TM Forum RA Survey Report

2016 Edition

TM Forum Revenue Assurance Team

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Purpose of the report

In the name of the survey team I'd like to invite you to explore the insights and trends, to reflect on challenges and needs of your own organization and to discuss in the RA community your fresh ideas and business challenges!

Rene Felber, Revenue Assurance Survey Lead, TeliaSonera

The purpose of this global Survey Report is to share and discuss insights and trends in the Revenue Assurance discipline and to provide Telecom Operators and their RA function's business value improvement paths. This survey report covers the 40 questions (anonymous) based on six key value drivers.

The report also provides:

- Full result transparency
- TM Forum community reflections and guiding resources
- Telecom Operator use cases
- Expert takeaways
- Light benchmark report

The value of Revenue Assurance (RA)

At its simplest RA is about being efficient and effective – getting the expected revenue from any product/service and paying the correct sums to third parties. In an ideal world there would be no need for specialized 'RA' departments. But the world is not ideal, RA departments are vital, without them Telco's would be losing huge amounts of money. At its best RA prevents leakages, without disturbing the day to day business processes, it is unseen. "If a tree falls in a forest and no one is around to hear it, does it make a sound?"

This puts those in RA in an unenviable position – from the board level RA is under scrutiny 'can we reduce/do we still need the team?' But, for the rest of the organization there's no need to think 'RA efficiency' because – 'the RA team will take care of it'.

So RA may never become part of the 'culture' – but inefficiencies/losses will occur and someone needs to take ownership, and convince the board that any investment in RA is worthwhile.

RA needs to be agile and proactive – educating all in the organization, be key members of any change management team, and involved in discussions on innovation. Those discussions are key – it's not just about adapting what we have to 'deal with the innovative ideas', it should also be 'what are the opportunities to be more efficient'. Agility includes being prepared to consider that what we had before may no longer be relevant - to change and adapt to the new environment – and everyone in the organization should recognize the RA team and see them for what they are – innovation guardians, ensuring organizations get what they expect from new ideas!

Chris Stock
TM Forum Director Security & Privacy Programs

Dr. Gadi Solotorevsky
TM Forum Revenue Assurance Team Leader

Executive Summary

Top 10 survey facts

1.5%
Reported average revenue loss is 1.5% of the company's revenues.

46%
The average revenue recovery rate is 46%.

1 in 3
One in three don't cover new services/technologies.

60%
One in two cover at least 60% of the company's revenues.

Pro-active RA
Organizations with pro-active RA purposes are more mature.

Loss prevention
Only half measure and report loss prevention.

4 in 10
Four out of ten said "use of technology" is their primary maturity accelerator.

Communication skills
Communication skills and end-to-end knowledge drive improvements.

Business metrics
Only half said they have a business metrics-based performance reporting process

50%
50% said they also perform fraud management activities

A record of 146 global participants

- Western Europe
- Asia
- Africa
- Eastern Europe
- North America
- Latin America
- Middle East
- Australia/Oceania

Survey takeaways by recognized experts (Page 51)

✓ "It is a sign of maturity that RA is an integral part of product development" Alex Leslie

✓ "Finding wider RA uses for mature tools and analytics" Dan Baker

✓ "Coverage is more important than control" Eric Priezkalns

✓ "Revenue assurance maturity is heading south – and that's a good thing!" Dr. Gadi Solotorevsky

✓ "Senior sponsorship is a must for growth and maturity" Rob Chapman

✓ "RA comes of age, but where to go next" Tony Poulos

Main Results

Finding the perfect organizational setup to optimize business value creation.

Overall RA maturity

Maturity

- The average maturity score is 3.1 for respondents who performed the detailed RAMM assessment (37 respondents, 25%).

- The overall maturity average is **2.9** which includes also the 109 respondents who selected a plain level based on the 5 step RAMM definition.

- The average reported in the RA survey 2015 was 3.2

TM Forum Community Comments

Available frameworks and tools such as TM Forum's Revenue Assurance Maturity (RAMM) model provide strategic guidance for maturity improvement. Survey respondents were this year less overoptimistic as compared to the last year regarding their maturity levels. An assessment model such as RAMM grounds organizations in reality.

RAMM average Maturity Score: 3.1

5. Optimized

4. Managed

3. Defined

2. Repeatable

1. Initial

Average maturity per region

Maturity

Region	Maturity
AVERAGE	2.9
Western Europe	3.1
North America	3.3
Middle East	2.4
Latin America	2.8
Eastern Europe	3.0
Australia / Oceania	2.4
Asia	2.9
Africa	2.6
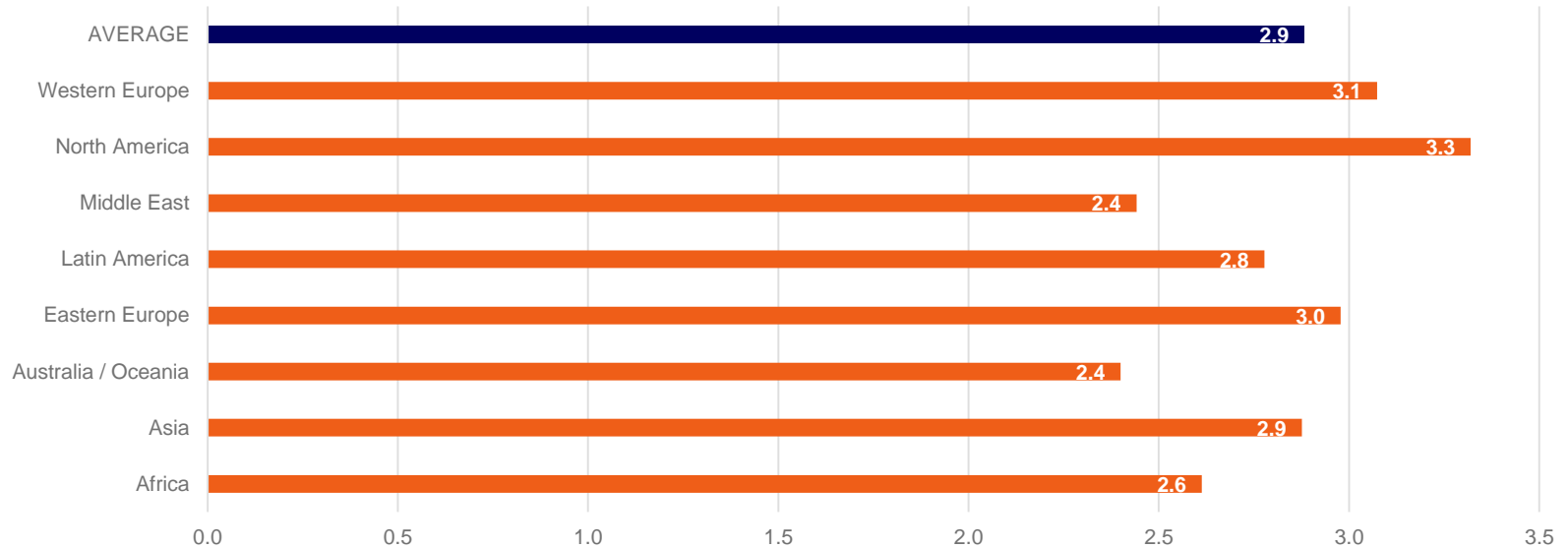
- North America scored the highest average maturity (3.3) followed by Europe and Asia.

Average maturity per organizational location of RA lead

Maturity
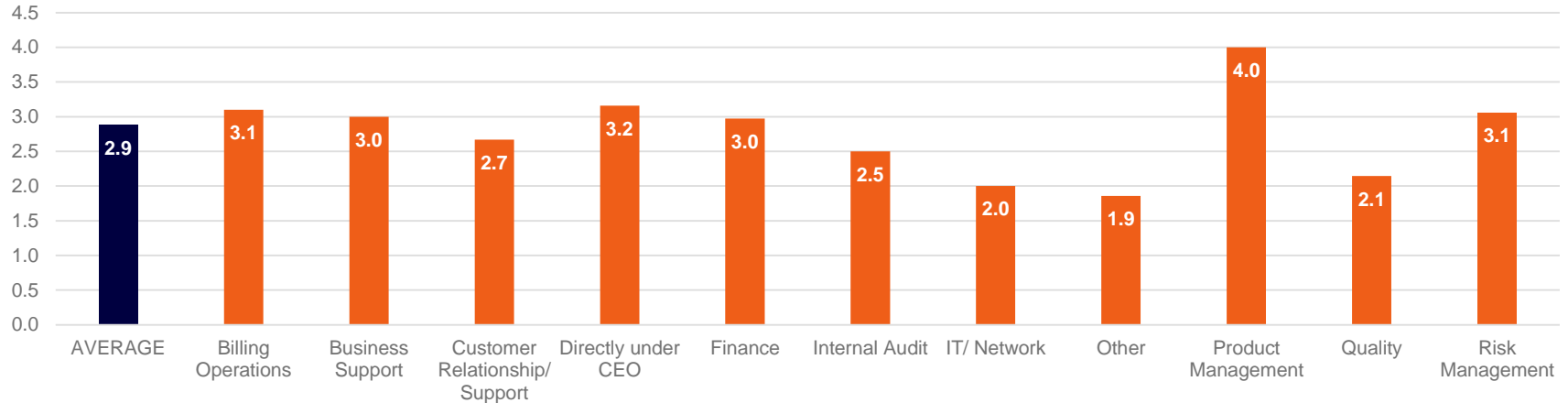
- Finance, billing operations and risk management (location of lead for 78% of the survey participants) are on the average maturity level (2.9). Product Management has scored an average of 4 (only a few instances). IT/ Network and Quality Management reported the lowest average maturity scores

- Further insights on maturity in Appendix 1 - Question 13.

TM Forum Community Comments

RA organizations outside Finance (65% of respondents were in Finance), with a high average maturity, such as product management, strive to manage products end-to-end which is a positive sign but challenging in regard to achieving end-to-end coverage and the consistent application of risk management methodologies.

Main accelerators of maturity

Maturity

Accelerator	Percentage
Use of technology e.g. data analytics	40%
Experience of the RA team	28%
Organizational empowerment of the RA function	25%
Increased visibility/ acknowledgment of RA accomplishments	22%
Formalization of the RA function	20%
Operating in a cross functional mode	17%
Increase in resources allocated to RA activities	7%
Use of outside experience	7%
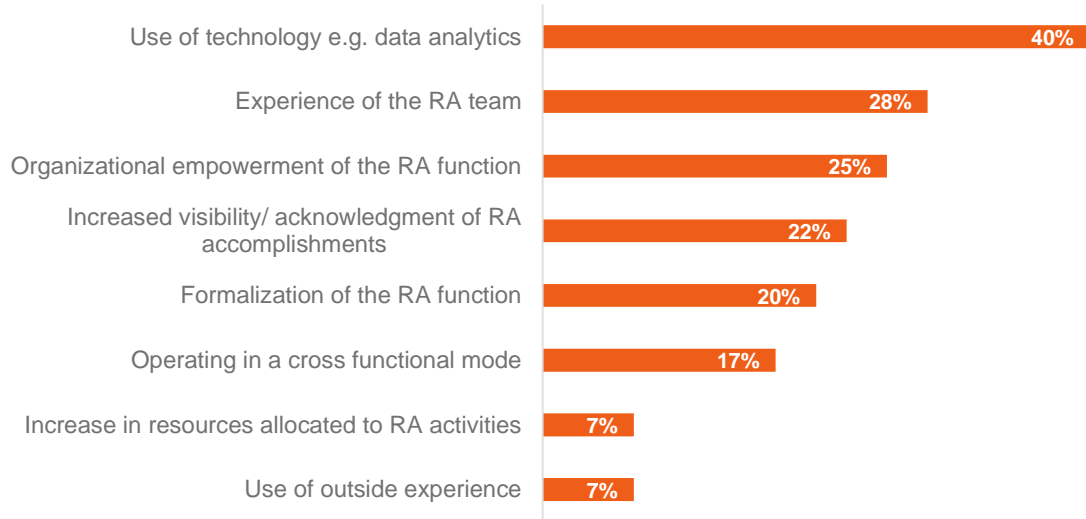
- Technology was selected most frequently as a main maturity improvement accelerator. One year back the '*RA team's experience*' was top and ranks second this year. '*Visibility*' and '*Organizational empowerment*' were also frequently mentioned.

- Remark: 2 answers max

- Further insights Appendix 1 - Question 14.

TM Forum Community Comments

Technology has jumped to the top as an effective enabler for driving maturity – possibly because this year 2 answers could be selected, and technology could be seen as part of, or enhancing, adoption of many of the other areas.

