

JUN V2.1



BCS FOUNDATION CERTIFICATE

IN AGILE



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INTRODUCTION

This foundation certificate provides a holistic appreciation of Agile.

Candidates will be equipped with the core foundations that underpin the Agile mindset and Agile approaches to delivery.

This certification will equip candidates with knowledge that can be applied in a variety of situations and promotes effective working with any Agile team. It does not focus solely on one specific methodology.

LEARNING OUTCOMES

- Why Agile?
- The Agile Manifesto
- The Agile Mindset
- Roles in Agile Teams
- Common Agile Practices
- The Practical Application of Agile



QUALIFICATION SUITABILITY AND OVERVIEW

The BCS Foundation Certificate in Agile is relevant to anyone requiring an understanding of the use of Agile or looking to adopt it. This includes, but is not limited to, organisational leaders and managers, marketing executives and managers, and/or all professionals working in an Agile environment, including software sesters, developers, business analysts, UX designers, project management office (PMO), project support and project coordinators.

There are no formal prerequisites or entry requirements, however candidates should have a good standard of written English.

This is a foundation certificate which will:

- asses the learners ability to explain and describe key concepts with Agile.
- assess the learners ability to recognise Agile concepts and tools.
- enable learners to progress in their career and professional development.

Candidates can study for this award by attending a training course provided by a BCS accredited Training Provider or through self-study.

TOTAL QUALIFICATION TIME	GUIDED LEARNING HOURS	ASSESSMENT TIME
19 hours	18 hours	1 hour



TRAINER .: CRITERIA



It is recommended that to deliver this award effectively, trainers should:

- Hold the Foundation Certificate in Agile
- Have 10 days training experience or a train the trainer qualification.
- Have a minimum of 2 years practical Agile experience.

SFIA LEVELS

This award provides candidates with the level of knowledge highlighted within the table, enabling them to develop the skills to operate successfully at the levels of responsibility indicated.

LEVEL	LEVELS OF KNOWLEDGE	LEVELS OF SKILLS AND RESPONSIBILITY (SFIA)
K7 K6	Evaluate	Set strategy, inspire and mobilise Initiate and influence
K5	Synthesise	Ensure and advise
K4	Analyse	Enable
К3	Apply	Apply
K2	Understand	Assist
K1	Remember	Follow

This syllabus has been mapped to the SFIA+ knowledge, skills and behaviours required at level 3 for an individual working in "Portfolio, programme and project support". For further infromation regarding SFIA+ levels, please visit: https://www.bcs.org/it-careers/sfiaplus-it-skills-framework/



SFIA**PLUS**

PROF3KSCA7

This syllabus has been linked to the SFIA knowledge, skills and behaviours required at level 3 for an individual working in Portfolio, programme and project support (PROF). A collection of methods, practises, tools and techniques, underpinned by the Agile Manifesto, that enable teams to deliver high value products and services in small, workable, increments. An Agile culture typically encompasses concepts such as Servant-Leaders; ceremonies, Stand-Ups, Sprints and Retrospectives; and the deployment of tools and techniques such as Backlogs and A/B Testing.

PROF3KSD17

PROF3KSC84

Principles, methods, techniques and tools for the effective management of projects from initiation through to implementation.

Understanding and application of different development approaches e.g. iterative/ incremental methodologies (Agile, XP, TDD, SCRUM) or traditional sequential methodologies (Waterfall or V-Model). Irrespective of development methodology a DevOps approach may also be taken where development and operational staff work collaboratively.

PROF3KSB24

PROF3KSD30

Working collaboratively with others to achieve a common goal.

Automated tools to assist in the project management process, by automating mechanical tasks such as scheduling, resource balancing, and time recording. Tools and techniques for risk management.



