

Managing an International Statistical Programming Team in the Era of New Ways of Working

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ABSTRACT

This paper describes the leadership governance model and management practices in a Europe-based statistical programming team at MSD. The team is spread across three sites in three different countries and is supported by remotely located Functional Service Provider staff across Europe. After defining what are the so-called 'new ways of working', the paper discusses key aspects of this nearly-virtual team such as the roles and responsibilities of global leadership and management teams compared to those of local people management; the training and knowledge sharing strategies; the performance assessment dimensions; the importance of team-level leadership opportunities independently of staff location; the role of technology; and last but not least, the team culture. The adaptation of the team to the COVID-19 pandemic will be discussed as a case study. The conclusion will highlight the pros and cons of such an organizational model in the new ways of working time.

INTRODUCTION

This paper describes the leadership governance model and management practices in a Europe-based statistical programming team at MSD. The team is spread across three sites: Brussels (Belgium), London (United Kingdom) and Zürich (Switzerland). It is supported by remotely located Functional Service Provider staff located across the European region and in India. The team has been through constant growth steps since its creation in 2015. It is presently counting around 30 in-house staff members.

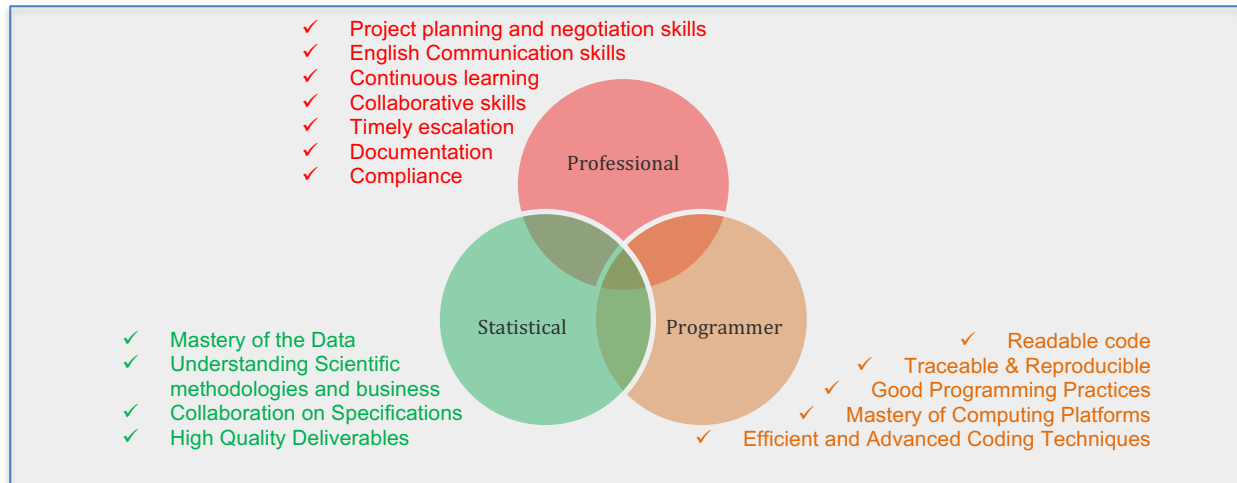
The team is dedicated to delivering statistical programming solutions to Health Technology Assessment (HTA) projects. As stated in the presentation page of the 2018 Brussels PhUSE Single Day dedicated to HTA Dossiers, *beyond New Drug Applications, biostatistics and statistical programming professionals across the pharmaceutical industry are now heavily engaged in the preparation of Health Technology Assessment (HTA) dossiers. HTA dossiers are submitted to HTA agencies across Europe and other countries in support of pricing and reimbursement negotiation of newly approved drugs as well as later on during the drug life cycle.*

The German AMNOG Pharmaceuticals Market Reorganization Act requires pharmaceutical companies marketing their products in Germany to submit evidence showing that the new product is more effective than the existing standard of care. In parallel, other HTA agencies (like the UK NICE agency) are rather expecting the presentation of cost-effectiveness modeling as part of HTA dossiers submitted to them. In both cases, the biostatisticians and statistical programmers organization will be leveraging the analysis and reporting used in support of the compound clinical study reports to contribute to the development of the HTA dossiers, directly with additional clinical data analysis or indirectly by providing clinical data and analysis as input to economic models. The analysis will also go beyond what has been presented in the original clinical study reports, for instance in using methodologies of indirect treatment comparisons and network meta-analysis to allow the comparison of the company's own drug with existing standard of care on the various markets.