Region of main operations

Organizational Profile

Chart: Region of main operations (percentage of respondents)

Region	Percentage
Western Europe	24%
Asia	20%
Africa	18%
Eastern Europe	17%
North America	7%
Latin America	6%
Middle East	4%
Australia / Oceania	3%
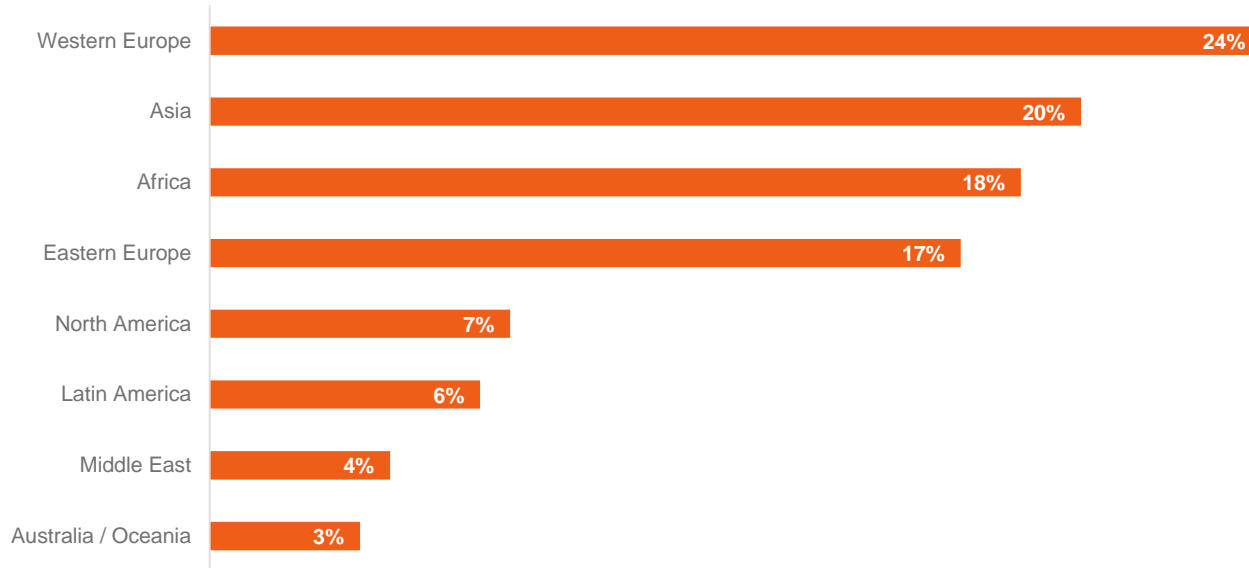
- Global footprint of survey respondents. Europe (Western and Eastern) and North America count for almost 50% of all responses.
- Maturity level 5 was reported in North America, Africa and Asia. Level 3 and above were reported at the highest in North America followed by Western Europe and Asia.

Number of FTEs on RA activities

Organizational Profile

Category	Percentage
N/A	3%
> 100 FTE	8%
51–100 FTE	2%
21–50 FTE	8%
11–20 FTE	14%
6–10 FTE	25%
3–5 FTE	27%
< 3 FTE	14%
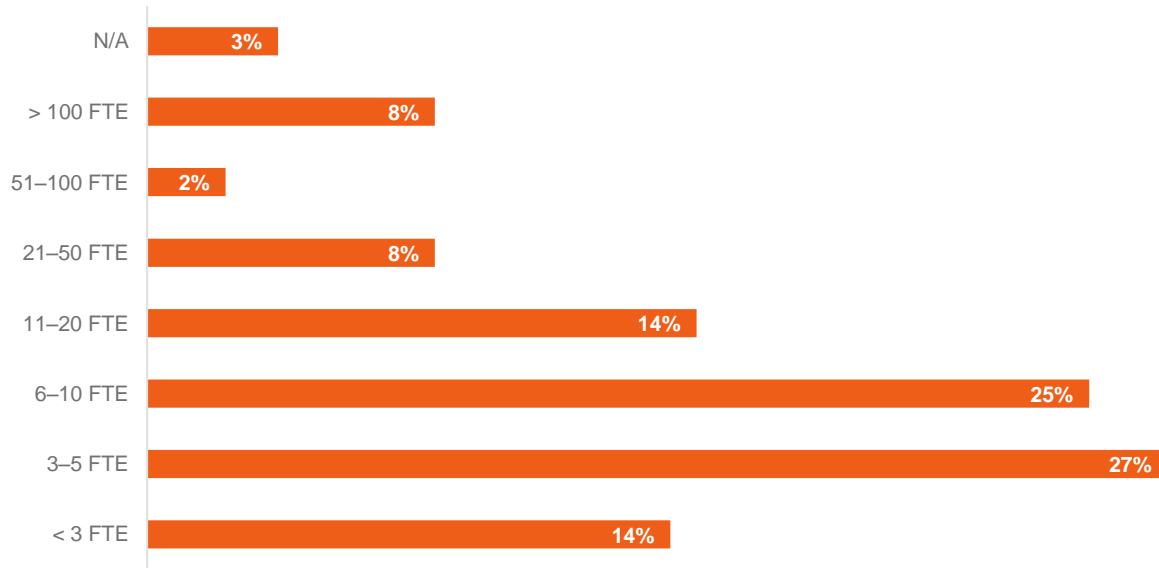
- Half of the RA organizations employ between 3 and 10 FTEs.

- Additional analysis showed a slight maturity vs. RA team size correlation (higher maturity with more FTEs). All organizations with 50 or more RA FTEs reported maturity level 3 and above.

- In the next survey data on the number of FTEs by company size will be collected to give added value to these statistics.

Years of existence of RA department

Organizational Profile

N/A	8%
longer than 10 years	28%
8 to 10 years	14%
5 to 7 years	25%
3 to 4 years	17%
less than 2 years	8%
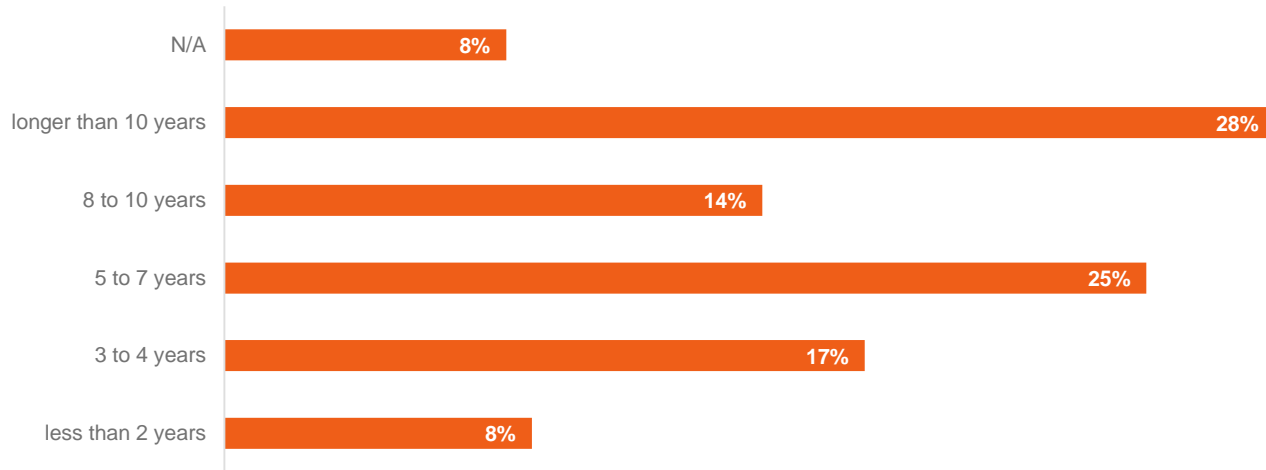
- 42% of the Revenue Assurance organizations have existed for 8 years or more.
- 0 to 8 years - the "Years of existence" correlates with maturity, thereafter the correlation is weaker.
- Most level 5 maturity organizations are older than10 years (30% of all).
- Further insights in Appendix 1 - Question 3.

Other roles performed by RA functions

Organizational Profile

Fraud management — 47%
Credit control — 31%
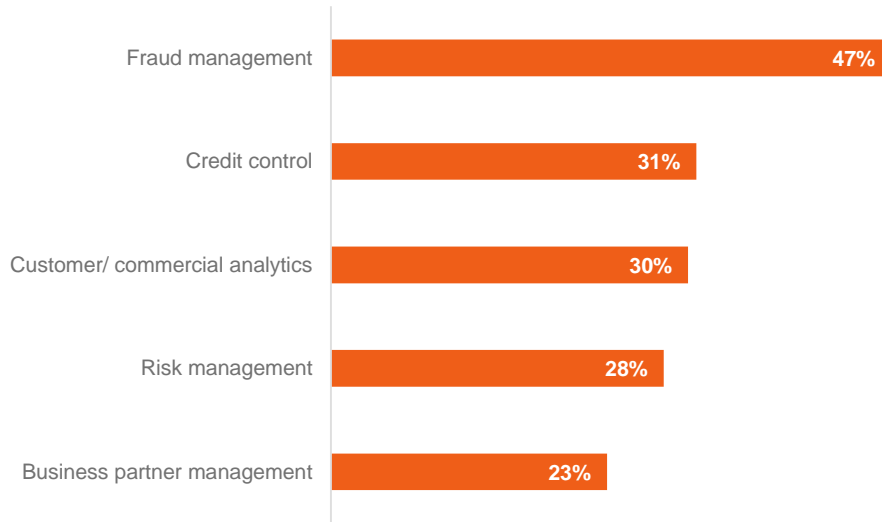Customer/ commercial analytics — 30%
Risk management — 28%
Business partner management — 23%

- Almost half of the respondents said they are performing Fraud Management roles as well. Numbers have increased significantly since last year – as it has for most other roles.

- Further insights in Appendix 1 - Question 7.

- REMARK: All 12 profiling questions are displayed in Appendix 1.

TM Forum Community Comments

The increase in RA teams performing additional roles could be explained by a broader risk assurance approach as well as being increasingly involved in more operational activities. On the other hand efficiency and maturity gains may also drive portfolio widening. Generally, greater integration throughout an organization could be viewed as a sign of maturity - providing greater flexibility/ agility in mitigating risks across the organization.

Area result summary

RA Organizations and Maturity

Key Observations:

- Reported maturity levels have decreased slightly for the third time in a row in absolute terms, but in reality most respondents perceive consistent maturity improvements.

- RA organizations are increasingly taking on (or merged with) new roles in adjacent areas such as Fraud Management and focusing on wider revenue coverage to support profitability.

- Higher maturity levels are achieved in organizations with long established, well staffed RA teams.

- Technology, already a key driver of maturity, will only increase in importance with the increase in virtualization and the internet of everything.

Trends:

- The gap between perceived and reported maturity indicates that survey respondents are increasingly using frameworks, such as TM Forum's Revenue Assurance Maturity Model (RAMM), to rigorously assess their maturity and systematically plan improvements.

- Accelerated maturity improvements are increasingly achieved by systematic use of supporting technology.

- Increasingly established RA organizations are expanding outside their core domain.
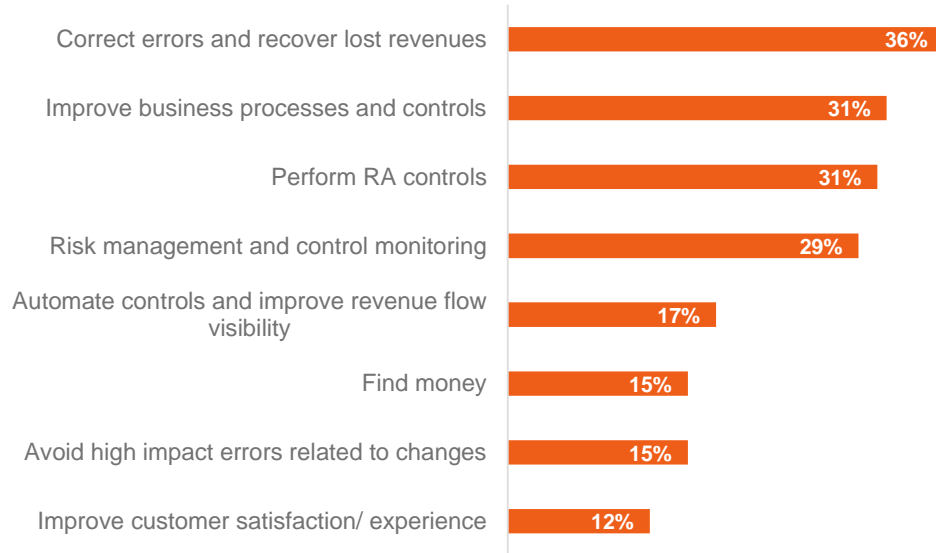
Resources:

- TM Forum Revenue Assurance solution suite (Revenue Assurance Maturity Model RAMM)
- Selected RA practitioner articles and blogs:
    - Revenue Assurance is like an apple tree
    - Do we need a new approach to revenue assurance in the digital world?

Strategy and Change

Understanding the big picture - aligning RA strategy to keep pace with change.

Purpose of the RA function

Strategy and Change

| Purpose	Percentage
Correct errors and recover lost revenues	36%
Improve business processes and controls	31%
Perform RA controls	31%
Risk management and control monitoring	29%
Automate controls and improve revenue flow visibility	17%
Find money	15%
Avoid high impact errors related to changes	15%
Improve customer satisfaction/ experience	12%

- Revenue loss recovery was identified as the main purpose of RA, followed by process/control improvement and risk/ control management.

