

The background of the slide is a large, blue-tinted image of a cycling race. It shows a dense pack of cyclists from various teams, including BMC, IAM, KATUSHA, LOTTO SOSSA, and others. The cyclists are seen from behind, riding on a road. The image is semi-transparent, allowing the text to be overlaid clearly.

Fight against technological fraud

UCI Press Conference – 21 March 2018

The background of the slide is a photograph of several cyclists on a track, overlaid with a semi-transparent red filter. The cyclists are in a crouched starting position. Visible details include the number '37' on the front of a cyclist's jersey, the 'PR2' logo on a bicycle frame, and the 'Mechanix' brand name on a bicycle tire. The wheels and spokes of the bicycles are prominent in the foreground.

David Lappartient

UCI President



KEY AREA 1 | VISION

STRENGTHENING THE AUTHORITY
OF THE UCI WITH A PRESIDENT
ENSURING A REAL AND EFFECTIVE
LEADERSHIP

KEY AREA 2 | SOLIDARITY

PLACING THE UCI AT THE SERVICE
OF NATIONAL FEDERATIONS

KEY AREA 3 | ATTRACTIVENESS

MAKING CYCLING
THE SPORT OF THE 21ST CENTURY

KEY AREA 4 | LEGACY

DEVELOPING AN AMBITIOUS VISION
FOR PROFESSIONAL CYCLING

KEY AREA 5 | CREDIBILITY

ENSURING CREDIBILITY
OF SPORTING RESULTS AND
PROTECTING ATHLETES

KEY AREA 5 | CREDIBILITY

**ENSURING CREDIBILITY
OF SPORTING RESULTS AND
PROTECTING ATHLETES**

TAKING A STRONGER STAND IN THE FIGHT AGAINST TECHNOLOGICAL FRAUD

★ PUT IN PLACE A PRACTICAL AND CREDIBLE ACTION PLAN AGAINST TECHNOLOGICAL FRAUD

The first case of technological fraud detected during the cyclo-cross World Championships surprised many and so was a wake-up call. Fully aware of the potential consequences for the future of our sport, during its 2016 Congress, the European Cycling Union fruitlessly submitted to the UCI a sound proposition to help support the fight against technological fraud. It is vital that these propositions be applied in order to strengthen measures currently in place.

- › REINFORCE CONTROL MEASURES BY USING CROSS-CUTTING TECHNICAL METHODS
- › WHERE NECESSARY, APPLY SANCTION TO ATHLETES, THEIR ENTOURAGE AND EVEN TEAMS DURING VIOLATIONS
- › ENCOURAGE COUNTRY MEMBERS TO PUT IN PLACE SPECIFIC LEGAL SANCTIONS
- › ANALYSE PERFORMANCES IN ORDER TO TARGET CONTROL MEASUREMENTS

TAKING A STRONGER STAND IN THE FIGHT AGAINST TECHNOLOGICAL FRAUD

★ ENSURE THAT TECHNOLOGICAL FRAUD' « VERIFICATION TOOLS » ARE THOROUGHLY VALIDATED BY CERTIFIED AND INDEPENDENT LABORATORIES

The advancement in sports technology and miniaturization of devices require careful watch by all parties. A substantial amount of research for innovative solutions is being conducted and should remain a priority as they will benefit our fight against fraud. In addition, controls carried out by the International Cycling Union must be thorough and be completed using approved and certified equipment and materials of independent laboratories.

- › USE A RANGE OF EQUIPMENT IN ORDER TO UNCOVER FRAUDS (TABLETS, X-RAYS, THERMAL CAMERAS, ETC.)
- › ENSURE THAT EQUIPMENT ARE APPROVED BY RENOWNED SCIENTIFIC INDEPENDENT LABORATORIES
- › DISASSEMBLE BICYCLES TO ALLOW MORE DETAILED INSPECTIONS

The background of the slide is a black and white photograph of a BMX rider in mid-air, performing a jump on a track. The rider is wearing a helmet and a jersey with the number '38'. The track has a ramp and a landing area. The overall image is dark and has a grainy, high-contrast aesthetic.

