SQA Metric Items From FPA Spreadsheet - February 2019

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Abstract

Evaulation of various potential matrics, performance indicators from the Excel workbook that Software Quality Assurance collected called First Pass Acceptance. This will only be run for the month of February 2019. [1]

Contents

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[1] Date Ran: Friday 1st March, 2019 at 09:31

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1   Introduction

The data is processed using R[2], version 3.5.2 named "Eggshell Igloo" . The only extension (package or library) utilized is lubridate (version 1.7.4) to provide key functionality in the processing of dates.

The data is read into R from a comma seperated value (csv) file which is derived (saved) from the spreadsheet without modification. Additional values that are needed are are computed in R as needed.

This report is prepared in the R enviroment using a collection of packages know as Sweave that included knitr which in turn feeds the package into LaTeX 2_ε a typeseting program to produce a PDF file. LaTeX 2_ε in implented in MiTeX. LaTeX 2_ε is utilizing the folowing packages to control style and formating:

- datetime and

- multitoc

- hyperref

- xcolor

This will only show a point in time summary and no long term trending.

2   Data and Calculations

2.1   Data

A seperate data dictionary will be prepared to for both the source data and computed values stored in R.

2.2   Calculations

All calculations presented here have not been implemented in R as formulas.

3   Work Yet to be Completed

3.1   Functions

Some calculations would be better implemented as functions The calculations need to be evulated and the functions developed where needed.

3.2   Trending

Eventually the "application" will be updated to select the data on a for a calander month. After processing the results will be stored in a seperate file. This will allow for longer term trending of this data.

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[2]RStudio is utilized as an IDE

3.2.1 Graphs

When "trending" is implemented graphs of the trends will also be added.

4 Quanity Metrics

4.1 Application supported

This is a list of all application support this period.

```
 [1] "Acceptance Sampling Plan Generator (ASPG)"
 [2] "AFMS"
 [3] "Alinity Source Verifier"
 [4] "BioCommand Batch Control Plus"
 [5] "BioXpert"
 [6] "CHaRM"
 [7] "Clinical Chemistry Excel Spreadsheet for Digital Printing"
 [8] "CMSNext"
 [9] "DARA Filler DHM and RU"
[10] "DFCS"
[11] "Empower"
[12] "GDSN/GS1"
[13] "GS Reports"
[14] "IRIS"
[15] "Metrics Library"
[16] "Print on Demand"
[17] "Pulse"
[18] "QIMS"
[19] "RSLMS"
[20] "TODS"
[21] "TrendReader"
[22] "WWLIMS"
```

4.2 Number of Projects

The total number of projects worked on in this period. This may differ from the application list because some applications may have more than one project in the periond.

```
[1] 55
```

4.3 Number of Reviews

This is the number of items reviewed, a document will be counted more than once if it is reviewed more than once.

```
[1] 277
```

4.4 Number of Items Reviewed

This is the number of unique items reviewed, each item is only counted once regardless of how many times it is reviewed.

Note: This is reporting low due to certian items having no way to descriminate between such as multiple executions of the same test script or results from an IIVP run on different computers within the same project.

```
[1] 210
```

4.5 Number of Projects Started

The point at which a project is started is when version 1 of the *Software Change Request* is approved or the Project Plan for *GS Reports*, *Metrics Library* or *Power BI*.

Note: This now counts ML type projects (Metrics Library and GS Reports) using the Project Plan as the point that a project starts.

```
[1] 11
```

4.6 Projects Completed

The point at which a project is considered completed is when version 1 of the *System Certification Summary* or a Decommissioning Report is approved or the Project Plan for *GS Reports*, *Metrics Library* or *Power BI*.

```
[1] 8
```

4.7 Number Of Deliverables by Type

This is unique for each deliverable. It only counts each document once so a deliverable that is disapproved and then approved is only counted once.

```
          Cancellation                          CII
                     2                           12
    Data Migration Plan          Design Documentation
                     1                            2
     Design Verification                         ERES
                     3                            1
                   FRS                           IDP
                     7                            3
                  IIVP                  IIVP results
                     7                           23
          IIVP Results                          ISSD
                     5                            3
       Maintenance Plan           Move to Production
                     1                            4
```

```
            Project Plan           Software Change Request
                     5                                  14
Software Compliance Assessment      System Certification Summary
                     5                                   6
             Test protocol                       Test Protocol
                     2                                  36
       Test Protocol Results                       Traceability
                    35                                  16
                   URS/FRS          User Acceptance Protocol
                     5                                   2
User Acceptance Protocol results                 Validation Plan
                     6                                   4
```

