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| **STUDY GROUP 17** | | |
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| **Title:** | | 2nd revised baseline text for TP.inno: Description of the incubation mechanism and ways to improve it | | | |
| **Purpose:** | | Proposal | | | |
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| --- | --- |
| **Keywords:** | Innovation; Incubation; Mechanisms |
| **Abstract:** | This contribution proposes the 2nd revision of TP.inno baseline text. As the core of the incubation mechanism is nearly stable. |

[Editor’s Note : Q4 question text needs to be aligned and refer to TP.inno as per Annex 2. Do we need to make the change at this SG17 meeting and send an LS/o to TSAG? What is the final ‘name’ for TP.inno]

Introduction

The incubation mechanism pilot is now well advanced with important capabilities have been tested, e.g.:

* In the last SG17 meeting work items were reallocated to their final questions
* QRNG was consented and is a good proof point that as promised work items can be developed in this mechanism normally
* The Q4 report tested and included a section about the incubation mechanism and so validated the template proposed in this TP

Yet we observed

* Rapporteurs were not enough informed after the incubation allocation and in particular Q1
* We are just missing to appoint a Q4 co-rapporteur dedicated to this mechanism

TP.inno - Description of the incubation mechanism and ways to improve it

Technical Paper

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# Introduction

## Context

ITU-T Study Group 17 (SG17) scope being security, it covers a domain which is under a very strong evolution at a much faster pace than a 4 years term cadence.

There are many forces in action driving a lot of innovation such as:

* Strong arm race between attackers and defenders
* The general Digitalization mega-trend driving general innovation (AI, DLT, etc.)
* A fundamental singularity moment is approaching called post-quantum
* A strong change in the policy and regulatory frameworks at country and regional levels (e.g. GDPR)

In this context, SG17 took the initiative to develop a strategy of transformation of security studies through a correspondence group called CG-xss. This correspondence group and the associated special sessions on transformation of security studies delivered a strategy in three steps where the first step was about the creation of an incubation mechanism to deal with innovation at a much more timely manner.

Whilst this incubation mechanism proved to be successful in pilot, a lot of the documentation describing it got diluted in too many temporary documents. It was therefore felt the need for a reference live document that can codify this incubation mechanism and fundamentally incrementally answer the question: how to bring innovation in cybersecurity standardisation in Study Group 17 in a timely manner?

This document proposes a technical paper whose purpose is precisely to answer this question. As any mechanism can be improved it will as well review and analyse what other SDOs are doing to bring innovation and perhaps it will help SG17 to constantly review and improve this mechanism.

## Problem Statement

In the above context, the problem that this document resolves is:

|  |
| --- |
| How to bring innovation in cybersecurity standardisation in Study Group 17 in a timely manner? |

## Why the need for an innovation path in SG17?

Bringing innovation in any Study Group means sometimes that the topic brought by contribution doesn’t fit in the current structure and changing the structure is always a difficult and risky task for a large spectrum of reasons discussed in another technical paper [TP.sgstruct].

This situation leads to a gap and a tension between

* the willingness to accept valid contributions and let them develop in SG17 versus,
* the need to find them a place where to develop which was not thought through initially in the structure and changing the structure will take time.

With a number of sector members in need to bring their contributions it was necessary to find a solution to this problem and relax the pressure to change reactively and perhaps unwisely the structure without any long-term vision.

In fact innovation poured already in SG17 with an instance of 14 contributions on DLT to one of SG17 meetings resulting in the establishment of a creative adhoc approach but too in a very big and short notice change in the agenda of the whole meeting generating challenges for small delegations.

## Why considering an innovation path in SG17 “now”?

SG17 evolved incrementally over the years but security evolved at a much faster pace due, as per the above context, to a number of factors, in which we find the

* Strong arm race between attackers and defenders lead to a large range of innovations
  + including a fundamental singularity moment approaching, called post-quantum
* Digitalization mega-trend driving general innovation (AI, DLT, etc.) which fuelled both
  + the attackers and the defenders weaponry but, too,
  + created a huge inflation in the attack surface in many ways
* Increased awareness of
  + all the business constituencies of the importance of security and the need to invest
  + policy makers and regulators across the globe towards security
  + civil society to counterweight security with privacy centric concerns
  + academia which matured a lot and open new frontiers for security
* Shortage of skills, talents, resources and professionalisation
  + Which accelerates the need for best practices and standards to simplify the jobs

All of these factors combined together explain why innovation accelerated with investments to a degree that it outpaced the incremental evolution of SG17

## What solution could fulfil this gap?

ITU-T operates with a number of rules and processes and it became clear that they were limits to find a creative solution. Yet, like it is discussed in [TP.sgstruct], making the comparison that a Study Group is like a Company was rich enough to inspire a solution from industry.

Indeed, when organizations need to launch a new business, as it is coming with a number of risks, sometimes the solution used is to incubate the innovation until it is solid enough that the organization can qualify what to really do with this new business: spinoff a new company, rearrange business units, etc.

The approach taken by businesses regarding startups lead them too to create the concept of incubators.

Inspired by these approaches, the idea of an incubation mechanism for SG17 started to gain mindshare until it became a reality. Once the principle was agreed, the question that needed to be addressed was how to design it and implement it.

This is the purpose of this document.

## Who is defining, developing and maintain this incubation mechanism?

This mechanism is defined, developed and maintained by the study group itself under a correspondence group called the transformation of security studies.

# The incubation mechanism

## General Description

The incubation mechanism is a mechanism that allows any contribution for a new work item which

* is valid and is reasonable for SG17 to study
* but doesn’t fit exactly in the current structure of SG17 and
* therefore, cannot find a host question

to be still developed by SG17 until it is finished or allocated to its final question.