Bob Stapleton

UCI Management Committee member and President of the Equipment and Fight against technological fraud Commission

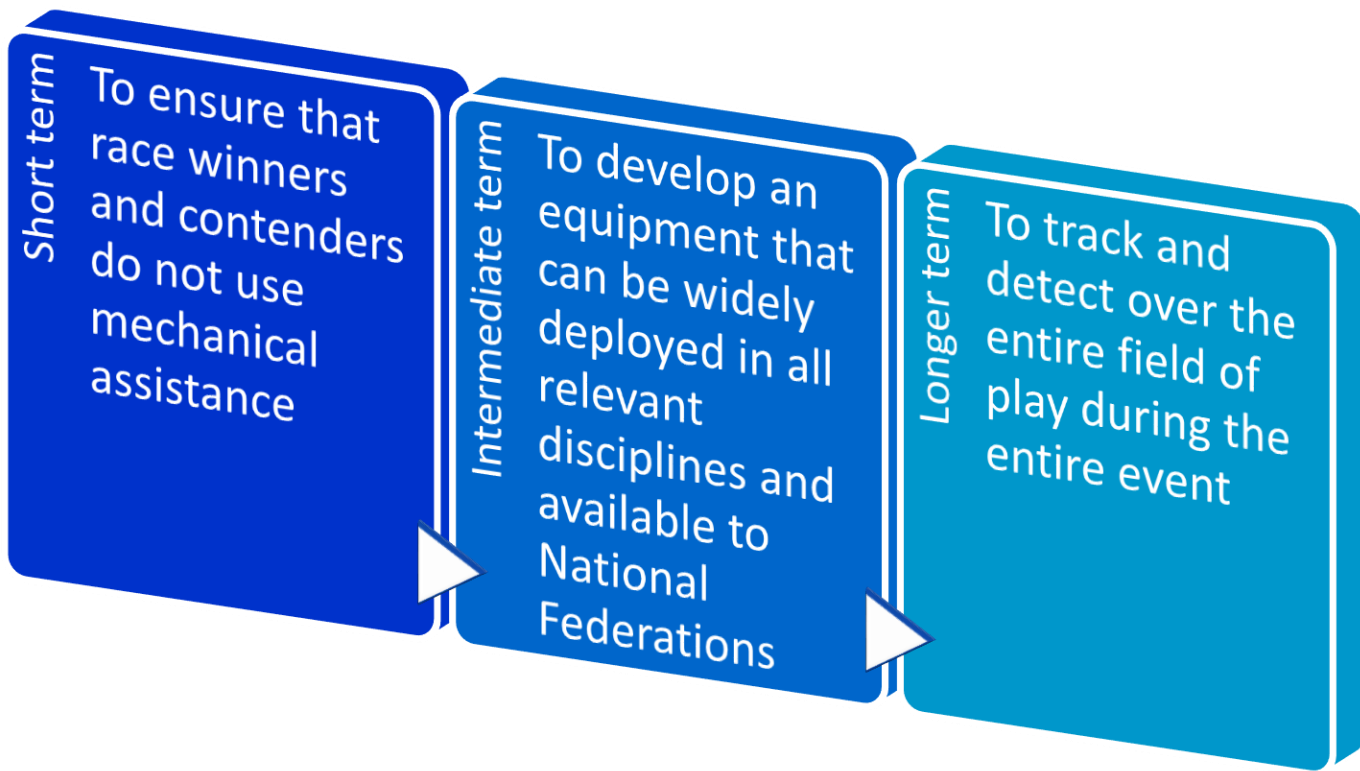
12.1.013 bis Technological fraud

The rider concerned shall be sanctioned as follows: disqualification, suspension of a minimum of six months and a fine of between CHF 20'000 and CHF 200'000.

Unless circumstances of exceptional nature require otherwise, the rider's team or other entity the rider represents shall be sanctioned as follows: disqualification, suspension of a minimum of six months and/or a fine of between CHF 100'000 and CHF 1'000'000.

In addition to the above, any action or omission by a person or entity subject to the UCI Regulations enabling, encouraging, facilitating, covering up or otherwise intentionally assisting in a technological fraud shall be sanctioned by a suspension of a minimum of six months and a fine of between CHF 5'000 and CHF 200'000.

