McKinsey Staff Paper

No. 66 | July 2007

THE MCKINSEY APPROACH TO PROBLEM SOLVING

Ian Davis (London), **David Keeling** (Chicago),
Paul Schreier (London), and **Ashley Williams** (Atlanta)

Distinctive problem solving is the very heart of how we create client impact. As a Firm, therefore, we must continually reaffirm its centrality to our practice. In support of that goal, this staff paper sets out the "McKinsey method" of problem solving, a structured, inductive approach that consists of four fundamental disciplines: problem definition, the problem-solving process itself, a number of "distinctiveness practices" our strongest problem solvers apply to deliver superior results to clients, and collaboration, which improves the results of our work and should lead to stronger client ownership of those results. The paper is mostly aimed at early-tenure associates, but it builds on many years of collective practice and experience to offer insights that should prove useful to consultants of any tenure.

The authors wish to thank David Honigmann for his extensive editorial counsel early in the process.

Edited by Saul Rosenberg (New York)

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THE MCKINSEY APPROACH TO PROBLEM SOLVING

Problem solving – finding the optimal solution to a given business opportunity or challenge – is the very heart of how we create client impact, and the most important skill for success in McKinsey. The best problem solvers continually develop innovative and impactful insights and solutions; they are comprehensive, fact-based, accurate, flexible, creative, and pragmatic. How do they do this? And how do we, as a Firm, continuously reaffirm problem-solving distinctiveness at the center of our practice?

There is a characteristic "McKinsey method" of problem solving that every associate must learn from his or her first day – a structured, inductive approach that can be used to solve any problem. Providing a standardized process saves us from reinventing the problem-solving wheel, and so allows for greater focus on distinctiveness in the solution.

This paper sets out what we regard as the four fundamental disciplines of the McKinsey method. It is mostly aimed at early-tenure associates. However, building on many years of collective practice and experience, it also provides mental models, practical "how to" guides, and tips and tricks to help those of all tenures – from "Day 1" associates to partners – master each of the disciplines. These disciplines are:

1. **Problem definition.** We problem-solve to deliver distinctive client impact. We cannot deliver this unless we start from a thorough understanding and crisp definition of the problem. The definition should go beyond analysis to encompass capability building, changing mindsets, and, where necessary, implementation. For example, a client may ask us which market it should enter. The client may fail to ask what capabilities it must build within the organization to enter that market; what mindsets are required to support the building of those capabilities; and how the current mindset can be shifted accordingly. But these must nevertheless be part of the answer, and we must work with the client to develop a shared understanding of the true nature and scope of the problem.
2. **The problem-solving process.** Once we have defined the problem, the McKinsey method proceeds with structuring the problem, prioritizing the issues, planning analyses, conducting analyses, synthesizing findings, and developing recommendations. In some cases, expert experience or engagement guides allow us to shortcut certain steps. In others, alternative problem-solving methods may also be appropriate.[1] In general, however, disciplined application of this fundamental process will allow us to solve problems of any kind and to deliver distinctive client impact from first principles.

3. **Distinctiveness practices.** Method alone is not sufficient. The strongest problem solvers are highly creative and insightful. They generate creativity and insight by constructing alternative perspectives; identifying relationships; distilling the essence of an issue, analysis, or recommendation; and staying ahead of others in the problem-solving process. We have included techniques to help with each of these, but one of our most powerful tools is time – i.e., taking the time to step back from the process and reflect on the problem and the developing solution.
4. **Collaboration.** We improve the speed, agility, and innovativeness of our problem solving when we actively seek out client, customer, and supplier perspectives, and internal and external expert insight and knowledge. In particular, working with our clients offers many benefits – from unique knowledge to a push toward greater focus, pragmatism, and innovation in developing solutions, and to stronger client ownership of the whole process and final recommendations.

Although we are at our most distinctive when Cq, Rq, and Iq^2 are all brought to bear on a problem, it is Iq – the raw problem-solving power to identify root causes precisely and develop the optimal solution creatively – that is the essence of our client mission, our practice, and our reputation. Developing Iq is a journey. It takes time, training, apprenticeship, and practice. Reading this paper is a first step on this journey; mastering and applying its contents, whether at the level of a single element of a problem or of an entire engagement, is the goal.

RIGOROUS PROBLEM DEFINITION

Distinctive problem solving begins with rigorous definition of the client problem and of how we will create and deliver "only McKinsey"-level client impact. Sometimes it is tempting to skip this step because we believe we know the solution to the problem; or we believe we have clearly defined the problem in our letter of proposal; or our clients push us to move on, believing that they have already defined the problem sufficiently. Any of these may be true; however, many "bad" engagements are rooted in a lack of common understanding of success. Good problem solvers take time, before doing anything else, to establish a precise, comprehensive, well-articulated definition of the real problem that needs to be solved, and to ensure that this definition is understood and agreed upon by all the appropriate people at the client and by all team members.

It is increasingly important that teams define the nature of the problem comprehensively. Sometimes, the best approach is to frame the problem in analytical terms, and so to develop a purely analytical solution. More and more, however, a purely analytical solution is not enough: Seizing the opportunity may require building organizational capabilities or transforming an organization's mindset. It is critical that, in defining the problem, we consider its full nature: What does delivering client impact require in terms of analysis, capability building, changing mindsets, and implementation across businesses, functions, regions, and so on?

Suppose a team is launching a plant-improvement program. Consider three different ways the client problem or opportunity may be defined – and the impact each has on the work of the team. First, the client may need to find a way to remove $300 million in plant cost as rapidly as possible. Here, the team would need to identify and deliver areas of opportunity (such as line bottlenecks) that total at least $300 million. Alternatively, the client may need to improve plant cost performance by at least 10% over each of the next three years. This presents more of a capability-building challenge, which would require the team to train and apprentice a set of plant leaders on lean tools, and strengthen the client's ability to identify and realize plant-improvement opportunities on an ongoing basis. Finally, the client opportunity may be to build market leadership by ensuring that the plant performs continuously at world-class standards of cost, quality, speed, and service. This situation would require the team to transform not just the way the plant operates and the skills and capabilities of its workforce, but the mindsets and culture of the plant workforce as well. These are all valid problem definitions for a team facing the plant-improvement challenge. To be effective, the team needs to make sure it addresses the right one.

WHAT IS 'DISTINCTIVE'?

Ask colleagues or clients how we define a distinctive solution, and you will hear, most commonly, that "every situation is different, but you know it when you see it." Indeed, there is no single answer. But we believe there are themes that recur in the kinds of solutions to which we aspire. Distinctive solutions go beyond good solutions in that they truly drive IMPACT. As such, they are:

- **I**nsightful. Distinctive solutions are highly creative and high impact. They uncover new and unique views of the problem, the situation, and the solution to create significant improvements in performance.
- **M**cKinsey. Distinctive solutions unlock more of the power of the Firm's geographic, functional, and practice capabilities. They are true to our values of putting client interests ahead of our own, of independence, and of integrity.
- **P**ragmatic. Distinctive solutions are not just good on paper, but fit the realities and complexities of the client situation. They define crisply what must get done in simple language the client can understand, even when what must get done may be complex and take many years.
- **A**spirational. Distinctive solutions do not accept today's situation – internal or external – but prompt reasonable stretch by the client to capture a richer vision of success. They don't accept that something can't be done; rather, they lay out the path to get it done.
- **C**atalyzing. Distinctive solutions are energizing. Clients across all levels of the organization believe in them, are proud to own them, and work aggressively to implement them.
- **T**ransformational. Distinctive solutions deliver significant, sustained improvement to the long-term health of the client organization in addition to its short-term performance.

