Pitfalls and Pratfalls

12 missteps that can trip up your CAPA and ways to sidestep them

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A corrective and preventive action (CAPA) system can be most powerful when you need to improve a quality management system (QMS). However, there can be flaws in the way CAPAs are conducted, which can weaken and disrupt your investigation.

The concept of CAPA is not restricted to any particular industry or sector. It is a widely accepted concept, basic to any QMS. Because quality systems strive to continuously improve systems, processes, and products and services, there must be mechanisms in place to recognize existing or potential quality issues, take the appropriate steps necessary to investigate and resolve those issues, and, finally, ensure the same issues do not recur.

Specifically, the life sciences regulated industries (the manufacturing of medical devices, biopharmaceuticals and traditional drugs) are plagued with deviations and nonconformities. Worldwide regulatory agencies perform thousands of inspections every year. Too often, investigation and CAPA system violations are at the top of the list. Here are 12 CAPA missteps and suggestions to overcome them.

Just the Facts

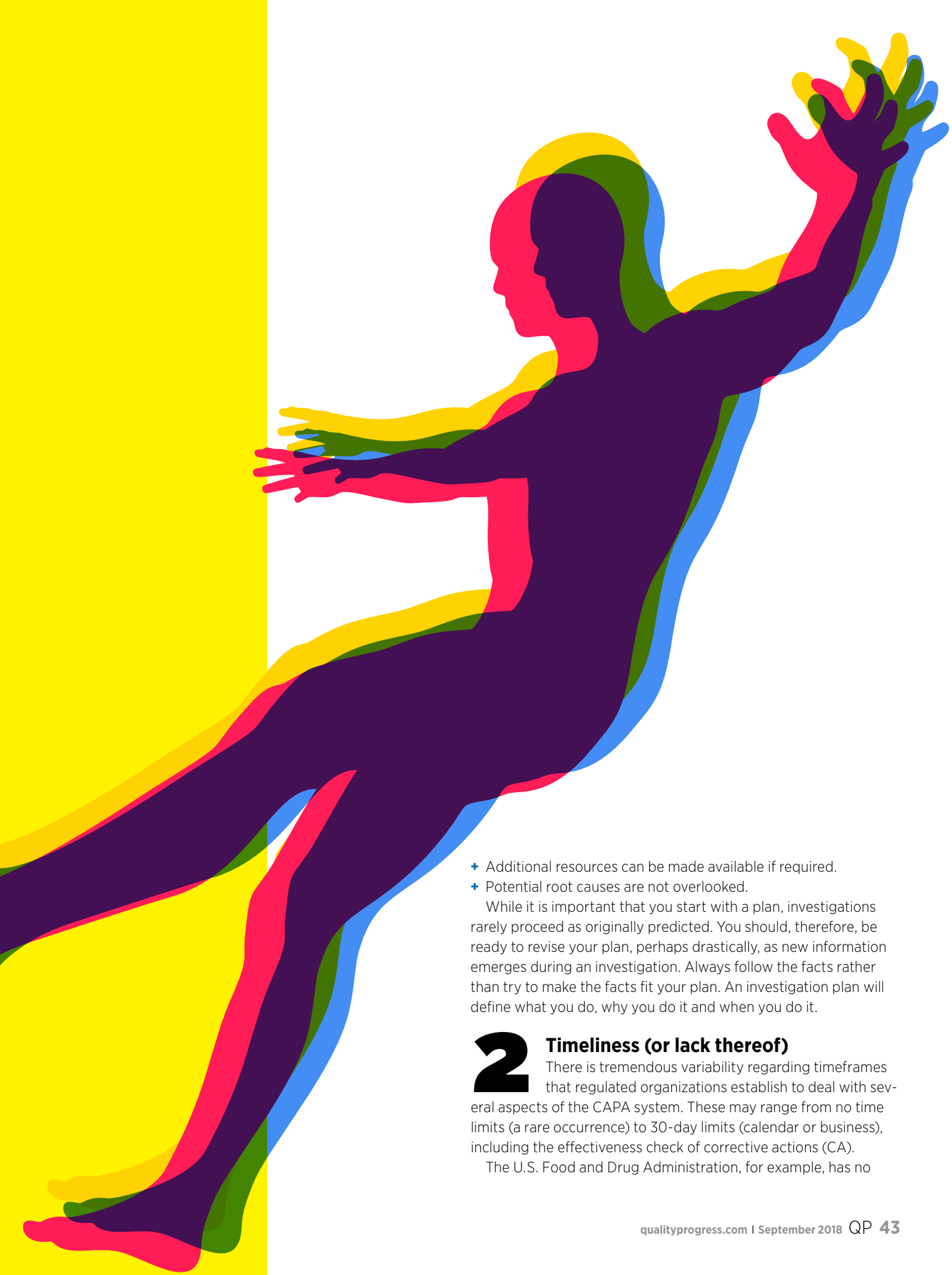
A corrective and preventive action (CAPA) system can be powerful in improving your organization's quality management system.