The statistical programming team works day-to-day in partnership with a team of statisticians co-located at each of the three European sites. Both teams are part of the same Biostatistics and Research Decision Sciences organization at MSD. The statisticians are therefore colleagues and customers of the HTA statistical programmers.

By design, the team is formed by a group of 'professional statistical programmers' rather than by a 'band of SAS coders'. The skill set of the team members is similar to the one of statistical programmers supporting late stage filing to regulatory agencies. In order to deliver solutions to analysis and reporting needs specific to HTA statistics reports, HTA statistical programmers do use CDISC ADaM and possibly SDTM datasets created at the clinical study report stage.

Figure 1. A Team of Professional Statistical Programmers



This paper starts with defining what is to be understood by 'New Ways of Working'. It then explores different facets of new ways of managing a nearly virtual team, like the role of people managers versus management and leadership teams, the management of performance, and a couple of dimensions of team dynamics. It follows by considering the role of technology. The last section before the conclusion discusses the adaptation of this model to the COVID-19 situation.

NEW WAYS OF WORKING

In the very innovative and knowledge-intensive pharmaceutical industry, employees should be empowered to work efficiently and effectively by allowing for flexibility in their work arrangement. This is referred to as the New Ways of Working (NWW) and consists of four aspects: physical workspace, technology, organization and management, and work culture (Blok et al. 2012).

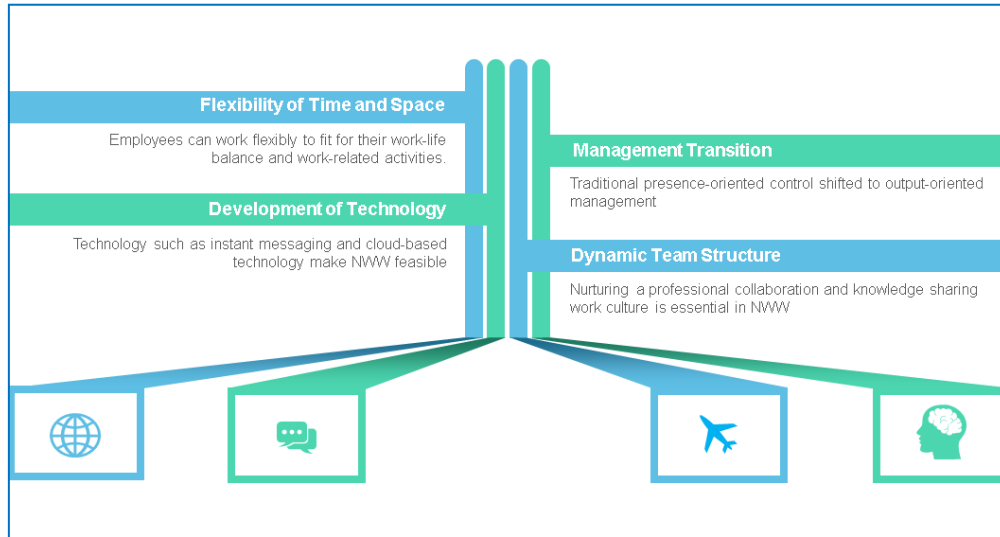
In NWW, employees are provided with flexibility in terms of workplace and time frame, which supports creativity and productivity. This dimension of flexibility offers work-life balance to fit for their personal development and work-related activities (Gibson, 2003). On the one hand, people can reduce expenses and time spent commuting and avoid traffic jams at peak times. In parallel, Companies with flexible working arrangements can attract more talents despite their location. On the other hand, companies will also explore new office space solutions requiring less space per employee. In such newly designed spaces, staff may not have a dedicated desk and will instead be invited to dynamically use the space at their disposal (meeting rooms, phone booths, one-to-one rooms, computer workstations...).

This should be attributed to the substantial development of technologies such as instant messaging and cloud-based technology. Even though the team members are located in different countries or, at times, working from home, they can effectively communicate using online meeting rooms, manage and share data and knowledge securely on SharePoint-like spaces, interact with overseas colleagues instantly... Those collaborative technologies significantly changed our work and life over the past years.

However, the new ways of working inevitably brings a massive challenge to management. Traditional presence-oriented control needs to shift to output-oriented management in this new era (Vos & Van der Voordt, 2001). In this environment, managers support employees' self-motivation and commitment by granting them more challenges and responsibilities. The management shifts from outside control to inside inspiration.

