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Abstract

This document provides a summary forecast of training and professional development activities for Period 3 (P3) of GN4-3, from September 2021 to December 2022, in WP1 T5 Human Capital Development.

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1 Introduction

WP1 Task 5 – GÉANT Learning and Development (GLAD) maintains and develops the exceptional skills and experience of the professional staff of the NRENs and GÉANT that are highly regarded and pivotal to the success of the GÉANT project.

The purpose of this document is to provide a summary forecast of training and professional development activities for Period 3 (P3) of GN4-3, from **September 2021 to December 2022**, in WP1 T5 Human Capital Development.

1.1 Learning Planning Considerations and Approach

1.1.1 The Learning Lifecycle

There are four stages to the learning lifecycle:

1. **Learning Needs Analysis (LNA)** – to identify and prioritise learning needs.
2. **Design:** designing a solution to meet those needs.
3. **Delivery:** delivering learning – in a variety of formats and methods online and offline.
4. **Evaluation:** evaluating how effectively the learning solutions met the learning needs.

GLAD plans to develop the maturity of its approach to the learning lifecycle by increasing the rigour of its activities. It is recognised that it will take some time to roll out a new approach, whilst continuing to provide the same high level of service to GN4-3 project participants and communicate proposed changes to the project bodies. Therefore, GLAD plans to take a phased approach to change, beginning with learning needs analysis, as detailed in the following sections.

1.1.2 Online Learning

The global pandemic accelerated an existing trend towards greater use of online learning. Travel restrictions led to GLAD's in-person training events being moved entirely online from April 2020 onwards. The shift to online learning led to a marked increase in participant numbers at GLAD events, given the ease of access. It also led to substantial cost savings (see 1.2) and contributed to GÉANT's goal of reducing its environmental impact by removing the need to travel. For these reasons, GLAD expects a continuation of online learning even after travel restrictions are lifted.

GÉANT's online learning offering takes several forms. GLAD runs a series of live webinars throughout the year in collaboration with Subject Matter Experts from the GN4-3 project. Wherever possible, these are opened to the whole community. GLAD also provides access to recordings of recent training sessions through GÉANT's YouTube channel [[GEANTTV](#)].

GLAD's online learning platform, [[eAcademy](#)] offers a range of learning modules in bite-sized chunks. Learning content is created by the community for the community and is open to any user with federated access. Using a variety of learning materials, including videos, documents and quizzes, users can access learning as soon as they identify a need. eAcademy aligns with the GÉANT Association's mission to provide open access to knowledge sharing across the community.

However, creating courses on eAcademy, requires a significant time commitment – often many months and man hours. Moreover, in some areas, knowledge is developing so quickly that content soon needs updating. If high quality, relevant content can be found on a third-party platform, it could help realise cost savings and release time and energy to develop eAcademy courses in areas which need a GÉANT-specific application or which cannot be found elsewhere. Therefore, GLAD also hopes to offer Project participants access to a subscription-based online learning platform such as Coursera, Udemy for Business, LinkedIn Learning or O'Reilly Media.

GLAD continues to recognise the value of face-to-face learning. On-site learning enables the use of interventions which may not translate optimally to a virtual environment. Face-to-face sessions can be longer, which allows for more depth. In-person learning also provides opportunities for professional networking and the sharing of best practices, whether formally during training, or informally during breaks. For this reason, GLAD expects to offer some in-person learning events again, once it is safe to do so.

1.1.3 Learning Needs Analysis

Most development activities for the project are identified at the start of each calendar year during GLAD's annual consultation with the GN4-3 work package leaders, as part of a **learning needs analysis (LNA)**. This is a bottom-up inquiry in the form of a discussion with Work Package leaders (and sometimes with Task Leaders or participants) to understand the future plans, knowledge gaps and professional development needs of each GN4-3 WP. In addition to the LNA, the planning of the WP1 T5 activities is informed by ongoing communication between GLAD and the WPs, either during the planning and delivery phases outlined above, or during events which GLAD attends (i.e. Support Services workshop, TNC, SIGs, TFs). This information about the project's continuously evolving training requirements forms the foundation for annual and medium-term (16-month) planning.

From 2022 onwards, GLAD plans to increase the rigour of its learning needs analysis by incorporating a performance consulting approach into the learning needs analysis, where possible. The new approach is expected to give GLAD a deeper understanding of the business problems or opportunities that the Work Package seeks to address through learning. It is hoped that such insights will enable the provision of increasingly accurate solutions.