To make your CAPA more effective, watch for these 12 common mistakes and address them before your investigation is weakened or disrupted.

1 Lack of an investigation plan

Having a plan is probably the most important element of the investigation. However, you rarely find this critical piece in the investigation report. Most of the time, the investigation is an anarchic process full of back and forth, trial and error, or going-around-in-circles situations. A good investigation plan is essential to ensure that:

+ The investigation is carried out methodically and professional manner.
+ Resources are used to their best effect.
+ Focus is maintained.



+ Additional resources can be made available if required.
+ Potential root causes are not overlooked.

While it is important that you start with a plan, investigations rarely proceed as originally predicted. You should, therefore, be ready to revise your plan, perhaps drastically, as new information emerges during an investigation. Always follow the facts rather than try to make the facts fit your plan. An investigation plan will define what you do, why you do it and when you do it.

2 Timeliness (or lack thereof)

There is tremendous variability regarding timeframes that regulated organizations establish to deal with several aspects of the CAPA system. These may range from no time limits (a rare occurrence) to 30-day limits (calendar or business), including the effectiveness check of corrective actions (CA).

The U.S. Food and Drug Administration, for example, has no

formal requirement for time limits, mentioning only the term "reasonable" in a note published in 1997 as part of the Human Drug Current Good Manufacturing Notes from the Division of Manufacturing and Product Quality, Center for Drug Evaluation and Research's (CDER) Office of Compliance.[1]

When an investigation is reaching its time limit, management often increases pressure on investigators and reviewers. The result is that most investigations are inadequately completed but closed without exceeding the time limit. During training sessions, it's interesting to ask management which is more important: closing on time or closing after the investigation is adequately completed. The honest response is always the same: closing on time.

3 Everything is an isolated event (lack of adequate trending)

One of the first questions to be answered at the beginning of any investigation is fundamental: Is this the first time this situation happened? At this point, you only know symptoms: A batch failed a quality control test, or a customer complained about something, for example.

The answer to the question establishes the frequency or recurrence of the situation; it is one of the main elements of risk management in the investigation and CAPA process. If this is a recurring issue, you already have a breakdown of your investigation and CAPA system because previous incidents either were not investigated or were improperly corrected.

Defining trending and statistical methods assists in applying a consistent method in analyzing quality problems and adverse events. Trending and statistical methods that are insufficiently robust may not be sensitive enough to detect significant increases in quality problems and adverse events.

Perform a search looking for indications of a previous event. This search must cover an adequate timeframe and be commensurate with the frequency of the process rather than a fixed period (for example, three or six months). Few things are more dangerous to your credibility than an auditor finding that the isolated event was not so isolated.

4 The root cause is not identified

A common problem observed in many organizations is that most nonconformance investigations point to human error or procedures not followed as the root cause of the nonconformity. These are merely symptoms of deeper causes. To establish and maintain an effective investigation and CAPA system, organizations must move beyond symptoms and causal factors, and reach the root cause level of the problem.