### A mechanism in two parts

It infers the requirement that the candidate new work items can be placed in a staging area in SG17.

This means that this mechanism needs:

* A way to allocate the candidate new work items into this staging area
* That this staging area acts an incubation queue where candidate new work items are inserted, managed like any new work item in any normal work program, as well as reallocated to their final question

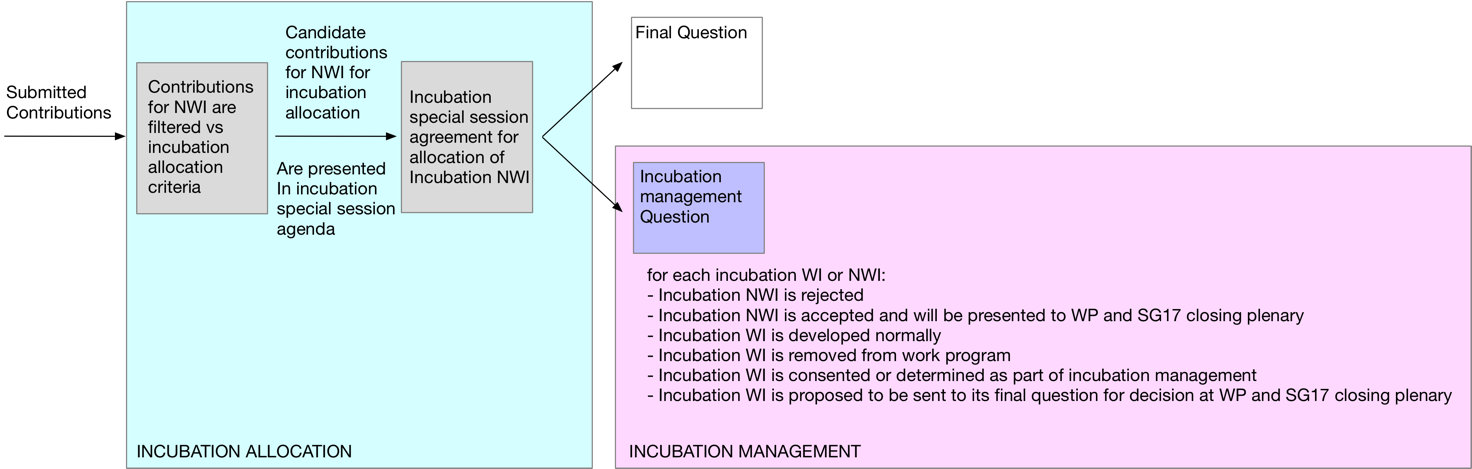
We will call

* the staging area the incubation queue
* a work item in the incubation queue as an incubated work item
* a new work item candidate for incubation as incubation new work item
* the co-rapporteur in charge of the management of the incubation queue as the incubation co-rapporteur
* the question carrying the incubation queue and the incubation management as the incubation question

We recognize that the incubation mechanism will consist of two parts during SG17 meetings

* “The incubation mechanism part 1” will designate the allocation of the new work items and will also be called “incubation allocation”
* “The incubation mechanism part 2” will designate the management of the queue and the new work items and will also be called “incubation management”

Figure 1 - General flow of the incubation mechanism in two parts allocation and management



We understand too that each part needs to be hosted by an entity

* The allocation part needs to be attached to SG17 as it concerns allocations that may need arbitrations across the Study Group between questions and it needs to be handled as early as possible in the Study Group.
* The management part needs to be attached to a question as this is mostly management of a work program and requires the skills of a rapporteurship

## Incubation mechanisms constituencies

### The incubation work item

An incubation work item is a normal work item that is placed in the incubation queue. We remind here that work items can be of various types as per

* Normative ITU-T documents such as Recommendations and Annexes as per [b-ITU-T A.1] and [b-ITU-T A.12]
* Non-normative ITU-T documents such as Technical Report and Technical Papers as per [b-ITU-T A.13]

And there are various approval processes as per [b-ITU-T WTSA-16 Resolution 1]

* Traditional Approval Process (TAP) (for recommendations)
* Accelerated Approval Process (AAP) (for recommendations)
* Agreement (For Technical Report, Technical Paper)

We note and remind here that:

* If a Recommendation was initially set to TAP it cannot be changed to AAP later
* If a Recommendation was initially set to AAP it can be changed to TAP later

We observe that as we are in innovation path, it is a good practice to encourage Technical Papers as contribution for new work items in the incubation queue as they can act as a feasibility study which is a lightweight way to qualify potential future contributions and help delegates to familiarize themselves with a certain topic before standardization is engaged and contributions for new work items for recommendations are submitted.

### Candidate incubation new work items

A candidate new work item is a new work item that shows a difficulty to be placed into a specific question. The below table shows some examples where a potential new work item would be acceptable as such but would be difficult to place in a specific question

Table 1 - Examples of potential new work items candidate for incubation

| Reason | Example of a potential new work item topic that would fall in the category |
| --- | --- |
| Question’s mandate doesn’t cover the topic | Artificial Intelligence |
| Question’s mandate is too restrictive for the topic | Q8 doesn’t cover Big Data |
| Question’s mandate has a dependency with another SDO that forbids the scope of the contribution | Q3 has specific agreements with ISO that may limit what it can cover |
| ITU received a mandate that forbids the topic | Ad spam is at the edge of security and content |
| The topic can legitimately be supported by multiple questions because the topic was never properly recognized, positioned in SG17, or because there are overlaps between questions | Big Data appeared in Q2, Q7, Q8?  Should SDN/NFV with Q6 or Q8? |
| The topic can exist in the question mandate but the real meaning of the contribution shows a disalignment | Relates to the allocation of KT Quantum work item. Did we really consider the right reasons to put it in Q2? Shouldn’t it have been more explicated about the architecture implications regarding middleboxes first? |

As we see from the above table, the first line shows a true canonical example of a new work item being proposed on an innovation that is valid but no question has a mandate to support it yet.