4.8   Number of Deliverable by Application

This is the number of unique deliverables that each application submitted.
Itonly counts each document once, regardless of the status.

```
            Acceptance Sampling Plan Generator (ASPG)
                                                    5
                                                 AFMS
                                                   13
                               Alinity Source Verifier
                                                    6
                          BioCommand Batch Control Plus
                                                    1
                                              BioXpert
                                                    1
                                                CHaRM
                                                    2
Clinical Chemistry Excel Spreadsheet for Digital Printing
                                                    1
                                              CMSNext
                                                    4
                               DARA Filler DHM and RU
                                                   16
                                                 DFCS
                                                   32
                                              Empower
                                                    7
                                             GDSN/GS1
                                                   10
                                            GS Reports
                                                    9
                                                 IRIS
                                                    4
```

```
                                          Metrics Library
                                                        9
                                          Print on Demand
                                                        3
                                                    Pulse
                                                       30
                                                     QIMS
                                                        2
                                                    RSLMS
                                                        2
                                                     TODS
                                                        8
                                              TrendReader
                                                        3
                                                   WWLIMS
                                                       42
```

4.9 Number of Approvals, Disapprovals, and First Pass Approvals

```
 A A-FP    D
58  146   73
```

4.10 Table of Deliverables by Application

	Acceptance Sampling Plan Generator (ASPG)
Cancellation	0
CII	0
Data Migration Plan	0
Design Documentation	0
Design Verification	0
ERES	0
FRS	0
IDP	0
IIVP	0
IIVP results	2
IIVP Results	0
ISSD	1
Maintenance Plan	0
Move to Production	0
Project Plan	0
Software Change Request	0
Software Compliance Assessment	0
System Certification Summary	1
Test protocol	0
Test Protocol	0

Test Protocol Results	1
Traceability	0
URS/FRS	0
User Acceptance Protocol	0
User Acceptance Protocol results	0
Validation Plan	0

	AFMS	Alinity Source Verifier
Cancellation	0	0
CII	0	0
Data Migration Plan	0	0
Design Documentation	0	0
Design Verification	0	0
ERES	0	0
FRS	1	2
IDP	0	0
IIVP	1	0
IIVP results	0	0
IIVP Results	1	0
ISSD	0	0
Maintenance Plan	0	0
Move to Production	0	0
Project Plan	0	0
Software Change Request	1	2
Software Compliance Assessment	0	1
System Certification Summary	0	0
Test protocol	0	0
Test Protocol	8	0
Test Protocol Results	0	0
Traceability	0	1
URS/FRS	0	0
User Acceptance Protocol	0	0
User Acceptance Protocol results	0	0
Validation Plan	1	0

	BioCommand Batch Control Plus	BioXpert	CHaRM
Cancellation	0	0	0
CII	0	0	0
Data Migration Plan	0	0	0
Design Documentation	0	0	0
Design Verification	0	0	0
ERES	0	0	0
FRS	0	0	1
IDP	0	0	0
IIVP	0	0	0
IIVP results	1	0	0

IIVP Results	0	0	0
ISSD	0	0	0
Maintenance Plan	0	0	0
Move to Production	0	0	0
Project Plan	0	0	0
Software Change Request	0	1	0
Software Compliance Assessment	0	0	0
System Certification Summary	0	0	0
Test protocol	0	0	0
Test Protocol	0	0	0
Test Protocol Results	0	0	0
Traceability	0	0	0
URS/FRS	0	0	0
User Acceptance Protocol	0	0	0
User Acceptance Protocol results	0	0	0
Validation Plan	0	0	1