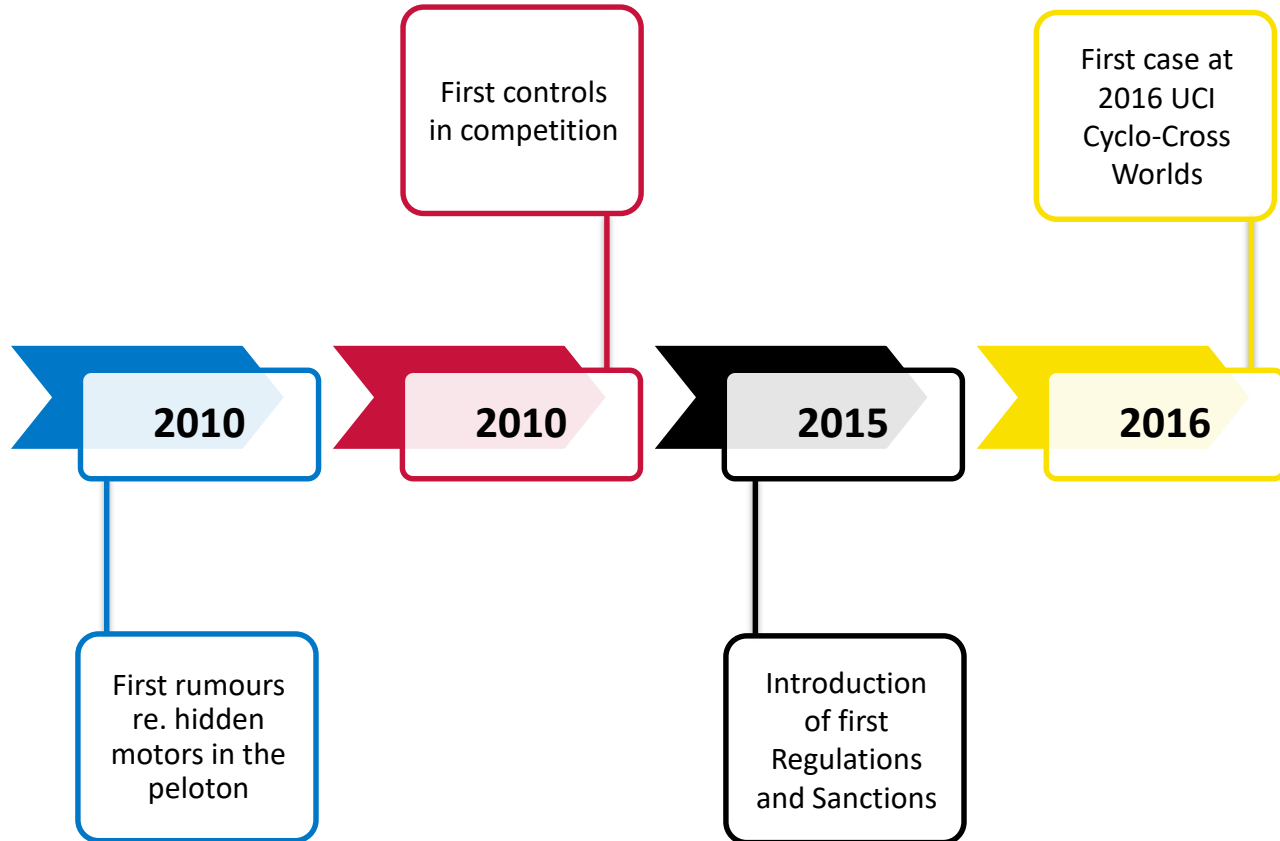
Objectives



Jean-Christophe Péraud

Manager Equipment and Fight against technological fraud

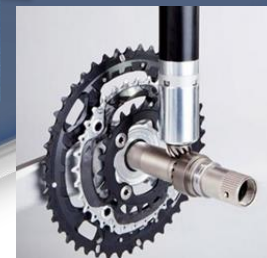
Timeline



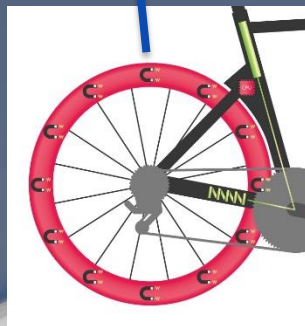
Definition



Hub wheel motor



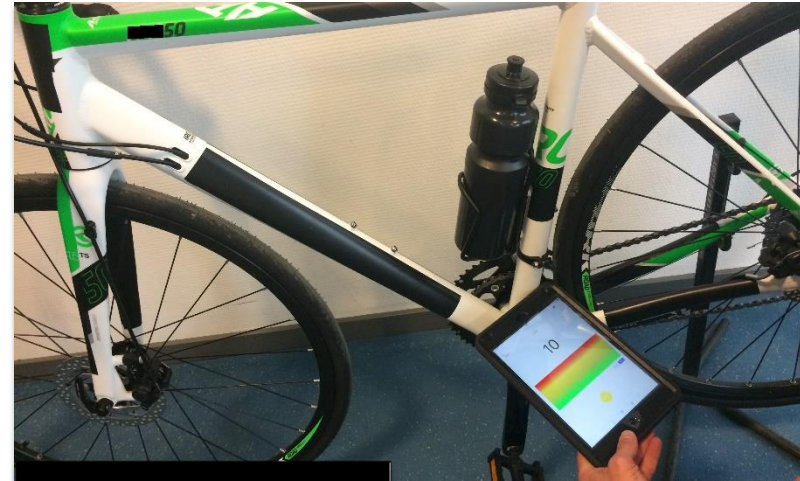
Crank motor



Electromagnetic wheel

Magnetometric tablets

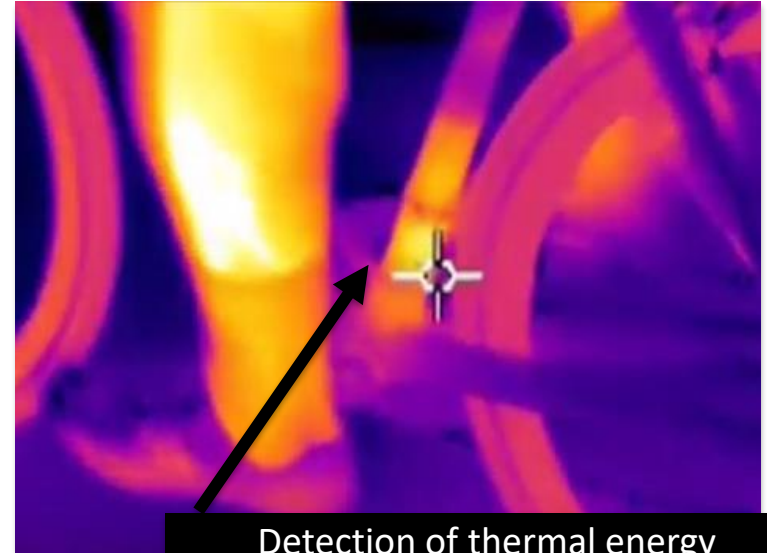
- Handheld device for ease of deployment