What is interesting is that innovation will lead some new work items to be in the scope of SG17 as it is today but the structure doesn’t fit or other reasons are creating frictions to get this new work item in its final destination.

This leads us to the requirement to produce a list of clear criteria to select candidate new work items

### Allocation criteria for candidate incubation new work items

The below table lists the criteria to allocate new work items as candidate incubation new work items

Table 2 - Allocation criteria for candidate incubation new work items

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Criteria | Category | Description | Comments | Example |
| C1 | Innovation | There are no Questions that can host this New Work Item and the contributor is sending this NWI to ALL/17 or to Q4/17 for incubation | This happens when the topic covered is about a Next Big Thing which is not yet covered by any Question. The contributor wants to bring innovative subject to SG17. This is one of the main purposes for why the Incubation Process is created. Allow innovation to come in and later, when the structure is fixed, move the Work Item to its final Question | New Work Item is about Artificial Intelligence, currently not covered by any Question of SG17 |
| C2 | Too many target Questions | There are multiple Questions that can host this New Work Item | This happens when there are overlaps between Questions and it is difficult to agree what is the right Question, probably because the Question text needs to be reviewed and we are in a ‘chicken and egg situation’ by which this cannot be done yet (CG-XSS S2 or S3 steps not completed yet, TSAG didn’t approve, perhaps PP18 impacts, etc.) | It already happened in the allocation of Big Data work items between Q2, Q7 and Q8 or SDN/NFV between Q6 and Q8, etc. |
| C3 | Semantic Mismatch | The New Work Item is proposing a Question but the Question real semantic or capabilities do not match the NWI | This happens if a Contributor specifies a Question but the topic of his NWI is not yet covered by the Question and the future structure of the CG-XSS might bring the topic to another Question in the future | In theory today Q8 doesn’t cover Big Data and so New Work Items that are about Big Data should be sent to the Incubation Process |
| C4 | SDO Dependency | The New Work Item has a dependency with another SDO that forbids temporarily the scope of its contribution | This happens when the Contributor is unaware of the specific formal relationships between ITU and other SDOs, yet the NWI is valid and it needs some cycles with the other SDO | Q3 has specific agreements with ISO that limit what it can cover |
| C5 | NWI Semantic Misalignment | The contributor provided a partial rationale for its New Work Item and a review of the full semantic of the NWI can make it allocated in multiple Questions or to no Question because it is about a Next Big Thing | This happens if the Contributor didn’t review all the implications of his NWI and in fact a real reformulation with more support to its NWI makes it candidate to multiple or no Questions. | Relates to the allocation of KT Quantum work item. Did we really consider the right reasons to put it in Q2? Shouldn’t it have been more explicated about the architecture implications regarding middleboxes first? |
| C6 | ITU mandate restrictions | The New Work Item is falling into a grey area of decision if it is falling into a mandate restriction of the ITU or not | There are perhaps conditions that SG17 might want to keep the topic because it takes time to validate if this is in scope or note with ITU mandate restrictions or if the ITU mandate might change (e.g. in relations to PP18 or WTSA, etc.) | Example COP related, Content related NWI, etc. |

### The incubation queue

The incubation queue is a specialized work program consisting of incubated work items

* The incubation queue is a normal work program and as such the incubated work items
  + Are there if it was agreed normally by SG17 plenary meeting
  + Are represented normally in the database of the work program
  + Are being developed normally by contributions and by updating TDs
  + Are determined or consented and then approved normally
  + Or can be removed from the work program
* In addition to a normal work program an incubated work item
  + Can be reallocated to an existing (and/or new) question
* It is recommended to review the incubation queue as
  + Its counter of incubated work items is a good measurement of the fit of the Study Group structure to the reality of what standardisation requires:
    - No incubated work items means that the Study Group Structure fits the requirements of standardisation in the limits of the ITU mandates, limits and constraints
    - A few incubated work items shows that the Study Group Structure starts to degrade
    - Many incubated work items shows that the Study Group Structure is not adapted
  + An analysis of its content incubated work items are visible in the queue, they demonstrate that the Study Group “captured” a valuable set of work that may trigger the generation of a new question or the adaptation of an existing question but in any case this decision will now be with a decreased risk because there is a good seizable view on the what needs to be considered for standardization

## Incubation mechanism part 1 – Incubation allocation

### To which entity to attach the allocation part

The incubation mechanism part 1 is the allocation part and is attached to SG17 directly as it needs to do arbitrations between questions according to the clear list of allocation criteria above.

The allocation part is carried by a special session just after the opening plenary of SG17.

### How is the special session of incubation allocation organized?

Given the growing size of SG17 it is expected that each question sends at least one of its rapporteur, co-rapporteur or associate rapporteur.

