What is design-oriented public management? The line taken in this book is that design-oriented public management is a professional practice tied to a professional discipline, whose defining purposive, mechanism-intent phenomenon is public organizations. Moore’s Creating Public Value: Strategic Management in Government is the direct source of purposive theories of public organizations. His book is also the implied source of the idea that the professional practice of public management includes the professional activities of sense-making, designing, argumentation, and dramatization. Simon’s Sciences of the Artificial is the direct source of the idea of a professional discipline, as its associated professional practice, being defined by a kind of purposeful, mechanism-intent phenomenon: his term for such disciplines was sciences of the artificial. Simon is also the source of the idea that design-projects are mechanism-like aspects of enterprises that create novelty for their technical and other enterprise-functions, as well as the idea that design projects depend on practitioners engaging in the professional activity of designing.

A take-away from Chapter 2 is that a post-Moore, neo-Simonian synthesis is needed to boot-strap public management as a design-oriented professional discipline. The idea of public management being a professional discipline has been proposed before, in Lynn’s Public Management as Art, Science, and Profession; but Lynn’s proposed content, as summarized in his concluding chapter, lies distant from what is here presented as the post-Moore, neo-Simonian synthesis.

This take-away reinforces that of Chapter 1: specifically, it makes sense to establish first principles of public management as a professional discipline. The first principles are that public management, like any science of the artificial, is a two-fold enterprise of teaching-and-learning for professional practice and discipline-development. The teaching-and-learning enterprise’s conceptual design includes the interrelated functions of acquiring professional knowledge, improving professional abilities, and strengthening professional competence. The discipline-development enterprise’s conceptual design includes the interrelated functions of strengthening disciplinary identity, expanding professional knowledge, and faculty development.

In this chapter, several ideas will be added to the post-Moore, neo-Simonian
synthesis about public organizations; these include “forward engineering” (specifically, conceptual and embodiment designs); “reverse engineering” (specifically, redocumentation and design discovery); and “processual sociology” (specifically, scenario-processes with context-activity-outcome dynamics). While all three ideas have some affinity to Simon’s *Sciences of the Artificial* and Moore’s *Creating Public Value*, none of them can be found there. Thus, this book goes beyond connecting the dots of the two “traditions” represented by Simon and Moore.

The chapter will illustrate my observation that the ideas of forward engineering, reverse engineering, and processual sociology are disjointed in public management, as they are in surrounding fields of inquiry. Forward-engineering is evident in discussions of policy analysis, strategic planning, and rhetoric. Reverse-engineering is evident in discussions of evaluation research methods. Processual sociology is evident in organization studies and research on policy processes. Their combination is not unprecedented, as it can be discerned in Simon’s *Sciences of the Artificial*, in Mashaw’s *Bureaucratic Justice*, Wilson’s *Bureaucracy*, publications by Bardach, Tendler’s *Good Government in the Tropics*, Barzelay and Campbell’s *Preparing for the Future*, van Aken’s account of management as a design science, and Patton’s account of developmental evaluation. But you have to know what you’re looking for.

This chapter unifies the disjointed ideas of forward-engineering, reverse-engineering, and processual sociology by developing the idea of “mechanism-intent thinking and analysis,” specifically about public organizations. If you Google “mechanism-intent thinking and analysis,” you won’t find anything. Are there synonyms? Mechanism-intent thinking and analysis could be called instrumental thinking, but that’s essentially a way to position it in purposive theories of decision-making. It could be called functional-teleological thinking, but that’s essentially a way to position the idea in philosophy. It could be called purposeful thinking, but that would associate the idea exclusively with forward-engineering, as well as program planning. It could be called design-thinking, but that term is also exclusive to forward-engineering, and it references a specific school of thought about designing as a professional activity in enterprises.

It feels odd that there’s a need for this new term, “mechanism-intent thinking and analysis.” However, it’s needed for purposes of this book. In fact, in writing it, I came to see that mechanism-intent thinking and analysis is a golden thread that can be used to weave together design-oriented problem-solving, design-rediscovery through design-focused case studies, and purposive theorizing about public organizations, design-projects, and professional activities.

Finding the golden thread was a drawn-out, messy enterprise. I can speed up the process for you, but you’re unlikely to understand it without experiencing some of its messiness. In this chapter, I simulate that experience. The technique for doing so is the dialogue, an ancient device for argumentation and persuasion, with some additional story-like features to make it slightly entertaining. You know the scene: an institution where public management is taught within a degree program, and where public administration is taught as a discipline. You’ve met the characters in the story – Marshall, Nora, Olivier, and Petra – back in Chapter 1. You know the plot: they are forming, storming, and norming.
know the teleology: they will end up performing, much to the satisfaction of Alicia, Ben, Claire, Dimitrios, Eva, and other students who choose to take “the course.”