1.1.4 Learning Design and Delivery

Learning is designed and delivered in a wide variety of ways to meet the diverse learning needs within GÉANT and its wider community. It may be self-guided using GÉANT's online learning platform, eAcademy, or through a third-party online learning platform, as discussed in 1.1.2. Learning may be instructor-led, using external training providers or GÉANT Subject Matter Experts (SMEs), and delivered face-to-face, online or a blend of both. It may also be acquired through the curation and sharing of internal and external knowledge.

Learning activities are broadly grouped under two categories: Technical Skills (TS) and Professional Competencies (PC). Professional Competencies refer to “soft skills”, such as communication or leadership capabilities. Technical Skills refer to courses which are focused on delivering ICT-related knowledge and expertise including standards and methodologies. Historically, technical skills training has been the primary focus of GLAD's activities – and will continue to be of importance. However, there is increasing demand from WPs to develop soft skills which support the achievement of Project deliverables. WPs have identified a need to hone skills in business development, product development and market research skills, amongst others. For this reason, GLAD will seek to expand its Professional Competencies offering. It is expected that third-party online learning platforms will play a role in this.

GLAD promotes its learning through the communication channels listed in 1.3.

1.1.5 Evaluation

GLAD gathers qualitative feedback using post-training surveys and during ongoing service meetings with Work Package leaders, Task Leaders and project participants. In the spirit of continuous improvement, GLAD plans to review and build on its approach to all aspects of the learning lifecycle, beginning with its approach to learning needs analysis (LNA) in 2022. As more detail is gathered through the new LNA process, it is hoped that a wider range of indicators will be available to measure the impact of learning on training participants' skills and behaviour and WPs' ability to deliver on their objectives. Whilst this is not the focus of this training workplan, it is mentioned here to give an indication of the planned future direction of work.

1.2 Funding

The global COVID-19 pandemic has led to online learning replacing all of GÉANT's in-person training events. This in turn has led to a significant reduction in use of GLAD's budget. As restrictions on travel are lifted, GLAD expects some face-to-face training events to return, with a corresponding return towards previous budget expenditure, albeit not at the same level as pre-pandemic.

GLAD expects a continuation of some online learning, which has enabled a much greater number of community participants to access learning in a cost-effective way. It is therefore anticipated that some budget will be diverted to providing access to subscription-based online learning platforms of third parties such as Coursera, Udemy for Business, LinkedIn Learning and O'Reilly Media, as discussed in 1.1.2 above.

When executing the training events listed in section 2 of this plan, the following budget items can be expected to be included and claimed against WP1 T5 funding:

- Content expert (consultant or external trainer) fees
- Attendance fees
- Online learning platform subscription fees e.g. Coursera, Udemy for Business, LinkedIn Learning, O'Reilly Media
- Moodle IT support fees
- Certification costs
- Meeting rooms
- Working meals
- Participants Travel & subsistence
- Training Materials

It is expected that reasonable travel expenses for attending the training will be claimed against WP1 T5 funding, made available to the GN4-3 participants using the following model:

Step 1: WP1 T5 publishes OR confirms attendance of the training event

Step 2: Interested GN4-3 participants:

- get time approval from WPL/TLs to attend the event
- get finance approval from their home NREN to cover the event expenses

Step 3: The home NREN pays the event expenses

Step 4: GN4-3 participants attend the event

Step 5: GN4-3 participants provide the following reports on their attendance:

- Financial – in accordance with home NREN rules
- Impact – in accordance with GLAD requests (feedback, stories, experiences)

Step 6: The home NREN claims expenses from WP1 T5

1.3 Communication Channels

Information about learning opportunities is available through a number of channels:

- GLAD's Events Calendar: learning.geant.org
- GÉANT's weekly Project Office News email.
- GÉANT's Connect magazine and website: connect.geant.org
- Via the Partner Relations team
- Direct communication between WP leaders and GLAD
- Via Community events or webinars at which GLAD is invited to present
- Email: glad@geant.org

2 Period 3 Learning Workplan by Category

As set out in 1.1.3, GLAD will implement a new process for Learning Needs Analysis in 2022. At the time of publication, that analysis is in an early stage, hence the following list contains highlights only. More details will be made available in the next Q2P3 GN4-3 management report.

