



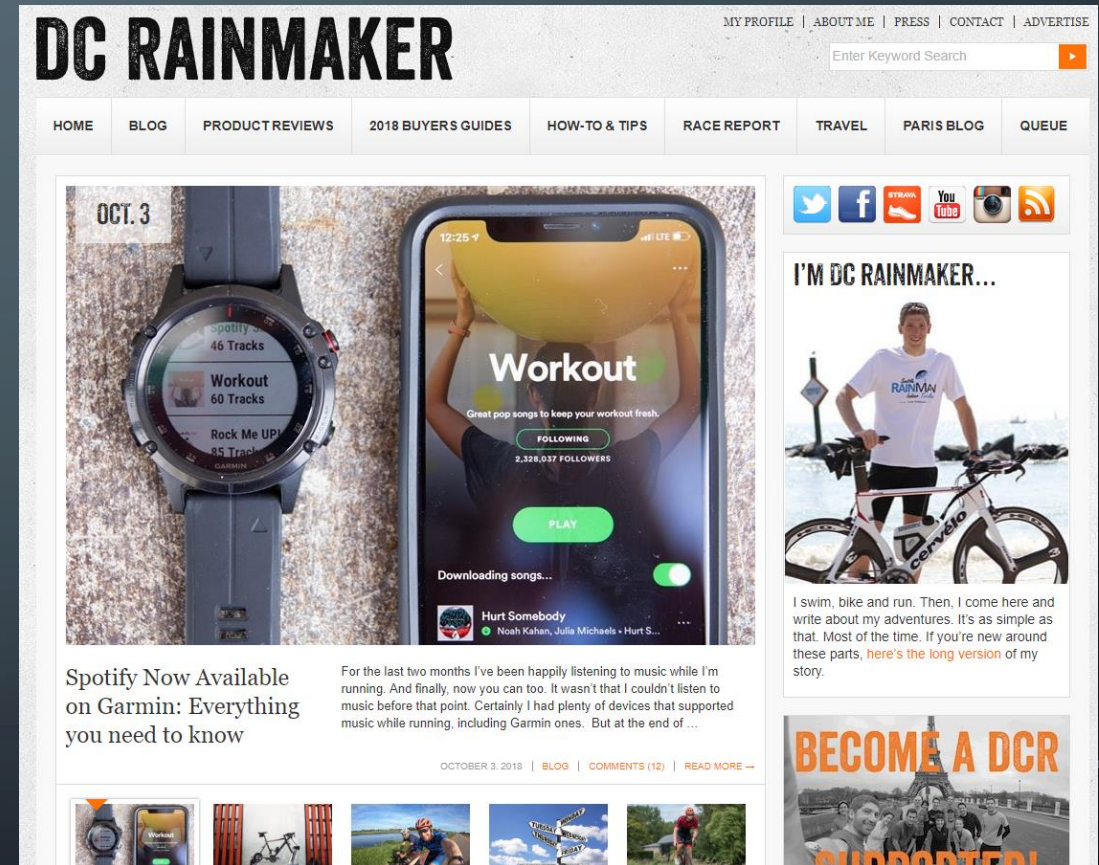
DC RAINMAKER

THE YEAR IN REVIEW...2018 EDITION:

THE PAST, PRESENT & FUTURE OF DEVICES AND
APPS IN A WEARABLES WORLD

A BIT ABOUT THE SITE

- Started in Sept 2007 as a personal blog
- All about in-depth technology reviews...but also first looks and previews
- Reviews are the primary initial driver of traffic
- Over 4 Million page views/month, More than 3 Million uniques/month
- ~80K on Facebook, ~50K on Twitter, ~90K on YouTube
- Revenue based primarily on affiliate links
- No advertising from product segment I review



A BIT ABOUT THE READERS

- Biggest misconception: Not just endurance fitness geeks
- Fitness is primary driver: From starting a 5K to Olympians
- Editors of virtually all major sports and technology sites/magazines
- Staff, talent, and editors at many mainstream press papers/channels/shows
- Financial analyst community: Investors
- The people in this room: The sports tech industry
- Retailers, and distributors: The biggest and the smallest



WHAT IS SPORTS TECH?

