**Name of the project: LHC4ALPHA-S**

**Table 3.1c: List of Deliverables[[1]](#footnote-1)**

Only include deliverables that you consider essential for effective project monitoring.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Number** | **Deliverable name** | **Short description** | **Work package number** | **Short name of lead participant** | **Type** | **Dissemination level** | **Delivery date**  **(in months)** |
| WP3.1 | observables | complete data set corrected from experimental effects with full description of statistical and systematic correlations in standard HEPdata format | WP3 | PLSC | DATA | PU | 18 |
| WP3.2 | theoretical predictions | predictions at next-to-next-to-leading order in strong coupling in fastNLO format and corrections for non-perturbative and virtual electroweak effects (format TBD) | WP3 | PLSC | DATA | PU | 18 |
| WP3.3 | fitting tool | implementation of errors on errors and theory nuisance parameters in xFitter | WP3 | PLSC | OTHER | PU | 24 |
| WP3.4 | alpha-s | publication with description of the QCD interpretation | WP3 | PLSC | DATA/R | PU | 36 |
| WP3.5 | analysis software | extension of experimental analysis software to other LHC data and new observables | WP3 | PLSC | OTHER/DEC/R | PU | 48 |

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| **KEY**  Deliverable numbers in order of delivery dates. Please use the numbering convention <WP number>.<number of deliverable within that WP>.  For example, deliverable 4.2 would be the second deliverable from work package 4.  **Type:**  Use one of the following codes:  R: Document, report (excluding the periodic and final reports)  DEM: Demonstrator, pilot, prototype, plan designs  DEC: Websites, patents filing, press & media actions, videos, etc.  DATA: Data sets, microdata, etc.  DMP: Data management plan  ETHICS: Deliverables related to ethics issues.  SECURITY: Deliverables related to security issues  OTHER: Software, technical diagram, algorithms, models, etc.  **Dissemination level:**  Use one of the following codes:  PU – Public, fully open, e.g. web (Deliverables flagged as public will be automatically published in CORDIS project’s page)  SEN – Sensitive, limited under the conditions of the Grant Agreement  Classified R-UE/EU-R – EU RESTRICTED under the Commission Decision No2015/444  Classified C-UE/EU-C – EU CONFIDENTIAL under the Commission Decision No2015/444  Classified S-UE/EU-S – EU SECRET under the Commission Decision No2015/444  **Delivery date**  Measured in months from the project start date (month 1) |

**Table 3.1d: List of milestones**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Milestone number** | **Milestone name** | **Related work package(s)** | **Due date (in month)** | **Means of verification** |
| M3.1 | determination of observables | WP3 | 2 | report within CMS |
| M3.2 | experimental data analysis | WP3 | 18 | validation within CMS |
| M3.3 | production of theoretical predictions | WP3 | 18 | validate with theory partners |
| M3.4 | alpha-s determination | WP3 | 36 | publication |
| M3.5 | extension to LHC data | WP3 | 48 | discussions with partners (ATLAS, theorists, PDF collabs) |

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| **KEY**  **Due date**  Measured in months from the project start date (month 1)  **Means of verification**  Show how you will confirm that the milestone has been attained. Refer to indicators if appropriate. For example: a laboratory prototype that is ‘up and running’; software released and validated by a user group; field survey complete and data quality validated. |

**Table 3.1e: Critical risks for implementation** #@RSK-MGT-RM@#

|  |  |  |
| --- | --- | --- |
| **Description of risk (indicate level of (i) likelihood, and (ii) severity: Low/Medium/High)** | **Work package(s) involved** | **Proposed risk-mitigation measures** |
| The errors on errors cannot be implemented in xFitter  likelihood: low, severity: medium | WP3 | Investigate NNPDF framework as an alternative. If also impossible, resort to state-of-the-art minimisers. |
| The multi-observable fit does not converge, despite the implementation of errors on errors  likelihood: medium, severity: low | WP3 | Check data performance with CMS collaborators, compare year by year, ensure consistency of calibration methods |
| Non-perturbative effects cannot factorise in one particular generator  likelihood: middle, severity: low | WP3 | Consider a large set of generators so that one of them can be excluded without major impact |
| The extension beyond CMS does not take place as expected  likelihood: middle, severity: middle | WP3 | Organise workshop with partners from ATLAS Collaboration, theorists, and PDF collaborations |
| Limited access to high-performance computing resources  likelihood: low, severity: low | WP3 | Use resources from partners at KIT or in IIHE |

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| **Definition critical risk:**  A critical risk is a plausible event or issue that could have a high adverse impact on the ability of the project to achieve its objectives.  **Level of likelihood to occur: Low/medium/high**  The likelihood is the estimated probability that the risk will materialise even after taking account of the mitigating measures put in place.  **Level of severity: Low/medium/high**  The relative seriousness of the risk and the significance of its effect. |

1. You must include a data management plan (DMP) and a ‘plan for dissemination and exploitation including communication activities as distinct deliverables within the first 6 months of the project. The DMP will evolve during the lifetime of the project in order to present the status of the project's reflections on data management. A template for such a plan is available in the [Online Manual](https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/om_en.pdf) on the Funding & Tenders Portal. [↑](#footnote-ref-1)