Prior to the meeting, the special session chairman

* Reviews the list of contributions
* Extracts to the best of his capacities the list of contributions that match the allocation criteria
* Identifies the contributions
* Creates an agenda and submit it as a TD

During the meeting, the special session chairman

* Provides any updates on the incubation mechanism
* Ask the audience if there are any missing contributions that should be considered
* Goes through the proposed list and for each candidate
  + Discuss the reasons for why this item is in the candidate list
  + Obtain either meeting agreement to send this candidate to incubation queue or to allocate it to a final agreed question
* Discuss any other topics

After the meeting, the special session chairman

* Delivers immediately the table of NWI allocation to both the rapporteurs of the incubation question and the coordination question so that
  + The incubation question can adapt its agenda
  + The coordination question can prepare its coordination meeting with potential changes from TSB allocation documents to facilitate SG17 work
* Delivers as soon as possible a report to make sure that any other question in need can make the changes in its agenda
* Informs all the rapporteurs of the changes

## Incubation mechanism part 2 – Incubation management

### To which entity to attach the incubation management

The incubation queue needs to be attached to a question as this is the only entity which is able to manage a work program.

To support this work, the question needs to be supported by a co-rapporteur in charge of the incubation mechanism management, the incubation co-rapporteur

### Incubation co-rapporteur

As the incubation queue can receive arbitrary contribution on very edge innovation topics this imposes some requirements on rapporteurs who are managing the incubation queue.

The candidates are following all up-to-date values of a selection with no discrimination of any kind

The core requirements for candidates are:

* Proven experience in rapporteurship
* High expertise in core security
* High expertise in innovation management and associated topics

The incubation co-rapporteur does

* A normal job as any other co-rapporteur managing a work program
* In addition, the incubation co-rapporteur while
  + participating in question meeting
    - Informs the participant of any confirmed question being created, modified or deleted by SG17 and new SG17 structure updates relevant
  + participating in the question report
    - Informs SG17 about the current count of work items in the incubation queue and identifies the work items
    - Identifies the incubated work items in a table in the report
    - Obtain consensus for potential incubated work items to be allocated in their final question to be approved in SG17 closing plenary
    - Alerts SG17 if any of the below happens:
      * The incubation queue is too big
      * There is need for more resources or specific skills to manage the queue on specific topics
    - Analyses the incubation queue to seek if there are any suggestions for SG17 to consider potentially proposing a modification or the creation of a question
* Finally, the incubation co-rapporteur is encouraged to participate to the relevant correspondence group about the short, mid and long term transformation of SG17

### To which question to attach the incubation queue

The rationale for selecting the incubation question flows **in the current SG17 structure and distribution of experts** was as below

* We cannot create new questions so we cannot create a “Question 0” as incubation question. However, a “Question 0” could be interpreted as covering the scope of “Emerging technologies” could have multiple benefits at the expense of creating a new question
* Q1 could take work items in its current setup as there are no experts in this question, this is a coordination question. The Incubation new role requires expertise to do the peer reviews and offer a normal good conditions for the work item to develop. Yet should there be a solid incubation co-rapporteur 1) experts would come where the work is being done and 2) it would regroup the incubation queue and management with the coordination question
* None of Q3, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13 nor Q14 can carry the role because they have today a specific purpose (right or wrong doesn’t matter here) and are specialized unless we would opt for a distributed incubation queue mechanism vs a central queue mechanism but this would require to go with a very specific structure of SG17 with a number of assumptions:
  + Principle of stable long-term Working Parties
  + Principle of ‘mother’ question in each Working Party

This would resolve some problems of work-load but would make the incubation allocation probably much harder

* Rests Q2 about Architecture and Frameworks and Q4 Cybersecurity

Both Q2 and Q4 are reasonable candidates to host, at this stage, the incubation question.

However, looking deeper, we see that a requirement is on expertise to give good review, support for the work item development. Indeed, just looking at the above examples in previous section we see that we need quite of a significant expertise in core security vs architecture. Ideally, we would need both! And it might happen in the future that we have both together, or we switch depending of what the SG17 new structure might be.

So, with this new requirement in mind it becomes clear that Q4 is right now the best candidate but with Q2 as the next one.

We therefore proposed Q4 to host the incubation role and mechanism at this stage

We note that the future structure of SG17 may change this allocation

# Benefits and Risks of the incubation mechanism

## Benefits of the incubation mechanism

The main benefit of this proposal is to

* Allow decorrelation of transformation of the SG17 structure vs the adoption of new work items that do not fit the SG17 structure
* Simplify the flow of SG17 meetings by bringing forward the allocation part
* Accept key innovation in SG17 in a much more agile manner
* Therefore
  + Give proper time to the relevant correspondence groups to conduct their job and make recommendations regarding the long-term transformation of SG17 and the evolution of its structure
  + Allow the work on the development of good validated new work items not be delayed and support legitimate requests from sector members
* Furthermore
  + Offer a good tool for SG17 to accelerate innovation probably quite significantly
  + At the same time, be conservatist and cautious in terms of its future big bets and new structure
  + Use this new tool to help communicate a good story to hire new members and participation

## Risks of the incubation mechanism

Like any proposal nothing comes with only advantages there are, and it is important to be opened here, there are risks too

### Risk of doing

There are risk of doing. The main risks lie into:

* R1 The queue grows too fast and is difficult to manage vs resources
* R2 Special expertise required is not available
* R3 The incubation mechanism is abused to delay work

Mitigation Suggestions

* R1 can be mitigated by the possibility for the co-rapporteur to alert SG17 through normal reporting
* R2 can be mitigated by the growing number of experts joining the ITU-T but in case of severe shortage on a specific topic SG17 will need to campaign to attract the relevant new members
* R3 can be mitigated by SG17 members and by discussions. SG17 has a strong family spirit as a community

### Risk of not doing

The risk of not doing means that there is no flexibility to allow the team to develop new work items in good conditions, it will increase significantly the coordination level, it will eventually lead to more arbitrariness in new structure decisions. In fact it will ossify significantly SG17 and make it will require a major ‘step function’ to get out of a dangerous ‘plateau effect’.