- Short test duration allows large volume of checks per day
- Additional training given to all UCI technical commissaires
- Since this year, quality controls prevail over a quantitative approach



Bike being scanned

Thermal imaging cameras

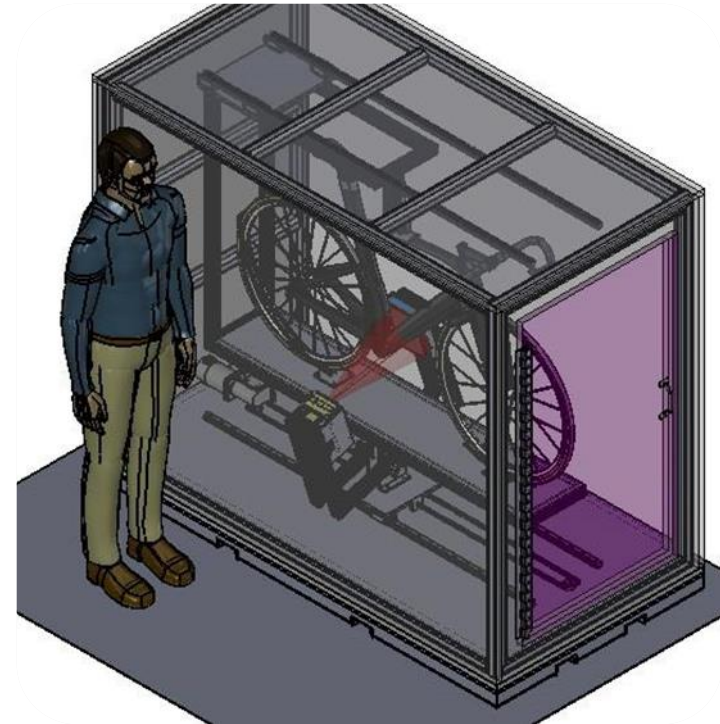
- Only current method that allows bike checks during races
- Can be deployed from fixed position or mobile within the race caravan
- Helps target elements which seem suspicious