The Problem Statement Worksheet

We recommend that teams use the Problem Statement Worksheet to aid in problem definition *(Exhibit 1, overleaf)*. One EM pays testament to the value of this process: "It was unbelievably powerful. The client ended up quoting from the worksheet every time we grappled over whether something was worth doing to make sure we were staying true to the problem we were trying to solve. Any time I have not been clear about an element of the Problem Statement Worksheet at the start of a study with the client, it always results in scope creep."

Much of the value in completing the worksheet comes from the thought processes and discussions generated as the team develops it. There are several ways to maximize this value:

- **Basic question.** Make the basic question SMART – that is, specific, measurable, action-oriented, relevant, and time-bound. "How can Pioneer Bank close the $100 million profitability gap in two years?" is a SMART question.
- **Context.** Spend time discussing the environment. What are the internal and external situations and complications facing the client, such as industry trends, relative position within the industry, capability gaps, financial flexibility, and so on?
- **Success criteria.** Make sure you understand how the client and the team define success and failure. In addition to any quantitative measures identified in the basic question, you will want to identify *all* other important quantitative or qualitative measures of success, including timing of impact, visibility of improvement, client capability building required, necessary mindset shifts, and so on.
- **Scope and constraints.** Scope most commonly covers the markets or segments of interest, whereas constraints govern restrictions on the nature of solutions within those markets or

Exhibit 1

Problem Statement Worksheet

BASIC QUESTION TO BE RESOLVED

Defines what must be resolved to deliver "only McKinsey"-level client impact. The question should be SMART: specific, measurable, action-oriented, relevant, and time-bound

1. CONTEXT
Sets out the situation and complication facing the client – *e.g., industry trends, relative position in the industry*

2. CRITERIA FOR SUCCESS
Defines success for the project. Must be shared by client and team, and must include relevant qualitative and quantitative measures – *e.g., impact and impact timing, visibility of improvement, client mindset shifts*

3. SCOPE OF SOLUTION SPACE
Indicates what will and will not be included in the study – *e.g., international markets, research and development activities, uncontrolled corporate costs*

4. CONSTRAINTS WITHIN SOLUTION SPACE
Defines the limits of the set of solutions that can be considered – *e.g., must involve organic rather than inorganic growth*

5. STAKEHOLDERS
Identifies who makes the decisions and who else could support (or derail) the study – *e.g., CEO, division manager, SBU manager, key outside influencers*

6. KEY SOURCES OF INSIGHT
Identifies where best-practice expertise, knowledge, and engagement approaches exist (internal and client) – *e.g., practice experts, EM guides, practice databases*

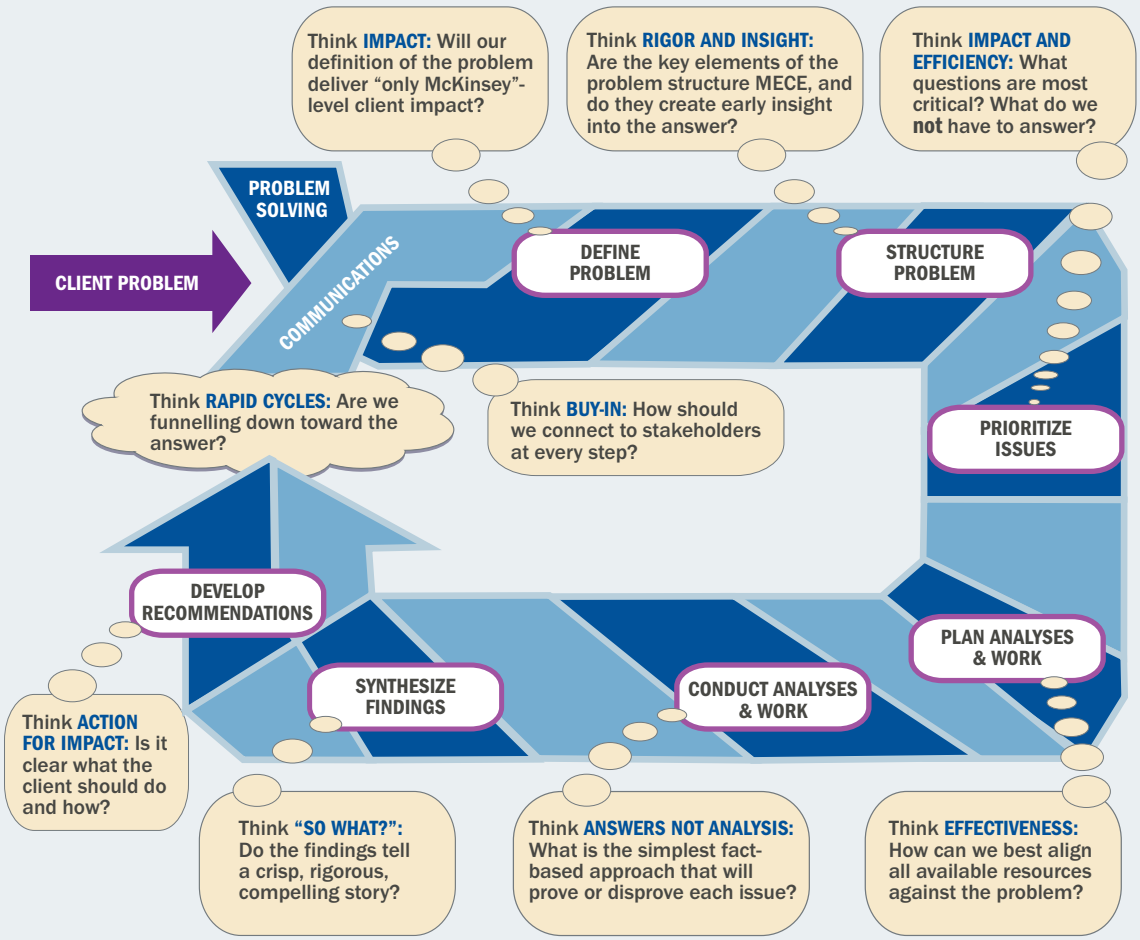
segments. For example, for a growth strategy study, the scope may be the U.S. market, and the constraint may be that the solution must involve organic rather than acquisition-driven growth. Start by defining the scope. One way to sharpen the discussion is to ask what is *not* in scope. Once the scope is clarified, define the constraints within the solution space. Teams often become confused trying to be precise in sorting through the difference between scope and constraints. Be wary of getting too bogged down here.

- **Stakeholders.** Explore who really makes the decisions. This is the first step in a stakeholder analysis, discussed later in greater detail, which will continue throughout the problem-solving process. It is illuminating, even at this early stage, to explore who decides, who can help, and who can block.
- **Key sources of insight.** What best-practice expertise, knowledge, and engagement approaches already exist? What knowledge from the client, suppliers, and customers needs to be accessed? Make this discussion as specific as possible: who, what, when, how, and why. For example, in a sourcing engagement, the team should, at a minimum, identify the PSM engagement EM guide, the Firm's PSM experts, and the PSM savings database as sources to be drawn upon.

