Data In Sport

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PERFORMANCE SCIENCE / PHILOSOPHY OF PRACTICE

Translating data into *decisions.*

The philosophy behind Data in Sport — five values that govern how I practise, and two beliefs that govern how I think about data, models and evidence. Each is answerable to evidence, anchored in applied work, and measured by the decisions it changes.

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COLLECTION → ANALYSIS → CONVERSATIONS → ACTION

THE DATA IN SPORT APPROACH TO PERFORMANCE DATA

CONTENTS

VALUE 01

Insight over Information

“An output only matters when it changes what someone thinks, decides, or does.”

The proliferation of athlete-monitoring technology has pushed data volumes beyond the cognitive capacity of the staff expected to use them; elite clubs collect ever-richer datasets without proportional gains in their ability to act on them. The credibility of applied sport science depends on the translation step — without it the discipline risks becoming a “data factory,” productive but disconnected from its purpose. When I joined the Wolves academy I unified scattered sources into a single environment, automated the daily reporting, and designed every output around the questions staff actually asked. The shift was not in the volume of data but in the rate at which information became insight. Practitioners who had avoided data because of friction began using it as a routine input. I have come to see this as the craft: not producing analysis, but removing the friction between data and the decision.

EVIDENCE Coutts (2014, 2016) · Buchheit (2017) · Robertson, Bartlett & Gastin (2017)

VALUE 02

Context is King

"A sprint is never just a sprint."

Physical performance metrics in football cannot be meaningfully interpreted in isolation from the technical and tactical context in which they are produced. A full-back covering an enormous sprint distance may be compensating for positional or tactical errors with recovery runs — to take the GPS number as truth and the coach's eye as noise is a category error, and a fast way to lose the trust of colleagues whose decisions you are trying to inform. The aim is to treat physical data as one input among several, integrated with tactical role, opposition, score-line and match phase — the same logic that produced "expected" measures such as xG and xT. Context is also what earns trust in models: a single risk score with no explanation is ignored, whereas a contextualised output — why the risk is elevated, and what its limits are — has a far higher chance of being acted upon.

EVIDENCE Carling et al. (2014) · Bradley & Ade (2018) · Bush et al. (2015) · Lago-Peñas (2012)

VALUE 03

Pragmatism & Question-First Thinking

"An analysis that changes no decision is not an analysis."

The dominant pattern I see in elite sport is data-first thinking — acquiring a piece of monitoring technology, then asking what can be done with the data it produces. This inverts the relationship between method and purpose, treating the question as a derivative of the data rather than the data as a tool for answering the question. Decades of applied research argue the opposite: work should be designed backwards from the decisions it is meant to inform, and a practitioner should be able to state, before any analysis, who will use the output and what counts as a sufficient answer. Walking into many organisations through my consultancy, the binding constraint is almost always the fit between the solution and the question — not the sophistication available. So the first question I now ask is: what decisions are you trying to improve, and who is making them?

EVIDENCE Patton (2014) · Coutts (2017) · Snowden & Boone (2007)

VALUE 04

Evidence-Based Practice

"Hold every claim answerable to evidence — and honest about what it cannot prove."

A list of buzzwords with limited insight into beliefs produces false narratives, so I have tried to make my values answerable to evidence, to acknowledge counter-arguments, and to anchor abstract claims in concrete practice. That means engaging with the literature even where it cuts against me. The ability to abstract away from contextual detail is part of what makes some forecasters more accurate, and highly contextual human judgement is also highly inconsistent. The position I hold is therefore not that context should be added to everything, but that the decision about how much context to integrate is itself a judgement the analyst must own — and defend with evidence rather than instinct.

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VALUE 05

Developing Others & Myself

"Capability is built through deliberate exposure to discomfort."

Personal growth is the pursuit of one's potential, brought about by confronting challenge and discomfort — and practitioners who pursue it show greater performance and adaptability, which matters most in a field changing faster than almost any other. I used to be a poor presenter who avoided speaking in groups; the change came from small, deliberate decisions to do the thing I was bad at until I was less bad at it — internal talks, then educational platforms, then conferences. The same logic governs how I supervise: the two PhD students I line-manage are given real ownership of applied questions, autonomy and recognition, and the habits of question-first, evidence-based practice modelled over time. None of these values can be possessed once and left alone.

EVIDENCE Wooley & Fishbach (2022) · Deci & Ryan (2008) · Jain, Apple & Ellis (2015)

BELIEF A

Models are tools for thinking, not gospel

“A model starts the conversation; it does not end it.”

A model is a structured way of organising what we know, surfacing patterns we might miss, and exposing the logic of our predictions — it does not produce truth or replace judgement. Deployed as gospel, a single risk score makes decisions insufficiently robust to the model’s failures and a false sense of objectivity makes them harder to interrogate afterwards. This matters because injury prediction in elite sport remains, in most studies, only marginally better than chance, and match data carries a low signal-to-noise ratio; modelling is therefore less an exercise in producing predictions than in structuring uncertainty. Working in a Bayesian-influenced culture taught me to express findings as distributions — “65% available, with a 90% credible interval from 45% to 80%” — so that uncertainty is made visible rather than hidden.

EVIDENCE Bahr (2016) · Ruddy et al. (2019) · Carling et al. (2016) · Gelman et al. (2013)

BELIEF B

Complexity is embraced, not simplified away

"Meaning lives in the interactions, not the isolated metric."

Football performance is a complex adaptive system — players, team structures, opposition behaviour, culture and situational pressure interacting, none of which can be understood in isolation. A player's high-speed output is not independent of the team's tactical structure that day; a training load is not independent of recovery, sleep and prior exposure. The acute:chronic workload ratio is the cautionary tale: for years the dominant framework for load monitoring, later shown to rest partly on statistical artefacts of how the ratio is constructed. A practitioner whose practice was built entirely on the ACWR had to revise it; one whose practice rested on the broader principle — that load and injury relate in a non-linear, contextual way — had far less to revise. The choice of method is downstream of the question and the structure of the data: statistics, machine learning, or neither.

EVIDENCE Glazier (2017) · Bittencourt et al. (2016) · Impellizzeri et al. (2020)

> *"Let your data drive your conversations, let your conversations inform your decisions, and let your actions be successful."*
>
> THE DATA IN SPORT PHILOSOPHY

The values and beliefs are *not separate.*

Insight over information and models-as-tools share a root: the value of analytical work lies in the change it produces in a thought process, not the sophistication of the analysis. Context is king and embracing complexity both insist that meaning lives in the interactions between variables and the situations in which measurements are taken. Question-first thinking keeps complexity from becoming an excuse not to act, and evidence-based practice keeps the whole honest. Together they produce a single kind of practice — data-driven, but context-rich — and a philosophy that is a structured set of values to work from, rather than a fixed set of conclusions to defend.