### Risk of not doing now or stopping it

The situation will **block** as it will not allow to accept question changes. It will block as well people’s position and will make it an order of magnitude much harder to establish trust in the process and to allow evolution. It will delay by 6 months any decisions and won’t resolve anything. Chances are that it leads to actually a major crisis.

# Alternatives and gap analysis to introduce innovation in standardization

## About Innovation in Security

Innovation is a normal element of any technological evolution and the result of various forces. Yet in Security, those forces have the specific nature of an arms race between attackers and defenders in the context of a technological war between key actors.

Standardization being one of the places where these forces materialises, it is therefore natural to observe a high cadence pressure for innovation in security in standardization.

This will happen at various stages, in pre-standardization and then in standardization itself. Yet, each SDO having its own governance, it might be more or less easy to introduce an efficient approach to innovation in standardization and in particular in security.

Identifying other mechanisms and ways to approach innovation in security can

* Position the incubation mechanism in a bigger spectrum of innovation approaches
* Inform on how to maintain and/or develop the incubation mechanism

## Other alternatives in the implementation of an incubation mechanism

For future development of this mechanism several alternatives could have been taken for its implementation:

### Centralised vs Decentralised

Depending on the model of structure adopted by the study group, the incubation mechanism can be implemented ‘centrally’ meaning attached to one incubation question like implemented today or it could have been dispatched across a few questions.

Indeed, should there be a study group with empowered working parties, we could have one ‘mother question’ per working party that could host an incubation queue for the working party. As such it would be a good way to distribute the emerging and innovation topics across the study groups to balance potential work load issues

### Emerging topics dedicated question

Another alternative is for the study group to dedicate a full question solely to emerging topics which would be one specialisation of a centralisation approach. The incubation mechanism would still be useful especially because of its incubation allocation part 1 as an important immediate first step after the opening plenary which allowed to agree all ambiguous cases and allow a smooth execution of all meetings so far.

## Other mechanisms dealing with innovation within IT and their relationship to incubation mechanism

### TSAG Hot Topic

The rapporteur group for standardization strategies (RG-SS) under TSAG took the task to collect and aggregate proposed ‘Hot Topics’ from any of ITU-T entities in addition to ITU-T CTO and CxO meetings.

Whilst ‘Hot Topics’ don’t seem to be explicitely defined, some delegates interpreted the Hot Topics as topics in relation to innovation with the idea to make this list visible and shared in particular for study groups to have a chance to potentially coordinate and collaborate on joints topics.

The incubation mechanism can be a source of information from the study group to TSAG to declare new ‘Hot Topics’, ‘sub Hot Topics’ or enrich the qualification of existing ones and so could participate into informing any potential outgoing liaison statement from the study group to TSAG.

### Focus Groups

Focus groups are defined by [[b-ITU-T A.7]](https://www.itu.int/rec/T-REC-A.7/en) and provide a way to manage innovation for the objective of pre-standardization.

In comparison, the incubation mechanism is a tactical and lightweight instrument for the study group to manage innovation that is ready for standardization as well as to develop analysis for potential future work through non-normative work items.

## Gap analysis with other SDOs

The following table provide a high level view of the main approaches, if any, of other SDOs to innovation.

Table 3 - High level view on how innovation is dealt with by different SDOs (non exhaustive)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SDO** | **Mechanisms to deal with Innovation** | **Acronym** | **Status** | **Comments** |
| ITU-T | Focus Group at SG level | FG | In place |  |
| ITU-T | Focus Group at TSAG level | FG | In place |  |
| ITU-T | Incubation Mechanism | None | In pilot | Considered by other SGs |
| ISO | Advisory Group | AG | New | Transformed from another concept |
| ISO | Preliminary Work Item | PWI | In place | ISO/IEC JTC1/SC27 introduced a concept of “Preliminary Work Item” (PWI) as a replacement for “Study Period” (SP).  PWI seem to be interpretable as an incubation mechanism in SC27 and this can also echo to SG17’s incubation mechanism |
| IETF | Bar Bird of a Feature | Bar BoF | In place |  |
| IETF | Bird of a Feature | BoF | In place |  |
| ETSI | Industry Group | ISG | In place |  |
| OASIS | None | N/A | In place | OASIS has a very pragmatic way to accept any valuable suggestion, see Annex 4 |

[Editor’s note: Editor will appreciate any contribution here and any more details on the above table in particular regarding

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| IEEE | To be researched | N/A | To be researched |  |
| GSMA | To be researched | N/A | To be researched | GSMA is probably a pre-standard SDO as a whole |
| National | Any example of innovation in National Standardisation Organization | N/A | To be researched |  |

]

# Conclusions

[Editor’s note: We should complete this section for the last meeting of the study period. However we could anticipate put the results from the pilot and its appreciation or not by the delegates with a recommendation for the next study period and then we can publish this TP]

Annex 1 - References

[b-ITU-T TP.sgstruct] Technical Paper – Strategic approaches to the transformation of security studies

[[b-ITU-T A.1]](https://www.itu.int/rec/T-REC-A.1/en) Working methods for study groups of the ITU Telecommunication Standardization Sector

[[b-ITU-T A.7]](https://www.itu.int/rec/T-REC-A.7/en) Focus groups: Establishment and working procedures

[[b-ITU-T A.12]](https://www.itu.int/rec/T-REC-A.12/en) Identification and layout of ITU-T Recommendations