TIPS FOR THIS STAGE

- **"Get to paper" quickly.** Almost inevitably, the first cut at any element of the problem statement will be imperfect. There is interplay between all the elements of the Problem Statement Worksheet: Addressing the success criteria, for example, will force you to go back and refine the basic question. The art here is to get something down on paper and cycle among all the elements with the team and the client until the problem definition is robust and sharp, and most important, has been embraced.
- **Think "opportunity."** Our goal is to uncover possibilities and opportunities. Beware falling into the trap, sometimes created by our choice of language, of focusing on a client's *problems.* Distinctive problem solving comes from an expansive rather than a reductive mindset.
- **Be thorough.** Getting this step right takes time – half a day, sometimes a whole day. It requires us to release our incoming beliefs, often set by the hypotheses contained in the letter of proposal. It also requires us to avoid confusion stemming from concerns about workload and delivery. These are best dealt with separately: Get the question right first, and only then take into account workload issues.
- **Capture hypotheses as you go.** Hypotheses about the solution are likely to unfold as you wrestle with the Problem Statement Worksheet. Be sure to capture these, but at this stage, don't follow the path they lead down. They will become useful at later stages of problem solving.
- **Revalidate as problem solving progresses.** Sometimes, changes in the business environment, such as a merger of competitors – or indeed, changes to any of the elements of the Problem Statement Worksheet – change the problem at hand. It is important to revalidate the problem definition regularly throughout the process to ensure that the team's focus is correct.
- **Don't skip this step!** Taking for granted that you or the team understands the problem to be solved – and neglecting to articulate it explicitly – is a recipe for disaster.

Exhibit 2
Basic problem-solving process



MASTERY OF THE BASIC PROBLEM-SOLVING PROCESS

Once the problem has been defined, the problem-solving process proceeds with a series of steps, rapidly iterated, revised, and repeated, buttressed by active and ongoing communication: Structure the problem, prioritize the issues, plan analyses, conduct analyses, synthesize findings, and develop recommendations *(Exhibit 2)*.

Not all problems require strict adherence to the process. A number of steps can sometimes be truncated, such as when specific knowledge or analogies from other industries make it possible to construct hypotheses and associated workplans earlier than their formal place in the process. Nonetheless, it remains important to be capable of executing every step in the basic process for three reasons.

First, when a team is confronted with a new and complex problem, the process establishes a path to defining and disaggregating the problem in a way that will allow the team to move to a solution. Second, the process ensures nothing is missed – particularly in the early stages of a study, where full exploration of the issues is necessary – and requires that you formulate and prioritize hypotheses rigorously, thus focusing your efforts on the highest-impact areas. Third, and perhaps most important, adhering to the process gives the client, and particularly full-time client team members, clear steps to follow, which in turn builds early confidence and credibility, and long-term capability in client team members.

In working through the process, bear two factors in mind:

- **Iteration.** For simplicity's sake, the basic problem-solving process discussed in this paper is presented as a linear one. It is not. A central facet of the way McKinsey solves problems is to develop an early solution and approach and to iterate them, as the looping arrow depiction of the process in Exhibit 2 indicates. The early solution will typically take the form of a "Day 1" or "Week 1" draft storyline that the team will revisit and iterate – testing and adjusting both answer and approach at each phase of the process, and at least weekly. Regular, thoughtful iteration saves time and produces a stronger solution.
- **Communication/syndication.** Communication, syndication, and problem solving are inextricably interlinked. All the time you are working on the problem, you should be communicating with the client, the ED, and others; and you should be syndicating the emerging solution to ensure that it goes beyond being sound on paper to having impact in practice. Moving beyond simple communication or syndication to "cocreate the solution" with senior clients and any relevant client stakeholders at all stages of the problem-solving process will sharpen the solution, alert you to any problems, and also ensure client ownership of the final recommendations. In completing the Problem Statement Worksheet, you are prompted to define the key stakeholders. As you become involved in the problem-solving process, you should expand the question of key stakeholders to include what the team wants from them and what they want from the team, their values and motivations (helpful and unhelpful), and the communications mechanisms that will be most effective for each of them *(Exhibit 3, overleaf)*.[3]

Structure the problem

The two most helpful techniques for rigorously structuring any problem are hypothesis trees and issue trees.

Each of these techniques disaggregates the primary question into a cascade of issues or hypotheses that, when addressed, will together answer the primary question. For example, if the primary question is, "How can Pioneer Bank grow at least $100 million over the next two years?" an issue tree may break it down as follows: "What is the currently anticipated organic growth?" "What additional organic growth can potentially be stimulated?" "How much growth can be captured through acquisitions?"

Exhibit 3

Stakeholder analysis worksheet

STAKEHOLDERS	WHAT DO WE NEED FROM THEM?	WHERE ARE THEY?	WHAT DO THEY NEED FROM US?
▪ Who will be affected? ▪ Whom do we need to engage? ▪ Whom do we need to inform?	▪ What do we want this group or individual to think or do? ▪ What can they do to support our objectives? ▪ How can we minimize any potentially negative impact?	▪ What issues do they have regarding the project/business? ▪ What values and motivations can we build on? ▪ What values and motivations may cause conflict?	▪ What could we do or say that would resolve their issues? ▪ What communication approaches would work best with them?

A hypothesis tree might break down the same question into three matching hypotheses: "Pioneer is expected to grow organically by $50 million," "Pioneer can stimulate an additional $20 million in growth from current businesses," and "Pioneer has opportunities to capture $200 million in growth through acquisitions." These issues or hypotheses will themselves be further disaggregated into subsidiary issues or hypotheses at the next level of the tree.

Any problem can be broken down in different ways. The aim at this stage is to structure the problem into discrete, mutually exclusive pieces that are small enough to yield to analysis and that, taken together, are collectively exhaustive (MECE: mutually exclusive, collectively exhaustive). Here, the art lies in identifying an efficient and effective structure – one that can be worked through in a minimum number of steps and that will yield a sound and relevant answer. Acquiring and mastering this art comes from apprenticeship and practice.

Hypothesis trees

Articulating the problem as hypotheses, rather than issues, is the preferred approach because it leads to a more focused analysis of the problem *(Exhibit 4)*. What makes a hypothesis powerful? Questions to ask include:

- Is it testable – can you prove or disprove it?
- It is open to debate? If it cannot be wrong, it is simply a statement of fact and unlikely to produce keen insight.
- If you reversed your hypothesis – literally, hypothesized that the exact opposite were true – would you care about the difference it would make to your overall logic?

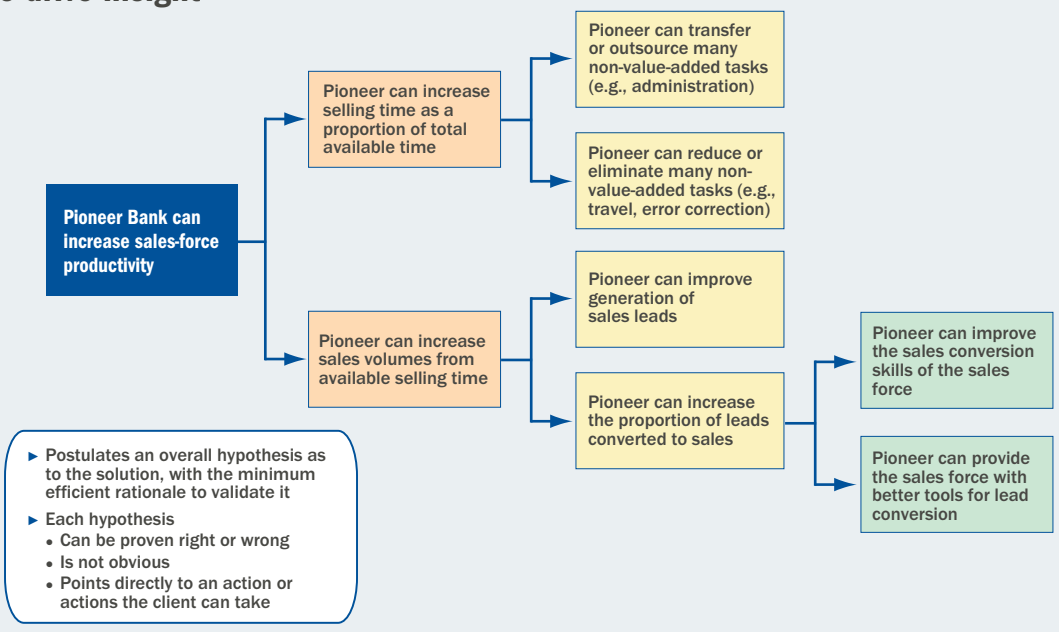
- If you shared your hypothesis with the CEO, would it sound naive or obvious?
- Does it point directly to an action or actions that the client might take?