WP1 T5 activities are grouped thematically under two main categories:

- Technical Skills (TS)
- Professional Competencies (PC)

	Training (TS)	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9
1	ITIL 4				X	X	X			X
2	TM Forum AI Fundamentals					X	X			
3	Secure Code Training									X
4	School of Software Engineering									X
5	Open-Source Software Licensing								X	
6	IT Forensics for System Admins								X	
	Training (PC)									
7	Presentation Skills			X	X	X			X	
8	Business Development Skills			X	X				X	
9	TIM Programme					X				
10	Market Research Skills			X	X				X	

It should be noted that, as training needs and priorities sometimes change during the period, this plan is intended as a guide rather than as a definitive commitment.

2.1 Technical Skills

Technical Skills (TS) activities are focused on delivering ICT-related knowledge and expertise including standards and methodologies in areas such as (but not limited to) network and connectivity, cyber security, cloud technologies and storage, real-time communication technologies, software development and trust and identity.

The following trainings are planned in the area of Technical Skills development in the period September 2021 to December 2022.

2.1.1 ITIL4

(September 2021 to March 2022)

Requested by:

WP4, WP5, WP6, WP9

Other potential beneficiaries:

GN4-3 participants; European NREN community

Purpose & Impact:

ITIL is a methodology comprising detailed practices for IT service management that focuses on aligning IT services with the needs of business. Application of the ITIL methodology is expected to bring about common working practices and a common language for the diverse and distributed GN4-3 community. It is also a gateway to industry in terms of the compatibility and comparability of services and products. ITIL certification [\[ITIL4\]](#) is in line with WP1 T5's objectives of ensuring the high standard, certification and recognition of GN4-3 capabilities according to industry standards.

These skills are equally important for both technical staff and the support functions to facilitate collaborative work and coordination of activities in the process of delivering GN4-3 services and products.

2.1.2 TM Forum – AI Fundamentals Training & Certification

(September 2021 – August 2022)

Requested by:

WP5, WP6

Other potential beneficiaries:

GN4-3 participants; European NREN community

Purpose & Impact:

The deployment of new technologies is critical to delivering and managing new services in the current age of unprecedented data usage. Artificial intelligence (AI) is required to take advantage of these technologies, to deliver the next generation of connected “5G” services, and to handle and process the resulting vast amounts of consumer and network data.

Service providers and vendors need to embrace artificial intelligence and start planning how to manage their AI projects and AI product designs. The TM Forum's AI Fundamentals training and certification course offers learners a deep dive into the challenges, models and governance of AI projects.

It is envisaged that application of these standards will provide a steady and durable foundation for GN4-3 products and services, making TM Forum programmes essential to the GN4-3 community. This

programme follows on from the successful rollout of TM Forum's Digital Transformation course in the previous period.

2.1.3 Secure Coding Training

(September 2022)

Delivered by:

WP9 T2

Other potential beneficiaries:

GN4-3 participants; European NREN community

Purpose & Impact:

Secure Code Training is a GN4-3 project deliverable of WP9 T2, supported by GLAD. The training is targeted at software developers and security specialists and addresses the provisioning of self-defending applications that are maximally protected against cyberthreats.

Producing secure code is a key aspect of protecting GÉANT applications and systems that is gaining greater emphasis with the move towards multi-domain systems and services.

Secure Coding Training focuses on areas that affect the development and analysis of the source code of applications. The training is a GN4-3 project activity led by the WP9 T2 Software Governance and Support team and takes place every year of the GN4-3 Project. Further details will be available closer to the time of delivery of the training.

2.1.4 School of Software Engineering

(November 2022)

Delivered by:

WP9 T2

Other potential beneficiaries:

WP8, GN4-3 participants; European NREN community

Purpose & Impact:

Secure Code Training is another GN4-3 project deliverable of WP9 T2, supported by GLAD. The main objective of this training is to provide software development teams with practical knowledge and skills in Strategic Domain Driven Design (DDD), and its use in software design. Strategic design is very useful to divide a large and complex business problem into multiple chunks with clear boundaries and specific responsibilities and build a high-level software design topology.

2.1.5 Open Source Software Licensing Management

(February 2022)

Requested by:

WP8

Other potential beneficiaries:

GN4-3 participants; legal and procurement teams

Open source code is used in almost all software development projects in the GÉANT project. Therefore, a good working knowledge of how open-source licences work and understanding of the related compliance and risks are crucial when securing code.

The objective of this course is to enable software developers to contribute effectively to projects by choosing the most suitable Open Source Software (OSS) licence for their task and verifying whether there could be any licence incompatibilities related to the software's intended use.

It is designed for software developers and engineers who are contributing to open source projects and/or developing internal projects, and is highly relevant to those working in areas of software and security.