- Anything with a chipset inside that's used in sports/fitness
- My main areas of focus:
 - Wearables (of all sorts)
 - Cycling devices
 - Swimming devices
 - Action Cameras
 - Drones
- Wrist based devices
 - Activity Tracker Bands
 - Watches with a watch face
 - Small motion/HR sensors
- Upper arm devices
 - Largely heart rate sensors
 - Also muscle oxygen devices
- Chest devices
 - Heart Rate sensors (clothing and separate)
 - Motion capture sensors
- Lower body devices
 - Muscle Oxygen
 - Motion capture (running efficiency)

JUST A NORMAL BIKE RIDE

- 3 Power Meters
- 3 GPS Bike Computers
- 3 HR sensors/straps
- 2 GPS Watches
- 2 Tire Pressure sensors
- Bike Lights
- Connected Helmet
- Electronic Gear Shifting
- Speed Sensor
- Action Camera
- Drone



IN MEMORIAM FOR THOSE WE LOST

- 2018 To Date:

- Mio Wearables: Innovate or die
- TomTom Wearables: New hardware matters
- LVL: I think it's dead now
- Oakley Pace: Intel casualty
- New Balance Wearables: Intel casualty
- More running efficiency companies than I can count

- 2018 On Life Support:

- Mio Cyclo: Still holding on.
- Under Armour Wearables: Maybe buy some more companies?

- 2017 Lost Companies:

- Recon Jet: Welcome to Intel!
- Intel Wearables Division (the whole thing)
- BSX Insight: Got distracted
- Jawbone wearables: Profitability is hard
- CompuTrainer: No innovation
- Brim Brothers: Power meters is hard
- Adidas: Wearables are hard

THE IMPORTANCE OF BEING THERE



SPORTS TECH 2018 TRENDS – PART 1

- Music becoming essential in wearables
- Contactless payments becoming normalized in wearables
- Wearables becoming medical devices
- Nobody cares about swimming devices (still)
- Bike GPS Mapping becoming popular
- Aero devices becoming talked about



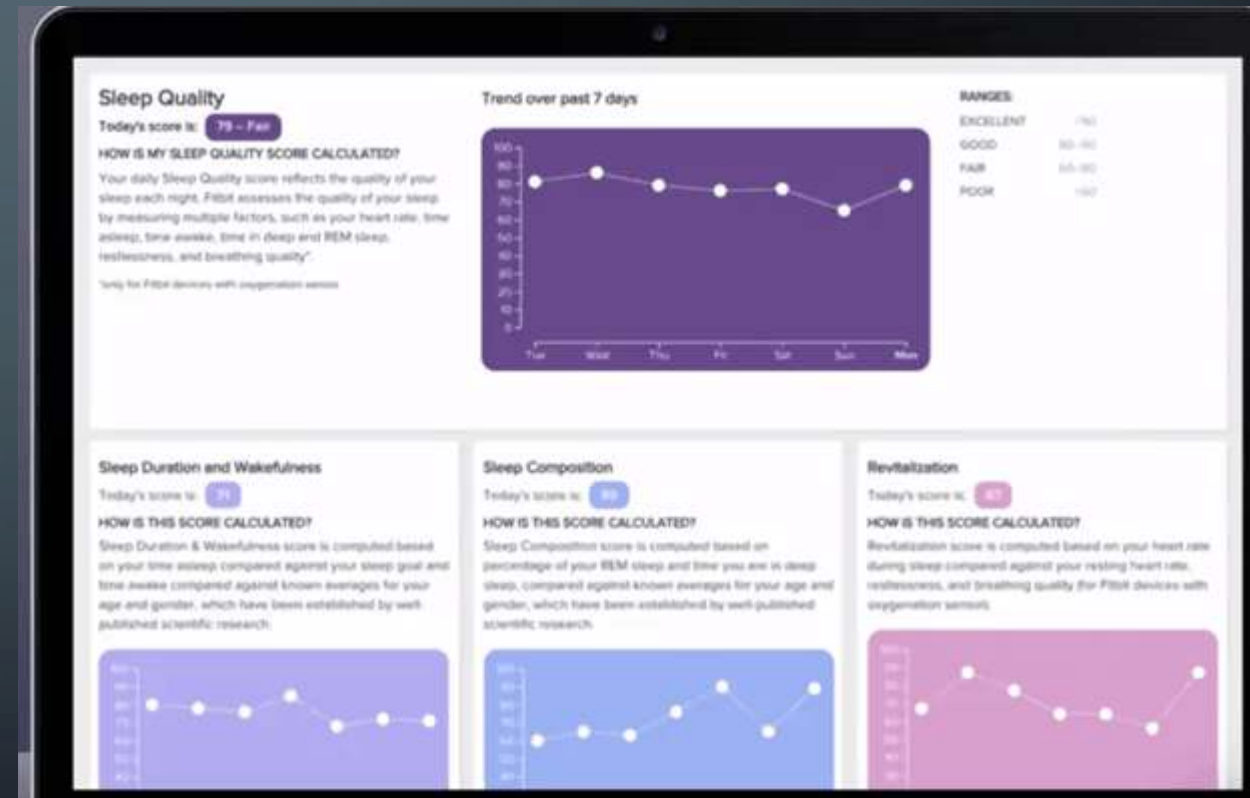
SPORTS TECH 2018 TRENDS – PART 2

- Trainer apps becoming training apps
- Trainers becoming silent
- Running power both finding its way and getting lost
- Running efficiency metric companies fell off the map
- Cool advanced in GPS battery life – but at the expense of GPS Accuracy?
- Renewed focus on heart rate accuracy



MOVING BEYOND DATA CAPTURE

- Last year these were common:
 - Stress metrics
 - Sleep quality
 - Fitness age metrics
 - Recovery metrics
 - Training Load metrics
 - Training Effect
 - VO2Max
- Now it's about leveraging that data for trending (finally!)