A storyline is a complement or alternative to the hypothesis tree approach. Forcing the hypotheses into storyline format – a dot-dash memo of hypotheses – typically drives an additional level of precision in language and logic. Done well, this dot-dash memo is also a simpler and more robust way of communicating – it will become the preliminary outline for the final progress review and will simply grow to encompass the insights that emerge from subsequent analysis. Teams often call this the "Day 1" or "Week 1" answer or draft storyline. We strongly recommend this technique.

Quickly developing a powerful hypothesis tree or draft storyline enables us to develop solutions more rapidly that will have real impact. But be aware that our hypothesis and storyline approach can appear premature and arrogant to clients; it is not unusual for clients to distrust what looks to them like an answer reached after just 24 hours, and to want to see all the analysis behind it. In these situations, we must take care to explain the approach (most important, that a hypothesis is not an answer) and its benefits (that a good hypothesis is the basis of a proven means of successful problem solving and avoids "boiling the ocean"). We should also be aware that the approach can indeed trap us in a limiting frame of mind, reinforcing beliefs that are not justified by the facts and reducing the opportunity for an "outside the box" solution.

Exhibit 4

Hypothesis trees use the minimum necessary number of hypotheses to drive insight



Issue trees

Often, the team has insufficient knowledge to build a complete hypothesis tree at the start of an engagement. In these cases, it is best to begin by structuring the problem using an issue tree *(Exhibit 5)*.

An issue tree is best set out as a series of open questions in sentence form. For example, "How can the client minimize its tax burden?" is more useful than "Tax." Open questions – questions that begin with "what," "how," or "why"– produce deeper insights than closed ones, which typically start with "can" or "does." In some cases, an issue tree can be sharpened by toggling between issue and hypothesis – working forward from an issue to identify the hypothesis, and back from the hypothesis to sharpen the relevant open question.

TIPS FOR THIS STAGE

- **Tackle one level at a time.** Be sure to complete each level of the hypothesis or issue tree before moving deeper into the structure. This allows you to verify that the issues at each level of the tree are MECE.
- **Develop a first draft quickly.** It is tempting, especially when working with clients, to spend a great deal of time agonizing over the precise way in which to split issues or groping for the perfect storyline wording. Instead, it is usually better to iterate rapidly and try out different ways of constructing issue or hypothesis trees as a way of feeling your way into the problem.
- **Be aware that a first draft may already exist.** Functional or industry practices, or team members who have worked on engagements similar to yours, may have issue or hypothesis trees that reflect their experience in structuring and solving the kind of problem you face. These trees offer a starting point that will speed and strengthen the team's work in this phase.

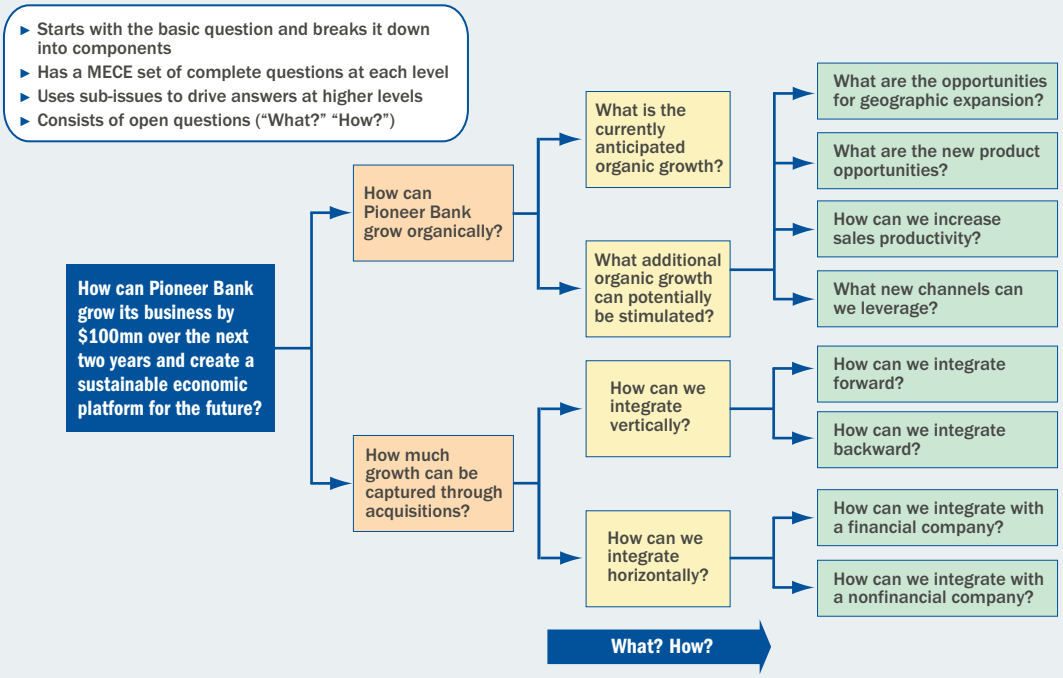
Prioritize the issues

Once the problem has been structured, the next step is to prioritize the issues or hypotheses on which the team will focus its work.

When prioritizing, it is common to use a two-by-two matrix – e.g., a matrix featuring "impact" and "ease of impact" as the two axes. Our focus on client impact makes it extremely likely that impact will form part of any prioritization. Other prioritization criteria include urgency (but beware the danger of being drawn into firefighting), fit with values and mission, strategic alignment, fit with capabilities, and option value. Applying some of these prioritization criteria will knock out portions of the issue tree altogether. Consider testing the issues against them all, albeit quickly, to help drive the prioritization process.

Exhibit 5

Issue trees are deductive and cover the full problem



Once the criteria are defined, prioritizing should be straightforward: Simply map the issues to the framework, and focus on those that score highest against the criteria.

As the team conducts analysis and learns more about the problem and the potential solution, make sure to revisit the prioritization matrix so as to remain focused on the highest-priority issues.

TIPS FOR THIS STAGE

- **Keep it simple.** The key to making the prioritization process effective is to avoid complicating the prioritization criteria.
- **Recognize that impact is not always quantifiable.** Quantifying impact is not always easy. Be wary of ignoring aspects of impact such as client competitiveness, which cannot easily be quantified.
- **Bring the client along.** One way to bring the client along with the team is to write the issues or hypotheses on Post-it notes and, working together with the client, to move them around on the chosen prioritization matrix, discussing each move. Typically, all the Post-it notes start off in the top right-hand corner because every issue will have a champion. But when forced to make trade-offs, people will do so. By going through this exercise, the team will not only complete the prioritization but will also generally uncover further insight into the issues and the problem.

