple-use technologies that can be deployed across all these areas. These sectors are growing together nicely — toward a better life and a better defence, not just of our country but of our way of life. Nikolas, thank you very much for this ad-hoc format. We hope it doesn't have to happen too often — but if it does, we'll reach for the microphone again.

Nikolas Samios: David, thank you. I fear we'll be speaking again on the same subject — investments and exits.

The free HEAT whitepaper "[HEAT] – Technologies for a climate-resilient future" (PT1 × DWR eco), along with further articles and resources, is available at heat.vc.

Listen to the full episode: Spotify · Apple Podcasts

Sources & References

Reference apparatus for the figures, studies and technologies mentioned in the conversation. Weather, mortality and damage figures are preliminary (as of 30 June 2026) and drawn from ongoing reporting or the primary sources named. English names of German institutions are given for readers' convenience.

1 — Heatwave, records and climate context

1. **German temperature records** (preliminary): Saarbrücken 41.3 °C; Möckern-Drewitz / Saxony-Anhalt 41.5 °C; Neißemünde-Coschen / Brandenburg 41.7 °C. Monthly balance: new all-time records at around 252 stations. — *German Weather Service (DWD); Die Zeit.*
2. **International records**: Czech Republic 41.9 °C (Doksany); Poland 40.5 °C (Słubice, preliminary); France up to ~44 °C (Bordeaux area). — *National weather services; t-online.*
3. **Exposure**: around 193 million people in Europe above 35 °C on 27 June 2026. — *Copernicus / European reporting.*

4. **Attribution**: daytime heat of this kind roughly 10× and nighttime heat more than 100× more likely than in 2003; Europe has warmed ~2 °C since 1976 (the fastest-warming continent). — *World Weather Attribution (Imperial College London), formal study, June 2026; World Meteorological Organization (WMO).*
5. **El Niño / ENSO**: official El Niño status since June 2026; possibly a very strong event (oceanically) by winter 2026/27, with a more moderate atmospheric effect per the RONI index. — *NOAA Climate Prediction Center; IRI.*
6. **AMOC (Atlantic Meridional Overturning Circulation)**: empirically documented weakening; a collapse is a long-term tail risk (horizon of decades, scientifically contested); a weakening cools and dries north-western Europe. — *Science Advances (April 2026); Nature (Feb. 2025); RealClimate / Rahmstorf.*

2 — Health

1. **Excess mortality**: more than 1,300 heat-related deaths across Europe since 21 June; globally ~489,000 heat deaths per year (2000–2019). — *World Health Organization (WHO); WMO.*
2. **France**: around 1,000 excess deaths during the wave (figure rising). — *Santé publique France (French public-health agency).*

3 — Infrastructure

1. **Leipzig**: suspension of the entire tram service (liquefied sealing compound). — *Leipzig transit operator (LVB); Leipziger Zeitung.*
2. **Sweden**: derailment of a freight train due to heat-induced track buckling (Bollebygd area, 25 June). — *Swedish transport/accident authority; press.*
3. **Netherlands**: active water-cooling of several steel bridges (including in Groningen and Friesland) against heat-induced expansion. — *Rijkswaterstaat.*
4. **Motorways**: "blow-ups" / road-surface ruptures on numerous stretches. — *Autobahn GmbH (German federal motorway operator).*
5. **Energy**: line sag and reduced transmission capacity in heat, transformer failures, throttling of river-cooled power plants, "heat lull"; temporary power-price spikes at a multiple of the normal level. — *Transmission system operators; EDF; EPEX Spot power exchange.*

4 — Economy and capital allocation

1. **Damage per heat day**: around €431 million per 30 °C day in Germany, of which ~97% is lost productivity (presenteeism). — *Study by Prognos AG commissioned by the German Federal Ministry of Labour and Social Affairs (BMAS), 2026.*
2. **Macro perspective**: up to ~USD 131 billion (~€122 billion) in losses 2026–2030; per degree above 30 °C roughly −3% productivity and +1.2% energy costs. — *Allianz Trade / Allianz Research, 2026 (incl. Milo Bogaerts, CEO Allianz Trade DACH).*
3. **"Macroeconomic factor"**: framing of the heat as a new downside risk for the European economy. — *Carsten Brzeski, Chief Economist, ING.*
4. **Underestimated damages**: standard economic models fail to capture cascading effects and threshold points adequately. — *Study led by Jesse Abrams, 2026.*