Detection of thermal energy dissipated by the motor

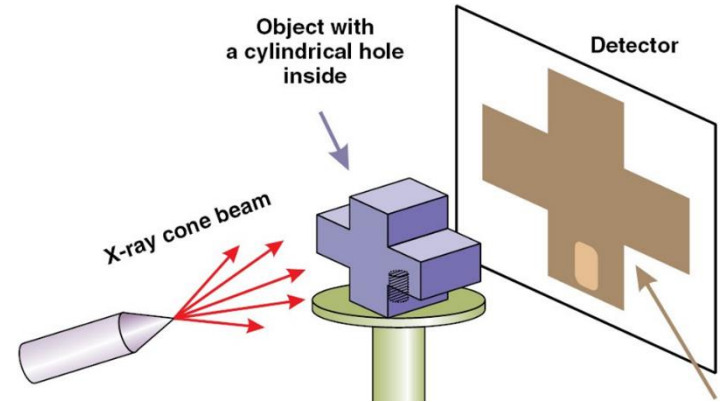
X-ray Unit

- Allows to see any equipment inside the bike
- Allows full checks on best riders' equipment and clear all doubts about their performance
- Avoids dismantling bikes



Principles

- An electrically operated x-ray tube creates a beam of radiation which is directed at the object being inspected
- An image of the object is projected onto a digital detector
- The resulting digital image is processed and displayed on a screen in the same way that a smart phone camera works
- Method used for medical and security purposes

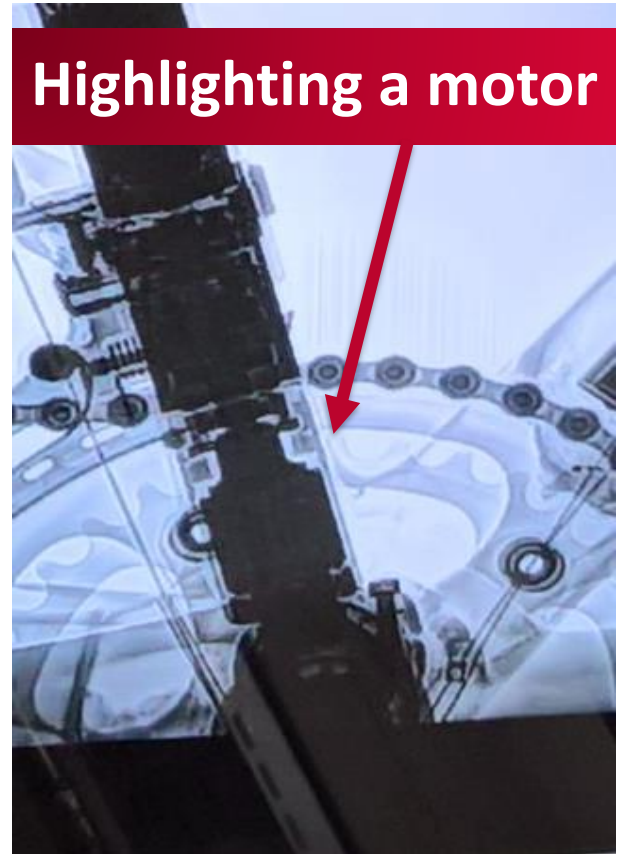


Radiography pictures

Normal radiography



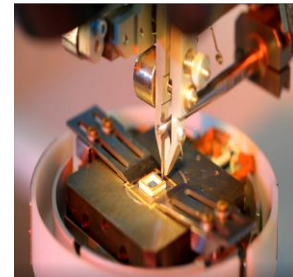
Highlighting a motor



Our partner

Founded in 1987, VJ Technologies provides digital x-ray based solutions and inspection services to technology driven companies - globally.