Exhibit 6

Workplan worksheet with example

ISSUE	HYPOTHESIS	ANALYSIS	END PRODUCT	SOURCES	TIMING/ RESPONSIBILITY
An issue is typically an important, unresolved question, phrased so that it can be answered yes or no	The hypothesis is a statement of the likely resolution of the issue. It includes the reasons for answering yes or no	The analysis defines the work necessary and sufficient to prove or disprove the hypothesis or resolve the issue	The end product is a statement of the output from the analysis	Provides a list of potential McKinsey, client, and external sources of information, e.g., experts, databases	Defines completion due date and responsibilities
Should Pioneer Bank invest $200mn to purchase Shanghai Bank?	Yes. Shanghai Bank is the best option for Pioneer to establish critical skills and assets quickly, compared with both organic growth and other acquisition options	▪ Assessment of organic options for growth – time, risk, etc. ▪ Comparison of other local banks in market as acquisition options ▪ Cash flow, NPV	Financial forecast and value of investment	▪ Analyst reports on Chinese banking landscape ▪ Local McKinsey FIG experts ▪ M&A practice valuation methodology	July 1, John

Plan analyses and work

If the prioritization has been carried out effectively, the team will have clarified the key issues or hypotheses that must be subjected to analysis. The aim of these analyses is to prove the hypotheses true or false, or to develop useful perspectives on each key issue. Now the task is to design an effective and efficient workplan for conducting the analyses.

Transforming the prioritized problem structure into a workplan involves two main tasks. First, define the blocks of work that need to be undertaken: Whether you are starting from issues or hypotheses, articulate as clearly as possible the desired end products and the analysis necessary to produce them, and estimate the resources and time required. Next, sequence the work blocks in a way that matches the available resources to the need to deliver against key engagement milestones (e.g., important meetings, progress reviews), as well as to the overall pacing of the engagement (i.e., weekly or twice-weekly meetings, and so on).

A good workplan will detail the following for each issue or hypothesis: analyses, end products, sources, and timing and responsibility *(Exhibit 6)*. Because of the many considerations involved, developing the workplan takes time. However, doing it well mostly requires working through the definition of each element of the workplan in a rigorous and methodical fashion. Involving

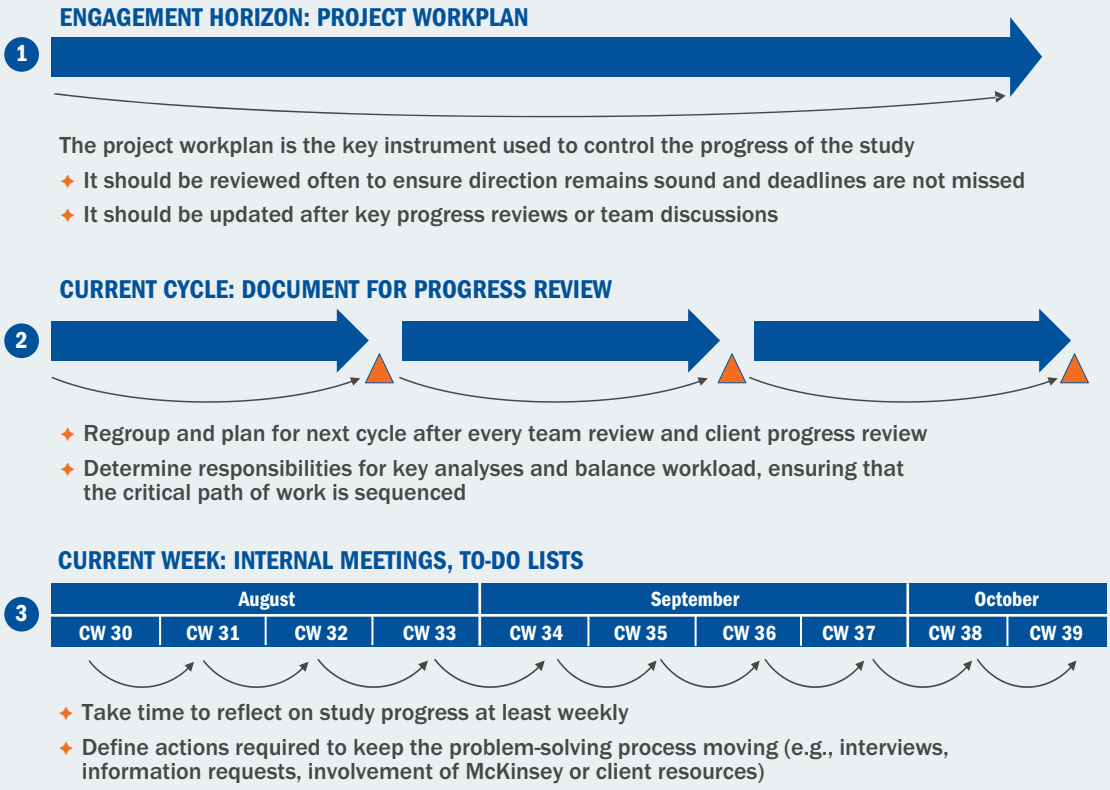
more experienced colleagues and experts will help make sure the workplan and its elements are properly thought through.

TIPS FOR THIS STAGE

- **Tie issues, analyses, and end products.** When you define and create blocks of work, make sure there is a one-to-one linkage between your issues or hypotheses and your end products and analyses.
- **Ensure a balanced workload.** Take care to balance the workload, carefully considering the difficulty of each analysis and the variety of resources available (e.g., McKinsey team members, client team members, experts, R&I groups, our "McKC" global knowledge centers, and our Analytic Services group).
- **Consider workplan horizons.** Your team may find it useful to match the workplan to three horizons: what is expected at the end of the engagement, what is expected at key progress reviews, and what is due at daily and/or weekly team meetings. The detail in the workplan will typically be greater for the near term (the next week) than for the long term (the study horizon), especially early in a new engagement, when considerable ambiguity about the end state remains *(Exhibit 7)*.

Exhibit 7

Three horizons of engagement planning



Conduct analyses and work

The bulk of an engagement generally consists of gathering facts and conducting analyses to solve the problem.

It is not the aim of this paper to educate you in how to conduct analysis. However, it is worth reiterating that numbers are primary in any hierarchy of facts and analyses at McKinsey. Any solution that is not borne out by quantitative facts immediately bears a heavy burden of proof. That said, among the real strengths of McKinsey problem solving are its willingness to take its facts where it finds them; where facts are not available, to develop them (for example, by conducting interviews and surveys, or by building models); and to draw inferences from the eclectic mix of information that results.

TIPS FOR THIS STAGE

- **Focus on answers, not analysis.** Always be end-product-oriented. You should never find yourself just "running the numbers."
- **Understand that simpler is sometimes better.** Our solutions must always be rigorous. However, rigor in problem solving does not mean supporting every proof through weeks of fact finding. Often, speedily reaching a "directionally correct" solution is more valuable than refining a perfect answer over a longer period. Similarly, completing order-of-magnitude and back-of-the-envelope analyses will help guide more detailed solutions when they are necessary. In general, apply the 80/20 rule when a full fact base is not necessary – focus on the 20% of analysis that gives you 80% of the solution.
- **Watch out for data paralysis.** A lack of data – or too much data – can leave a team scrambling. Pay attention to working within both data and time constraints, so that you can develop solutions in time to do the reality checks necessary before fitting the analysis within the bigger picture/storyline.