1. WHY AGILE? (7.5%) K2

1.1 Describe a linear development approach, such as Waterfall and V-model.

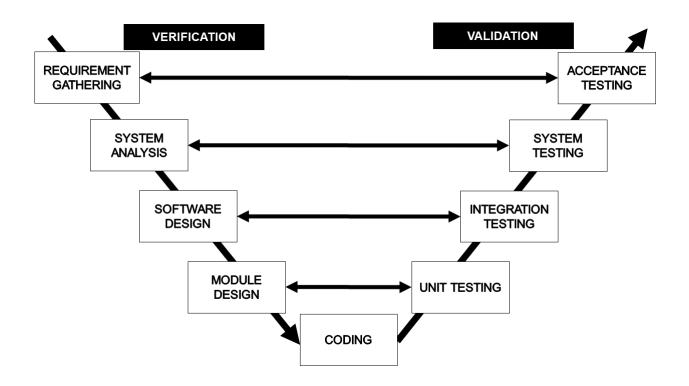
Indicative content

a. Waterfall.

- Requirements, Analysis. Design, Coding, Testing, Operations.
- b. V-model.

Guidance

Candidates should be able to identify and describe the stages and use of both approaches.



1.2 Explain why linear development approaches are not suitable in a Volatile, Uncertain, Complex and Ambiguous (VUCA) environment.

Indicative content

- a. Being aware of VUCA forces.
- b. VUCA:
 - V = Volatility: the nature and speed of change.
 - U = Uncertainty: the lack of predictability.
 - C = Complexity: the multiplex of forces and no cause-and-effect chain and confusion that surrounds organisation.
 - A = Ambiguity: The potential for misreads, and the mixed meanings of conditions.

Guidance

Candidates should understand the meaning of VUCA forces and that when a problem is a VUCA problem, you cannot follow the current plan or analyse your way to a solution using traditional methods. Traditional linear development approaches are not capable of responding to change or the influence of VUCA forces in the manner that Agile can.

1.3 Explain the origins of Agile.

Indicative content

- a. Created in 2001.
- b. An alternative to documentation driven development.

Guidance

The term "Agile" was coined when the Agile Manifesto was created in 2001 by 17 thought leaders who aimed to find common ground against the documentation-driven heavyweight software development processes. The result was the Manifesto for Agile Software Development with its 4 values and 12 principles.

1.4 Recognise the Agile Manifesto and its principles.

Indicative content

- a. 12 Principles of Agile:
 - Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
 - Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
 - Deliver working software frequently, from a couple of weeks to a couple of months, with preference to the shorter timescale.
 - Business people and developers must work together daily throughout the project.
 - Build projects around motivated individuals.
 Give them the environment and support they need, and trust them to get the job done.
 - The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
 - Working software is the primary measure of progress.

- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity -the art of maximising the amount of work not done- is essential.
- The best architectures, requirements, and designs emerge from self-organising teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.

Guidance

Candidates should recognise and be able to describe the principles of Agile as listed.

1.5 Explain how the Pillars of Scrum underpin Agile thinking.

Indicative content

- a. Pillars of Scrum:
 - Inspection.
 - Transparency.
 - Adaptation.

Guidance

Candidates should understand and be able to explain the three Pillars of Scrum and how they underpin Agile practises.

Transparency means that the work being undertaken is visible to those completing it and those receiving it. This transparency enables inspection, which is the monitoring of progress towards goals, to detect any problems or variances. The feedback from inspection then enables adaptation. Adaptation is demonstrated in the response to feedback.

2. INDIVIDUALS AND THEIR INTERACTIONS OVER PROCESSES AND TOOLS (7.5%) K2

2.1 Describe ways that the processes and tools can undermine Agile team performance.

Indicative content

- a. Removes creativity.
- b. Less ownership.
- c. Less independent thought.
- d. Tool worship.

Guidance

Candidates should understand that the presence of too many processes can remove the independent thought of individuals, and stifle both creativity and the ability to respond appropriately to change. When individuals or teams are relying on tools to tell them what to do, they risk not understanding or challenging the task. The overuse of tools and processes undermines the self-organising and motivated teams required of Agile.

2.2 Explain the connection between team motivation and self-organising autonomous teams.

Indicative content

- a. Autonomy: Provide employees with autonomy over some (or all) of the four main aspects of work:time, technique, team and task.
- b. Mastery: Allow employees to become better at something that matters to them.
- c. Purpose: Take steps to fulfill employees' natural desire to contribute to a cause greater and more enduring than themselves.

Guidance

Candidates should understand that by taking ownership of their own roles, tasks and purpose, this provides excellent motivation for Agile teams. They have the ability to respond to feedback and take control of the product or solution being developed.