Furthermore, nurturing a professional and open work culture is an important dimension for NWW. This may include advocating diversity, inclusion initiatives, knowledge sharing and fun activities, etc. Staff are invited to build a harmonized interpersonal relationship with an increased level of interaction between each other. They are more likely to work on their own initiatives and achieve a high level of job satisfaction and autonomy.

Figure 2. The Four Dimensions of New Ways of Working



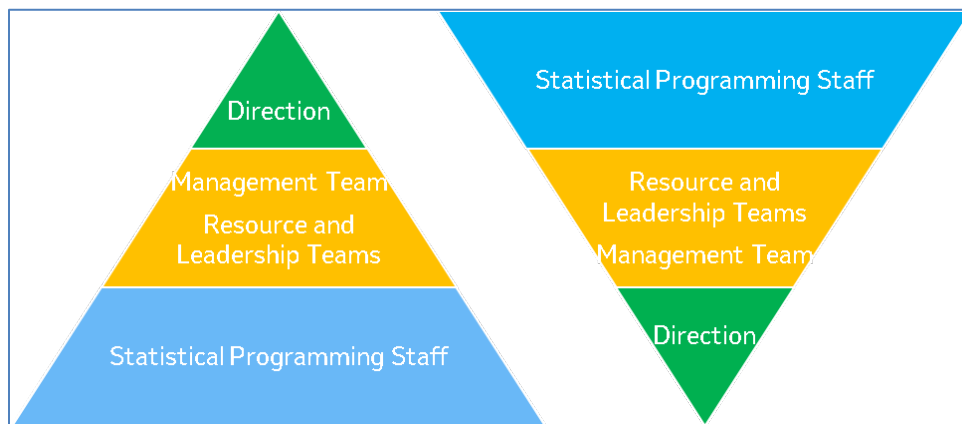
FACETS OF NEW WAYS OF MANAGING A NEARLY VIRTUAL STATISTICAL PROGRAMMING TEAM

THE ROLE OF PEOPLE MANAGERS VERSUS MANAGEMENT AND LEADERSHIP TEAMS

The governance model and management roles in such NWW teams are, among others, designed to support employee empowerment. Management provides a direction to the team, ensures a level of sponsorship and coordinates across the collection of initiatives from team members. Management also aims to remove any roadblock in the way of those initiatives and offers support to people development and career advancement across time.

This follows the model of an inverted pyramid described in the context of lean organizations. Knowing the direction highlighted by the management of the team, team members are in the best position to take the lead in identifying improvement opportunities and in their implementations (for instance on processes, technologies, standards, and even organization).

Figure 3. The Inverted Pyramid Model



The Role of People Managers

Each line manager in the team offers to coach and mentor their reporting staff. The coaching objectives are mid-to-long term career development and successful delivery on short to mid-term objectives relating to projects and initiatives. To this end, the manager develops a one-to-one trust-based relationship with each of its direct report staff members. In a mid-sized team like ours, it is not expected that managers create their own sub-teams and sub-cultures but rather support their staff's empowerment and be an active member in the single broader team across locations and managers. To facilitate this strong one-to-one relationship, staff usually report to a manager based at the same site.

Team-level role opportunities (beyond people manager roles) are assigned independently of staff location. People managers serve as connectors between the experience, talents, aspirations, and potentials of people reporting to them and the opportunities emerging in the business locally in the team or globally in the organization.

Having a limited number of direct reports (typically, 4 to 6), people managers serve also as direct contributors in the team, often for most of their time. They contribute to project deliverables, project leadership as well as strategic and standardization initiatives. They may also serve as Point of Contact (PoC) for key dimensions of the team dynamic like a section of the project portfolio (i.e. by Therapeutic Area), training and staff meeting, standards, outsourcing partnership, etc. Those PoC roles can, however, be taken by people in the team independently of being people manager or not.

The Role of the Leadership Team

The leadership team membership comes with the people management or PoC role and meets on a frequent basis. Some staff members can also be invited to attend based on topics being discussed. Relying on active listening for staff input and within the direction highlighted by senior management, this team defines the strategic and tactical decisions for the entire team. It identifies initiatives to be pursued, staff them, review their learnings and progresses, and eventually rewards their successes. This team is also in charge of project resourcing and assigns staff across projects.

The Role of the Management Team

The management team meets on a less frequent basis. The focus of this team is for people managers to discuss and make decisions on more administrative matters. This includes human resources and financial dimensions as well as the yearly performance management process. Staffing matters including staff promotion packages are reviewed in this forum. It is also a platform of exchange of experience among people managers in the team.