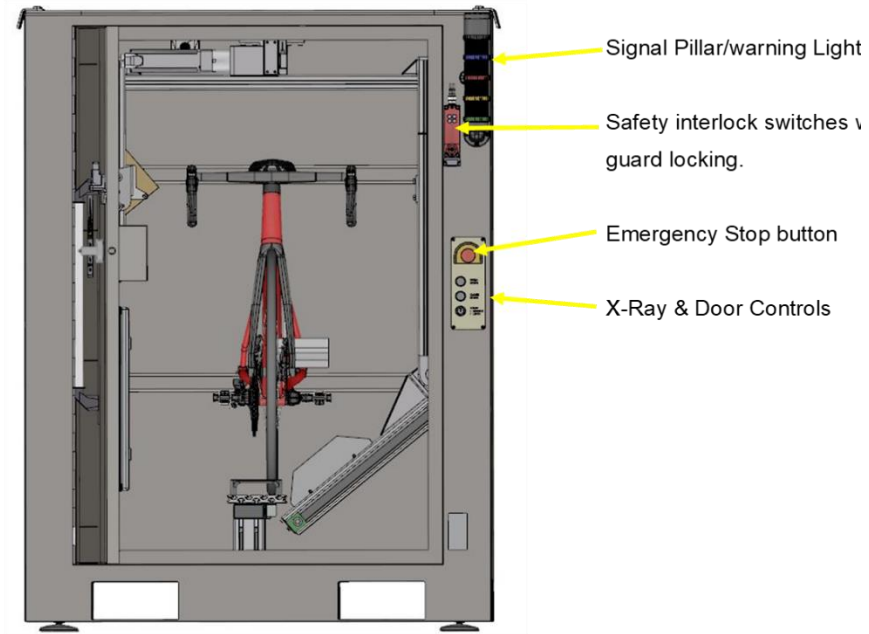
- Aerospace
- Automotive
- Electronics
- Power Utilities
- Defense
- Nuclear



A fully safe system

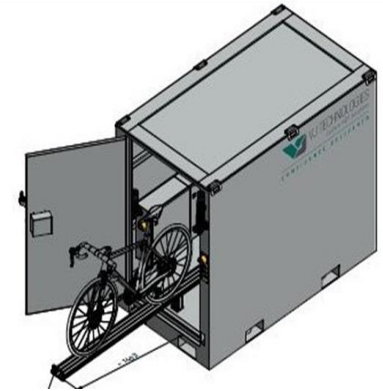
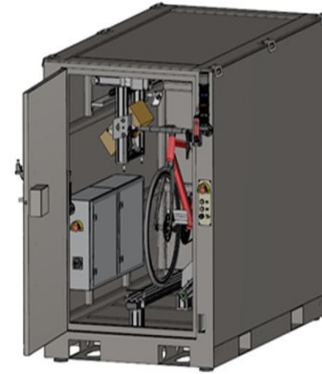
- The cabinet is made of a protective lead shield in order to ensure safety
- Electronic safety systems ensure the perfect use of the cabinet
- Working with relevant public authorities to secure certification for use in key cycling territories

Safety System



Bicycle handling mechanism

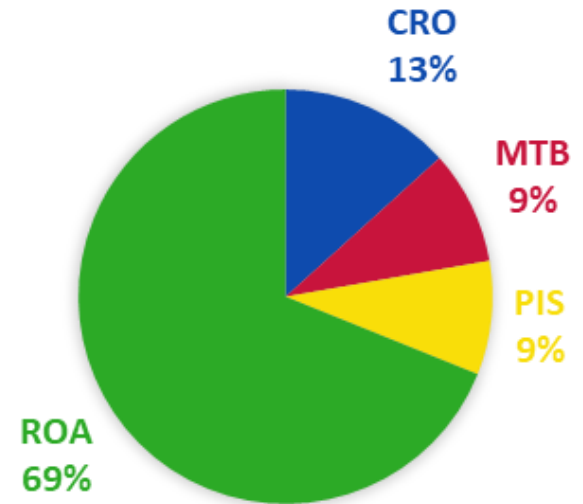
- The bicycle handling mechanism is manually operated and slides in and out of the x-ray cabinet
- When the mechanism is in its fully extended position outside the cabinet, the bicycle to be inspected is placed into the bicycle supports
- The bicycle handling mechanism is then manually pushed into its position inside the x-ray cabinet and the door closed



2018 Action Plan

- Multiple detection methods in use
- All continents and 18 countries covered
- 150 days
- More than 50% of UCI WorldTour race days covered
- All relevant disciplines will be checked
- All levels will be checked
- Quality rather than quantity approach

CONTROLS PER DISCIPLINE



The background of the slide is a close-up photograph of a bicycle, heavily filtered with a bright yellow color. The image shows the front wheel, the handlebars, and the front fork of the bike. The text 'The future' is overlaid on this background in a white, sans-serif font.