- The most common main purpose pairing (max 2 answers) was "Correct errors and recover lost revenues" AND "Improve business processes and controls". Interestingly most common answer pairings were mixtures of 'active' and 'pro-active' purposes.

- The results also show that companies develop more proactive approaches with age whilst retaining reactive and/or active purposes.

- Active purposes such as performing RA controls and risk management are common for mature RA organizations that existed for many years.

- "Improve customer satisfaction/ experience" has scored above average maturity scores. In the majority of these cases the RA team is **not** located within the finance organization

- Further insights in Appendix 1 - Question 15.

TM Forum Community Comments

Most RA organizations aim to be proactive as well as reactive. The evolution of RA organizations naturally starts from "Finding Money", but with age and maturity RA becomes more proactive and increasing its role in the risk and performance management domains. The role of RA in customer experience is also on the rise.

Change process mandate for RA to perform risk/cost assessments

Strategy and Change

62%

38%

Yes   No

5
4
3
2
1

Yes   No

Maturity Correlation
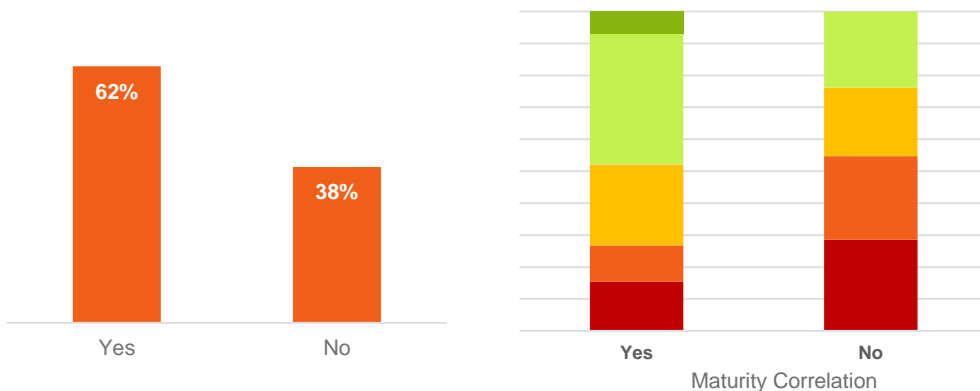
- 6 out of 10 RA functions have a change process mandate to perform risk/ cost assessments.

- RA organizations with a clear change process mandate have stronger maturity scores: Over 70% who answered yes have level 3 maturity or higher (vs 50 % of the respondents who said No).

TM Forum Community Comments

A change process mandate ensures early risk identification in regard to changes and new products and provides assurance on the end-to-end money flow. Such proactive risk management measures also underpin customer experience. e.g. ensuring the first invoices will be correct for a complex B2B offering.

Primary challenges for RA to overcome regarding "New product development"

Strategy and Change

Challenge	Percentage
Lack of end-to-end business process understanding	47%
Process ownership issues/ conflicts of interest	31%
Lack of cross functional mandate	31%
Immaturity of change management process	20%
Communication issues	17%
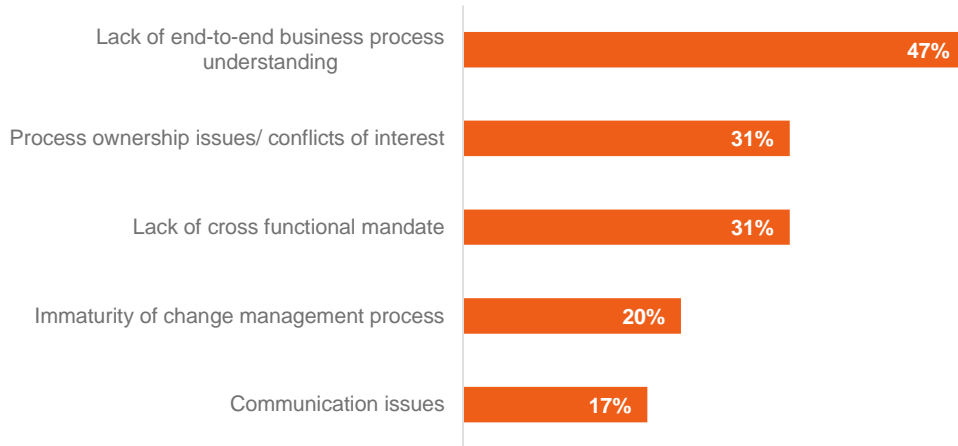
- "Lack of end-to-end business process understanding" has been reported by 5 out of 10 respondents as a primary challenge regarding new product development. Last year only 7% of the respondents selected this answer.

- Most common pairings (max 2 answers) were:

  - "Lack of end-to-end business process understanding" AND "Lack of cross functional mandate"

  - "Process ownership issues" AND "Communication issues"

- Further insights in Appendix 1 - Question 17.

TM Forum Community Comments

RA should be engaged in new product development from conception.
Digitization will result in ever more complex products and services – for RA to be effective will require a comprehensive understanding of the business processes end-to-end. A cross-functional mandate would go some way to helping to achieve that understanding.

Area result summary

Strategy and Change

Key Observations:

- RA organizations are becoming more proactive; Their involvement in tasks beyond finding and recovering money, such as business process improvement and active risk management is increasing.
- RA should be involved in 'change' from the start – a change management process mandate is a strong indicator of maturity
- Performance metrics and KPIs should be re-evaluated as "finding money" drops in importance and RA becomes more proactive.
- Sound RA can significantly enhance / contribute to customer experience management. Customer experience focused RA organizations are mostly located outside finance.

Trends:

- RA organizations that are successfully involved in new product development have the capability to understand end to end processes including money flows in complex eco systems and act as business partners long before products are launched.
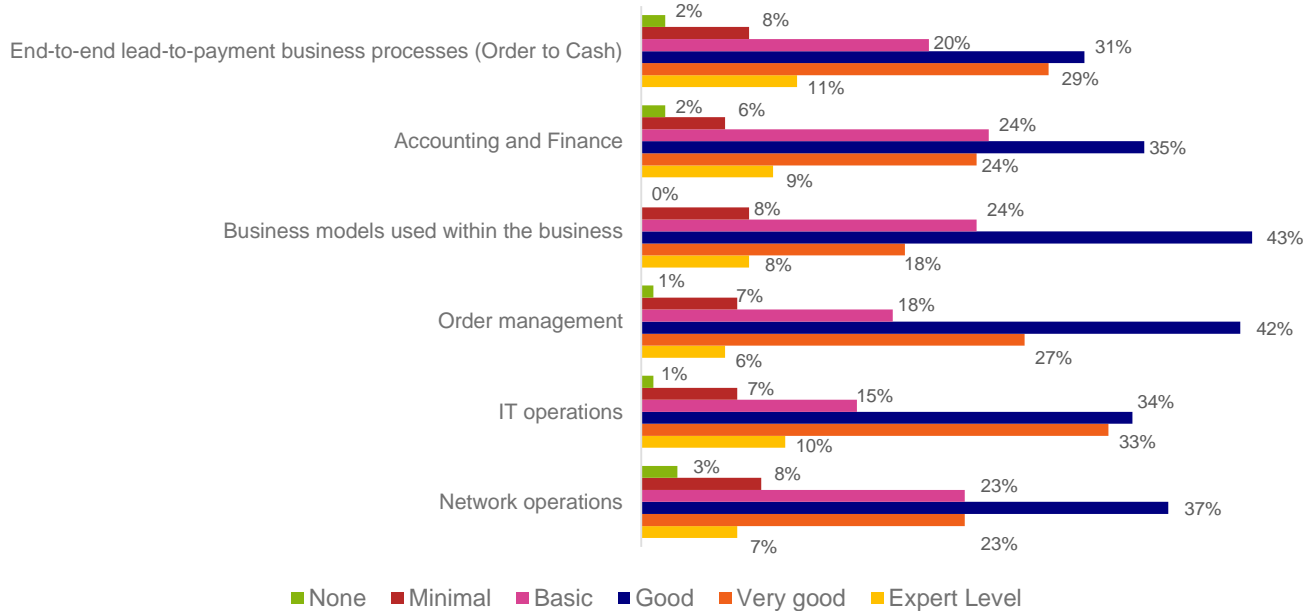- Leading RA organizations sign-off new products prior to launch.

Resources:

- Selected Revenue Assurance practitioner articles and blogs:
    - Lessons learned from Zappos
    - Revenue Assurance function of the future
    - How to avoid change-blindness
    - Revenue Assurance's role in business transformation

Fostering the right skills and providing a collaborative environment.

RA team knowledge levels

People and Communication

Chart: RA team knowledge levels by category. Legend: None, Minimal, Basic, Good, Very good, Expert Level

End-to-end lead-to-payment business processes (Order to Cash)
- None: 2%
- Minimal: 8%
- Basic: 20%
- Good: 31%
- Very good: 29%
- Expert Level: 11%

Accounting and Finance
- None: 2%
- Minimal: 6%
- Basic: 24%
- Good: 35%
- Very good: 24%
- Expert Level: 9%

Business models used within the business
- None: 0%
- Minimal: 8%
- Basic: 24%
- Good: 43%
- Very good: 18%
- Expert Level: 8%

Order management
- None: 1%
- Minimal: 7%
- Basic: 18%
- Good: 42%
- Very good: 27%
- Expert Level: 6%

IT operations
- None: 1%
- Minimal: 7%
- Basic: 15%
- Good: 34%
- Very good: 33%
- Expert Level: 10%

Network operations
- None: 3%
- Minimal: 8%
- Basic: 23%
- Good: 37%
- Very good: 23%
- Expert Level: 7%

- Generally, RA organizations are familiar with business processes and business models. In all categories considered only one out of ten has not achieved basic knowledge levels. Very good knowledge levels were reported by one out of three whereas the highest knowledge levels (Very good and Excellent) were stated in IT operations and in the end-to-end Order to Cash process.

- A clear correlation of knowledge levels with maturity was noted: RA organizations who selected good or better knowledge levels achieved on average higher maturity levels

- Further insights in Appendix 1 - Question 29.

TM Forum Community Comments

IT operations skills are present in RA teams, especially in the traditional process coverage area of "charging and billing" from where RA originated. Increasingly high levels of knowledge of the end-to-end processes, including thorough understanding of business models will be essential if RA is to keep pace with innovation across the digital ecosystem.

Regular RA activity review with other departments

People and Communication
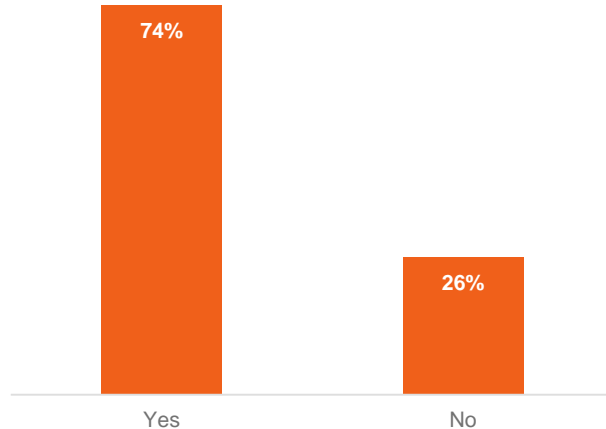
- 3 out of 4 survey respondents confirmed that they review regularly with other departments the findings of RA activities and jointly plan corrective and preventative actions.

- Higher maturity levels were reported for RA organizations who review RA activity regularly with other departments

- Further insights in Appendix 1 - Question 26.

TM Forum Community Comments

Regular active interaction with other departments ensures alignment of focus and secures continuous delivery of high quality business value.

Area result summary

People and Communication

Key Observations:
- RA teams generally have a wide range of skills – but they should not rest on their laurels, they should continually be looking at how the organization evolves and assessing what additional skills are required to play a full and effective part. The survey answers illustrate the need to understand end-to end processes and business models to improve maturity, and hence effectiveness.