2.3 Describe how Agile teams interact.

Indicative content

- a. Always aim for face-to-face communication.
- b. Adapt where necessary logistics, time zones, etc.

Guidance

Agile teams will always aim for face-to-face collaborative working. In environments where this is not possible, then the next best/closest method to face-to-face should be used. Agile teams believe that the fastest way to find solutions is through face-to-face communication.



3. WORKING SOFTWARE OVER COMPREHENSIVE DOCUMENTATION (7.5%) K2

3.1 Describe how working software means more than just code.

Indicative content

- a. Definition of done.
- b. Deployable.
- c. Supported with documentation.
- d. Adequate resource in place.

Guidance

Candidates should recognise that to be considered working software, a solution must meet the agreed Definition of Done and be deployable. There must also be adequate resource and documentation in place to support this.

3.2 Explain how Agile can be applied to non-software products.

Indicative content

- a. Smaller deliverables.
- b. Early and frequent feedback.
- c. Transparency, inspection, adaptation.

Guidance

Candidates should explain that an Agile approach can be applied in other environments, by applying the same principles and practises. This usually means that in place of using a waterfall development approach with a final big bang deployment style, smaller deliverables (which are useful in their own right) are agreed and delivered incrementally.

3.3 Explain how the Seven Wastes of Lean (Software Development) relates to comprehensive documentation.

Indicative content

- a. 7 Wastes of Lean (of Software Development)
 - Inventory.
 - Overproduction.
 - Extra-processing.
 - Transportation.
 - Waiting.
 - Motion.
 - Defects.

Guidance

Candidates should explain how the seven wastes of lean are reflected in the Agile values, such as ensuring that documentation is free from too much detail, to avoid relearning things that are already known, unnecessary work being done or work being done at the wrong time.



AGILE PRACTICES DON'T HAVE TO BE LIMITED TO SOFTWARE PRODUCTS. THE WAYS OF WORKING, IDEAS AND DYNAMICS CAN BE APPLIED TO A RANGE OF OTHER AREAS.

BCS COURSEWARE

4. CUSTOMER COLLABORATION OVER CONTRACT NEGOTIATION (7.5%) K2

4.1 Describe the Agile team's relationship with its customers.

Indicative content

- a. Direct to customer or end user.
- b. Removal of blockers.
- c. No extra steps.

Guidance

Agile teams stive to simplify processes, and for this reason, prefer to communicate directly with their customers and end users. The removal of blockers or additional steps between the Agile team and their customers is necessary.

4.2 Describe how Agile teams use time boxes and iterations to decide what work to commit to.

Indicative content

- a. Timebox: A fixed, maximum unit of time at the end of which an objective shall be met.
- b. Sprint: A fixed amount of time reserved for development.
- c. Delivering value as fast as possible.

Guidance

Agile teams use timeboxes to commit to delivering a given objective. Within this time, each team member will commit to tasks which they can deliver and shall reflect on the success of this and the volume of task before the next timebox or sprint. The goal is to deliver maximum value within each specified unit of time.

4.3 Describe the Product Owner role and their responsibilities.

Indicative content

- a. Value maximiser.
- b. Clearly expressing Product Backlog items.
- c. Ordering the items in the Product Backlog to best achieve goals and missions.
- d. Optimising the value of the work the Development Team performs.
- e. Ensuring that the Product Backlog is visible, transparent, and clear to all, and shows what the Scrum Team will work on next.
- f. Ensuring the Development Team understands items in the Product Backlog to the level needed.

Guidance

Candidates shall be able to identify and describe the role of the Product Owner, and the tasks and items they are responsible for, as listed.



5. RESPONDING TO CHANGE OVER FOLLOWING A PLAN (10%) K2

5.1 Explain how regular feedback helps Agile teams respond to change.

Indicative content

a. Feedback loops.

b. Sprint retrospectives.

Guidance

Feedback is used to help plan the next sprint and to identify features or requirements which need improvement. Constant feedback loops and the completion of sprint retrospectives both ensure that change is expected, and treated as business as usual in an Agile environment.