WHICH STANDARDS ACTUALLY STANDARDIZED?

- Most sports tech startup products will fail with adopting standards
- Almost there for cycling dynamics – plenty of interest from manufacturers (unclear on consumers)
- Single-sided power continues to be tricky from an implementation standpoint (why is this breaking?)
- While ANT+ FE-C is common-place, Bluetooth FTMS still challenging
- Added Running Dynamics: No 3rd party uses it

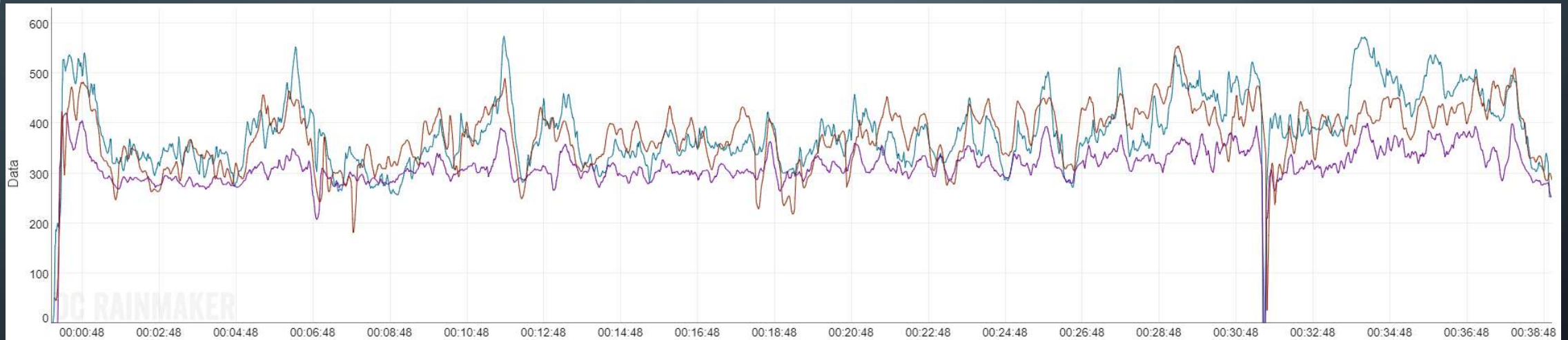


RUNNING POWER: EXPANDING?

- New devices/sensors capturing it:
 - Stryd Running Power
 - Garmin Running Power
 - RunScribe Running Power
 - Polar Running Power
- Connect IQ downloads give some insight into usage, but still likely not even 1% of runners
- Some apps support it, but not every well
- Lack of standardization is a key driver to lack of adoption
 - Developer FIT fields have actually exaggerated this
 - No native ability to train by running power zones
 - No native ability to do longer term trends/charting
 - You don't get PR-related metrics.



RUNNING POWER: FUNDAMENTAL DISAGREEMENT



- Every company says they've 'validated it'
- Until there's vague agreement, there will be little trust amongst coaches
- Until there's trust among coaches, there will be little push by coaches to use by athletes

THE PAST YEAR: CYCLING DEVICES

- Low-end battles
 - Edge 130
 - Lezyne Mega-C/XL
 - Stages L10
 - Polar M460
- The larger mapping wars (slightly higher end)
 - Sigma ROX 12
 - Hammerhead Karoo
 - Stages L50
- Companies are also realizing mapping/nav is really hard
- Power meter advances cooling off
- Continued expansion of smart lighting products



THE PAST YEAR: AERO GAINS

- Everyone's making aero devices
 - *Notio/Argon 18*
 - *PowerPod/VeloComp*
 - *AeroLab*
 - *Swiss Side*
 - *AeroTune*
 - *Red Is Faster*
 - *Garmin/Alphamantis*
 - *Velosense*



TURBULENT AIR: PRODUCTIZATION

- The biggest challenges for aero won't be technical
- A cohesive platform is critical to success of any aero product
- Mobile-first strategy
 - And even that probably isn't going to work
- Teaching people *how* to aero test will be far more important than the underlying data
- Making sure data is standardized from the start: Device >> Head unit >> Apps