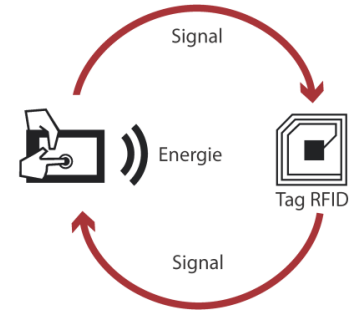
The future

Equipment Tracking

RFID tags solutions are being investigated to track a bicycle or wheels before, during and after the race.

Principles:

- Stick all elements with a unique number
- Develop a tool able to scan tags and compare to database



New Magnetic Imagery method

To combat the threat at national/amateur level, we will deliver an affordable tool that will help National Federation fight against technological fraud.

Principles:

- Handheld device with multiple magnetometers
- Visual rendering of a magnetic field
- Differentiates motors vs other metallic elements



Visual rendering of magnetic signals
with different intensities

The background of the slide is a photograph of several cyclists on a track, overlaid with a semi-transparent red filter. The cyclists are in a crouched position, ready for a race. The image shows the front wheels and handlebars of the bicycles. Some text is visible on the bikes, including 'PR2' on a handlebar, '3T' on a frame, and 'Mechanix' on a front fender. The wheels have '3T' and 'KOREA' written on them. The overall scene is dynamic and focused on the sport of cycling.

David Lappartient

UCI President

The background of the slide is a photograph of a large group of cyclists lined up on a road, viewed from behind. The image is overlaid with a semi-transparent green filter. The cyclists are wearing various colored jerseys and helmets, and their bicycles are visible. The road is paved and has a white dashed line on the right side. In the distance, there are trees and a building.

Gabriele Fioni

Deputy Director of CEA Tech, Commissariat à l'énergie atomique et aux énergies alternatives (CEA)

The French Alternative Energies and Atomic Energy Commission
is a key player in research, development and innovation in four main areas:

Nuclear and renewable
energies

Defence and security

Technological research
for industry

Fundamental research in
the physical sciences and
life sciences



4,1

Billion euros budget

+16000

Technicians, engineers,
researchers and staff

750

Patents per year

422

Ongoing European
projects



600
Partnerships
with Industry

1st
Europe's most
innovative research
institution by
Reuters

+4500
Researchers
& engineers

+50
Startups over the
10 past years

600
Patents per year





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DIABELOOP – ARTIFICIAL PANCREAS

DiabeLoop's connected artificial pancreas will improve blood-sugar regulation and enhance quality of life for type-1 diabetics mimicking the pancreas functions



list

DASSAULT – CYBERSECURITY

Aircraft manufacturer Dassault Aviation used a software suite developed by CEA Tech, to detect software security vulnerabilities in real time



liten

COLAS – SOLAR ROAD

Wattway by Colas is the world's 1st ever photovoltaic road surface. Wattway pavement provides clean, renewable energy, while allowing for all types of traffic.



A 5 years partnership between CEA Tech and Rossignol to develop innovations that revolutionize skiing.



5G CHAMPION project has delivered the world's first fully integrated and operational 5G cellular network during the 2018 Winter Olympics.

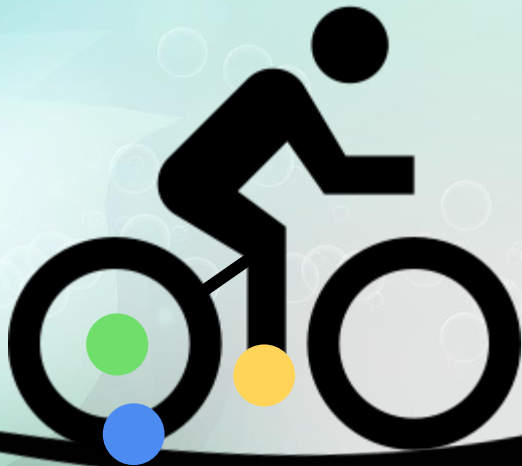


A CEA Tech startup

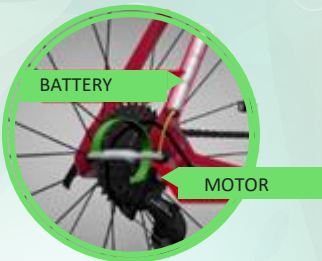
Interactive training platform that recognizes movements and measures physical activity to adapt the training circuit.