5. **EU damage frame**: immediate extreme-weather losses ~0.26% of EU economic output in 2024; on the order of ~€43 billion (previous summer) rising to ~€126 billion (by 2029). — *Study by Sehrish Usman (University of Mannheim) with ECB economists.*
6. **Banking supervision**: climate risk described as "a permanent shock that only moves in one direction," with long-term effects on asset prices; over 90% of banks consider themselves materially exposed; introduction of a climate factor in the collateral framework from H2 2026. — *ECB Banking Supervision, Supervisory Priorities 2026–2028.*
7. **"Asset class"**: sustainable finance instruments as an asset class in their own right, mobilising trillions worldwide. — *Nadia Calviño, President of the European Investment Bank (EIB), Luxembourg International Climate Finance Days, 4 June 2026.*
8. **Capital reallocation**: a shift "from pricing climate risk to reducing it"; pension funds and insurers with over USD 100 trillion in assets under management; diversification out of concentrated equity markets into real assets/infrastructure. — *World Economic Forum, 2026.*

5 — Air conditioning and heat pumps

1. **Penetration**: EU around 20% of households, US/Japan around 90%, Germany about 6% permanently installed, Greece ~99%. — *International Energy Agency (IEA).*
2. **Technology**: a split air conditioner is an air-to-air heat pump — the same device both heats and cools. — *Technical literature; German Federal Ministry for Economic Affairs (prior guidance).*
3. **Refrigerants**: F-gas Regulation (EU 517/2014, revised by 2024/573); phase-down of high-global-warming refrigerants. — *European Union.*
4. **Heat-pump sales in Germany**: record 356,000 (2023) → ~200,000 (2024) → ~299,000 (2025, ~48% market share) → +34% in Q1 2026. — *German Heat Pump Association (BWP) / European Heat Pump Association (EHPA).*

6 — Policy and regulation

1. **Climate Adaptation Act (KAnG)**: in force since July 2024; binding climate-adaptation plans for states and municipalities (staggered through ~2026/27). — *German Federal Government.*
2. **Building Energy Act / planned reform (GEG)**: doubts about constitutional and EU-law conformity; a legal opinion mentioned in the conversation (Enpal / the law firm Freshfields) as well as assessments by, among others, the Research Service of the German Bundestag. — *Reporting; Research Service of the German Bundestag.*
3. **EU Energy Performance of Buildings Directive (EPBD, 2024)**: requirements including zero-emission buildings and renovation; national transposition pending. — *European Union.*
4. **Government spokesperson**: statements on the heat / climate strategy. — *Stefan Kornelius, spokesperson for the German Federal Government.*

7 — Technologies, companies and investors mentioned

1. **ecoworks** — serial, climate-neutral building renovation using prefabricated façade/roof elements (PT1 portfolio).

2. **autarc** — software for trades and installation firms to plan and process heat-pump and cooling projects (PT1 portfolio).
3. **Voltfang** — stationary battery storage based on second-life EV batteries (PT1 portfolio).
4. **Dryad Networks** — solar-powered mesh sensor networks for early wildfire detection via gas sensing (Brandenburg).
5. **Enpal** — consumer rollout of solar systems and heat pumps.
6. **Climate-X** — analytics for physical climate risk at the property level (PT1 portfolio).
7. **Other players mentioned**: infrastructure/capital platforms Partners Group, KKR, Aviva, Allianz; battery makers CATL, Tesla; heavy-rain reference: the 2021 Ahr Valley flood.

8 — Background

1. **HEAT whitepaper**: "[HEAT] – Technologies for a climate-resilient future," PT1 × DWR eco (2024), free at **heat.vc**.

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