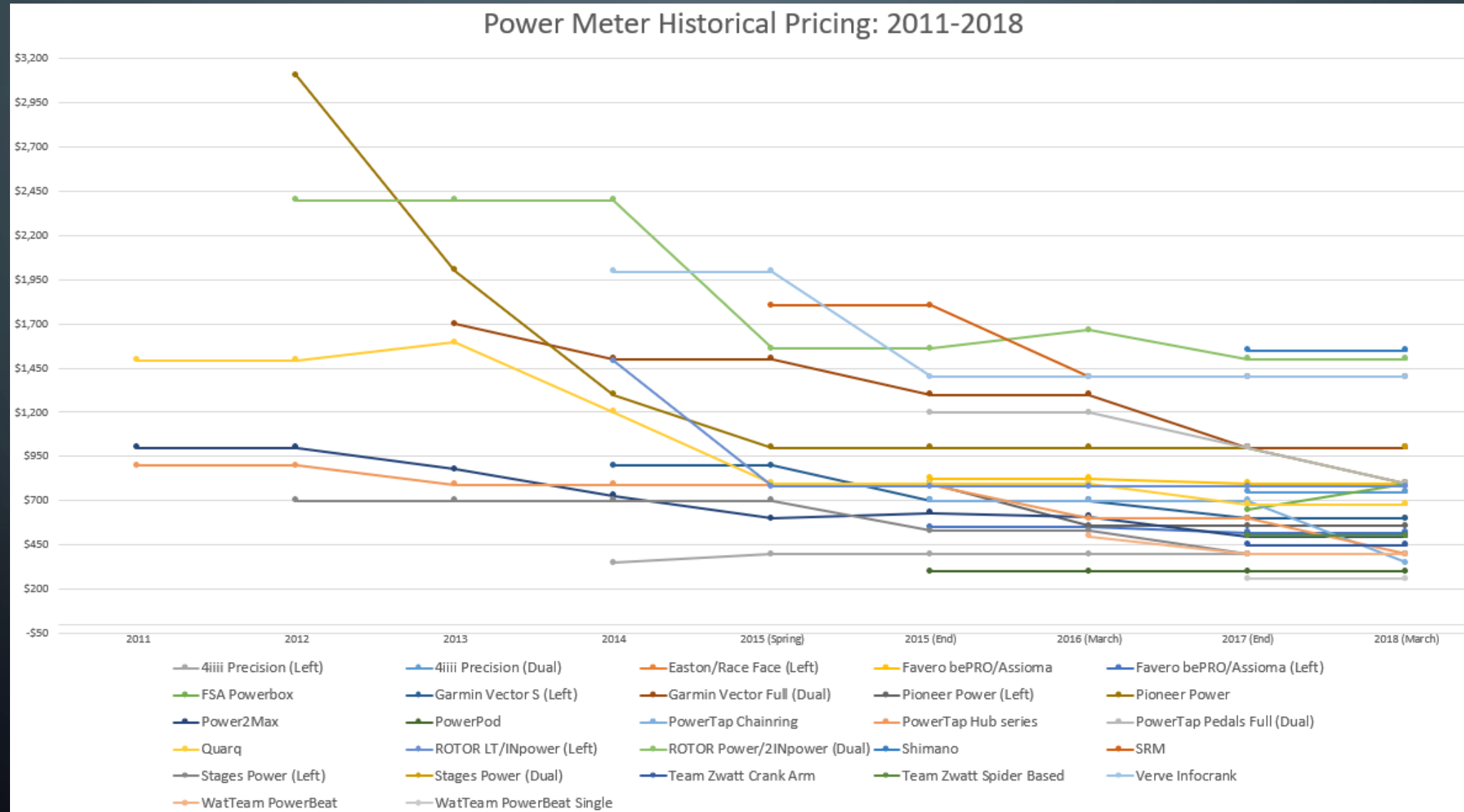


THE PAST YEAR: POWER METERS

- No major new power meters this year except SRM EXAKT
 - Minor revs or rebrands don't exactly count
- No meaningful price drops
 - Or at least, not market driving (see WatTeam)
- Seeing companies like Favero and 4iiii becoming leaders in the accuracy/white papers/features space
- Some crowd-funded efforts, but don't see them as viable this year (IQ2)
 - Getting 95% of the way there is easy
 - Shipping non-accurate products doesn't count



POWER METERS STABILIZATION



THE PAST YEAR: TRAINERS

- Tons of new options this year, reestablishment of the new baseline
- Sub-\$600 range
 - Wheel on (for now)
 - Accuracy at +/- 5% (for now)
 - Everyone is mostly the same
- Sub-\$900 range
 - Accuracy at +/- 2.5%
 - Quiet/Silent
 - Direct drive (no cassette included though)
- \$1,000+
 - A dangerous place to be in right now
 - Grades of 20%+
 - Accuracy at under +/- 1%
 - 'Something special'



THE PAST YEAR: INDOOR TRAINER BIKES

- Plenty of options over last year:
 - WattBike Atom
 - Tacx Neo Smart Bike
 - Bkool Smart Bike
 - Elite Fouripista
- Baselines for successful bike:
 - Click for shift
 - Small display for gears
 - USB ports for charging
 - Adjustability