	Clinical Chemistry Excel Spreadsheet for Digital Printing
Cancellation	0
CII	0
Data Migration Plan	0
Design Documentation	0
Design Verification	0
ERES	0
FRS	0
IDP	0
IIVP	0
IIVP results	0
IIVP Results	0
ISSD	0
Maintenance Plan	0
Move to Production	0
Project Plan	0
Software Change Request	0
Software Compliance Assessment	0
System Certification Summary	0
Test protocol	0
Test Protocol	0
Test Protocol Results	1
Traceability	0
URS/FRS	0
User Acceptance Protocol	0
User Acceptance Protocol results	0
Validation Plan	0

CMSNext DARA Filler DHM and RU DFCS Empower

Cancellation	2	0	0	0
CII	0	1	2	1
Data Migration Plan	0	0	0	0
Design Documentation	0	0	0	0
Design Verification	0	0	2	0
ERES	0	0	0	0
FRS	0	0	0	0
IDP	0	1	0	1
IIVP	0	1	2	1
IIVP results	0	5	2	0
IIVP Results	0	0	0	0
ISSD	0	1	0	0
Maintenance Plan	0	0	0	0
Move to Production	0	0	0	0
Project Plan	0	0	1	0
Software Change Request	2	1	1	1
Software Compliance Assessment	0	1	0	0
System Certification Summary	0	1	0	0
Test protocol	0	0	0	0
Test Protocol	0	1	3	1
Test Protocol Results	0	1	17	0
Traceability	0	2	0	1
URS/FRS	0	0	0	1
User Acceptance Protocol	0	0	2	0
User Acceptance Protocol results	0	0	0	0
Validation Plan	0	0	0	0

	GDSN/GS1	GS Reports	IRIS Metrics	Library
Cancellation	0	0	0	0
CII	1	0	0	0
Data Migration Plan	0	0	1	0
Design Documentation	0	0	0	2
Design Verification	0	0	0	0
ERES	0	0	0	0
FRS	0	0	0	0
IDP	0	0	0	0
IIVP	1	0	0	0
IIVP results	1	0	0	0
IIVP Results	1	0	0	0
ISSD	1	0	0	0
Maintenance Plan	0	0	1	0
Move to Production	0	4	0	0
Project Plan	0	4	0	0
Software Change Request	0	0	0	0
Software Compliance Assessment	0	0	1	0
System Certification Summary	0	0	0	0

Test protocol	1	0	0	0
Test Protocol	3	0	0	4
Test Protocol Results	0	1	0	2
Traceability	0	0	0	0
URS/FRS	1	0	0	0
User Acceptance Protocol	0	0	0	0
User Acceptance Protocol results	0	0	0	0
Validation Plan	0	0	1	1

	Print on Demand	Pulse	QIMS	RSLMS	TODS
Cancellation	0	0	0	0	0
CII	0	3	0	0	0
Data Migration Plan	0	0	0	0	0
Design Documentation	0	0	0	0	0
Design Verification	0	1	0	0	0
ERES	0	0	0	0	0
FRS	0	1	0	0	0
IDP	0	0	0	0	0
IIVP	0	1	0	0	0
IIVP results	0	3	0	0	0
IIVP Results	0	0	0	0	0
ISSD	0	0	0	0	0
Maintenance Plan	0	0	0	0	0
Move to Production	0	0	0	0	0
Project Plan	0	0	0	0	0
Software Change Request	2	2	0	1	0
Software Compliance Assessment	1	0	0	1	0
System Certification Summary	0	2	2	0	0
Test protocol	0	1	0	0	0
Test Protocol	0	7	0	0	8
Test Protocol Results	0	2	0	0	0
Traceability	0	4	0	0	0
URS/FRS	0	3	0	0	0
User Acceptance Protocol	0	0	0	0	0
User Acceptance Protocol results	0	0	0	0	0
Validation Plan	0	0	0	0	0

	TrendReader	WWLIMS
Cancellation	0	0
CII	0	4
Data Migration Plan	0	0
Design Documentation	0	0
Design Verification	0	0
ERES	0	1
FRS	0	2
IDP	0	1

```
IIVP                                      0    0
IIVP results                              0    9
IIVP Results                              3    0
ISSD                                      0    0
Maintenance Plan                          0    0
Move to Production                        0    0
Project Plan                              0    0
Software Change Request                   0    0
Software Compliance Assessment            0    0
System Certification Summary              0    0
Test protocol                             0    0
Test Protocol                             0    1
Test Protocol Results                     0    10
Traceability                              0    8
URS/FRS                                   0    0
User Acceptance Protocol                  0    0
User Acceptance Protocol results          0    6
Validation Plan                           0    0
```