Trends:
- RA organizations are increasingly planning activities together with business systematically. Leading organizations are not just discussing results, they also involve business partners in the planning process.
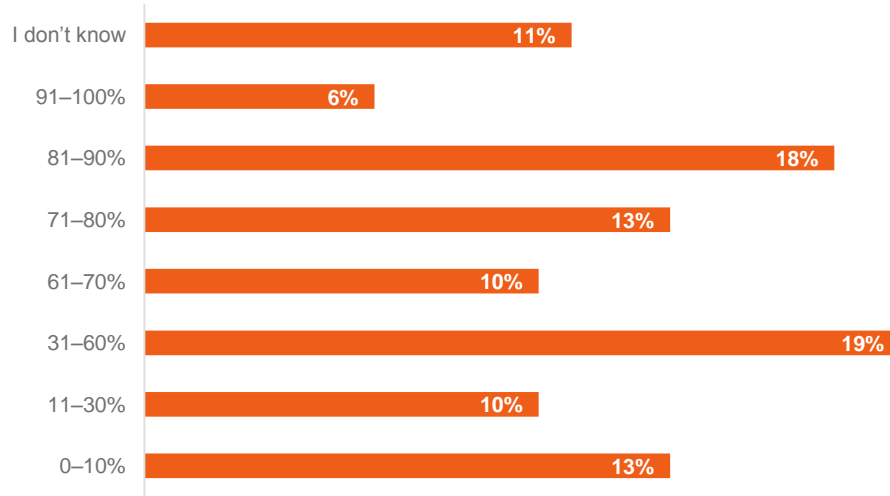
Resources:
- TM Forum Revenue Assurance Fundamentals (Training & certification)
- Selected RA practitioner articles and blogs:
    - User experience interview

Improving revenue coverage levels to support achievement of companies' objectives.
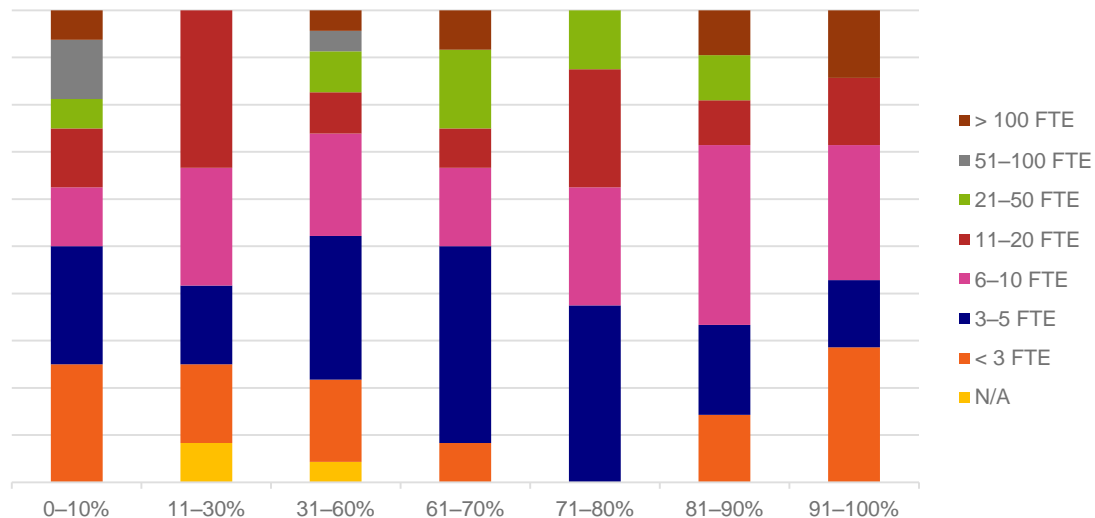
Coverage

- 45% of the survey respondents stated that they are covering over 60 % of the company's revenues.

- The participants who performed the assessment according to TMF's process model reported lower coverage rates in the range 81-90% but higher percentages in the ranges 61-70% and 91-100%.

- There is a slight correlation of higher coverage levels with maturity.

- The highest coverage cases were all in organizations where the RA lead is in Finance.

- Region wise there are no major differences of coverage levels.

TM Forum Community Comments

Coverage is one of the most important factors in RA maturity. One would expect the contribution of 'coverage' to maturity to be greater. If areas within an organization are not covered, leakages and inefficiencies go undetected, and inevitably are higher than recorded.

Overall revenue coverage 2/2 (vs. number of RA FTEs)

Coverage

Legend:
- > 100 FTE
- 51–100 FTE
- 21–50 FTE
- 11–20 FTE
- 6–10 FTE
- 3–5 FTE
- < 3 FTE
- N/A

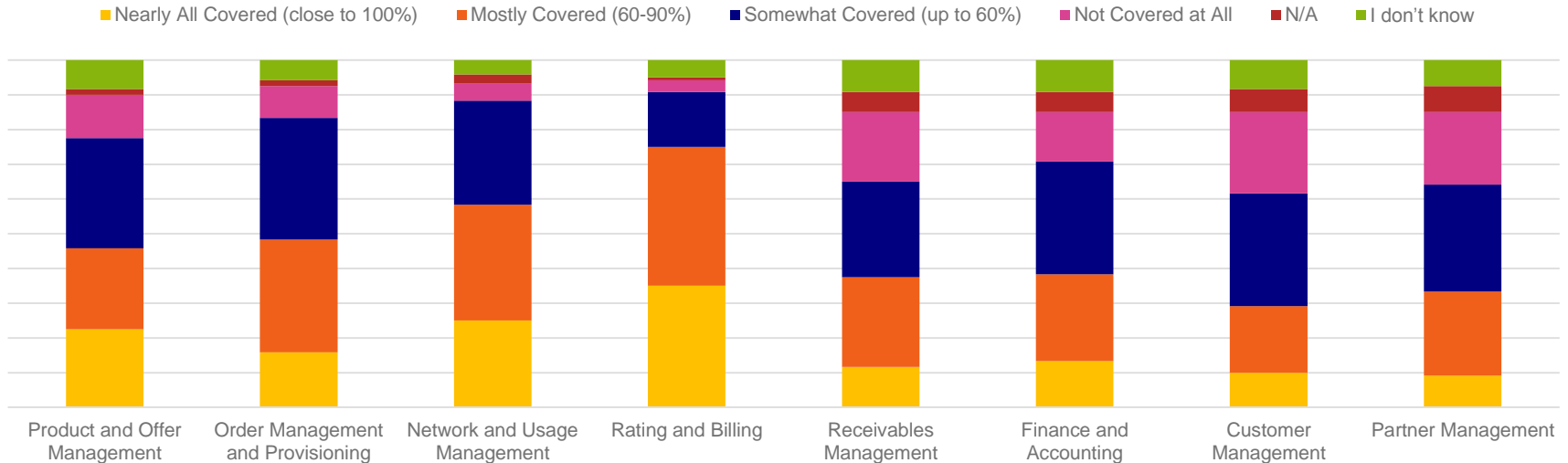X-axis categories: 0–10%, 11–30%, 31–60%, 61–70%, 71–80%, 81–90%, 91–100%

- There is a slight correlation of coverage levels with the number of RA FTEs (correlation somewhat weaker than last year).
- Further insights in Appendix 1 - Question 19.

TM Forum Community Comments

There is evidence of more effective use of technology.

Process area coverage

Coverage

Legend: ■ Nearly All Covered (close to 100%) ■ Mostly Covered (60-90%) ■ Somewhat Covered (up to 60%) ■ Not Covered at All ■ N/A ■ I don't know

Categories: Product and Offer Management | Order Management and Provisioning | Network and Usage Management | Rating and Billing | Receivables Management | Finance and Accounting | Customer Management | Partner Management
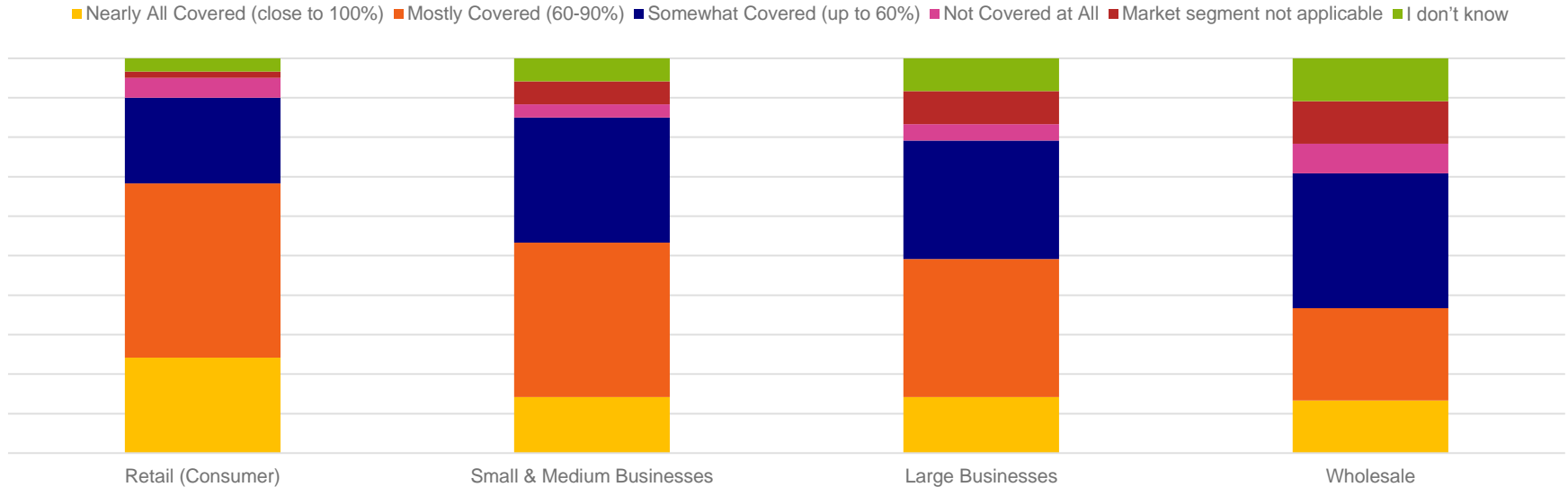
- The highest coverage levels were reported in traditional RA domains such as Rating and Billing and Network Usage Management.

- As compared to last year's survey the patterns are similar but coverage levels this year are on a lower level e.g. for the category Rating and Billing over 50% said last year that they are "nearly all covered" – only 35% this year.

TM Forum Community Comments

Mature organizations strive to cover all their products from the Order to the Cash. Leading companies look for ways to go beyond. e.g. into Need to Order and infrastructure capacity management to increase the "commercial" contribution towards "Active Revenue Management"
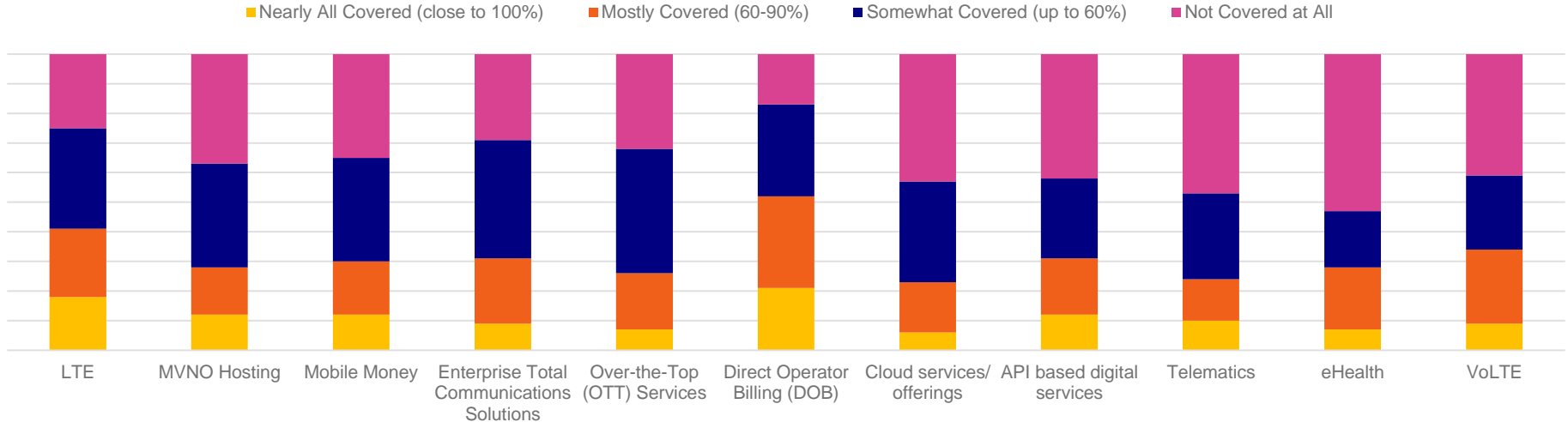
Market segment coverage

Coverage

Legend: ■ Nearly All Covered (close to 100%) ■ Mostly Covered (60-90%) ■ Somewhat Covered (up to 60%) ■ Not Covered at All ■ Market segment not applicable ■ I don't know

Categories: Retail (Consumer), Small & Medium Businesses, Large Businesses, Wholesale

- The highest coverage rates are achieved in the consumer business followed by small and large business and wholesale.
- As compared to last year's survey the patterns are similar but coverage levels of 60% and above are lower this year.

Coverage of new services/technologies

Coverage

Chart legend: ■ Nearly All Covered (close to 100%) ■ Mostly Covered (60-90%) ■ Somewhat Covered (up to 60%) ■ Not Covered at All

Categories: LTE, MVNO Hosting, Mobile Money, Enterprise Total Communications Solutions, Over-the-Top (OTT) Services, Direct Operator Billing (DOB), Cloud services/ offerings, API based digital services, Telematics, eHealth, VoLTE

- New services and technologies are covered on a lower level as compared existing services e.g. considering LTE was relevant to about 75% of the survey participants, 36% say they have the services mostly covered or nearly all covered. 1 out of 3 indicate that they have not covered LTE. A chart with all answer options (including "Don't know" and "N/A") is at Appendix 1 - Question 22.

TM Forum Community Comments

The survey shows that RA organizations are, on average, involved too late in production - too often when products have already gone live.

Area result summary

Coverage

Key Observations:

- 45% of the survey respondents stated that they are covering over 60 % of the company's revenues.

- Business process areas outside billing / network are covered to a lower level which indicates that many RA organizations are still focusing mainly on traditional topics and are not yet achieving end-to-end process coverage.