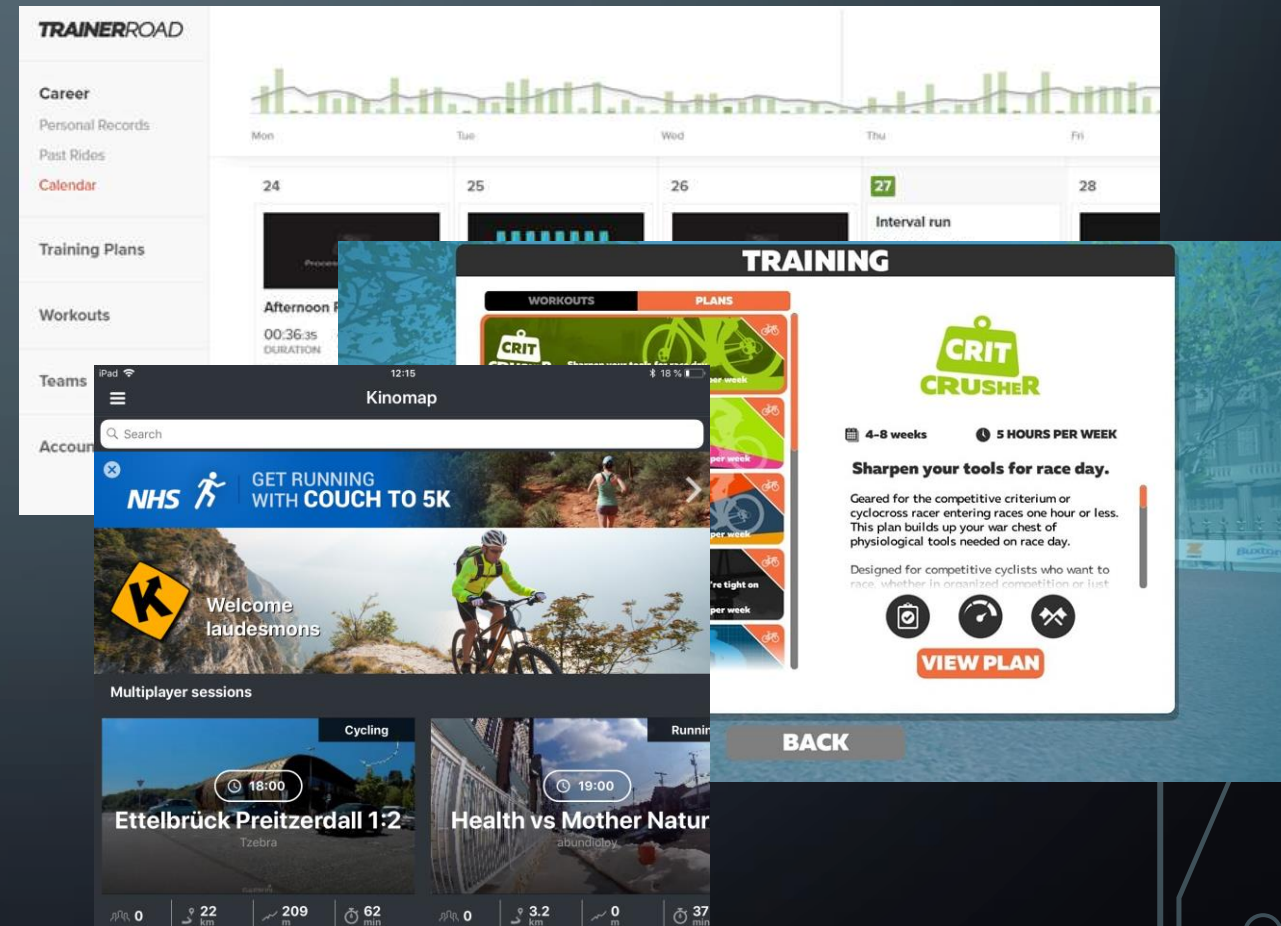
THE PAST YEAR: TRAINER ACCESSORIES

- People want to move:
 - Wahoo CLIMB
 - Kinetic Rock & Roll Series Updates
 - Kinetic R1
 - CycleOps 'Thing'
 - Tacx Neo Series
- Motion is moving from hobbyist to 1%'er category



THE PAST YEAR: TRAINERS APPS

- We're not just controlling the trainer anymore
- Shift to holistic training programs
 - TrainerRoad
 - The SufferFest
 - Kinomap
 - Zwift
- Also, becoming more like training log platforms
- Competition is heating up, but also thinning the crowds