[[b-ITU-T A.13]](https://www.itu.int/rec/T-REC-A.13/en) Non-normative ITU-T publications, including Supplements to ITU-T Recommendations

[[b-ITU-T WTSA-16 Resolution 1]](https://www.itu.int/dms_pub/itu-t/opb/res/T-RES-T.1-2016-PDF-E.pdf) Rules of procedure of the ITU Telecommunication Standardization Sector

Table 4 - List of TDs considered in this Technical Paper

|  |  |
| --- | --- |
| Ref | Title |
| [TD2745](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2745/en) | Minutes of the CG-xss conference call on 12th of February 2020 |
| [TD2740](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2740/en) | Minutes of the CG-xss conference call on 5th of February 2020 |
| [TD2737R2](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2737/en) | Minutes of the CG-xss conference call on 22nd of January 2020 |
| [TD2728](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2728/en) | Minutes of the CG-xss conference call on 16th of January 2020 |
| [TD2715](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2715/en) | Minutes of the CG-xss conference call on 8th of January 2020 |
| [TD2708](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2708/en) | Minutes of the CG-xss conference call on 19th of November 2020 |
| [TD2687R1](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2687/en) | Minutes of the CG-xss conference call on 6th of November 2020 |
| [TD2647R4](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2647/en) | Minutes of the CG-xss co-convenors call on 24th of October 2019 |
| [TD2606](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2606/en) | Report of the Correspondence Group on Transformation of Security Studies (CG-XSS) for the September 2019 to February 2020 period |
| [TD2590](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2590/en) | Report of the special session on incubation |
| [TD2589](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2589/en) | Agenda of the special session on incubation |
| [TD2582](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2582/en) | Report of of the special session on Transformation of Security Studies |
| [TD2581](https://www.itu.int/md/T17-SG17-200317-TD-PLEN-2581/en) | Agenda of the special session on Transformation of Security Studies |
| TD2545R1 | 1st revised baseline text for TP.inno: Description of the incubation mechanism and ways to improve it |
| [TD2450](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2450/en) | 1st Revised baseline text for TP.sgstruct: Strategic approaches to the transformation of security studies |
| [TD2283R4](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2283/en) | LS/o on Transformation of security studies methods [to TSAG] |
| [TD2282R2](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2282/en) | LS/o on Transformation of security studies rapporteur interviews [to TSAG] |
| [TD2280](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2282/en) | Scoping considerations on potential LS outgoing drafts to TSAG |
| [TD2278R1](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2278/en) | Terms of Refernece for the Correspondence Group on Transformation of Security Studies |
| TD2277 | Supporting slides for the special session on transformation of security studies |
| TD2276 | Supporting slides for the special session on incubation |
| [TD2210](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2210/en) | Minutes of the CG-xss conference call on 26th of July 2019 |
| [TD2209](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2209/en) | Minutes of the CG-xss conference call on 18th of July 2019 |
| [TD2208](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2208/en) | Minutes of the CG-xss conference call on 12th of July 2019 |
| [TD2207](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2207/en) | Minutes of the CG-xss conference call on 3rd of July 2019 |
| TD2206 | Minutes of the CG-xss conference call on 28th of June 2019 |
| [TD2205](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2205/en) | Minutes of the CG-xss conference call on 20th of June 2019 |
| [TD2204R1](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2204/en) | Minutes of the CG-xss conference call on 13th of June 2019 |
| [TD2203R4](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2203/en) | CG-xss “Big Picture” Live Document |
| [TD2202](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2202/en) | Minutes of the CG-xss conference call on 7th of June 2019 |
| [TD2201](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2201/en) | Minutes of the CG-xss conference clal on 29th of May 2019 |
| [TD2200](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2200/en) | Mintues of the CG-xss co-convenors conference call on 16th of April 2019 |
| [TD2096](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2096/en) | Report of the Correspondence Group on Transformation of Security Studies |
| TD2080 | Report of special session on incubation |
| TD2079 | Agenda of special session on incubation |
| [TD2072](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2072/en) | Report of special session on Transformation of security studies |
| [TD2071](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2071/en) | Agenda of special session on Transformation of security studies |
| [TD2005](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-2005/en) | Terms of Reference for the Correspondence Group on Transformation of Security Studies |
| [TD1868](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1868/en) | Supporting slides for the special session on incubation |
| [TD1830](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1830) | Proposal for Rapporteurs Feedback on Transformation of Security Studies |
| [TD1829](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1829) | Minutes of CG-xss conference call on 19th of December 2018 |
| [TD1828](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1828) | Minutes of CG-xss conference call on 13th of December 2018 |
| [TD1827](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1827) | Minutes of CG-xss Co-Convenor meeting on 28th of September 2018 |
| [TD1826](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1826) | Minutes of CG-xss conference call on 20th of September 2018 |
| [TD1817](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1817) | Report of Special session on Transformation of Security Studies |
| [TD1816](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1816) | Agenda of Special session on Transformation of Security Studies |
| [TD1716R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-190122-TD-PLEN-1716) | Report of the Correspondence Group on Transformation of Security Studies (CG-XSS) for the September to December 2018 period |
| [TD1696](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1696/en) | Report of Special session on incubation |
| [TD1695](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1695/en) | Agenda of Special session on incubation |
| [TD1623](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1623) | LS/o on new Question on security aspects of interoperable safe quantum communications [to TSAG] |
| [TD1622](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1622) | LS/o on Revised Question 4/17, 5/17, 6/17 and 8/17 [to TSAG] |
| [TD1617](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1617) | LS/o/r on hot topics [to TSAG] |
| [TD1566](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1566) | Supporting slides to the third special session on transformation of security studies |
| [TD1544](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1544) | Supporting slides to the first special session on transformation of security studies |
| [TD1542](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1542) | Terms of Reference for the Correspondence Group on Transformation of Security Studies |
| [TD1540](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1540) | Special Session on transformation of security studies feedback on TSAG incoming LS on Hot Topics TD1011 |
| [TD1433](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1433) | Minutes of CG-xss conference call on 22 August 2018 |
| [TD1432](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1432) | Slides uses in CG-xss conference call on 22 August 2018 |
| [TD1417](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1417) | Minutes of CG-xss conference call on 13 August 2018 |
| [TD1415](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1415) | Minutes of CG-xss conference call on 10 July 2018 |
| [TD1300](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1300) | 2nd Activity Report of CG-xss for March to August 2018 period |
| [TD1270](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1270) | Proposed list of criteria to identify potential New Work Items for the Incubation Process |
| [TD1269](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1269) | Minutes of CG-xss conference call on 20 June 2018 |
| [TD1268](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1268) | Report of special session on Transformation of Security Studies |
| [TD1267R3](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180829-TD-PLEN-1267) | Agenda of special session on Transformation of Security Studies |
| [TD1144](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-1144) | Comments to the 3rd session of CG-XSS |
| [TD1123](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-1123) | Slide set used in 2nd special session of transformation of security study |
| [TD1121R2](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-1121) | Proposal for Q4/17 to host the incubation role and mechanism |
| [TD1063](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-1063) | Proposal for Q4/17 to host the incubation role and mechanism |
| [TD895](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-0895) | First Report from CG-XSS |
| [TD842](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-0842) | Report of special session on Transformation of Security Studies |
| [TD841R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-180320-TD-PLEN-0841) | Agenda of Special session on Transformation of Security Studies |
| [TD782R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-170829-TD-PLEN-0782) | Terms of Reference for the Correspondence Group on Transformation of Security Studies |
| [TD669R1](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-170829-TD-PLEN-0669) | Cybersecurity of Next Big Things |