This situation originated from the lack of an adequate root cause analysis (RCA) process. Even though most regulated organizations include many root cause tools in their investigation procedures, almost none require the use of the tools. It is like a wish list of tools you could use.

You need a RCA system, and management must enforce its use—not just suggest it. Training on root cause tools is not usually the main factor of a poor investigation. The main factor is the lack of application of the tools. Here are typical examples of root causes that are merely symptoms:

+ Human error.
+ Procedures not followed.
+ Equipment malfunction.
+ Improper performance.
+ Method not validated.
+ Multiple batches in process at the same time.
+ Clean-room gowns not used.
+ Equipment with expired calibration.
+ Result out of trend.

To correct this situation, the investigation and CAPA management team cannot use any of these symptoms as root causes. One of the best tools you can use is the five whys to ask "Why?" several times until you reach a fixable root cause.

5 Root causes are identified but not corrected

Always try to fix all the already-identified root causes. Leaving unattended root causes today will create problems tomorrow. When you compare the root cause and the CAPA plan sections of any investigation report, they often don't match. It is necessary to have at least one CA matched to every identified root cause.

An example is an investigation report that documented three root causes: lack of training, unclear document instructions and inadequate supervision. Training and instructions were covered by CAs, but there was nothing related to inadequate

supervision. To avoid this pitfall:

- Do not follow the Pareto principle by fixing only the prominent cause.
- Try to fix all identified causes unless you can demonstrate a lack of risk.

6 The symptom is corrected instead of the cause

Along with the overuse of human error and retraining, correcting the symptoms instead of the cause is perhaps the most prevalent investigation and CAPA problem experienced by regulated organizations. Multiple causes can create this weakness of the investigation and CAPA system. Most organizations simply do not understand the differences between a correction, or a specific spot fix, and a CA or preventive action (PA), addressing the root cause.

From operators to middle and top-level managers, all have a problem understanding key investigation and CAPA terms. Here are simple corrections that often are disguised as CAs:

- Train a nontrained operator.
- Reject and destroy a failing product.
- Rework some nonconforming material.
- Repair a piece of broken equipment.

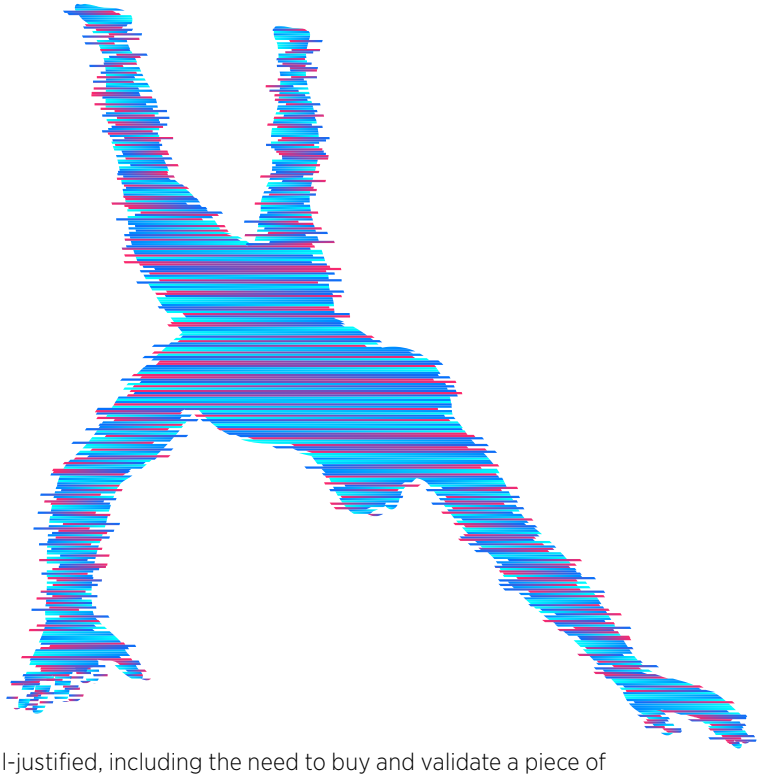
To fix this, ensure that your organization understands the meaning of and differences among correction, CA and PA. Also, be sure that workers can distinguish between symptoms and true root causes. Finally, make certain there is at least a real and adequate CA or PA for each identified root cause.