THE PAST YEAR: ACTION CAMS

- 360 action cams sorta fizzled
 - Still used in edge cases, potential for Rylo like scenarios
 - Workflow still just too messy/hard/time consuming
- GoPro with Hero 7 figured out what people really want
- Drones almost viable for sport tracking
 - Skydio R1
 - DJI Mavic 2
 - Not perfect yet: Flight time vs lock performance



THE CHALLENGES OF BAD STUDIES – PART 1

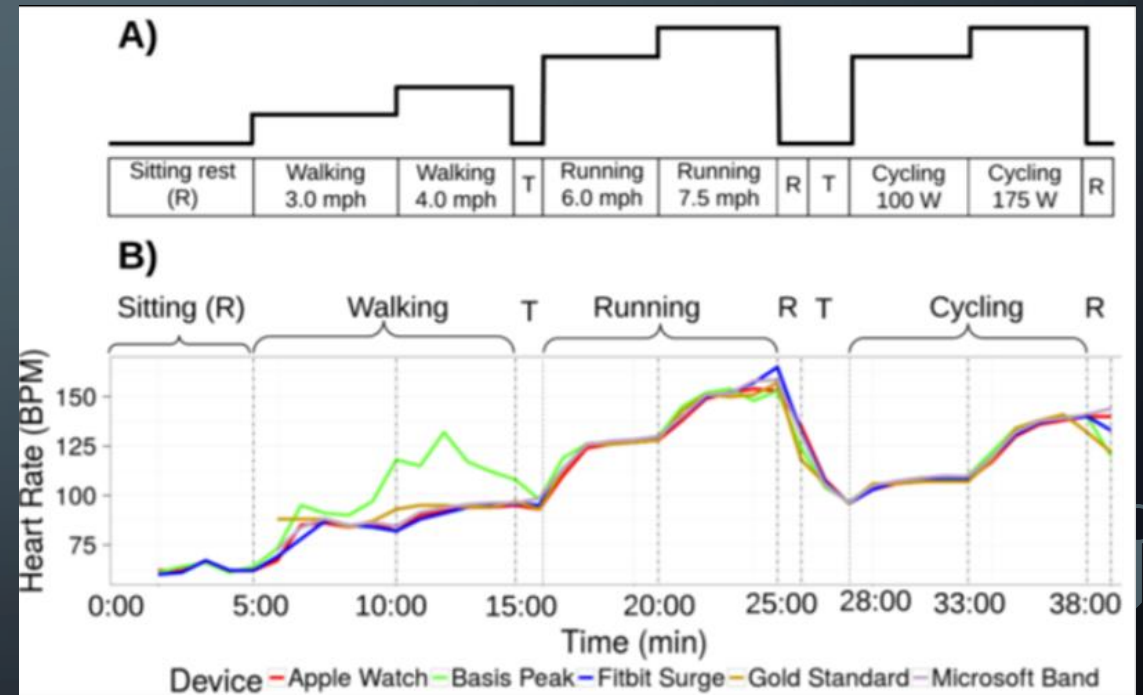
- Major studies get mainstream media attention – scares people away
- A prestigious institution can still screw up a basic study
- Placed watches next to each other
 - Impacts steps (which impacts distance)
 - Impacts heart rate (which impacts calories, stress, and many other metrics)



(Photo Credit: Paul Sakuma/Stanford)

THE CHALLENGES OF BAD STUDIES – PART 2

- Use proper data methods to get data
- When looking at HR/Step/Etc data, all data must be used, not a portion of it
 - “...consequently, in the 5 minute protocol for each activity, we used the energy expenditure and heart rate for the final minute of the protocol (to ensure that a “steady state” rather than transient measurement was obtained).”
- Use the end user data, not ‘behind the scenes’ methods
 - PulseOn data libraries skipped the FirstBeat processed calorie data
- Going to be huge challenge for industry as they get into medial realm
- Doctors are not usually tech geeks





MOVING TO THE FUTURE: WHAT'S NEXT?

MUSIC SERVICES ARE KEY TO PEOPLES HEARTS

- Plenty of providers:
 - Spotify
 - Apple Music
 - Google Music
 - Pandora
 - iHeartRadio
 - Deezer
 - Cats & Dogs
- Most people are intensely loyal to a single provider
- Most people are also intensely loyal to a single watch brand



MUSIC SERVICES ARE KEY TO PEOPLES HEARTS



Pascal

October 3, 2018 at 6:03 pm (Edit)

Is Apple music also supported?



Basile

October 3, 2018 at 6:26 pm (Edit)

Cool.

Do you have anything to share on **Google play music integration plans**? Would **definitely be the trigger** to finally update my dying fenix 2 :)

[Reply](#)

#17



Alex C 18 hours ago [0 subscribers](#)

This is great news. Would love to see support for YT Music too



2



REPLY



Petr Stránský @PetStransky · 19h

Replying to [@dcrainmakerblog](#)

And what about Google Music? Will also be support



1



[Like](#) [Reply](#) [Message](#) [Share](#)



DignifiedWaffle 14 hours ago [0 subscribers](#)

Now that Spotify is sorted I guess its time to start nagging about Google Play Music.



