SP election statement by Jorgen D'Hondt: a coherent and inclusive CMS masterplan

"The future depends on what you do today" - Mahatma Gandhi

My research since 2003 has focused on the CMS experiment: **from postdoc to full professor in CMS,** through a variety of contributions. Coming from a smaller university, I have **successfully dealt with a broad range of aspects related to engagement in CMS**: education and outreach; construction; technical, computing and software aspects; PhD students; resources and funding. These are challenges we all recognize and share. Optimal mutual understanding within our collaboration depends on **a SP with a profile that connects readily to the full diversity of CMS members**.

In my past leadership (outlined in my CV), I consistently employed **a positive, proactive, inspiring and inclusive management style**. The ecosystem I provide for my PhD students and postdocs assures there is ample room in CMS for innovation while providing the necessary support. Innovation is not the easiest path, but is most rewarding when successful. This attitude creates appetite for further engagement, illustrated by the fact that **all my PhD students and postdocs that continued in particle physics are still in CMS today**. I intend to bring this spirit with me as SP.

Our collaboration made profound discoveries in its first phase, and has huge potential for novel science yet to come. Our plans and actions as a collaboration today will define our strength in the future. The core of our success is the continuous engagement of researchers, engineers, technicians and administrators, **motivated to seek innovation, and to contribute in a collaborative spirit**. Maintaining this, and bringing in new talented people, is essential for the longevity of our quest. **Supporting newcomers and new institutions** with training and guidance is a must.

With an aging detector, upcoming major upgrades and the relatively small increase in integrated luminosity, it is clear that **the upcoming 10 years in CMS will not be a mirror of the previous 10 years**. We must proactively adapt our organization and procedures to the new situation. We are now continuously confronted with several challenges in parallel and we are constrained in resources. Therefore, it should be our vision for Run-3 to automatize routine tasks, but of course without introducing new risks, and seek to improve our efficiency as an organization.

THE MULTI-YEAR MASTERPLAN

As SP, together with my management team, I will **plan for success** and **think ahead via a multi-year masterplan that is realistic, coherent and transparent**. The plan will encompass all tasks across subsystems and coordination areas, allowing them to be monitored, and facilitating project-based management. The masterplan, with medium and long-term milestones and priorities, will arise from collaboration-wide discussions, will seek to bring the whole collaboration on board, and will be reviewed annually. The SP team, assisted by a new project office, will ensure the masterplan is correctly formulated, communicated, and targeted to ultimately deliver the best physics.

A successful and efficient plan must recognize and exploit the wide variety of talents we embrace in CMS. We should **engage and foster our diversity**. Many of us combine research in CMS with other duties, for example at our institutes. We do not all have the same profile of engagement, yet we should make sure we **embrace everyone** in a **spirit of equal opportunity**. Within a 25-year-young collaboration, a crucial point is to **avoid bottlenecks where only one single expert is available**. These situations should be identified and mitigated, and succession planning put in place. Establishing a correct sharing of responsibilities is essential; this will require outreach by the SP to funding agencies and institutes, including personal visits. I will **foster an ecosystem supporting all CMS members,** and will resist the inevitable pressures to deviate from inclusive principles. I will promote a spirit of motivation rather than compulsion.

REALISTIC SCHEDULES AND RESOURCES

Our upgrade programme is ambitious, and so it should be. However, it is **vital for our reputation to complete projects on time and on budget**. As SP, one of my first tasks will be to oversee a correct and timely outcome of the ongoing LS2 projects. Although we will always plan for success, reality kicks in every now and then, and agile decision-making is needed. The SP role is to ensure appropriate delegation to allow a strong, rapid and effective response to issues, across coordination areas, and including dedicated task forces where needed. The **initial upgrade schedules must be realistic,** and include from the start the necessary contingency to moderate the pressure on the people involved. Towards the HL-LHC era, we should appreciate and engage with the **major challenge in the computing and software**, which will require an integrated community-wide approach. The upgrade projects depend on our most talented physicists and engineers, and we have to make sure that future teams and leaders are being prepared.

Through leadership in CMS and in ECFA, I have an outstanding overview of the funding landscape worldwide. Establishing **a good and transparent dialogue with our funding agencies and the CERN management is essential**. One of the duties of CERN as host laboratory is to mitigate the risks of failure of CERN based experiments. With a clear CMS masterplan, it is easier for them to anticipate, respond, and act. As chair of ECFA, I have established a good relationship with the CERN management, and as SP I will be able to act efficiently on behalf of the collaboration.