Formulating a simple question can help you differentiate between correction and CAs: Will this action avoid or prevent the cause occurring again? If the answer is no, you have simply a correction.

7 Lack of interim actions

The need for interim CAs and PAs is one of the most unknown and unused concepts in the regulated industry. If a CA cannot be implemented immediately, you must establish interim actions to avoid the recurrence of the situation while the permanent CA is implemented.

Reasons for delay in the implementation of the permanent action can be several and



well-justified, including the need to buy and validate a piece of equipment or the need to change a written procedure. Inexcusable is the absence of interim action to cover the implementation period.

A worst-case scenario relates to those organizations that routinely allow a long period to elapse before implementing CAs and PAs. Some organziations have taken nine months or even a year to implement the CA or PA. None of them used the interim action concept.

Another example occurs when an organization has an open investigation in which the CAs and PAs are still being implemented. If the same root cause happens again, the organization won't open another investigation, it will add this incidence to the existing investigation.

Consolidating the new occurrence under an open investigation is not so bad. The major problem here, however, is that evidently no interim actions have been implemented to avoid the recurrence of the causes until the permanent action is implemented. Interim actions must avoid—or at least detect—the root cause until the permanent action is finally implemented.

8 Lack of true PAs

Most CAPA systems are only CA systems because they do not include preventive components. These organizations are in the firefighting (corrective) mode, and they lack the proactive approach that comes from the analysis of their inconformance process results.

Unfortunately, it must be concluded that many regulated organizations do not have true CAPA systems. The relationship between CA and PA establishes the maturity of the CAPA system. There is a lack of understanding of the differences between CA and PA. If the root cause is tied to an existing nonconformity, by definition, the action to be taken should be corrective.

Other sources of true PAs are failure mode and effects analysis (FMEA) and statistical process control (SPC), particularly the use of control charts. In FMEA, for example, you identify potential

failure modes, potential effects and potential causes. What "potential" means is that they have not happened yet.

So, a mature risk management process must provide true PAs to the CAPA system. The problem with most FMEAs, based on our experience, is that they are more reactive than proactive. Many organizations try to answer the question, "What has gone wrong?" instead of the question, "What might go wrong?" After organizations start to use FMEA in a proactive way and establish links between FMEA and investigation and CAPA systems, they will start implementing true PAs.

The same situation happens when using SPC. Many organizations wait until they have out-of-control and out-of-specification situations before doing anything. If used adequately, control charts can help identify true PAs.

9 Lack of effectiveness verification of the action taken

A CA is considered effective if it is able to avoid the recurrence of the cause. Therefore, the evaluation of the effectiveness cannot be tied to the presence or absence of the symptom because:

+ The same symptom can be produced by different root causes.
+ The same root cause can create different symptoms.

There also are misunderstandings related to the verification of effectiveness. Some organizations document that the action was implemented rather than provide evidence that the action worked as intended. From experience, the two major flaws in effectiveness verification are that actions are not clear enough and there is a lack of adequate metrics.

One way to analyze the effectiveness verification statements during an investigation and CAPA expert certification is to determine whether those statements have three elements: actions, timeframe and metrics.

Some examples of inadequate verification of effectiveness statements are:

+ The CA was implemented.
+ The problem did not appear during the past three months.