1



REPLY



Christof Damian @cdamian · 8h

Replying to [@dcrainmakerblog](#)

Hey [@GooglePlayMusic](#), how about this? I really don't want to switch to Spotify.



Nick Radov Pandora why don't you have your service working Garmin devices yet?

[Like](#) [Reply](#) [Message](#) · 15h



[eagerprocrastination](#) 1 point · 3 hours ago



Doesn't have Spotify or Google music offline, which are the top two music services.

My point was that spending \$800+ for offline music isn't necessary.

[Reply](#) [Share](#) [Report](#) [Save](#) [Give gold](#)

MUSIC WEARABLES GOING FORWARD

- Price-points for music will continue to decrease
 - Fitbit Versa at \$199
- Who will be first mainstream band with music?
- Which non-Google/Apple watch will be first to have those platforms on them?
- Do non-music enabled high-end wearables stand a chance?
- Is music above a certain price-point considered dial-tone?



WEARABLES AS MEDICAL DEVICES

- June 2018: Garmin Fenix 5X Plus with Pulse Ox*
- August 2018: Fitbit Charge 3 with SpO2**
- August 2018: Garmin Vivosmart 4 with SpO2***
- Sept 2018: Apple Watch Series 4 with EKG****
- **** So Many Asterisks



WEARABLES AS MEDICAL DEVICES

- Medical device status will likely be oft misconstrued for both marketing and selling at retail
- It'll become the war of media/PR 'this saved my life' pieces
- The quality bar for medical certification is actually lower than people realize in certain categories



GOING FORWARD: INDOOR TRAINING

- How you 'feel' matters
- Every trainer company person should ride Peloton at least once – ideally in-person
- But don't mix up the Peloton market with the indoor trainer market
 - Akin to mixing up motorcycle market with moped market
- Increased engagement to minimize impact of solo garage workouts
- User interface matters more than ever before



GOING FORWARD: CYCLING

- The majority of cycling tech innovation in 2019 will be in indoor training
 - Pushing boundaries of trainers
 - Expanding connected accessories
- I see limited power meter innovation in 2019
- There's still room for advancement in connected safety products though
- And of course, lots of aero, so much aero



GOING FORWARD: STANDARDS

- I'm excited about seeing standardized pickup of advanced pedaling metrics (cycling dynamics/etc)
- Looking forward to aero standardizing first, then productizing (unlike running power)
- Will there be standards around SpO2 data capture/recording?
- Will we see methods to mark data as from a certified medical device or not?
 - All data today is treated equally



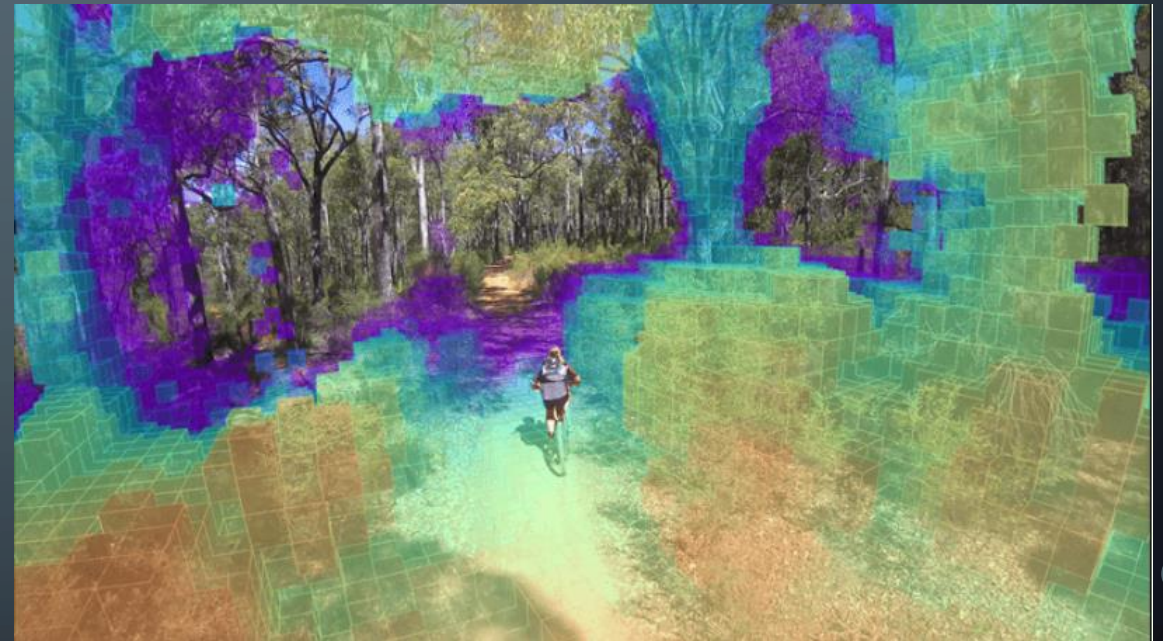
GOING FORWARD: TRAINING PLATFORMS

- People want platforms to become smarter about dealing with day to day realities
- People want coach-level details from \$15/month plans
- Maybe algorithms aren't the solution for everything today
- Why can't training platforms leverage real human coaches for minor schedule tweaks?