- Average coverage levels for new services / products are still low e.g. 1 out of 3 indicate that they have not covered new services/ technologies.

- Where areas are not covered, leakages and inefficiencies go undetected, and the total losses will be unknown

Trends:

- RA organizations are starting to understand coverage levels and plan systematic coverage increase. They plan coverage improvements together with RA sponsors and businesses, also evaluating the requirements for best fit technology platforms to support and increase coverage.
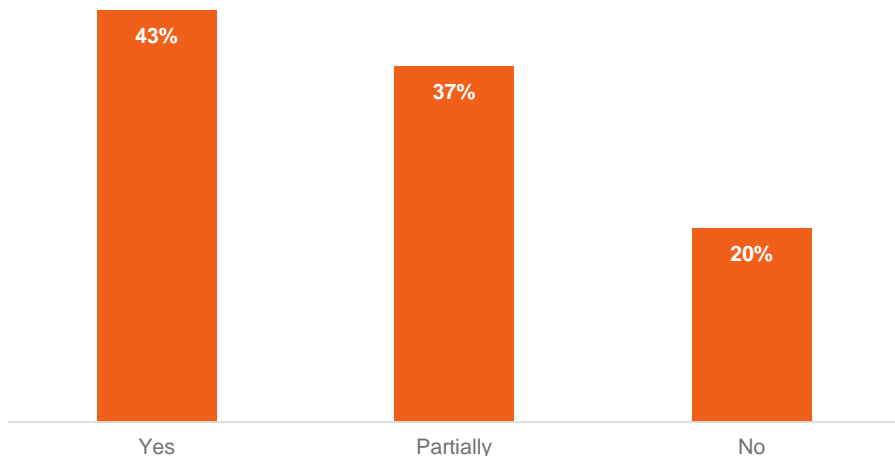
Resources:

- TM Forum Revenue Assurance solution suite (Process coverage model)
- Selected RA practitioner articles and blogs:
    - Please make life a little easier for your RA colleagues!

Technology

Use of technology to support issue identification, resolution and ownership.

# Automated technology platform for analytics

Technology

- About 20% of the participants do not have an automated technology platform for analyzing subscriptions, events and other charges.
- Slightly higher maturity levels were reported where RA technology is systematically in use.

TM Forum Community Comments

Well planned use and regular review of automated technology platforms with business owners will enable focused RA activities, change/flexibility and ownership i.e. reporting.

Business/Customer intelligence cooperation

Technology

Chart:
- Regular interaction: 50%
- Project based cooperation: 43%
- No connection: 5%
- Other: 2%
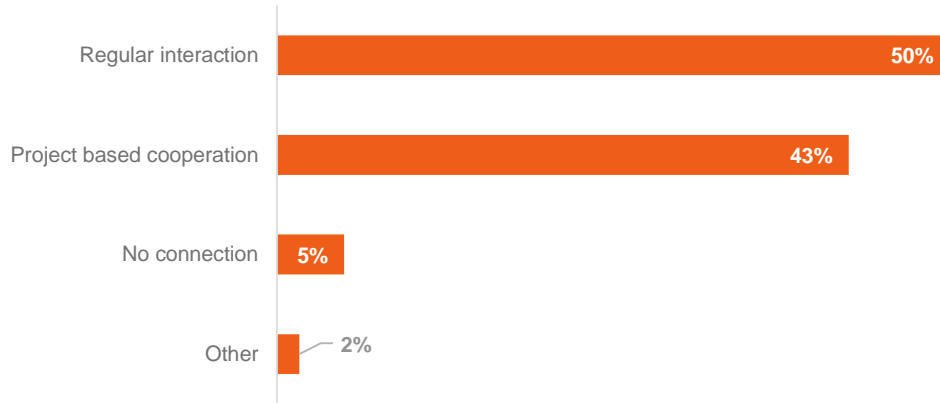
- Only about 5% of the RA organizations don't have interaction with BI.

- Higher maturity was reported where there was interaction with the BI team

- All level 5 maturity levels are in project based cooperation which indicates systematic, project based cooperation.

TM Forum Community Comments

Common projects with Business/ Customer intelligence fosters improved sharing of data/ information leading to improvements in business performance, growth and risks management (providing direct synergies to address C-Level objectives).

Area result summary

Technology

Key Observations:

- Automated technology platforms enable efficiency and consistency.
- Effective use of technology, **coupled with effective communication,** drives maturity i.e. sharing and building trust supported by proactive engagement and collaboration in projects.

Trends:

- Leading RA organization use visualization tools to foster communication and ownership.
- State of the art companies position RA practitioners in key roles to design future analytics needs which will nurture commercial and financial objectives.

Resources:

- TM Forum Revenue Assurance solution suite (RFx guidelines)
- Selected RA practitioner articles and blogs:
    - RA tools towards agile hypermarket instruments
    - Revenue Assurance in IoT
    - Know your big data strategy
    - Effective data monetization: Putting big data to work for revenue assurance

Risk Management and Control

Managing risks, finding opportunities and operating effective control measures.
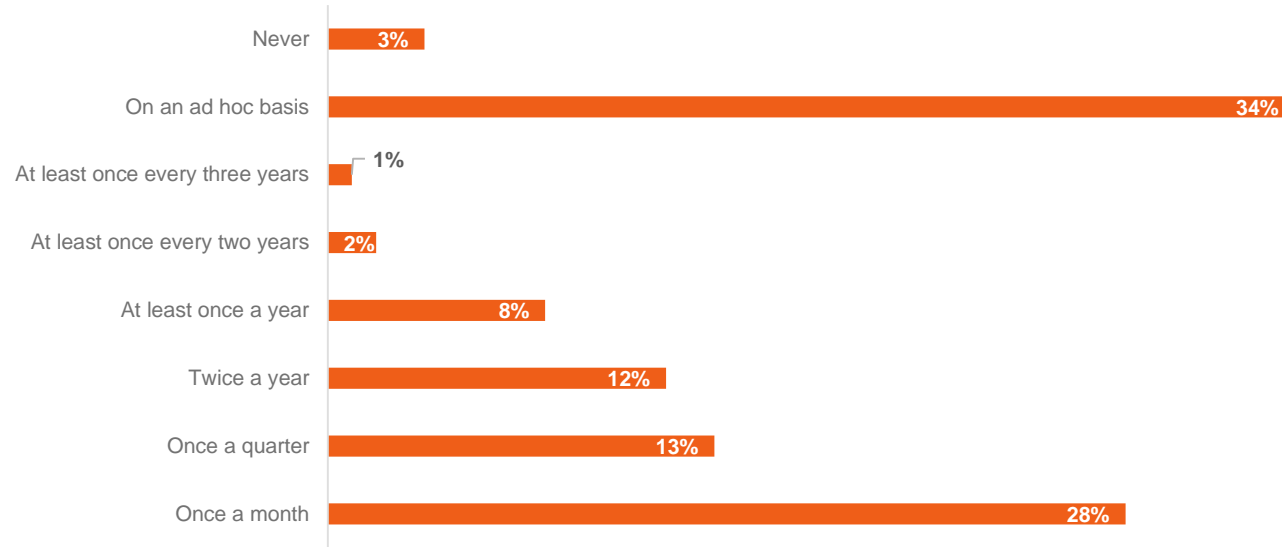
RAMM topic average maturity scores

Risk Management and Control
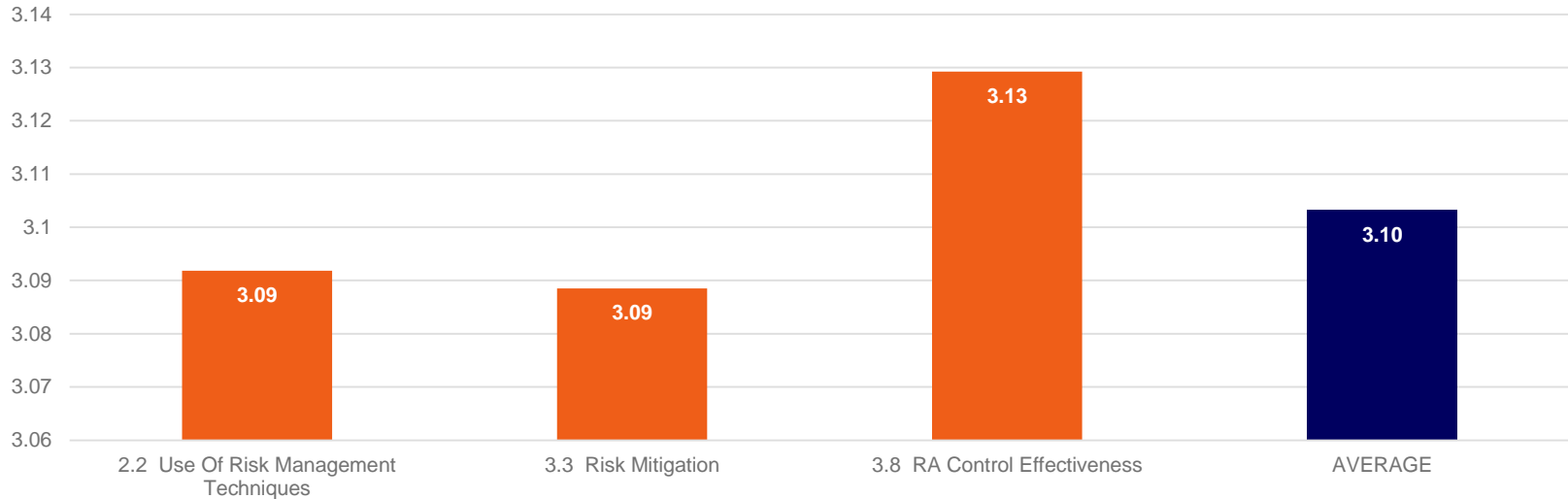
- Based on specific RAMM area topic scores the reported maturity averages for Risk and Control related areas are slightly below the overall average maturity score.
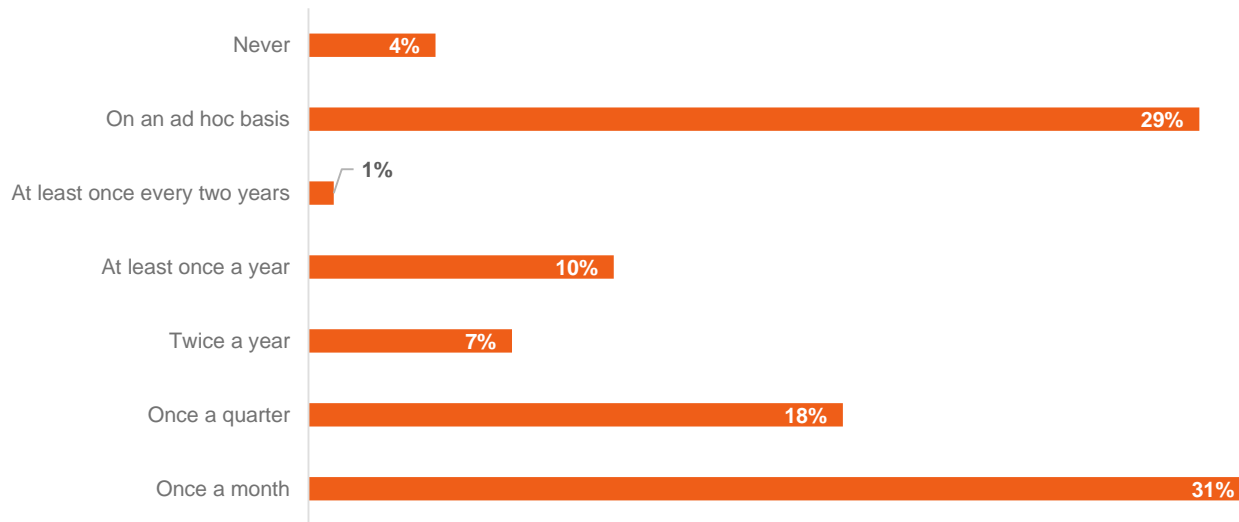
Frequency of revenue risk identification

Risk Management and Control

Frequency	%
Never	3%
On an ad hoc basis	34%
At least once every three years	1%
At least once every two years	2%
At least once a year	8%
Twice a year	12%
Once a quarter	13%
Once a month	28%

- About 40% of the survey participants perform revenue risk identification on at least a quarterly basis.

- No clear correlation between maturity and the systematic, regular risk identification. The ad-hoc category has the widest spread of maturity (low to high maturity).

- Half of the ad-hoc cases relate to RA organizations with fewer than 6 FTEs (vs. 40% overall).

- Further insights in Appendix 1 - Question 27.

Frequency of RA control effectiveness monitoring

Risk Management and Control

Category	Percentage
Never	4%
On an ad hoc basis	29%
At least once every two years	1%
At least once a year	10%
Twice a year	7%
Once a quarter	18%
Once a month	31%

- Almost 50% of the participants perform control effectiveness monitoring at least on a quarterly basis.
- No clear correlation between maturity and the systematic regular RA control effectiveness monitoring (similar pattern as for "risk identification" but fewer ad-hoc cases).