4.11 Table of Rejection Reasons

```
               Inaccurate information        Incorrect Objective Evidence
                                  50                                    2
                     Incorrect scope                 Insufficient testing
                                   4                                    2
             Insufficient traceability                     Multible Errors
                                   1                                    2
Not following configuration management Not following document version control
                                   1                                    1
                               Other
                                   8
```

4.12 Defects Verses Application

```
                                          Inaccurate information
Acceptance Sampling Plan Generator (ASPG)                      3
AFMS                                                          3
BioXpert                                                      1
CHaRM                                                         0
CMSNext                                                       0
DARA Filler DHM and RU                                        7
DFCS                                                         3
Empower                                                      8
GDSN/GS1                                                     4
Metrics Library                                              0
Print on Demand                                              1
```

```
Pulse                                              11
QIMS                                                4
WWLIMS                                              4
```

	Incorrect Objective Evidence
Acceptance Sampling Plan Generator (ASPG)	0
AFMS	0
BioXpert	0
CHaRM	0
CMSNext	0
DARA Filler DHM and RU	0
DFCS	2
Empower	0
GDSN/GS1	0
Metrics Library	0
Print on Demand	0
Pulse	0
QIMS	0
WWLIMS	0

	Incorrect scope
Acceptance Sampling Plan Generator (ASPG)	0
AFMS	0
BioXpert	1
CHaRM	0
CMSNext	0
DARA Filler DHM and RU	0
DFCS	0
Empower	0
GDSN/GS1	0
Metrics Library	0
Print on Demand	1
Pulse	2
QIMS	0
WWLIMS	0

	Insufficient testing
Acceptance Sampling Plan Generator (ASPG)	0
AFMS	0
BioXpert	0
CHaRM	0
CMSNext	0
DARA Filler DHM and RU	2
DFCS	0
Empower	0
GDSN/GS1	0

```
Metrics Library                                            0
Print on Demand                                            0
Pulse                                                      0
QIMS                                                       0
WWLIMS                                                     0


                                          Insufficient traceability
Acceptance Sampling Plan Generator (ASPG)                  0
AFMS                                                       0
BioXpert                                                   0
CHaRM                                                      0
CMSNext                                                    0
DARA Filler DHM and RU                                     1
DFCS                                                       0
Empower                                                    0
GDSN/GS1                                                   0
Metrics Library                                            0
Print on Demand                                            0
Pulse                                                      0
QIMS                                                       0
WWLIMS                                                     0


                                          Multible Errors
Acceptance Sampling Plan Generator (ASPG)                  0
AFMS                                                       0
BioXpert                                                   0
CHaRM                                                      0
CMSNext                                                    2
DARA Filler DHM and RU                                     0
DFCS                                                       0
Empower                                                    0
GDSN/GS1                                                   0
Metrics Library                                            0
Print on Demand                                            0
Pulse                                                      0
QIMS                                                       0
WWLIMS                                                     0


                                          Not following configuration management
Acceptance Sampling Plan Generator (ASPG)                  0
AFMS                                                       1
BioXpert                                                   0
CHaRM                                                      0
CMSNext                                                    0
DARA Filler DHM and RU                                     0
DFCS                                                       0
```

```
Empower                                                               0
GDSN/GS1                                                              0
Metrics Library                                                       0
Print on Demand                                                       0
Pulse                                                                 0
QIMS                                                                  0
WWLIMS                                                                0


                                       Not following document version control
Acceptance Sampling Plan Generator (ASPG)                            0
AFMS                                                                 1
BioXpert                                                             0
CHaRM                                                               0
CMSNext                                                             0
DARA Filler DHM and RU                                               0
DFCS                                                                 0
Empower                                                             0
GDSN/GS1                                                            0
Metrics Library                                                     0
Print on Demand                                                     0
Pulse                                                              0
QIMS                                                              0
WWLIMS                                                           0


                                       Other
Acceptance Sampling Plan Generator (ASPG)    0
AFMS                                        1
BioXpert                                    0
CHaRM                                       1
CMSNext                                     0
DARA Filler DHM and RU                      0
DFCS                                        0
Empower                                     0
GDSN/GS1                                    5
Metrics Library                             1
Print on Demand                             0
Pulse                                       0
QIMS                                        0
WWLIMS                                       0
```