YOUR BIGGEST OPPORTUNITIES

- Make users say 'Holy Crap'
 - Sometimes, the wrong target market will think your device is stupid
 - See: Quarq TyreWiz
- Focus on engaging users where they are
 - Happy users buy products, upset ones tank your products
- Remember you're measured against tech company standards
- Oh, as always...just make cool shit.

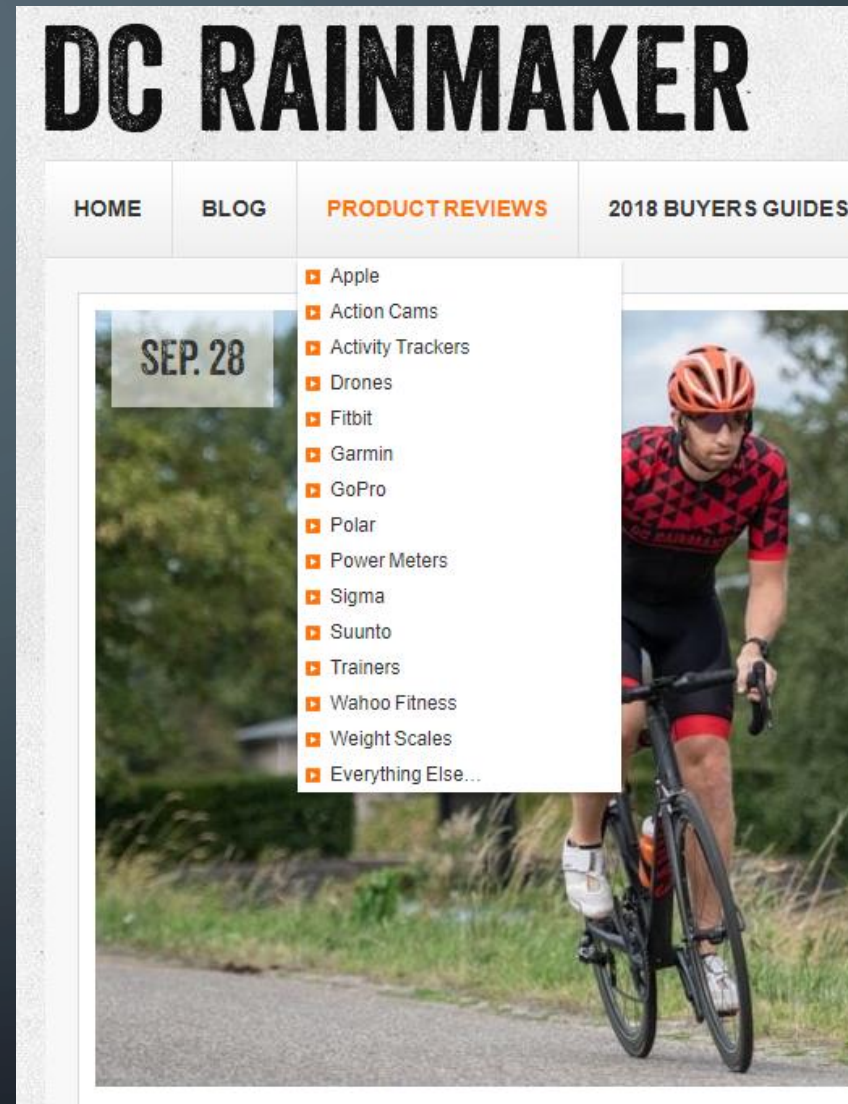


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HOW I DO REVIEWS

TYPES OF POSTS

- 'First Look' posts & Initial Hands-On posts
 - Typically trade-show driven posts (not reviews)
 - Last-minute posts, 1-3 days pre-launch (not reviews)
 - Designed to explain product, usually based on pre-release hardware/software
- In-Depth Reviews
 - Full in-depth review with final product/software



WAYS TO ENGAGE WITH ME

- **Method 1:** NDA discussions/product access, far in advance of product release, private beta feedback.
- **Method 2:** Product launch timed review. Pre-availability product usually under NDA until public announcement.
- **Method 3:** Post-release review (already in market product). Usually less time sensitive.



The background is a dark blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines connecting to small circles.

THANKS!
(I'M HERE TILL FRIDAY MORNING)

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