The course provides an introduction to open source licensing and compliance, using the GÉANT project "WifiMon" as a practical example.

2.1.6 IT Forensics for System Administrators

(November 2021 – January 2022 and Q4 2022)

Provided by:

WP8

Potential beneficiaries:

GÉANT Association; CERT community

Benefits:

This training event is open to all GÉANT members and partner organisations and the wider CERT community and is of particular importance for system/network administrators.

IT forensics have become a vital part of handling security incidents, and while putting the evidence together is a job for specifically trained investigators, administrators will often be left alone with detection of incidents, initiating an investigation and helping investigators gather the required evidence. Unfortunately, many administrators are not trained in these aspects of forensic investigation.

This training module addresses these shortcomings with an introduction into the basic organisational steps of incident handling and forensics from the administrator's perspective, as well as how to ascertain that all incidents have been detected and uncovered. Methods and tools to collect the various forms of evidence data are explained so that administrators are enabled to fulfil their role in a forensic investigation.

2.2 Professional Competencies

Professional competencies (PC) are crucial for effective and efficient on-the-job performance. They are also essential for NREN capability building, career development and staff retention within GN4-3 and within NRENS.

The following Professional Competencies training are planned during the period September 2021 to December 2022.

2.2.1 Presentation Skills

(April-May 2022 and eLearning – ongoing)

Requested by:

WP3, WP4, WP5, WP8

Other potential beneficiaries:

GN4-3 participants; European NREN community; European students

Purpose & Impact:

Communicating a message effectively is essential for educating and persuading others. As such, it is a core Professional Competency. Using the best practices available on the market, this training will equip participants to create, structure and deliver a memorable message in an engaging way. The training is scheduled to take place in time to enable TNC speakers to prepare to present powerfully as the Community gathers in 2022.

GLAD also provides a presentation course via its eLearning platform, eAcademy. This has the advantage of being available to the whole GÉANT Community, including any users in research and education.

This training is also an important part of the Future Talent and T&I Mentoring programmes, as it equips the students with the necessary skills to present their research at TNC.

2.2.2 Business Development Skills

Requested by:

WP3, WP4, WP8

Other potential beneficiaries:

GN4-3 participants; European NREN community

Purpose & Impact:

Business Development is a key capability that allows GN4-3 to collect, understand and address the needs of community customers. This is an essential skill that connects the actual development of new services and products with the requirements, projects and activities of future users. The following focus areas for business development within the project have been identified:

- Developing effective techniques for increased user-centricity of products and services
- Stakeholder management
- Planning for innovation
- Tools for remote working
- Product and project management

It is expected that this training will deliver products to the market that are in demand, yielding higher service uptake. As a field of expertise, Business Development undergoes continuous renewal particularly in relation to topics such as customer centricity and route-to-market strategies, therefore updates and refreshers are periodically required by those engaged in this activity.

It is likely that this training will be delivered online as a series of webinars and through providing access to relevant eLearning materials. This approach would allow greater financial efficiency but needs to be weighed against the ability of delivering the same value and impact for GN4-3 participants.

2.2.3 Market Research Skills

November 2021 to February 2022

Requested by:

WP3, WP4

Other potential beneficiaries:

GN4-3 participants

Purpose & Impact:

Understanding the evolving needs, challenges and opportunities which face the GÉANT Community enables Work Packages to provide the most relevant services and further the achievement of shared objectives.

Whilst the use of surveys and interviews are common in this area, using these tools correctly requires specific skills and knowledge. Market research training will begin by introducing participants to best

practice in a range of research methods. The follow-up sessions will build participants' knowledge and include the development of a piece of practical research which will help them accurately gauge the Community's views.

Both parts of the training will most likely be delivered by the Chartered Institute of Marketing – a leader in market research training.

2.3 Talent Development Initiatives

GLAD, together with GÉANT's NREN partners, offers two programmes, the T&I Mentoring (TIM) programme and the Future Talent programme, to facilitate engagement with students and career-seeking professionals. These programmes exist to introduce a future generation of talent to the GÉANT community and vice versa.

The programmes share the following objectives:

1. To engage with and develop new talent
2. Build a talent pipeline for NRENs and the GÉANT Community
3. Generate innovative new research which contributes to the GÉANT Community's goals.

2.3.1 Future Talent Programme

(March – June 2022)

Every year GLAD offers initiatives that facilitate engagement with young professionals under the mentorship of the NRENs. These initiatives exist to introduce a future generation of talent to the community and to engage with experts in the field. The Future Talent Programme offers professional training and development to young professionals and supports mentors who lead the way.