PHYSICS AND INNOVATION

The Run-3 data set will be vital for our physics program over the next decade. As we approach post-LS2 data taking, we need the collaboration to **engage in the timely preparation of the most optimal complete LHC legacy data set,** and to plan most (though not all) of the physics analyses to be performed on the full data set to achieve high impact. It is now urgent to establish that part of the masterplan, with **a strong initial engagement in Trigger, PPD, O&C, DPGs and POGs.** These key efforts, in concert with PAGs, provide CMS with the best physics analysis opportunities.

Continuing innovation in experimental methods is vital, and I will continue to encourage this, for instance as an essential component of CMS PhD theses and postdoc projects. The collaboration should **promote, embrace and reward innovation** related to technology (hardware, computing, software), experimental methods and analysis techniques. As well as being scientifically and technologically rewarding, this is the route to greater efficiency. New projects should be proposed, and integrated in the multi-year masterplan as coherent packages, with cost-benefit understood at all points from conception, to deployment, to long-term maintenance.

PROMOTING OUR PEOPLE

Senior postdocs and junior faculty members are the backbone of our collaboration, due to the experience gained over their long-term engagement with CMS. Current junior researchers will become leaders by the start of HL-LHC, and we need to proactively let them emerge from the shadows of the current leaders. As SP, I will proactively **promote and support excellent younger CMS members for leadership positions and high-level conference talks**. While the number of new CMS-related staff positions at universities may saturate, we need to make sure that existing positions are reopened upon retirements. This is not always trivial, and is a risk we need to address in earnest.

SOME SPECIFIC ACTIONS FOR THE SP

- Involve the whole collaboration in **strategy discussions** via **open forum meetings** on specific topics.
- Seek advice and work on measures to **increase the efficiency of meetings**, including remote participation.
- Appraise the effectiveness of plenary meetings and WGMs as the **major communication channels in CMS**.
- Organize structural meetings with **early career researchers** as a two-way communication, similar to my initiative as ECFA chair to organize a dedicated debate on the European Strategy for Particle Physics among young people.
- Every candidate for a leadership position volunteers in a spirit of helping CMS, hence **providing feedback to shortlisted L1/L2 candidates** and **motivating transparently the final decision** is essential.
- Continue **active support** for career events, including professional training in presentations, chairing and steering meetings, writing minutes, leadership skills, effective communications, etc.
- **Train more shifters** and take into account in our shift schedules the typical constraints of CMS members.
- Explore **synergies between today's operations on one hand and innovations** for the future on the other hand, such that CMS members can engage in both simultaneously.
- Avoid **scattering individual and institutional engagements** too much over projects, for example with a view to mitigation of the load on conveners in training newcomers in their group.
- **Recognize achievements** of countries and institutes in CMS, ensuring a sustained and continuous engagement.
- Participate in a community-wide debate on the use of **open data and publications with limited authorship,** which both relate strongly to the recent ECFA study on individual recognition in large collaborations.
- **Continuously promote safety awareness**; although after many years of successful operation, with recent incidents in mind we cannot treat day-to-day operations as trivial or risk-free.
- **Help and mentor all CMS members when they are on site**; the experience of working at CERN is very good for careers across all nationalities, but comes with challenges to be addressed along with the relevant CERN services.
- **Deal with inappropriate behavior**, ensuring a consistently positive environment in CMS.
- Inform people inside and outside CMS about the **motivation for the Phase 2 upgrades** and the related technological innovations; this is our story, we had better help shape it and promote it.
- Enable the **CMS Communication and Outreach group** to act as the central hub for communications worldwide.

My CV illustrates that I know the CMS organization, and its place in the worldwide structure of particle physics, well. I realize fully that providing leadership and structure in CMS requires **teamwork**, and I will engage team members as equals, while embracing diversity. Beside the overriding drivers of excellence and quality in our research, **the aspects we each emphasize in life should also be benchmarks for the CMS ecosystem**: motivation, commitment, optimism, respect, support, fairness, inspiration, and diversity. It will be an honor to serve our collaboration according to these core values. Do not hesitate to contact me to explore and elaborate on these statements.

If elected as SP, I will free myself from all other responsibilities. My university supports a 100% focus on the SP job, and my involvement in the European Strategy for Particle Physics ends with a report to CERN Council in January 2020.