The Connections with the Broader Global Statistical Programming Organization

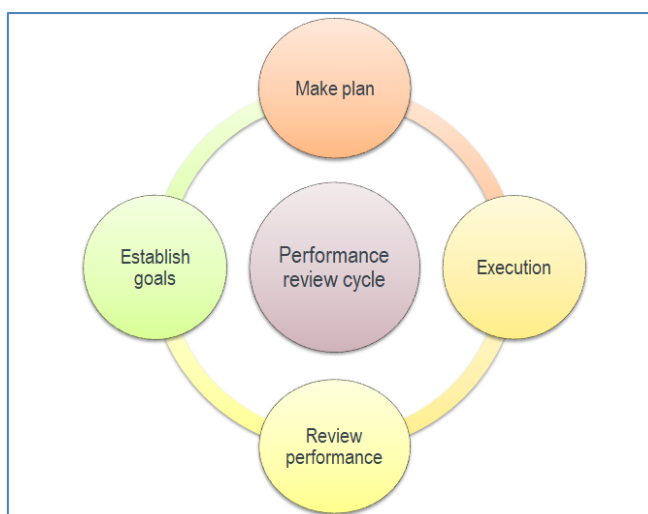
The team lead is chairing the leadership and management teams. MSD being a large pharmaceutical company, its global statistical programming department is made of multiple groups and teams. One important dimension of the team lead role, therefore, consists in ensuring that the direction given to the team is aligned with the vision and directions existing at higher levels in the global statistical programming organization.

Multiple staff members and leaders will also contribute to developing healthy connections between the team and the broader organization, for instance, participating in global committees, centers of excellence and initiatives. Those two-way connections are key to sustain efficiency at the level of the team and the higher-level organization.

PERFORMANCE MANAGEMENT

Within NWW, performance management moves from traditional visual control to inspiring people based on trust and self-motivation. This impacts how employees' performance is measured. Annual review of performance evaluation is for instance based on stakeholders' feedback and employees' accomplishments on three dimensions: contributions to projects, strategic initiatives and personal development. Besides the objective measures such as the number of deliverables ('what'), staff's soft skills ('how') are also considered in assessing performance. This includes the employee's level of commitment, collaborative and negotiation skills, etc.

Figure 4. The Performance Review Cycle



The appraisal is not the end of the process. In parallel, managers deliberately review the progress of employees' personal development with the goal of constantly supporting advancement on their career journey considering also the evolving business needs. To this end, managers support the establishment of development plans for each staff member.

TEAM DYNAMICS

Team Culture

A team culture, by the most basic definition, is made up of the values, beliefs and behaviors shared by a team. It is how people work together towards a common goal and how they treat each other. Diversity, inclusiveness, high quality, innovation, as well as the focus on people and customers are primary pillars describing our team culture. The HTA Leadership and Management team pay attention to share and further nurture this culture across the team. We value diversity; thus, our team is composed of statistical programmers with a diverse range of backgrounds, both academically and culturally. We believe in the approach of inclusiveness, where initiatives or ideas stem from the members of the team and not just from management.

For this environment to advance and the culture to be shared among everyone, people are the focal point. Critical to supporting this team culture is the ability to speak openly, express ideas, raise concerns and discuss honestly, knowing that you will be heard. Continuous learning is encouraged, while giving meaningful and constructive feedback is an important asset for retaining and communicating our culture. Furthermore, the leaders of our HTA team will lead by example and be ready to respond to change when such is required, would that be on programming approach or something much broader. In addition, sharing the bigger picture of our broader organization with the team prevents the 'silo effect' and places the team within a larger network. This is achieved by joint staff meetings with other functions, or by inviting guest speakers to provide insight from their organization.

Moreover, with a team spread across 3 sites, the culture is also entertained with activities outside the programming scope. A "Fun Committee" formed by team members can, for instance, organize events across sites from bi-weekly coffee mornings, to sports initiatives and international lunch days. Technology, however, plays an important role in this part. Finally, a company team building retreat is organized every year to bring colleagues from each site to the same physical location, leaving the technological advantages on the side temporarily to further establish and improve our interpersonal relationships.

Training and Knowledge Sharing Strategies

Under a nearly virtual environment, staff development and knowledge sharing are especially important to improve the working efficiency and talent retention. Therefore, the management team offers regular comprehensive trainings taught by both internal and external trainers such as the SAS Institute. Employees who need to develop specific areas such as SAS macros and SQL can attend individual training courses. Team members are also encouraged to share their experience, for instance, advanced programming techniques or complex methodological macros, in internal team SAS forums and staff meetings.