Area result summary

Risk Management and Control

Key Observations:

- Risk identification has become a standard activity; 97% of the participants do risk identification activities, however there are still big differences in the frequency at which this activity is done, starting as an ad hoc activity – 34%, and up to once a month – 28%.
- About half of the RA organizations perform risk and control monitoring activities regularly (at least on a quarterly basis).

Trends:

- Leading organizations manage revenue risk (or profitability) on a corporate level (Enterprise Risks Management process) establishing Key risk indicators to monitor changes with impact on the achievement of revenue objectives. These organizations can feed and direct RA agendas based on management approved risks and agreed risk mitigation plans.
- State of the art organizations help the company monitor risks systematically and ensure controls are properly automated and documented to enable focused and consistent risk management.
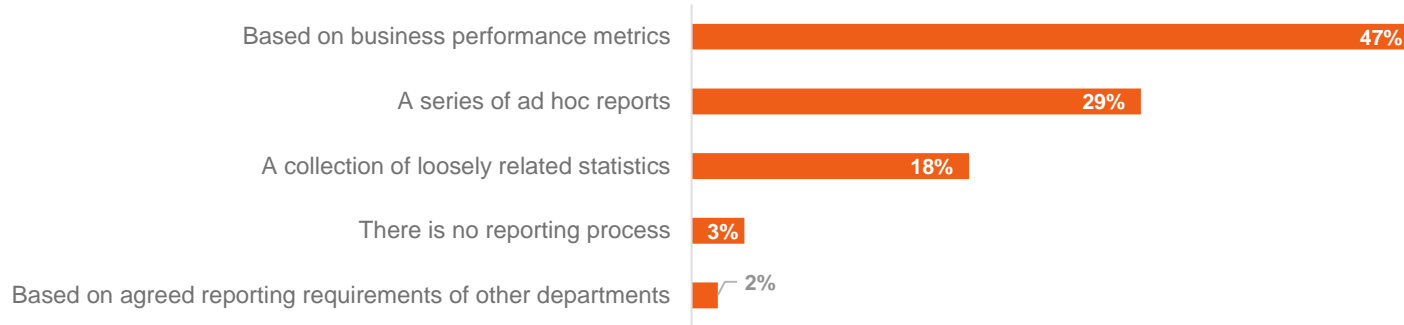
Resources:

- TM Forum Revenue Assurance solution suite (Risk/ Control framework)
- Selected RA practitioner articles and blogs:
  - Aligning risks and opportunities
  - Revenue assurance: Hard-coded controls or an overview of the landscape?

Establishing targets, effective metrics and KPIs to drive performance.

Performance reporting process

Performance and Reporting

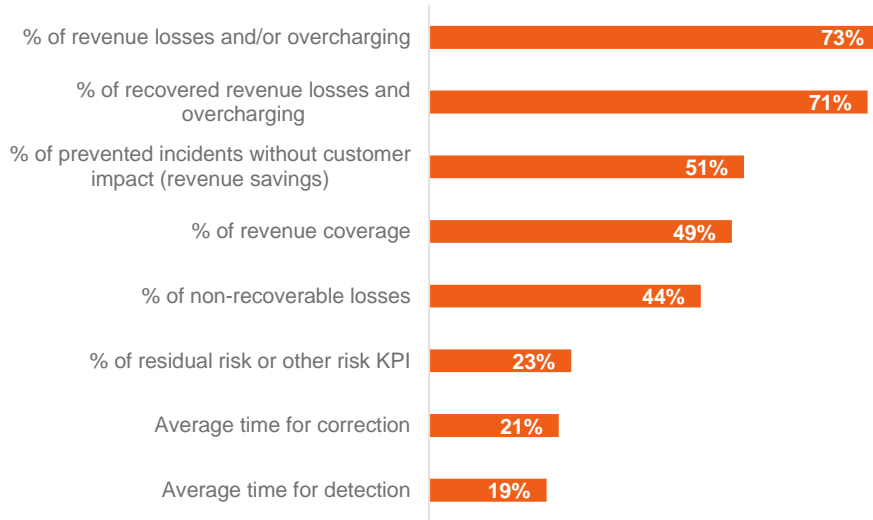| Category	Percentage
Based on business performance metrics	47%
A series of ad hoc reports	29%
A collection of loosely related statistics	18%
There is no reporting process	3%
Based on agreed reporting requirements of other departments	2%

- 5 out of 10 respondents say their performance reporting process is based on business performance metrics. The highest levels of such reporting were reported in North America (75%) followed by Africa and Europe.

- Clearly higher maturity levels were reported for metrics based performance reporting. 50% of the participants are in this group.

- Further insights in Appendix 1 - Question 31.

TM Forum Community Comments

Systematic performance improvements can only be achieved by a strong performance process based on valid business metrics.

Performance and Reporting

KPI	Percentage
% of revenue losses and/or overcharging	73%
% of recovered revenue losses and overcharging	71%
% of prevented incidents without customer impact (revenue savings)	51%
% of revenue coverage	49%
% of non-recoverable losses	44%
% of residual risk or other risk KPI	23%
Average time for correction	21%
Average time for detection	19%

- Standard Revenue Assurance KPIs are being used widely in the RA community: 3 out of 4 report on revenue losses and on recovered revenue losses.

- Risk Management and customer impact related KPIs are reported in the range of 20-50%.

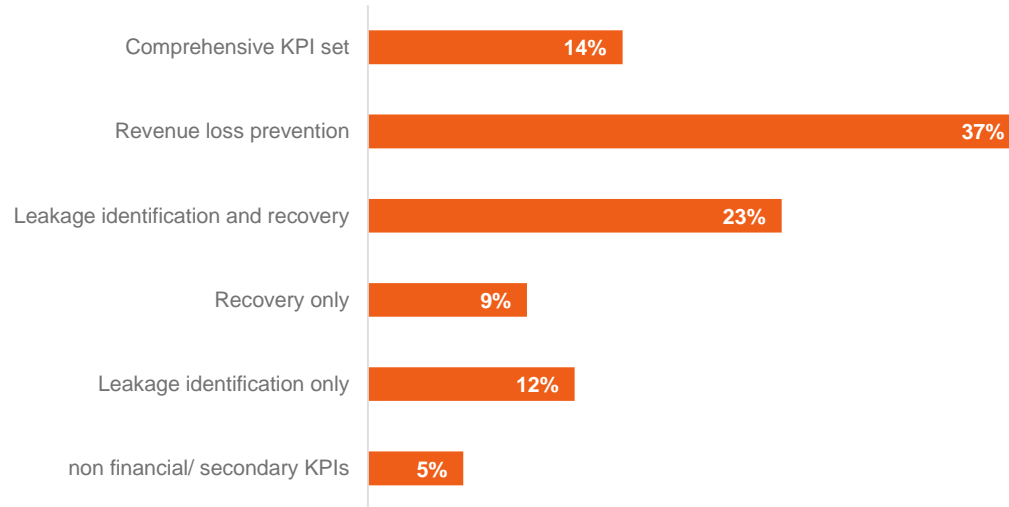- Further insights in Appendix 1 - Question 33.

TM Forum Community Comments

Revenue losses and recovered revenue are widely reported in the industry in the form of KPIs. Mature companies use a wider range of KPIs (measure prevention more extensively) and strive to make performance achievements more transparent in areas of incident prevention and customer satisfaction.

Regular use of KPIs for reporting to management (2/2)
# Characteristics of KPI sets used by survey participants

Performance and Reporting

Category	Value
Comprehensive KPI set	14%
Revenue loss prevention	37%
Leakage identification and recovery	23%
Recovery only	9%
Leakage identification only	12%
non financial/ secondary KPIs	5%

- A Revenue loss prevention type KPI set is used by 2 out of 3 respondents. Leakage identification and recovery by 23%. 14% use a comprehensive KPI set encompassing leakage identification, recovery and loss prevention KPIs.

- In the picture above maturity increases towards the "Comprehensive KPI set". Correlation tests with the age of RA organizations do not indicate a clear evolution path.

- Preventative and Comprehensive KPI sets are typically seen in RA organizations that located in the risk department.

- Further insights in Appendix 1 - Question 34 - 37.

TM Forum Community Comments

Leading RA organizations plan performance improvement strategically based on balancing financial and non-financial as well as detection/ prevention KPIs.

# Reported KPI value "revenue losses as % of total revenues, before the recovery procedures"

Performance and Reporting

Range	Value
>5%	3%
2%-5%	9%
1%-2%	16%
0.5%-1%	22%
0.2%-0.5%	27%
< 0.2%	22%
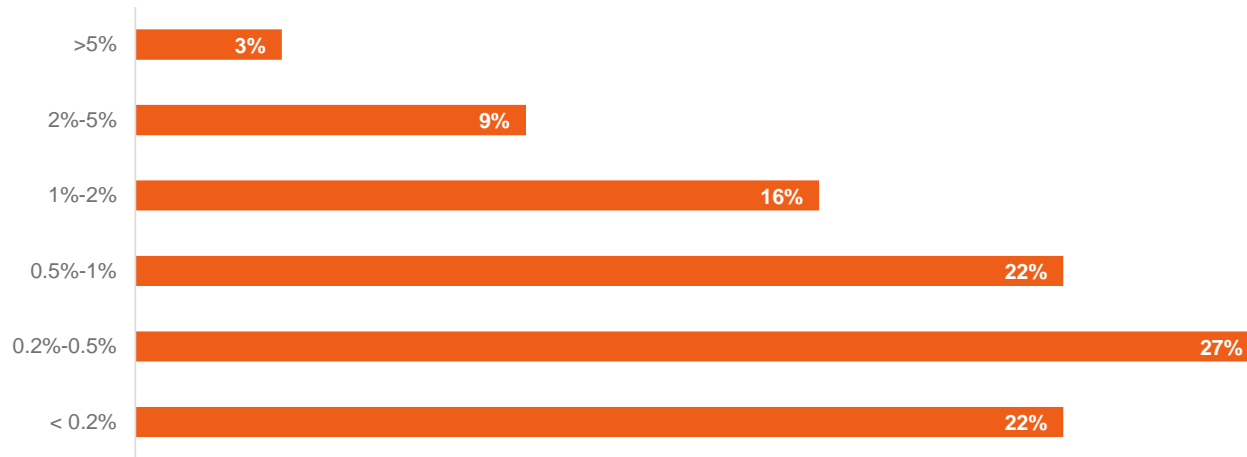
- 3 out of 4 survey respondents report this KPI. 65% report a revenue loss percentage in the range of 0.2% - 2%. There is a maturity correlation (lower % of revenue losses with higher maturity levels).

- North America and Europe report higher figures for lower revenue loss ranges and higher figures for the upper ranges as compared to the rest of the world.

- Further insights in Appendix 1 - Question 34.

Reported KPI value "non-recoverable losses" as % of revenue

Performance and Reporting

| Range	Value
>2%	7%
1%-2%	15%
0.5%-1%	12%
0.01%-0.5%	48%
< 0.01%	19%
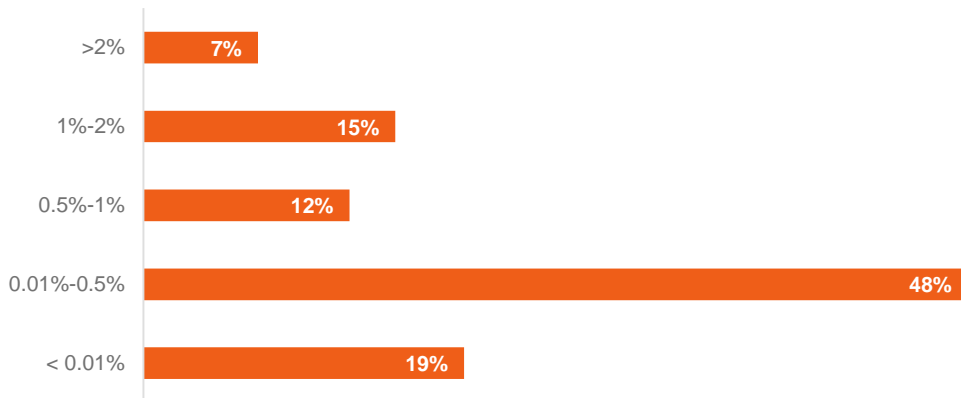
- 2 out of 3 report this KPI. Half of the respondents report in the range 0.01% - 0.5%.

- Slightly higher maturity was noted for participants who reported below 0.5% non-recoverable losses.

- North America and Europe reported on average smaller figures for this KPI.

- Further insights in Appendix 1 - Question 35.

TM Forum Community Comments

The survey results indicate the positive effect of RA on process improvement - slightly higher maturity levels were reported where revenue losses were smaller.