Synthesize findings

This is the most difficult element of the problem-solving process. After a period of being immersed in the details, it is crucial to step back and distinguish the important from the merely interesting. Distinctive problem solvers seek the essence of the story that will underpin a crisp recommendation for action.

McKinsey's primary tool for synthesizing is the pyramid principle. Essentially, this principle asserts that every synthesis should explain a single concept – the "governing thought." The supporting ideas in the synthesis form a thought hierarchy proceeding in a logical structure from the most detailed facts to the governing thought, ruthlessly excluding the interesting but irrelevant. While this hierarchy can be laid out as a tree – just as with issue and hypothesis trees – the best problem solvers capture it by creating dot-dash storylines *(Exhibit 8, on p. 16)*.

Although synthesis appears, formally speaking, as the penultimate step in the process, it should happen throughout. Ideally, after you have made almost any analytical progress, you should attempt to articulate the "Day 1" or "Week 1" answer. Continue to synthesize as you go along: This will remind the team of the question you are trying to answer, assist prioritization, highlight the logical links of the emerging solution, and ensure that you have a story ready to articulate at all times during the study.

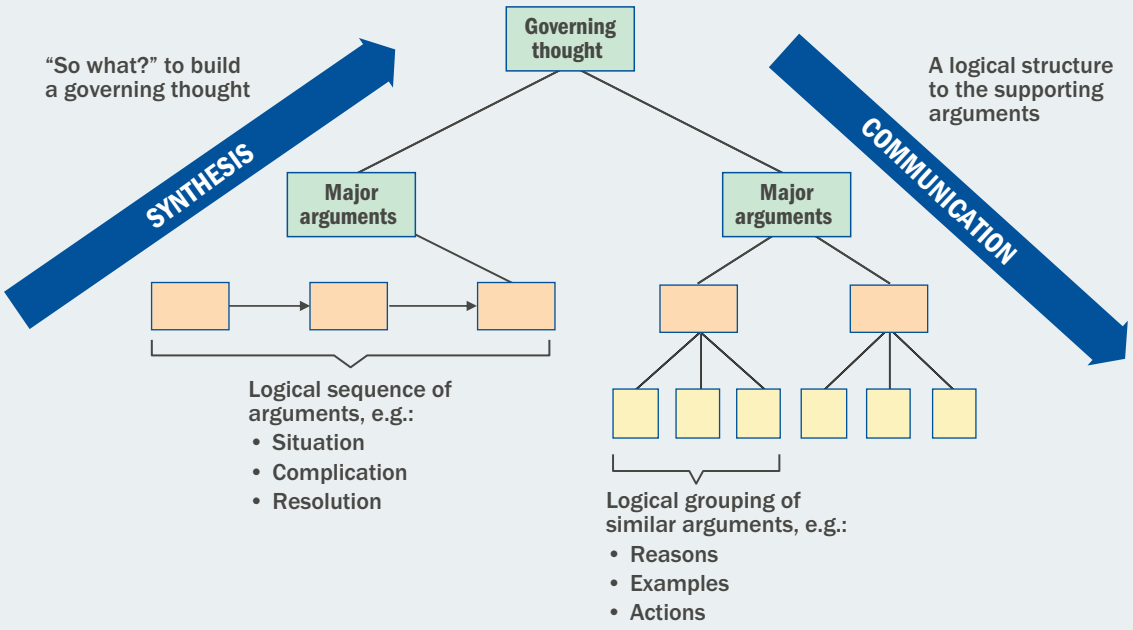
TIPS FOR THIS STAGE

Powerful synthesis is an art and takes lots of practice. But there are habits that can help:

- **Focus on action.** Articulate the thoughts at each level of the pyramid as declarative sentences, not as topics. ("Planning" is a topic and not a declarative sentence; "The planning system needs to become lean" is a declarative sentence.) If you were to articulate a governing thought to a client and the client's first reaction were to ask what the company should do, you would know that your governing thought was incomplete.
- **Use storylines, not PowerPoint.** PowerPoint is not a good tool for synthesis: It is poor at highlighting logical connections. A storyline will clarify elements that may be ambiguous in the PowerPoint presentation and even bring to the surface hidden contradictions that often survive between, say, pages 3 and 26 of a PowerPoint pack.
- **Keep the emerging storyline visible.** Many teams find that posting the storyline or storyboard on the team-room wall helps keep the thinking focused. It also helps in bringing the client along.
- **Try SCR.** A powerful way to synthesize a story is to use the situation-complication-resolution structure. The situation is the reason there is action to be taken. The complication is why the situation needs thinking through – typically an industry or client challenge. The resolution is the answer. Any synthesis that does not fit into this format can probably be made clearer and more insightful by being modified accordingly. For example: The retail bank market in China is profitable at 15% EBIT and is rapidly growing at a 12% CAGR *(situation).* However, Pioneer Bank is poorly positioned to share in this growing profit pool *(complication).* Pioneer needs to acquire Shanghai Bank and invest $60 million in building capabilities to establish a winning position *(resolution).*
- **Test the pyramid.** You can assess the rigor of your pyramid using three simple tests:
  - *Going down the pyramid.* Does each governing thought pose a single question (usually "why" or "how," but not both) that is answered completely by the group of boxes below it?
  - *Going across.* Is each level within the pyramid MECE?
  - *Going up.* Does each group of boxes, taken together, provide one answer – one "so what?" – that is essentially the governing thought above it?
- **Test the solution.** What would it mean if your hypotheses all came true? One team working for a regulated utility thought it had identified the perfect set of hypotheses on which it could base delivering the right strategy for its client. But when the team asked, "What would happen if everything worked out?" the answer clearly posed serious anticompetitive issues. Had the team not thought through the implications of the "perfect strategy," it would not have had the opportunity to readjust the question it was trying to solve – which of course changed the answer.

Exhibit 8

Attributes of pyramid structure for grouping arguments



Develop recommendations

It is at this point that we address the client's questions: "What do I do, and how do I do it?" Elegantly synthesized analytical solutions are often not sufficient for client impact. Our clients tell us that we create great solutions and identify unique opportunities, but that we need to push our recommendations to a more actionable level. In addition, our own research suggests that clients often fail to capture the full benefits of our work, largely because of lack of organizational commitment and the skills required for execution. Therefore, our work is incomplete until we have actionable recommendations, along with a plan and client commitment for implementation.

The essence of this step is to translate the overall solution into the actions required to deliver sustained impact. A pragmatic action plan must be developed and communicated in a tailored manner acceptable to the client organization. First, it must include the relevant initiatives, along with a clear sequence, timing, and mapping of the activities required to realize them – taking into account not merely the need for sustained impact but also the effect of visible "quick wins," the resources available, and any competing priorities. Second, it must set out clear owners for each initiative. Third, it must include the key success factors and the challenges involved in delivering on the initiatives – including, for example, identifying change agents and change blockers.