Table 5 - Lists of Contributions considered in this Technical Paper

|  |  |  |
| --- | --- | --- |
| Ref | Title | Source |
| [C739](https://www.itu.int/md/T17-SG17-C-0739/en) | Support for C596 “Technical Paper (TP.sgstruct): Strategic approaches to the transformation of security studies” | Agencia Nacional de Telecommuncacoes – ANATEL (Brazil) |
| [C732](https://www.itu.int/md/T17-SG17-C-0732/en) | Views on CG-WTSA20prep & CG-XSS Request-for-Contributions | Unites States |
| [C456](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0456) | Contribution to transformation studies and CG-xss about New Security Horizons | Symantec Corporation |
| [C437](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0437) | Contributions to transformation studies and CG-xss about implications from the transformation of the ecosystem | Symantec Corporation |
| [C298](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0298) | Support for a revised Question on CyberSecurity (Q4/17) | Russian Federation |
| [C293](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0293) | Comment on first report from CG-XSS | DCMS, United Kingdom |
| [C238](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0238) | Views on CG Transformation of Security Systems (in TD 895) | United States |
| [C218](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0218) | Proposed revisions for Question 8/17 text | China, Ministry of Industry and Information Technology (MIIT) |
| [C194](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0194) | Proposal for a revised Question on Countering spam by technical means(Q5/17) | Korea (Rep. of) |
| [C193](https://www.itu.int/md/meetingdoc.asp?lang=en&parent=T17-SG17-C-0193) | Proposal for a revised Question on CyberSecurity (Q4/17) | Korea (Rep. of) |

Annex 2 – Changes to the incubation question text

Currently the hosting question changed its text in the following way to represent the incubation management:

**Motivation**

*SG17 needs to be proactive and prompt in studying emerging areas in order to secure new emerging telecommunication/ICT based services and applications. Incubation function enables SG17 to introduce new work items in an efficient manner in the emerging areas.*

**Question**

*g)      How should SG17 study new emerging areas to protect global telecommunication/ICT infrastructures from the threats and challenges of the evolving cybersecurity landscape including new emerging services and applications?*

**Tasks**

*k)      Collaborate with all other Questions in ITU-T SG17 to coordinate incubation mechanism.  
l)        Incorporate incubation mechanism as per [TP.inno] to address the new emerging areas in ITU-T SG17.*

Annex 3 – Template to support the reporting of the incubation mechanism in the incubation question report

The below text is a template text to be included in the incubation question report to document the status and assessment of the incubation mechanism for consideration in the working party closing plenary and then potentially in the study group closing plenary.

This template assumes Q4/17 is the incubation question for sake of clarity

**Q4 Incubation Mechanism Report**

Q4 hosts the incubation management part of the incubation mechanism as referred in [TP.inno]

**Q4 Rapporteur(s) in charge of incubation management in this SG17 meeting**

Q4 Rapporteur(s) in charge of incubation management in this SG17 meeting is (are):