Reported KPI value "recovered revenue losses" as % of revenues losses

Performance and Reporting
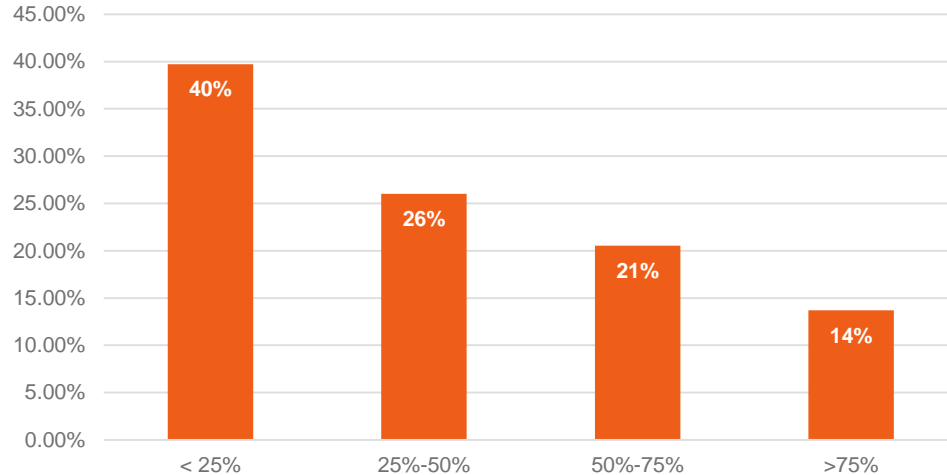
- 63% of the respondents reported on this KPI. 34% reported 50% and above coverage recovery levels.

- Highest maturity levels were reported in the group 50%-75% followed by the ">75%" group.

- Further insights in Appendix 1 - Question 36.

TM Forum Community Comments

Recovery of revenue losses is an important KPI and critically it is easy for management to understand. Effective communication and systematic involvement of RA in a wide range of business activities is key for early and successful recovery of revenues.

Reported KPI value "prevented incidents without customer impact (revenue savings)" as % of total volume of RA incidents

Performance and Reporting
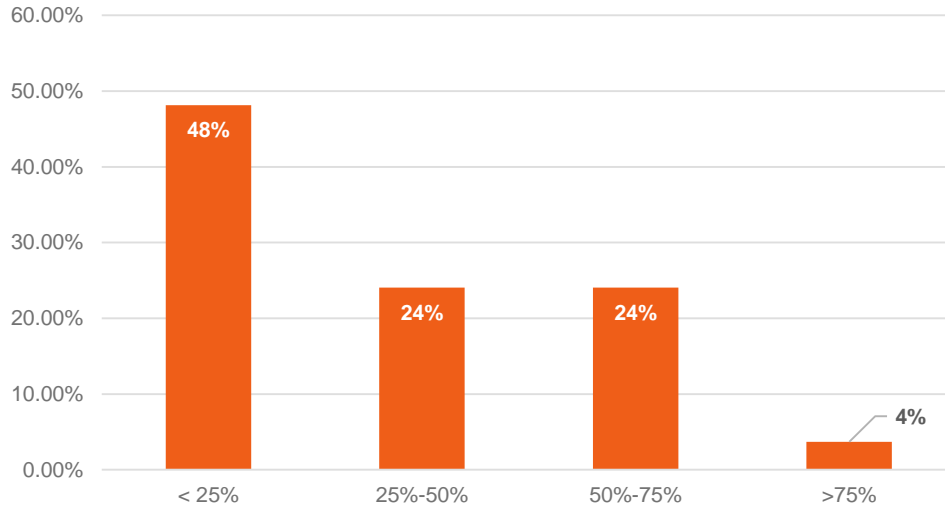
- 46 % of the respondents have reported this KPI. 28% of the participants reported above 50% revenue savings based on prevented incidents.

- Highest maturity levels have been reported in the category 25-50%.

- Further insights in Appendix 1 - Question 37.

TM Forum Community Comments

The prevention of incidents is difficult to measure (how to capture the full scope of relevant incidents). This and similar KPIs are important to demonstrate RA performance in preventative activity.

Area result summary

Performance and reporting

Key Observations:

- 5 out of 10 respondents say their performance reporting process is based on business performance metrics and clearly higher maturity was reported.

- 75% of all survey respondents use at least one of TM Forum's performance KPIs regularly. 14% use a comprehensive KPI set addressing leakage, recovery and loss prevention.

- The average detected revenue loss reported was 0.91% which was achieved by covering on the average 52% of the company's revenues.

- A detailed analysis, considering each company's detected revenue leakage and coverage extent, and conservatively extrapolating this to a scenario in which all the revenues are covered, yields a 1.5% average leakage.

- The average "recovery rate" was 46% of the detected "leakage".

Trends:

- State of the art companies build KPIs based on balanced business metrics finding a path to delivering maximum business benefit consistently and finding a maturity improvement path.

Resources:

- TM Forum Revenue Assurance solution suite (KPIs and business metrics)
- Selected RA practitioner articles and blogs:
  - Seeing is believing: Setting revenue assurance KPIs

Top Takeaways of RA experts

Reflections by recognized experts.

The top takeaways (1/2)

Alex Leslie

Alex is Publisher of DisruptiveViews, Alex founded and ran the Global Billing Association for 10 years and, following the merger with the TM Forum, he ran the Revenue Management Group. To design a billing strategy, 'you must spend 75 percent of your time outside billing.' This is why Alex has a broad overview of the trends, threats and opportunities in the communications industry.
Alex spends most of his time analysing trends in the communications industry, questioning them and looking past the hype. He admits he is a little cynical.

Dan Baker

Dan is Research Director of the Technology Research Institute (TRI) and Editor of the Black Swan Telecom Journal. Has been following telecom back office systems since 1994. TRI was the first analyst firm to publish syndicated research studies in telecom billing and data warehouse systems.
Current areas of research: fraud management systems, interconnect systems, big data and analytics.

Eric Priezkalns

Eric is the Editor of Commsrisk.com, and is a recognized expert on communications risk and assurance. He was Director of Risk Management for Qatar Telecom and has worked with Cable & Wireless, T Mobile, Sky, Worldcom and others.
Eric was lead author of Revenue Assurance: Expert Opinions for Communications Providers, published by CRC Press. He was a founding member of Qatar's National Committee for Internet Safety and the first leader of the TM Forum's Enterprise Risk Management team. Eric currently sits on the committee of the Risk and Assurance Group, and is an editorial advisor to Black Swan. He is a qualified chartered accountant, with degrees in information systems, and in mathematics and philosophy.

The top takeaways (2/2)

Dr. Gadi Solotorevsky

Gadi is Revenue Guard CTO at Amdocs, one of the founders and the chair of the Revenue Assurance team of the TM Forum, he is one of the authors of the TM Forum documents TR131, and GB941 that are today the de-facto standard in Revenue Assurance best practices, Gadi is a TM Forum Distinguished Fellow and Ambassador. Current areas of research include Revenue Management, and Big Data Analytics. A selection of Gadi's blogs can be found here and here.

Rob Chapman

Rob is the Chair of the Risk and Assurance Group. He oversees the committee and the planning of each meeting, bringing together professionals from across the industry and driving RAG's agenda forward.
Though chairing RAG takes up a lot of his time, his day job also keeps him very busy, providing consulting services to customers of Cartesian. Rob specializes in support for operational change and best practice for companies' transformation activities. Prior to joining Cartesian, Rob held revenue assurance and billing roles at TalkTalk, Verizon Business, Energis and Hutchinson 3G.

Tony Poulos

Tony has been involved with software development in billing and RA for over 20 years. In addition to being a regular speaker and moderator at conferences worldwide, Tony has been a Contributing Analyst for IDC, is a columnist and video anchor for Telecom Asia and held several positions in the TM Forum until 2014. He now acts as Market Strategist for WeDo Technologies and is managing editor of DisruptiveViews.
In June 2011, Tony was recognized by an independent panel of editors at the publication Billing and OSS World as one of the 25 most influential people in the telecom software industry.

"Good use of technology"

The most encouraging takeaway from this year's TM Forum RA Survey was the increase in the use of technology to help revenue assurance practitioners with their jobs. The 'use of technology' is now cited as the biggest enabler in increasing the maturity of the RA function within operators.

The number listing this as the top, single, element in the improvement has doubled in the last year. Not only is it encouraging that technology such as data analytics is being deployed but that it is increasingly in use now. It would have been questionable if technology was cited some years ago, but the fact that it is only now being introduced points to the technology being used effectively. When analytics is discussed, all too often it is touted as the 'answer to everything' and the media is partly to blame. Want to understand your customers better? Implement analytics.

This is clearly not the case, technology should be used to scale the experience and understanding of data not to replace that experience. It is also encouraging that the interaction between RA and other parts of the business is increasing, and with the help of analytics and other tools, these new synergies can be better exploited.

The top takeaways by Alex Leslie (2/2)

"Business frustrations remain"

It is a sign of maturity that RA is an integral part of product development. As the saying goes 'if you cannot bill it, kill it,' or 'if you cannot bill it, it is simply a hobby.' While the hope is that stories of the billing team finding out about a new product in the morning paper are a thing of the past, there is obviously a way to go.

The fact that the most often cited challenge when it comes to product development is 'lack of end-to-end business process understanding' shows that there is frustration involved. The fact that this is closely tied to the next most popular response, 'lack of cross functional mandate' means that the RA team is probably not as autonomous, and not seen as important as it should be. If you add this to the areas that are covered, or not, by RA, then there is work to be done. For instance, cloud services are not covered as effectively as they should be, and are the fastest growing revenue producer for many telcos.

Clearly, keeping up with the fast paced developments in the communications world means that education is key to understanding and supporting a company's strategy. This challenge only shines a spotlight on the ever increasing need for cross functional communication and support. Silos should be long gone.

The top takeaways by Dan Baker

"Trouble understanding business processes is the result of advanced partnering and service complexity"

I find the 47% of respondents who identified "Lack of End-to-End Business Process Understanding" as a sign of the time. In times past, services where fairly simple and understanding business processes was relatively straightforward. But today, as we move into IoT services and services that include multiple partners in the chain, the complexity great increases, so I can see why RA pros need to spend a great deal of time in this area. It reinforces the need for revenue assurance staff to have deep operating expertise.

"Finding Wider RA Uses for Mature Tools and Analytics"

Just love the beautiful graph here. Great way to compare the level of maturity across functions!

It's interesting to compare the excellent "Access to Information" with the relatively weak "Degree of Automation", "Coverage of RA Technology", and "Use of RA Technology". Respondents seem to be saying that can get access to just about any information they want. And that's certainly been a big focus in recent years – data analytics and opening up the RA environment to wider data sets beyond traditional CDRs.

And yet, RA pros seem eager to apply their tools and expertise in wider user areas beyond the traditional RA control areas they've already mastered. Advanced partner management around new services, plus and using RA tools/expertise to better understand enterprise services are perhaps two fruitful areas where RA can expand its value to the organization.

The top takeaways by Eric Priezkalns (1/2)

"Decentralize to grow"

It may sound paradoxical, but for RA teams to extend their responsibility, they must allow other parts of the business to perform more assurance tasks. This is seemingly contradicted by the results, which say that 7 out of 10 RA functions are centralized, and only telcos with centralized functions have attained maturity level 5. However, I believe these results are deceptive, because there will always be a tension between maturity and scope.

It is easy to be mature if your remit is narrow. The less we aim to do, the easier it is to excel! Consider some crucial survey findings:

- Very few telcos are nearing 100 percent revenue coverage. How can it be said that a telco has mature revenue assurance, when it does not seek to assure all revenues?

- A minority of RA teams address key business areas like customer management, partner management, or cash collection. But partnerships are increasingly important to telcos, and there is no revenue if the cash is not received, or the telco has no customers!

- Few RA teams have extended their remit to cover e-health, cloud services and OTT services. However, these offerings will drive future revenue growth in many telcos.

RA teams need to spread expertise as well as control. Just as telcos need to partner with outside businesses for mutual benefit, RA teams need to partner with other functions inside their business, spreading their coverage net wider without increasing costs by unnecessarily centralizing control.

The top takeaways by Eric Priezkalns (2/2)

"Coverage is our business"

They call it revenue assurance, but as I often observed when I went to the staff canteen and paid for my lunch, we don't assure all the revenues received by the business. I cannot expect an RA team to check the cash collected by the canteen, but what about covering wholesale revenues as well as retail? What about prepaid as well as postpaid? And what about those fancy new IT and data-oriented services that telcos increasingly supply to corporate customers, never mind the revenues they make from films, TV, games and music?

In this year's survey, fewer than 6 percent of telcos had attained greater than 90 percent coverage of revenues. The majority had less than 70 percent coverage. 10 percent did not know how much they covered! Clearly more can be done.

Only a minority of RA teams regularly report the extent of their coverage. Perhaps executives are not asking for the coverage statistic, but RA teams must report it anyway. Nobody wants their telco to have pinpoint assurance of 70 percent of its revenues, whilst the unmonitored 30 percent still leaks millions. We would not tolerate a hospital that cares for 70 percent of patients but ignores the other 30 percent. RA is flawed if it does not seek to treat problems across the whole business.

The coverage dimension defines what we are doing, and how well we do it. To motivate the right change, and continual progress, telcos must constantly measure and seek progress with coverage.