In the end, all our work boils down to change and how to help clients achieve it. Organizational change is the hardest challenge a client can take on. Crucial questions to ask as you build recommendations for organizational change are: Does each person who needs to change (from the CEO to the front line) understand what he or she needs to change and why, and is he or she committed to it? Are key leaders and role models throughout the organization personally committed to behaving differently? Has the client set in place the necessary formal mechanisms (evaluation processes, compensation, etc.) to reinforce the desired change? Does the client have the skills and confidence to behave in the desired new way? If the answer to any of the above is no, you should ensure your recommendations appropriately support successfully addressing these challenges.[4]

TIPS FOR THIS STAGE

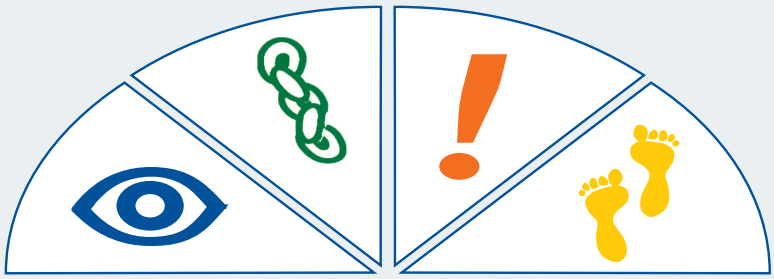
- **Be SMART again.** As with the basic question in the Problem Statement Worksheet, the recommendations should be SMART – specific, measurable, action-oriented, relevant, and time-bound.
- **Expand your view of winners and losers.** Think hard about how to turn the losers into winners. Influencing those who stand to lose the most often makes the difference between recommendations that sit on a shelf and those that are deeply and broadly committed to.
- **Don't wait until the end of the study.** As with all other stages, recommendations should be part of problem solving from the outset and should be revisited throughout.
- **Test the recommendations with the client.** We noted earlier that cocreating the solution with the client across all stages of the problem-solving process greatly increases the likelihood that your recommendations will gain client buy-in. Whether you have achieved a great deal of client collaboration throughout the process or only a little, now is the time to ensure that the relevant client stakeholders agree with the recommendations. They will include client team members and senior client leaders, but might also extend to a junior manager likely to be affected by part of the solution, a client employee who has provided lots of data or other input, or a key influencer in the organization.

DISTINCTIVENESS PRACTICES

Thus far, we have covered the basics of first-class problem solving. This process will yield sound, logical answers. Nevertheless, they can sometimes be incremental. Great problem solvers identify unique disruptions and discontinuities, novel insights, and step-out opportunities that lead to truly distinctive impact. This is not a matter of instinct, although watching skilled practitioners may suggest otherwise. Rather, they apply a number of practices throughout the problem-solving process to help develop these insights. As you iterate the problem definition and the steps

Exhibit 9

Four distinctive capabilities



EXPAND: Construct multiple perspectives	LINK: Identify relationships	DISTILL: Find the essence	LEAD: Stay ahead/ Step back
The ability to see a problem and its aspects from many angles • Change the point of view (e.g., what would a customer see?) • Change elements of the problem (e.g., what changes if your client acquires a competitor?)	The ability to discern connections among elements of the problem and elements beyond it. Consider: • Hierarchy (e.g., cause and effect, sequence, priority) • Groupings (e.g., size, common themes, common drivers) • Analogies from other situations	The ability to cut through complexity to reveal the heart of the problem • Identify critical problem elements • Advance simpler parts of the problem to inform more complex ones • Assemble the problem elements into a story: If it doesn't fit, it doesn't matter	The ability to think ahead of the team and simultaneously step back from the problem • Spend time specifically thinking ahead • Challenge the rigor of the analysis at every stage • Stress-test the emerging recommendation for feasibility and common sense • Test solution for distinctiveness

that follow, we recommend that you reflect explicitly on each of the following practices and draw on them in seeking creative breakthroughs *(Exhibit 9)*.

Expand: Construct multiple perspectives

The first practice is to expand your thinking by *constructing multiple perspectives*. Identifying alternative ways of looking at the problem expands the range of possibilities, opens you up to innovative ideas, and allows you to formulate more powerful hypotheses.

Begin by reframing the problem from different perspectives or roles, and by testing solutions or approaches from other industries. Questions that help here include: "What changes if I think from the perspective of a customer, or a supplier, or a frontline employee, or a competitor?" "How have other industries viewed and addressed this same problem?" "What would it mean if the client sought to run the bank like a low-cost airline or a cosmetics manufacturer?" Draw-

ing on experts, role playing, war gaming, and seeking analogies from other industries can all push your thinking.

In addition to "flexing" your point of view, you can also flex the problem itself. Try relaxing given constraints, widening the scope, changing key elements or conditions, and testing against extreme conditions. For example, what changes if your client acquires its largest competitor? What happens if the market grows at twice its current rate – or half? The easiest way to think through this approach is to examine the Problem Statement Worksheet for the constraints you are assuming, and then relax them. Scenario planning is a particularly useful tool in this regard.

Link: Identify relationships

The second distinctiveness practice is to *identify relationships*. Strong problem solvers discern connections and recognize patterns in two different ways. First, they seek out the ways in which different problem elements – issues, hypotheses, analyses, work elements, findings, answers, and recommendations – relate to one another. Second, they recognize analogous situations or problems. They use these relationships throughout the basic problem-solving process to identify efficient problem-solving approaches, novel solutions, and more powerful syntheses.

"What are the relationships within this set of problem elements?" is one of the most common questions asked by EDs. This question may manifest itself as, "In what sequence should we execute these recommendations?" or "Why did you order this series of bullets on the page in this way?" or "What is the rationale for a particular grouping of a set of elements of a work-plan?" One of the most common answers early-tenure associates give is "I didn't think about it." Considerations that can help answer these questions, before they are asked, are:

- **Hierarchy.** Is there a cause and effect between elements? Is there a sequence in terms of timing or order of steps? Is there a natural prioritization within a list of elements?
- **Groupings.** Are there natural groupings by magnitude? Do elements share a common theme or nature, e.g., similar markets, similar capabilities, similar challenges? Is there a grouping implied if you organize by common drivers?

Analogies can also offer insight at each step of the basic problem-solving process by helping identify the elements of a problem structure that are likely to have the greatest effect on the outcome, challenging the typical way of thinking about the problem, and offering potential solutions or innovations. For example, many of the issues related to creating growth at a bank in China are analogous to growing within other industries in China. A team can understand which issues are most critical by understanding these analogies.

Distill: Find the essence

The third practice is to *find the essence*. Our clients ask us to address some of their most complex situations and problems. Cutting through complexity to identify the heart of the problem and its solution is a critical skill.

Start by identifying the critical problem elements. Are there some issues, approaches, or options that can be eliminated completely because they won't make a significant difference to the solution? Even if nothing can be eliminated outright, assess the relative impact of the problem elements on the solution, and focus on those problem elements that will have the most impact.

You should also consider how complex the different elements are and how long it will take to complete them. Wherever possible, quickly advance simpler parts of the problem that can inform more complex or time-consuming parts.

As always, a good storyline is very useful in distilling things to their essence. If any of the elements you're working on does not naturally find a place in the storyline, ask yourself why you are working on it.

Lead: Stay ahead/step back

The final practice of the first-class problem solver is to *stay ahead/step back*. Without getting ahead of the client, you cannot be distinctive. Paradoxically, to get ahead – and stay ahead – it is often necessary to step back from the problem to validate or revalidate the approach and the solution. Becoming entangled in the weeds, or being reactive to the client or others, is a path to failure.

You can avoid these traps by using a number of techniques:

- Spend time thinking one or more steps ahead of the client, the EM, the ED, and/or the rest of the team. Allocate time for this purpose at the end of every day and every week.
- Constantly check and challenge the rigor of the underlying data and analysis, as well as the logic of individual elements of the solution or hypothesis. Don't spend hours on any

THE OBLIGATION TO DISSENT

At the Firm, if you don't agree with something, it is your obligation to present your dissenting view, and the obligation of others to listen. You should, of course, support your dissenting position with logic and facts that prove it is worthy of investigation. But never forget that you may be the best person, and sometimes the only person, to see a weakness or an opportunity.