*Firstname Name, Affiliation, Country*

**Status of the Incubation Queue**

The incubation queue contains [8] work items under development as of [19th of July 2019]

|  |  |  |
| --- | --- | --- |
| TD | Work Item | Title |
| [[TD1981](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1981) | TP.inno | Description of the incubation mechanism and ways to improve it |
| [TD1982](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1982) | TP.sgstruct | Strategic approaches to the transformation of security studies |
| [TD1950](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1950) | TR.sec-qkd | Technical report on security framework for quantum key distribution in telecom network |
| [TD2250](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2250) | X.cg-QKDN | Use of cryptographic functions on a key generated in Quantum Key Distribution networks |
| [TD2228](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2228) | X.qrng-a | Quantum noise random number generator architecture |
| [TD1880](https://www.itu.int/md/T17-SG17-190122-TD-PLEN-1880) | X.rdmase | Requirements and Guidelines for Dynamic Malware Analysis in a Sandbox Environment |
| [TD2248](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2248) | X.sec-QKDN-km | Security requirements for quantum key distribution – key management |
| [TD2249](https://www.itu.int/md/T17-SG17-190827-TD-PLEN-2249) | X.sec-QKDN-ov | Security requirements for quantum key distribution networks – overview] |

**Consensus on Work Items to be reallocated to their final questions**

Q4 had meeting agreement to present the following work items to be proposed for reallocation to their final question at Working Party closing plenary and SG17 closing plenary

|  |  |  |
| --- | --- | --- |
| Work Item | Title | To be Moved to Question |
|  |  |  |
|  |  |  |

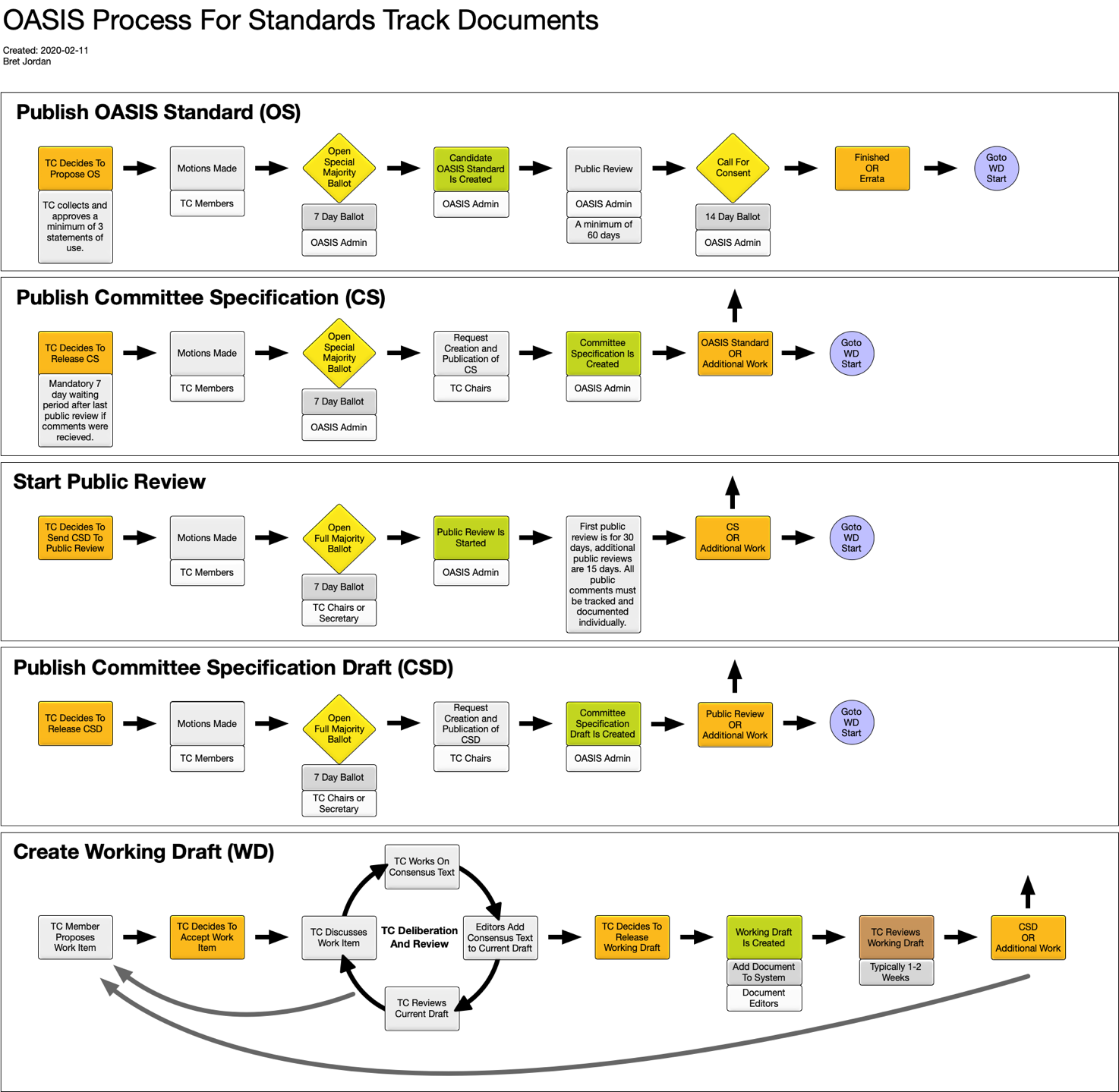
**Assessment of the Incubation Queue**

*The Q4 Rapporteur have the opportunity to write any assessment of the incubation queue here for example:*

* *Is the queue manageable, or too big, etc.*
* *Is there a need for specific experts in the rapporteurship of Q4 to manage new work items on topic X*
* *Is there an interesting trend developing in the queue where the Q4 Rapporteur want to suggest a potential new question or other structure or coordination or anything relevant.*

Annex 4 – OASIS Process for Standards Tracks Document

OASIS has a very pragmatic and approach to innovation, by simply not differenciating it. The below diagram shows the OASIS Process for Standards Tracks Document and in particular “Create Working Draft” at the bottom of the diagram



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