Besides this, the team also benefits from the supportive company-level culture. It provides an enormous amount of learning resource online and offline to employees. This includes extensive online training ranging from technical skills to professional skills, 24/7 book library, Yammer communities, and Chartered Management programs funded by the company.

What's even more important, most of the learning is known to be performed through on-the-job activities. Each new starter is assigned a dedicated mentor, who usually is their line manager. This mentor provides hands-on guidance on technical questions and career development matters based on the person's specific learning style and serves as a role model. Additionally, a relatively mature knowledge transfer system has been built through formal documentation (e.g. execution resources, specifications for macro-library, meeting minutes, new starter user manual).

THE ROLE OF TECHNOLOGY

In today's business and organizational context, it is not rare to see teams whose members are no longer sitting together in close physical proximity, yet who are working efficiently and effectively. Therefore, the role of technology is critical to ensure such teams operate to the highest standards and quality. Applications such as Microsoft Teams and Whiteboards, Cisco Webex and Jabber – together with the traditional email and phone – are used daily to ensure live communications and collaborations. The necessity of meetings and formal discussions is well known; however, informal communication across members is as important and adds value multidimensionally to the team.

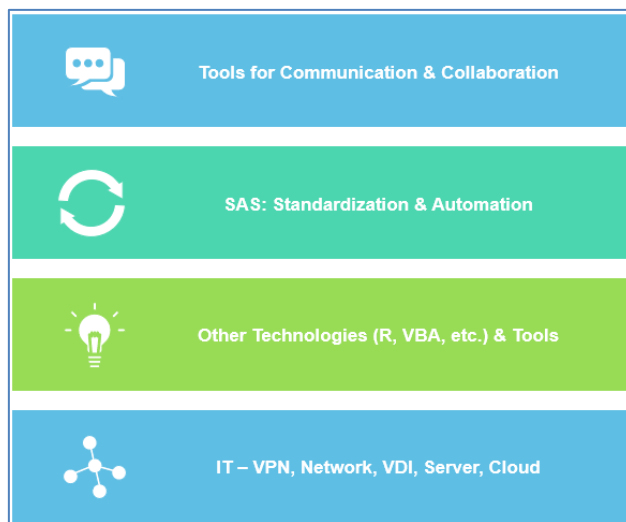
The role of technology in a statistical programming team management is not just live communication and collaboration through different platforms. It also consists of a suite of tools developed internally to standardize analysis and reporting processes and procedures, especially related to SAS programming. The leadership team empowers employees to invest in and develop smart tools and macros. The primary focus of the standardized Macro Library is to reduce

programming time, improve team flexibility and ensure consistency, reproducibility, efficiency and compliance (Bhaniani & Paquet, 2018). Furthermore, the automation of repetitive programming analyses and tasks is considered high priority, since they allow our team to explore and invest more time in novel methodologies. Such an example is the translation of deliverables from English to other local languages, for which our team has developed an automated translation tool. (Qian et al., 2019)

Besides traditional SAS Macro Library, attention is also placed in smart tools exploring, piloting and industrializing the use of other technologies, such as R, Python and VBA. The benefits of this new way of working are evident in our organization, as those mindset and behavioral shifts allow both the employees to further develop themselves, as well our organization to expand in terms of capacity and expertise in the conducted analyses. For instance, tools have been developed for assessing our team staffing needs, assisting with project assignments and estimating our projected resource demand, in parallel to supporting business case development, while the organization has a continuous growth momentum.

Finally, a close collaboration with IT is important to ensure not only the best possible office network and VPN performance is available in support of live communication and collaboration (e.g. using webcams), but also timely quality resolutions of any other potential IT-related issue that might arise for instance relating to the use of server-based virtual desktops and other cloud-based applications that are in use in such a nearly-virtual team.

Figure 5. Impacts of Technology



THE ADAPTATION OF THE TEAM TO THE COVID-19 TIME

The impact of the Covid-19 pandemic in the entire world is unquestionable. It has clearly affected the world of work and employment markets, which have experienced extreme alteration. However, given this shifting environment, many opportunities have been revealed or accelerated. The world of work will hardly ever return to the “normal” that we were familiar with before the pandemic struck. Like other organizations, within our team we plan beyond Covid-19, assessing altered working patterns, brought about by enforced lockdowns in countries while examining approaches to workplace optimization. We strongly believe that those who embrace the transformation opportunity will position themselves ahead of the curve; and in order to do so, we have to examine ideas and fields previously unexplored, defining the new working parameters for a new “normal” (The Adecco Group, 2020).