The *obligation to dissent* is critical to ensuring our problem solving is robust. It allows ideas and logic to trump tenure and real and perceived experience, as well as emotional attachment to any element of the problem-solving process.

Behavioral economics has demonstrated that people readily accept data that supports their biases and are willing to overlook data that challenges them. It also demonstrates how willing people are to go along with what everyone else appears to think is right. The obligation to dissent is the best antidote we have for these phenomena, which otherwise lead to suboptimal solutions.

element unless it is critical to the solution. Rather, use back-of-the-envelope and order-of-magnitude checks, triangulation, and good judgment to assess quickly whether there may be a mistake.

- Stress-test the whole emerging recommendation in several ways. Does it fit with the initial problem definition? Does the overall answer meet the test of common sense? (Deeply counter-intuitive solutions can be right, but they must meet a high bar.) Is the solution feasible – i.e., can it be implemented, given internal and external constraints? Do all the puzzle pieces fit together?
- Similarly, challenge the solution against a set of hurdles. Does it satisfy the criteria for success as set out on the Problem Statement Worksheet? Does it meet the bar for distinctiveness originally set for the engagement – in terms of impact, of innovative or creative insight, and so on?

HARNESS THE POWER OF COLLABORATION

No matter how skilled, knowledgeable, or experienced you are, you will never create the most distinctive solution on your own. The best problem solvers know how to leverage the power of their team, clients, the Firm, and outside parties. Seeking the right expertise at the right time, and leveraging it in the right way, are ultimately how we bring distinctiveness to our work, how we maximize efficiency, and how we learn. All of us have struggled over a problem at some time. When you find yourself struggling, reach out.

When solving a problem, it is important to ask, "Have I accessed all the sources of insight that are available?" Here are the sources you should consider:

- **Your core team.** Your team is likely to have at least some expertise in the problem at hand. Sitting down with the EM, ED, or another team member is often very helpful. Group problem-solving sessions, grounded in a sound framing of the question, can sharpen individual and collective thinking.
- **The client.** Hesitate to draw on client team members and you will miss important inputs. The whole team should think broadly about whom to call on from the client and how to do it. For example, consider individuals identified in the stakeholder analysis – not just your client "friends" but also those who stand to lose the most from the potential recommendations. The latter are certain to have perspectives that will challenge the team's thinking. Engage clients not only in progress reviews or problem-solving sessions but also in one-on-one interviews and discussions. Furthermore, always ask client team members if there is someone else within their organization who is a "must see" when rounding out your perspective.
- **The client's suppliers and customers.** This group can be a source of valuable insight and collaboration. Interviews, workshops, focus groups, surveys, and so on often result in suppliers

and customers identifying the client's opportunities and challenges more clearly than any other group.

- **Internal experts and knowledge.** Tap quickly and deeply into Firm expertise. Our clients, and even our competitors, acknowledge the breadth and depth of McKinsey's knowledge, resources, and experience. Today, it is quite unusual to conduct a study with regard to which there is no relevant sector or functional expertise in the Firm. At the same time, our clients consistently push us to bring more of our expertise to developing innovative, high-impact solutions. Locate key knowledge and expertise early in the engagement, and decide when and how to leverage this knowledge best. With a plan in hand for how best to use an expert's time, pick up the phone and reach out – one of the strengths of the Firm is the number of people able and willing to help.
- **External sources of knowledge.** External knowledge can complement and, sometimes more important, challenge our internal sources. This can only further the problem-solving effort. An array of external research and information is now available through practice first alerts, R&I groups, and our McKC global knowledge centers, as well as directly from "Know," the Firm's intranet-based knowledge portal.
- **Communications specialists.** By nature and training, McKinsey communications specialists are logical, structured thinkers who have great instincts and experience in a range of critical skills. From supporting storyline and document writing to stakeholder analysis and communications planning, members of this group can often act as invaluable thought partners from the beginning to the end of a study.

The key here is to think open, not closed. Opening up to varied sources of data and perspectives furthers our mission to develop truly innovative and distinctive solutions for our clients.

* * *

Although delivering client impact involves Rq and Cq as well as Iq, it is Iq – the raw problem-solving power to develop distinctive solutions – that remains the *sine qua non* of a McKinsey career.

Developing distinctive solutions begins with a rigorous understanding of the real problem and proceeds by being meticulous about following the problem-solving process, from the "Day 1" problem definition and storyline to the final recommendation. This process will always generate logical, impactful solutions.

Sometimes, however, the impact will only be incremental – and we seek creative solutions that deliver impact well beyond the incremental. So push yourself to expand, link, distill, and lead in order to identify unique discontinuities and disruptions, novel insights, and breakout opportunities. Make sure to collaborate within and outside the team, involving the client appropriately at every stage – in the best case, cocreating the solution with the client. Above all, find time, during each day or at least each week, to step back from the daily churn and think about the problem and the solution. These approaches, plus 30 minutes spent alone each day, or a

couple of hours each week, can make all the difference in leading you to develop the "only McKinsey" solution that delivers substantial, lasting improvement in client performance.

The art of distinctive problem solving evolves over time. We invite you to reflect on the messages in this paper and encourage you to hone your skills where needed. Learn by practicing. Also, seek to learn from all your colleagues: You will find that they all have different approaches and that you have something to learn from each of them.

The reputation of McKinsey stands or falls on the way each of us solves problems every day on every study. When we do this to the best of our abilities, we deliver "only McKinsey"-level impact, we attract great clients and great people, and we feel a profound sense of achievement.

ENDNOTES

1 In operational and organizational studies, we sometimes adopt a problem-solving process based on "diagnose-design-deliver" as a way to structure our work. We also sometimes apply approaches such as appreciative enquiry, open systems solutions, and the Socratic method. When we use approaches like these, we are in essence shortcutting or expanding steps within our universal approach, e.g., leveraging pre-existing hypotheses or creating an environment for innovation within key elements of the process. More information on these techniques, including how and when to use them, can be found in papers in the bibliography.

2 The typography "Iq" is used to distinguish the set of core McKinsey problem-solving skills from IQ, the well-known measure of general intelligence. For a full discussion of Iq ("Intellectual/Insight quotient"), Cq ("Capability quotient"), and Rq ("Relationship quotient"), see the "Learning Staircase" page on the Firm's Learn portal.

3 How best to influence individual stakeholders is a complex matter beyond the reach of this paper. A comprehensive discussion can be found in Lynette Gilbert, Hazel Holker, Nancy Sawyer Hasson, and Donald Simpson, "The Organizational Communication Toolkit" (ID# 606896).

4 These are the four elements of the influence model that lie at the crux of change management and performance culture work. Readers may acquaint themselves with this model in many Firm documents, including Staff Paper no. 65, "The Performance Culture Imperative," by Carolyn Aiken, Scott Keller, and Michael Rennie, March 2007 (ID# 724599).

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"From Pyramids to Storylines" (downloadable asynchronous e-learning tool)

"Issue Analysis: A Core Skill for McKinsey Consultants," by Terra Allas (ID# 300042)

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"The Seven Easy Steps to Bullet-Proof Problem-Solving," by Stephen Browne, Tracy Francis, and Heather Miles (ID# 606880)

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