**A technological solution to detect fraud in cycling, powered by
CEA Tech and the UCI**



Hub wheel motor



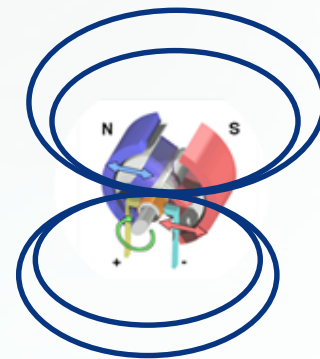
Electromagnetic wheel



Crank motor



Stray magnetic field generated by motors





Motor
is running



Stray
magnetic
field is
generated by
the motor



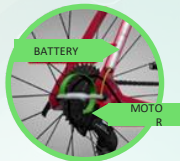
The tracker
on the bike
detects the
stray field
generated by
the motor



Fraud
detection
occurs,
an alarm is
sent in the
cloud to UCI
Commissaire



Hub wheel motor



Electromagnetic wheel

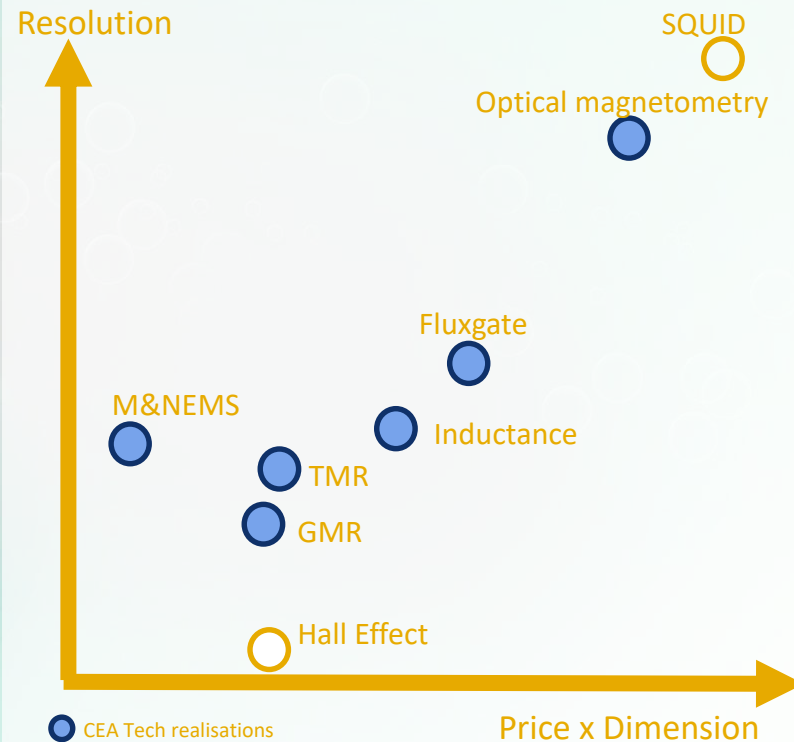


Crank motor

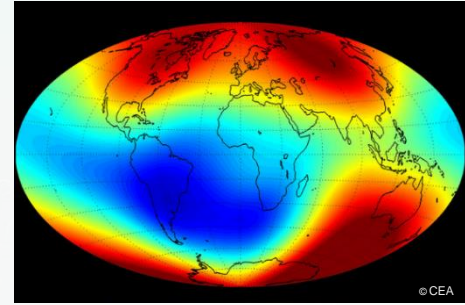
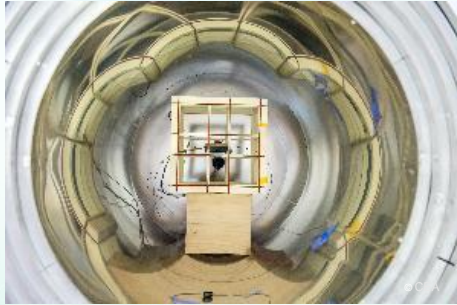


**Embedded High resolution
Magnetometer to detect
the stray magnetic field**

In light of a 50 years expertise in magnetometry,
CEA Tech designs the right magnetometer solution for each application



Space application



Smartphone application