4.13   Defects Verses Deliverable

```
> table(as.character(subset(FPA, subset = (status == "D"))$deliverable),
+       subset(FPA, subset = (status == "D"))$reason)

                              Inaccurate information
```

CII	3
FRS	2
IDP	2
IIVP	2
IIVP results	1
IIVP Results	0
ISSD	2
Software Change Request	12
System Certification Summary	9
Test Protocol	5
Test Protocol Results	5
Traceability	2
URS/FRS	4
Validation Plan	0

	Incorrect Objective Evidence	Incorrect scope
CII	0	0
FRS	0	0
IDP	0	0
IIVP	0	0
IIVP results	0	0
IIVP Results	0	0
ISSD	0	0
Software Change Request	0	2
System Certification Summary	0	0
Test Protocol	0	2
Test Protocol Results	2	0
Traceability	0	0
URS/FRS	0	0
Validation Plan	0	0

	Insufficient testing	Insufficient traceability
CII	0	0
FRS	0	0
IDP	0	0
IIVP	0	0
IIVP results	0	0
IIVP Results	0	0
ISSD	0	0
Software Change Request	0	0
System Certification Summary	0	0
Test Protocol	2	0
Test Protocol Results	0	0
Traceability	0	1
URS/FRS	0	0
Validation Plan	0	0

	Multible Errors
CII	0
FRS	0
IDP	0
IIVP	0
IIVP results	0
IIVP Results	0
ISSD	0
Software Change Request	2
System Certification Summary	0
Test Protocol	0
Test Protocol Results	0
Traceability	0
URS/FRS	0
Validation Plan	0

	Not following configuration management
CII	0
FRS	1
IDP	0
IIVP	0
IIVP results	0
IIVP Results	0
ISSD	0
Software Change Request	0
System Certification Summary	0
Test Protocol	0
Test Protocol Results	0
Traceability	0
URS/FRS	0
Validation Plan	0

	Not following document version control	Other
CII	0	0
FRS	0	0
IDP	0	0
IIVP	0	1
IIVP results	0	0
IIVP Results	0	5
ISSD	0	0
Software Change Request	0	0
System Certification Summary	0	0
Test Protocol	0	0
Test Protocol Results	0	1
Traceability	0	0

```
URS/FRS                                                      0      0
Validation Plan                                              1      1
```

4.14   Rejection Reason by Deliverable

```
                        CII                           FRS
                          3                             3
                        IDP                          IIVP
                          2                             3
                IIVP results                   IIVP Results
                          2                             5
                       ISSD        Software Change Request
                          2                            18
System Certification Summary                 Test Protocol
                          9                             9
        Test Protocol Results                  Traceability
                          8                             3
                    URS/FRS               Validation Plan
                          4                             2
```

4.15   Number of Rejections by Project

```
Acceptance Sampling Plan Generator (ASPG)
                                        3
                                     AFMS
                                        6
                                 BioXpert
                                        2
                                    CHaRM
                                        1
                                  CMSNext
                                        3
                  DARA Filler DHM and RU
                                       10
                                     DFCS
                                        6
                                  Empower
                                        8
                                 GDSN/GS1
                                        9
                          Metrics Library
                                        1
                          Print on Demand
                                        2
                                    Pulse
                                       13
```

```
    QIMS
       4
   WWLIMS
       5
```

5 Rate Metrics

5.1 Document Approval Rate

This is portion of documents that are approved upon review.

It is computed by counting the number of approvals devided that by the total number of reviews.

```
[1] 0.7364621
```

5.2 First Pass Acceptance

this is the portion of documents that are approved on the first review conducted by SQA.

It is computed by counting the number of first pass approvals devided by the number of reviews.

```
[1] 0.5270758
```