5.2 Describe how Agile teams recognise when change is underway.

Indicative content

- a. Change is BAU.
- b. Retrospectives.
- c. Business change.

Guidance

Candidates shall recognise that change is business as usual for Agile teams, and that they are always prepared and ready to respond to change. Teams know when change is planned or underway, as this comes out in each sprint retrospective. If a more significant, strategic business change is required, then this should be communicated via the Scrum Master.

5.3 Describe the different levels of planning that Agile teams use.

Indicative content

- a. Daily stand up.
- b. Sprint planning.
- c. Backlog refining.

Guidance

Candidates should be able to describe these three key levels of planning activites that are used by Agile teams.

5.4 Explain the risks of detailed, upfront planning.

Indicative content

- a. Less responsive to change.
- b. Unable to react to VUCA forces.

Guidance

Candidates should explain that too much upfront planning leaves the team less able to respond to change. A plan which is too detailed or too specific does not allow room for flexibility or ability to action feedback.



6. THE AGILE MINDSET (25%) K2

6.1 Explain Servant Leadership.

Indicative content

- a. Encourage.
- b. Enable.
- c. Support for development and continuous improvement.

Guidance

Candidates should understand and recognise the term Servant Leadership. A Servant Leader should should seek to serve first, to help their teams become the best they can be, to allow them to take decisions, make mistakes and learn, for the team to feel ownership of the problem and connection to the purpose. They should identify and remove blockers to the team's progress. They should celebrate success as the team's success, encouraging and championing them. They encourage the team to reflect on their progress, to identify ways they can grow and to use each task or activity as an opportunity to learn and improve.

6.2 Explain how Agile teams are cross-functional and self-organising.

Indicative content

- a. Self-organising teams:
 - Motivated.
 - Empowered.
 - Competent.

Guidance

Agile teams are intended to be small, crossfunctional teams with all the skills and authority needed to create a valuable increment, and they are all focused on the same product. The small number of team members and the constant feedback loops allow teams to take ongoing responsibility for their tasks and organise themselves effectively.

6.3 Explain how the Pillars of Scrum enable continuous improvement.

Indicative content

- a. Transparency full visibility to stakeholders, which enables feedback.
- Inspection enables feedback internally and externally. E.g. during a retrospective, reviews own performance to drive CI
- Adaptation getting feedback and responding and adapting.

Guidance

Continuous improvement is driven by the gathering and application of feedback, and the three pillars of Scrum enable feedback at all stages. Transparency drives feedback from stakeholders, inspection drives feedback both internally and externally through retrospectives, reviews etc. Adaptation is focused on gathering and responding to feedback to improve on the next iteration. All feedback is considered and used to drive continuous improvement.

6.4 Describe how Agile teams demonstrate transparency.

Indicative content

- a. Inviting stakeholders to ceremonies.
- b. Displaying work information radiator, visibility of what team is doing.
- c. Daily stand-ups.

Guidance

Transparency is key to Agile practises, and is demonstrated by work being visible both to the team and to external stakeholders. Daily standups ensure that the team are constantly updated on progress and there is little room for hiding.

6.5 Explain the importance of maximising the amount of work not done.

Indicative content

- a. Agile teams question everything to ensure it is useful.
- b. What needs to be done?
 - Does it add value?
 - Is it necessary?
 - What's the purpose?
- c. Where can things be more lean.

Guidance

Candidates should explain that the Agile team should question that value, purpose and usefulness of every task. By identifying tasks or processes which are unnecessary or not adding value and removing them, the sprint becomes more efficient.

6.6 Describe how Agile teams maintain sustainable pace.

Indicative content

- a. Estimating and re-estimating.
- b. Sprint planning.
- c. Establish velocity.
- d. Work to established limits.
- e. Sprint review.

Guidance

Candidates should describe how Agile teams aim to work at a pace which they can sustain. This begins with estimating the backlog, and these timings are used to help them plan their work. The sprint can then be planned using the prioritised backlog. Each team member will only commit to the work they know they can achieve within their established limits. These limits may change at the sprint review.

6.7 Recall the critical factors in creating motivated teams.

Indicative content

- a. Autonomy.
- b. Mastery.
- c. Purpose.