Future Talent Programmes include skills development, such as public speaking and presentation training, and provides opportunities to meet and engage with Subject Matter Experts, including at GÉANT's flagship annual conference, TNC.

2.3.2 T&I Mentorship (TIM) Programme

(September 2022 – May 2023)

Requested by:

WP5

Other potential beneficiaries:

GN4-3; European and Global NREN community; research & e-infras; Partner organisations

Purpose & Impact:

The Trust & Identity Mentoring programme – a joint initiative between GLAD and WP5 – brings together ambitious young minds and Subject Matter Experts (SME) to develop new ideas in the field of Trust and Identity.

Nominated by their home NREN, participants are integrated into the work of the T&I Incubator and into their local NREN right from the start. They receive mentoring from an SME throughout the project and are invited to present their work at an international conference. GLAD provides training opportunities for both participants and their NREN mentors.

In response to TIM's success and the EC reviewers' feedback, the feasibility of extending the mentoring programme to other areas such as Network and Security.

2.4 Expanding eLearning

2.4.1 eAcademy

(eLearning – ongoing)

Delivered by:

GLAD

Potential beneficiaries:

GN4-3 participants; European NRENs; Research and Education communities

Benefits:

eAcademy, GÉANT's online learning platform, is created by the Community for the Community. Offering a range of learning in bite-sized chunks, users can develop Technical Skills and Professional Competencies anytime and anywhere.

The advantages of eLearning are its accessibility and reach. Users do not need to wait for a training course. They simply start learning whenever they identify a need. Any user with federated access can log into eAcademy, thus its reach extends beyond GN4-3 and the GÉANT Association to include Research and Education communities. eAcademy embodies the GÉANT Association's mission "to empower research and education with an open, innovative and trusted information ecosystem".

The trend towards eLearning has grown significantly since the start of the COVID-19 pandemic, and given its advantages, it is expected that online learning will continue to play a significant role in future strategy. To that end, GLAD is continuing to roll out new courses on eAcademy.

This is not without its challenges. Based on Moodle, an open-source platform, each enhancement to the eAcademy platform has to be coded using shared templates or created from scratch. GLAD collaborates with the NRENs and GÉANT IT to adapt the platform to meet users' needs. Moreover, it can take many months to create new content, with associated resourcing costs.

For these reasons, GLAD aims to prioritise new courses which are of most relevance to the GÉANT community, or which need to be customised for GÉANT's context.

2.4.2 Orchestration, Automation and Virtualisation (OAV)

(eLearning – ongoing)

Delivered by:

GLAD and WP6

Potential beneficiaries:

GN4-3 participants; European NRENs; Research and Education communities

Benefits:

GLAD and Work Package 6 are collaborating to produce a range of eLearning modules on the topic of Orchestration, Automation and Virtualisation (OAV). A total of 88 modules are planned, 19 of which have already been made available in eAcademy.

Research and Education institutions today demand new services such as Campus Network Management as a Service (CNaaS), Firewall on Demand, cloud services, self-service of circuits, multi-domain services etc. Orchestration, Automation and Virtualisation (OAV) techniques allow these services to be delivered in a sustainable manner.

This programme will support engineers, managers, researchers and members of the Research & Education community in addressing the challenges that OAV presents.

References

[blog]	https://learning.geant.org/blog/
[eAcademy]	https://e-academy.geant.org/moodle/
[FTP]	https://wiki.geant.org/display/GIG/Future+Talent+Programme
[GEANTtv]	https://www.youtube.com/user/GEANTtv
[GLAD]	https://learning.geant.org/
[ITIL4]	https://www.axelos.com/welcome-to-itil-4
[TIM]	https://wiki.geant.org/display/GIG/TIM+Programme
[TMForum]	https://www.tmforum.org/training-certification/course-catalog/

Glossary

F2F	Face-to-face
FTP	Future Talent Programme
GLAD	GÉANT Learning and Development
ICT	Information and communication technology
IoE	Internet of Everything
IoT	Internet of Things
LNA	Learning needs analysis
NREN	National Research and Education Network
SME	Subject Matter Expert
SSE	School of Software Engineering
T	Task
T&I	Trust and Identity
TIM	Trust & Identity Mentorship
TL	Task Leader
TS	Technical Skills
PC	Professional Competencies
WP	Work Package
WPL	Work Package Leader