"Revenue assurance maturity is heading south – and that's a good thing!"
"I know one thing – that I know nothing" (Socrates)

Understanding the limits of your knowledge isn't ignorance. Actually, I would argue it's quite the opposite – at least when it comes to revenue management. A clear trend has been emerging in this area, with revenue assurance (RA) maturity scores steadily decreasing over the past few years: from 3.3 in 2013, 3.24 in 2015, and this year, they're down to 2.9. But while you can't dispute numbers, you can interpret them in different ways. A sceptic, for example, could claim that it's just statistical noise, or that RA is becoming less mature and less professional. My interpretation is quite different.

Since 2013, there have been significant advances in RA methodology – but more importantly, increasing numbers of RA practitioners have become aware of these advances. What's the significance of this? Well, after the results of last year's TM Forum's RA survey, my opinion was that some RA practitioners have been deluding themselves into believing their RA maturity score is significantly higher than it really is, (meaning that the actual maturity score should have been lower than 3.24). This year, I wanted to back up this claim with solid evidence.

So we decided to expose this year's respondents to the newest release of the Revenue Assurance Maturity Model (RAMM2) methodology, in order to provide them with a better understanding of contemporary RA best practices. We then asked the respondents to estimate their own maturity levels regarding the adoption of contemporary RA best practices. The average maturity score this year from respondents who read and then used the detailed RAMM assessment methodology was 3.1. However, the average maturity score of those who were exposed to the new methodology but chose not to perform it when making their estimations – their maturity was just based on a rough self-estimation – was only 2.8. Merely being familiar with the RAMM2 methodology was enough to improve the ability of practitioners to perform self-estimations that, in my view, are more realistic.

This is a clear indication that RA professionals have become more aware of the limits of their knowledge. And this is great news because it shows that the lower maturity levels aren't indicative of a step backward, but are, in fact, a giant leap forward.
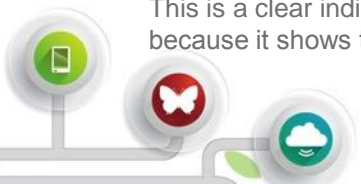
The top takeaways by Gadi Solotorevsky (2/2)

"It's not about money – it's about satisfaction"

Last year, when we asked about the purpose of the RA function, we didn't even include "customer satisfaction" as a possible answer. But, after including it in this year's study, 12% of respondents (15-18 operators) cited this as the purpose of their RA activities.

While this is still a relatively low figure, it is still a major wow factor because it demonstrates that RA has evolved from focusing merely on leakage detection and recovery (via identification and mitigation of risk) towards customer satisfaction. Indeed, I'm seeing more and more operators looking at RA through the customer satisfaction prism.

So will this be the norm in five years from now? While I can't confidently say either way, I do believe that more and more RA activities will be measured by their contribution to customer satisfaction.

The top takeaways by Rob Chapman (1/2)

"More work needed to understand maturity in the wider business context"

Whilst I'm not surprised to see that the average maturity remains around the same as the last survey, I am surprised to see that we are still receiving any responses with a level 5 maturity assessment. Given that '5' remains aspirational, it worries me that either respondents are misunderstanding how to gauge the maturity of their RA function, their given remit is not particularly wide reaching or they are not taking full advantage of the anonymity of the survey.

Maturities by organizational location indicate higher scores where the RA function exists within more niche business units, such as Product Management. Whilst the lower scores (c. 2) are coming from areas with a much wider reaching position within the telco organization that are usually associated to data & configuration derived problems and are recipients of errors introduced upstream.

Whilst it can't be absolutely clear from the results, we are still seeing probable contradictions in assessments, likely driven by a lack of E2E understanding of RA function placements in organisations and a lack of understanding of wider business processes.

RA has long been treated as a catch-all for many things (including fraud management related activities). These results suggest to me that more work is needed to clearly define a better understanding of how maturity is demonstrated in the context of the wider business.

The top takeaways by Rob Chapman (2/2)

"Senior sponsorship is a must for growth and maturity"

Over the past few years, we have seen a remarkable, upward trend of large scale data analytics tools. There is no doubt of the benefit such analytical capabilities can have for a business, and so it's of little surprise that Use of Technology is cited as the most significant maturity accelerator. Little surprise either that the experience of an RA team ranks in second place. The combination of well thought through analytics and a highly experience team is a powerful one. It also enables adaptability to new demands, offerings and risks that Telco's experience.

However, to me the key driver for the long-term success and growth of an RA function will always come first from organizational empowerment, and senior (C-level) sponsorship of the RA team.

I am surprised that greater emphasis is first being applied to technology over business sponsorship, but still reassured that technology, experience and empowerment are scored so highly (hopefully a combination of all three in practice).

Growth of maturity and aforementioned adaptability must come from senior sponsorship. The results of the 'New Product Development' question reinforce the need for this in order to empower the RA teams, and higher overall maturities tend to exist in organisations which foster a greater cross-functional reviews and collaboration (see People and Communication).

Data is not information and will add little to no value in its own right. Data must be translated into information. Information can then be used to provide intelligence. Analytics are still only a tool to be used by a business, and will yield little benefit if the business strategy is not understood by those implementing it, and those who are tasked with using the results.

The top takeaways by Tony Poulos

"RA comes of age, but where to go next"

The TM Forum's Global RA Survey is, without doubt, the most comprehensive report of the state of RA and Fraud available. Standouts this year for me were that RA still remains firmly in the Finance domain when it should probably be taking a greater role in Risk, especially in businesses where transformation projects are underway.

It is also interesting that even after all this time in RA operations the average maturity levels was 3.1 out of 5. This indicates that either we have much more work to do or this year's respondents were very honest in their assessment of their own levels.

It is also evident that automation of the RA and Fraud Management processes is now regarded as critical for improvements to be made.

It would good to compare the figures from the telecoms and digital industries to those from retail, finance and utilities sectors in future as we have so much in common.

"RA is not involved in transformation projects"

Perhaps the most surprising takeaway, or rather omission from the survey is that RA departments are not actively involved in transformation projects. They are ideally positioned to track output and accuracy before, during and after any system changes and should be used for this purpose.

Revenue Assurance in the real world.

Revenue assurance benchmarking contributes to the RA Strategy at BT Group

Author: Andreas Manolis, Head of Strategy & Risk, BT Group Revenue Assurance

BT Group Revenue Assurance (BT RA) operates across all BT's business units to deliver its key objectives in line with the strategic direction of each line of business (LOB) and BT Group. When in search for an effective benchmarking tool for BT RA's maturity level assessment, the TMF RAMM hit the mark in giving us the ability to assess our RA functions across the different business units in BT. It enables us to internally compare our results and also compare these externally with benchmarking statistics available from the TMF survey results.

Having TMF RAMM as an independent external measure recognised and used by the industry enables BT RA to objectively communicate its maturity level to internal stakeholders. Twice a year the score is updated using the RAMM questionnaire. This gives an updated view of the areas for improvement and areas of strength. A plan of improvement is agreed that fits in with the scope and overall strategy of the RA function. Prioritization is based on assessing which uplift in the RAMM score will make a real difference to the performance of the function and thus contribute to the improvement of the business as a whole.

With the above approach we have been able to select key questions and areas for focus with regards to our maturity. We have improved our maturity score in line with delivering accelerating benefits from our function to our organization. As an example, maturity improvement initiatives have delivered improved pace through technological capabilities, evolving people skillsets, streamlined processes and enhanced proactive coverage.

In conclusion, the use of the RAMM is a valuable tool for an RA function to embed within its strategic planning activities.

Revenue Assurance benchmarking creates bigger picture of RA at Deutsche Telekom Group (1/4)

Author: Gjurgjica Pesheva, Senior Expert, Revenue Assurance, Deutsche Telekom AG

The different operators within the Deutsche Telekom Group regularly participate in different surveys related to revenue assurance (RA) but as an output they could only compare themselves as single operators with the rest of the RA industry.

The TM Forum Revenue Assurance Survey has been extremely valuable in enabling Deutsche Telekom Group to compare its practices more widely within the industry. Given the number and spread of participants, it provides credibility to the identification of best practices, and support for the adoption of revenue assurance best practice throughout the group.

The clear cross-correlations in the Survey enabled us to derive logical explanations and conclusions because RA needs a set of measures or aspects to be evaluated. Even the most sophisticated RA tools cannot bring business value if companies lack the knowledge or defined processes to interpret the results and instigate changes. Thanks to the TM Forum group working on the Revenue Assurance Survey, of which I was part, I gained real insights from the cross-correlations and understanding of the responses from participating operators.

The TM Forum survey was seen as the most reliable, trustworthy source of benchmarking within Deutsche Telekom Group. From the Group HQ RA function perspective, responsible for RA steering and governance, it showed the bigger picture, enabling the diversity of the local operations to be seen in context, and it became one of the drivers for the Deutsche Telekom Group RA strategy.

Revenue Assurance benchmarking creates bigger picture of RA at Deutsche Telekom Group (2/4)

From reducing costs to improving business value

As an experienced RA practitioner with almost 10 years' experience in RA operations, strategy, steering and governance, it's often very easy for me to have at least draft explanations for survey results immediately. That was not the case with this benchmark, and that provided additional motivation for deeper analysis and cross-correlation with different aspects.

For example, one of the conclusions was that RA functions in Deutsche Telekom Group manage to achieve a higher level of revenue coverage with smaller RA teams than the industry. There is therefore the potential to extend the coverage over cost streams once the RA teams devote less time to RA operations and shift the focus towards revenue management rather than traditional revenue assurance.

This clear message triggered additional projects to scope new opportunities for centralized RA operations for all operators, with the main goal of improving the business value and results rather than reducing costs.

Embedding revenue assurance in change management

We've used the TM Forum Revenue Assurance Survey not only to derive strategic direction for Deutsche Telekom Group, but also for some local operational improvements. The benchmark highlighted opportunities for operational improvements in some local RA organizations. For example, improvements through faster detection of RA problems which enables higher recoveries, or through preventative measures as part of the change management process.

Basically, the biggest opportunities for RA lie where the revenues and costs are coming from in the operators' business model. Therefore RA must be flexible, dynamic and ready to adapt to change. Being part of the change management processes in the company is a must today – including it in new product development alone is not enough.

We need to fully embed revenue assurance within the change management process – it needs to be at the forefront of change. Within Deutsche Telekom Group we want to establish revenue assurance as a mandatory element within each change management project, based on a new methodology: structured project assessment, revenue assurance principles, generic revenue assurance requirements, revenue assurance risk assessment and ending up with a detailed revenue assurance control framework for the particular change.

This raises another value that comes from being in the Forum – the opportunity to freely discuss new ideas – at the last Action Week in Lisbon, the idea of the RA Inside concept was elaborated on. Combined with our input, this could become a new TM Forum Standard for 'Revenue Assurance Change Management Methodology' – this would be applicable not only in the development of new products, but for any change management process.

Revenue Assurance benchmarking creates bigger picture of RA at Deutsche Telekom Group (4/4)

Next steps

There is always room for improvement and this year the TM Forum RA Survey will offer additional light benchmarking based on several profiles of operators. This tool will be very useful to ensure we are benchmarking our companies with a similar peer group (operators of similar size and business, same location with the similar years of RA existence). This will be of huge value in providing irrefutable evidence to RA managers for new development opportunities.

A fair trade-off

In conclusion, the TM Forum RA Survey enables the most cost-effective benchmarking for deriving strategy and operations development. The TM Forum Revenue Assurance Survey is designed to be user-friendly and answering the questions takes no longer than 30-45 min. It is a fair trade-off and the effort is definitely worth it to get the survey report, and benchmark yourself against the rest of the industry.

Revenue Assurance survey team

In the name of the RA survey project team we want to express our thanks to the numerous contributors of the Revenue Assurance Survey 2016!

Your valuable input has greatly contributed to the quality and success of this survey.

THANK YOU VERY MUCH!

Revenue Assurance survey sponsors

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Additional resources

Resource	Content
Commsrisk.com	Commsrisk is a website and social media hub that reports on the risks faced by electronic communications providers and their customers.
Disruptive Views	DisruptiveViews takes a look at what is causing disruption in the communications arena, who is behind the disruption and what effects it may have.
Black Swan	Black Swan Telecom Journal is written for telecom and digital ecosystem professionals who manage data — often large volumes of it — to either protect or grow.
Risk and Assurance Group	Established in 2004, RAG gathers regular attendance from some of the most experienced people working in the field risk and business assurance.
TM Forum Revenue Assurance Solution Suite	Revenue Assurance Guidebooks • Revenue Assurance maturity model (RAMM) • 126 Common leakage scenarios • 52 Revenue Assurance risks & 232 control measures • 22 KPIs • And many other valuable hands-on resources
TM Forum Revenue Assurance RAMM	RA maturity model section
TM Forum Revenue Assurance Fundamentals	Training & Certification
TM Forum Revenue Management group Project Initiatives	TM Forum Revenue Management/ Assurance Group – Projects & Initiatives
TM Forum Global Revenue Assurance Survey 2015	2015 RA survey
TM Forum Revenue Assurance Survey Report 2013	2013 RA survey conducted by TM Forum (released 2014)
TM Forum Inform	Industry analysis, publications, events and training (search term "Revenue Assurance")
TM Forum Revenue Assurance (LinkedIn group)	RA practitioner discussion forum with a wide assortment of RA practitioner blogs