Guidance

Candidates should recognise the three key factors in intrinsic motivation. Autonomy is the ability to have control over your life and work; to have choices and take decisions on what to do, when to do it and with whom. Autonomy and freedom motivate us to think creatively and to experiment. Mastery is the desire to improve; to be challenged and to get better at your chosen craft. Purpose means working towards a meaningful and purposeful goal. The knowledge of how your work fits in to a bigger picture.

6.8 Explain the importance of psychological safety for high performing teams.

Indicative content

 a. The belief that one will not be punished or humiliated for speaking up with ideas, questions, concerns, or mistakes, and that the team is safe for interpersonal risk taking.

Guidance

Candidates should understand that psychologically safe teams disagree and challenge one another, but they do this in a kind, helpful and constructive way. They provide 'tactful challenge'. Psychological safety allows individuals to share thoughts, feelings, ideas and mistakes without fear.

6.9 Explain incremental and iterative delivery.

Indicative content

- a. Many versions.
- b. Time bound.

Guidance

Candidates will be able to explain the meaning of incremental and iterative delivey. Agile is incremental because there are many versions of the solution, with each version improving on the last. Crucially, each increment is a version of the solution that works and can be used by the customer. It won't do everything the customer wants, but it will do some of what they need. Agile is iterative because value is delivered in a series of small time-bound chunks – iterations. It takes many iterations to complete the solution.



7. ROLES IN AGILE TEAMS (5%) K2

7.1 Describe the three Scrum roles.

Indicative content

- a. Product Owner.
- b. Scrum Master.
- c. Development Team.

Guidance

There are only three roles within Scrum. Candidates should be able to identify and describe these roles. The Product Owner is accountable for maximising the value of the product resulting from the work of the team. The Scrum Master is accountable for establishing Scrum as defined in the Scrum Guide. They do this by helping everyone understand Scrum theory and practice, within both the Scrum team and the organisation. Developers are the people in the team that are committed to creating any aspect of a usable increment in each iteration.

7.2 Identify and describe commonly used non-Scrum Agile roles.

Indicative content

- a. Business Sponsor.
- b. Coach.
- c. Product Manager.
- d. Scaled Scrum Master.

Guidance

Candidates should be aware of other roles which are commonly found in Agile teams. Note that although other roles may exist within organisations, candidates can expect to be examined only on the four roles listed here. The Business Sponsor may be accountable for financial aspects or act as the main advocate for the product. A Coach may provide one-to-one coaching services and provide an objective, external perspective. The Product Manager is useful when there is a portfolio of related products as they can be accountable for the whole product set. A Scaled Scrum Master may be in place where there are several, related teams, each with their own Scrum Master.

8. COMMON AGILE PRACTICES (20%) K2

8.1 Describe the practices of Team Leadership and Organisation in Agile.

Indicative content

- a. Iterations and Timeboxing.
- b. Daily stand-up meetings.
- c. Agile board.
- d. Iteration planning.
- e. Iteration review.
- f. Retrospective.
- g. Agile coaching.
- h. Backlog refinement.
- i. Limiting work in progress (WIP).

Guidance

Candidates shall be able to describe how each of the practises listed are used in Agile to aid leadership and organisation.

8.2 Describe the use of requirements.

Indicative content

- a. Product roadmaps.
- b. Backlog.
- c. User stories.
- d. Three C's (Card, Conversation, Confirmation).
- e. Definitions of Done and Ready.

Guidance

Candidates should be able to describe the use of requirements throughout the development process, and the tools used to define and visualise them.

8.3 Describe the practise of estimation.

Indicative content

- a. Relative sizing.
- b. The Agile Estimation Game, e.g. Planning Poker TM .
- c. Story points.
- d. Velocity.

Guidance

Candidates should be able to describe the practise of estimation to establish sizing and velocity in Agile teams. Estimation helps Agile teams to plan their time and to allocate tasks within each sprint.

8.4 Describe common software development practices.

Indicative content

- a. Pair Programming and Mob Programming.
- b. Test Driven Development (TDD).
- c. Behaviour Driven Development (BDD).
- d. Refactoring.
- e. Emergent design.
- f. Continuous Integration / Continuous Deployment (CI/CD).
- g. Automated testing.