The safety and wellbeing of the team members and their families have been the top priority along with the pandemic experience. However, for each organization to define its new “normality”, it must learn by the challenges it is facing. At the beginning of this pandemic, we were all unsure of the extent. As the time went by and the lockdown measures kept on, feedback highlighted that the main challenge for our team was for our colleagues to see each other and have face-to-face interactions, either formal or informal discussions. We have therefore made extended use of webcams even though there is a substantial difference in the level of human interaction.

A separate challenge was also the need for travelling, specifically for business needs. With a growing team across three sites, traveling used to be imperative for our developing model, mostly on the recruitment and onboarding processes. Thus, the team had to adjust to more flexible processes towards virtual onboarding, with minimal impact on its efficiency.

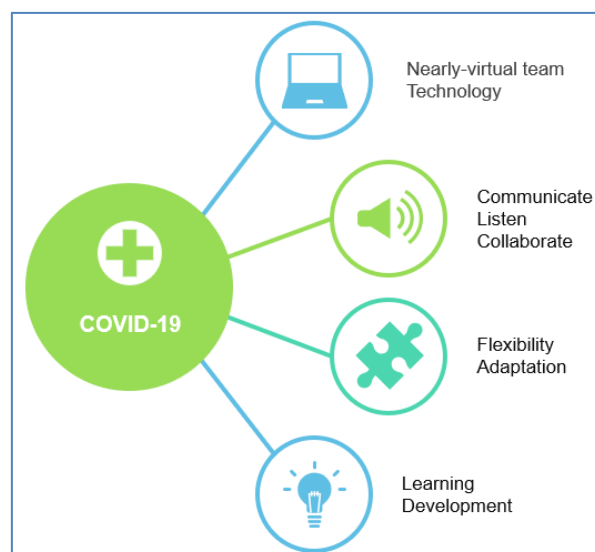
Our HTA statistical programming team adopting the NWW principles has been formed as a nearly virtual team by design, providing the flexibility for members of the team to work from home multiple days per week. This has tremendously helped in the lockdown transition period as the employees had the necessary hardware and technological equipment already available. They were also having a solid experience of working from home and used to work with colleagues remotely located at different sites.

Moreover, it is obvious that, under those unprecedented circumstances, remote working has not been what it used to be. With kids staying home due to school closure, partners (or housemates) working from home as well, or other scenarios which were rarely observed before, the necessity for flexibility has been a top priority. In order to ensure the highest possible levels of productivity and considering NWW principles, the team explored higher flexibility regarding the working hours that would suit each team member best. The view was that the team shall meet the needs of the business rather than set hours.

Besides the aforementioned flexibility and adaptations, it was essential to also keep providing various learning and development opportunities, either on a team or an individual basis. This has been achieved fully virtually (e.g. the participation to the PhUSE EU CONNECT conference, customized SAS training, ...).

Last, but not least, the use of technology has played a vital role in our adaptation to this pandemic. IT colleagues have gone above and beyond to provide us with all the necessary tools and infrastructure to perform our jobs without any distraction while going completely paperless.

Figure 6. Dimensions of Adaptation to COVID-19



CONCLUSION

This paper described the governance and management model of a European-based statistical programming team with staff across multiple sites in the era of New Ways of Working. It demonstrated how well this model fits the nearly virtual team setting and adapts relatively well to pandemic situations like the one of COVID-19.

In contemplating the implementation of such a New Ways of Working model, it is important to consider the broader company culture. In the case of MSD, this model is aligned with the company culture. The location of the team across multiple sites can be seen as a challenge. It also creates opportunities in terms of reaching multiple geographical talent pools mixing seasoned company team members with new starters while continuously adding diversity in the mix. This also naturally promotes the adoption of some of the key New Ways of Working concepts.

Team dynamics are in constant evolution and adjustment to the succeeding generations of people joining and forming the team as well as to its environment and geographies. The evolution of this team and its management principles will most probably continue to be an interesting topic for future contributions to the management stream in future PhUSE CONNECT conferences in Europe, USA or Asia Pacific.

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ACKNOWLEDGMENTS

The authors would like to acknowledge their colleagues within the statistical programming HTA team for their continued feedback and leadership on the transformational journey building and advancing our team. A special acknowledgment goes to their colleagues who are part of the statistical programming HTA leadership team, Qian Wang and Thierry Paquet for their day-to-day partnership and collaboration. The authors also would like to thank all reviewers of this paper.

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