An example of an adequate verification of effectiveness statement is: "During the next two months, a performance evaluation of 15 associates (five from each shift, randomly selected) will be performed to verify the use of personal protective equipment. CA will be considered effective if all evaluated operators follow procedure."

It can be noticed that this effectiveness verification statement has actions (the performance evaluation), timeframe (two months) and metrics (all operators follow the procedure).

10 There are multiple CAPA systems without correlation

Organizations must identify and document relevant data sources or feeders of the CAPA system. The sources are internal and external to the organization, and the organization must integrate those data sources and data elements to identify rising issues or developing adverse patterns.

Often, this analysis is segmented by geography (domestic vs. international) or other factors. The disastrous result is that no one in the organization can see the entire CAPA system picture. An example of this could be a firm collecting information under various quality data headings (incidences and nonconformities) without correlation into the firm's CAPA system, preventing accurate analysis and timely review.

Another example is having two databases to handle complaints—that is, domestic and international. As a result, management is made aware of only part of the complaints received. Another situation could happen when CAs and PAs are generated from internal audit observations, and they are not included in the general CAPA database. Therefore, these actions are not evaluated during management review meetings.

11 Abuse of human error and retraining

For many years, human errors or mistakes were considered the cause of a mishap or problem. Human error, under whatever label (procedures not followed, lack of attention or simply human mistakes) was the conclusion of the investigation. Very often, human error was coupled with training activity (most frequently retraining) as CA.

Human errors cannot be eliminated nor even significantly reduced by simply telling operators to be more careful. This simplistic approach does not work because you are not addressing any root cause. Human error is more a symptom than a cause.

Here are some examples of working instructions not followed by operators. In all related nonconformance investigations, the

root cause was assigned to operator error. You will notice that with these instructions, anybody will fail.

+ Verify all parameters.
+ Mix well.
+ Mix slowly.
+ Finish as soon as possible.
+ Mix for a minimum of 30 minutes.

If we want to avoid this pitfall, the answer is simple: Do not use human error as a root cause. Always ask why the human made the mistake.

12 Too much focus on software, not enough on the investigation and CAPA

During some of our training sessions, participants often express their frustration with the system they use to document their nonconformances, failure investigations, CAPAs and the verification of effectiveness of those actions. When something like this happens, they lose sight of the importance of having a structured approach for the investigation and CAPA system.

They struggle more with how to make the system work than with the genuine importance of things such as identifying all the probable root causes, identifying CAs and PAs, implementing these actions and verifying their effectiveness.

Some examples of statements we have heard that are reflective of this include:

+ "My software only allows me to select one root cause."
+ "Human error is one of the root causes to select from the root causes drop-down menu."
+ "My system does not have a field in which I can document corrections; it only provides for corrective and preventive actions."

To avoid this pitfall:

+ Perform a thorough assessment of your needs before installing any software.
+ Make the software work for you—not vice versa.
+ Do not include elements such as "human error," "procedure not followed," "equipment malfunction" and "other" in your root cause categories drop-down menus.

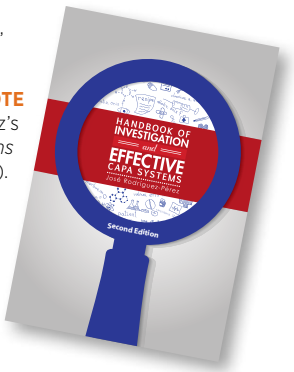
Recognizing and reacting to these 12 common mistakes that can happen with CAPAs will help streamline your investigations and get you the information and the solutions you need to make your QMS more effective. QP

REFERENCE

1. U.S. Food and Drug Administration, "Human Drug Current Good Manufacturing Practices Notes," Vol. 5, No. 1, Division of Manufacturing and Product Quality, HFD-320 Office of Compliance, Center for Drug Evaluation and Research, March 1997.

EDITOR'S NOTE

This article is a book excerpt from Rodríguez-Pérez's *Handbook of Investigation and Effective CAPA Systems* (ASQ Quality Press, 2016).



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