Guidance

Candidates should be able to recognise these common software practises used in Agile development.

9. AGILE IN PRACTICE (10%) K2

9.1 Describe the following Agile approaches.

Indicative content

- a. Scrum.
 - Lightweight.
 - Simple to understand.
 - Difficult to master.
- b. Kanban.
 - Change management.
 - Service delivery.

Guidance

Candidates shall be able to identify and describe the key characteristics of Scrum and Kanban as listed.

- Start with what you do now.
- Agree to pursue improvement through evolutionary change.
- Encourage acts of leadership at every level.
- Understand and focus on customer needs and expectations.
- Manage the work, let people self-organise around it.
- Evolve policies to improve outcomes.

9.2 Explain how the following practices can remove the need to adopt a scaling method.

Indicative content

- a. Scaling methods:
 - Scrum of Scrums.
 - SAFE.
 - LeSS.
 - Scrum@Scale.
- b. Refactoring solution architecture.
- c. Decoupling team dependencies.
- d. Decomposing into independent goals.
- e. Shortening cycle time.

Guidance

Candidates shall recognise the scaling methods listed and recognise the practises which can prevent the need to use them.

9.3 Explain why the following metrics are indicators to healthy Agile teams.

Indicative content

- a. Short lead time from business need to solution deployment.
- b. Team is continuously improving.
- c. Mean time to restore.

Guidance

Healthy Agile teams are continuously using feedback to make improvements to the solution being developed, and their own skills. This continuous improvement should drive the ability to restore service quickly after incidents and the ability to implement solutions promptly after a business need has been identified.

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EXAMINATION FORMAT

This award is assessed by completing an invigilated online exam that candidates will only be able to access at the date and time they are registered to attend.

Adjustments and/or additional time can be requested in line with the BCS reasonable adjustments policy

for candidates with a disability or other special considerations, including English as a second language.

TYPE

40 MULTIPLE CHOICE

QUESTIONS

DURATION

60 MINUTES

SUPERVISED

YES

THIS AWARD WILLT BE SUPERVISED

OPEN BOOK

NO

(NO MATERIALS CAN BE TAKEN INTO THE EXAMINATION ROOM)

PASSMARK

(65%)

26/40

DELIVERY

ONLINE FORMAT

QUESTION WEIGHTING

Each primary subject heading in this syllabus is assigned a percentage weighting. The purpose of this is:

- Guidance on the proportion of content allocated to each topic area of an accredited course.
- Guidance on the proportion of questions in the exam.

Sylla	bus Area	Weighting	Question Type
1	Why Agile?	7.5%	Multiple choice
2	Individuals and Their Interactions Over Processes and Tools	7.5%	questions.
3	Working Software Over Comprehensive Documentation	7.5%	
4	Customer Collaboration Over Contract Negotiation	7.5%	
5	Responding to Change over Following a Plan	10%	
6	The Agile Mindset	25%	
7	Roles in Agile Teams	5%	
8	Common Agile Practices	20%	
9	Agile in Practice	10%	

RECOMMENDED READING

The following title is suggested reading for anyone undertaking this award. Candidates should be encouraged to explore other available sources.

TITLE: Agile From First Principles

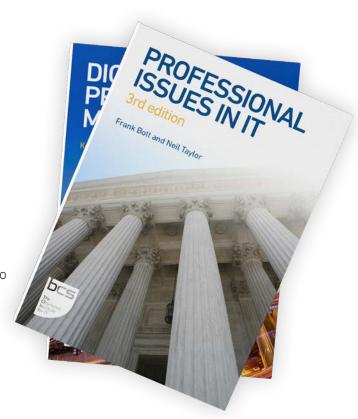
AUTHOR: Lynda Girvan and Simon Girvan

PUBLISHER: BCS **PUBLICATION DATE:** 2022

ISBN: 978-1-78017-5799

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DOCUMENT CHANGE HISTORY

Any changes made to the syllabus shall be clearly documented with a change history log. This shall include the latest version number, date of the amendment and changes made. The purpose is to identify quickly what changes have been made.

VERSION NUMBER	CHANGES MADE
Version 1.0	Created.

For further information please contact:

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