By now, you will certainly have gathered how the story relates to this book as a whole. “The course” is plainly a metaphor for public management as a design-oriented professional practice, tied to a professional discipline. Almost as plainly, the teaching-team meetings are a metaphor for the discipline-development enterprise within it. Specifically, the teaching meetings are a metaphor for the faculty development function. As anyone like Marshall will know, the teaching team meetings reflect the reality that public management doesn’t train its own PhDs, and that many deans and directors find it optimal to hire practitioners to teach the subject. Accordingly, Nora is an assistant professor trained in political science; Olivier is a PhD student in public administration who hasn’t had a doctoral course that covers management and/or public management; and Petra is a practitioner. You won’t mistake the take-away from this chapter: Faculty development has to be done for public management to be a design-oriented professional discipline, while reading this book should be part of the embodiment design for performing this function.

The show begins after the teaching team meeting participants have settled into their chairs and have exchanged all appropriate pleasantries. They are once again discussing the content of the initial session of “the course.”

Mechanism-intent thinking and analysis illustrated: the conceptual design of the course

**Marshall:** In teaching the course, I think it’s important that we are all on the same page. Tell me your questions about the introductory video that students are supposed to view before they come to class.

**Nora:** Why do you introduce the course by presenting what you say is its “conceptual design”?24

**Marshall:** Let’s be clear what enterprise-functions within the course are performed by this video. In Fayol’s terms, the two enterprise-functions are commercial and technical.25 In respect to the commercial function, the intended outcome of viewing the video is for students to decide to take the course. In respect to the technical function, the intended outcome of viewing the video is receptivity and alertness to the course content. Do you follow?

**Nora:** Yes, what you say is consistent with what we discussed in our previous teaching team meeting. However, you’ve introduced some new language, that of “intended outcome.” I’d like to make sure that I understand that term, now that you’ve introduced it.

**Marshall:** Shall I do that now?

**Nora:** Yes, as long as it doesn’t hamper your answering my original question.

**Marshall:** It won’t, as clarifying what is an intended outcome will help to clarify what is a conceptual design, and that will help to answer your original question.

**Nora:** Then, go ahead.

**Marshall:** I first have a question for you. What’s an outcome?
Nora: It’s the state of affairs that exists when an event or process has run its course.26

Marshall: Good, can we agree to say that a scenario-outcome is a state of affairs that exists when the activities within a scenario-process have ceased?

Nora: Yes. I like the fact that you make clear that the concepts of activities and outcomes are part of the idea of a scenario-process. But it would be handy to have a more compressed way of stating this idea.


Nora: That is more compressed. But you’ve introduced another term! Eventuate.

Marshall: It’s true, but it helps with the compression you asked for. All it means, really, is that there’s a relation between activities and outcomes within a scenario-process. The relation is between activity that can change conditions, on the one hand, and a state of conditions that exists when the activity ceases, on the other. The relation between activity and outcome can also be seen as being similar to the relation between causes and effects.

Nora: What would be the effect caused by scenario-activity?

Marshall: You could say that the effect is the occurrence of terminal conditions in the spatial and temporal location where the scenario-process takes place.

Nora: Out of curiosity, does this concept of a scenario-process have a specific source?

Marshall: The prime source for me is Andrew Abbott: especially some of the essays in his 2001 book, *Time Matters*,27 and his 2016 book, *Processual Sociology*.28 In economics, a well-known source was Thomas Schelling, particularly his book, *Micromotives and Macrobehavior*,29 which I read in graduate school. But if you’re asking what is the ultimate source of the concept of scenario-process, I would defer to cognitive scientists, like Lakoff and Johnson, who argue that our conceptual systems are embodied within us and originate in direct experience. By this account, we all learned the concept of scenario-process as infants, particularly when we started to crawl about, with a destination in mind.30 As for the idea that concepts like “eventuate” can be used to compress a number of distinct and more basic relations among concepts – such as “before and after” and “cause and effect” – I’d point you to Fauconnier and Turner’s book, *The Way We Think*.31 If you’d like to see how scenario-processes are theorized in philosophy, I’d recommend Nicholas Rescher’s *Process Metaphysics*.32

Nora: Thanks for all that, Marshall. I didn’t quite realize there’s so much theoretical background to the idea of a scenario-process, but I probably shouldn’t be surprised.

Marshall: Are you ready for me to discuss the idea of an intended outcome?

Nora: Yes.

Marshall: The term “intended” is a verbal marker for the idea that the scenario-process under examination is purposeful.

Nora: Yes, I get that. Didn’t the video say something along the lines that scenario-processes are mechanism-like aspects of enterprises?

Marshall: Correct, but it would be helpful now to bring in an idea about designing and designs. As a scenario-activity, designing eventuates in representations...
of mechanism-intent phenomena. Intended outcomes are features of such representations. Specifically, they are features of representations of mechanism-like aspects of such phenomena, provided that such aspects are conceived of as scenario-processes. Even more specifically, intended outcomes are representations of the outcome conditions of scenario-processes, that is, the states of conditions that eventuate from scenario-activities.

Nora: Does this mean that intended outcomes are features of the conceptual design of mechanism-intent phenomena, generally, and of enterprises, in particular?

Marshall: If you want to introduce intended outcomes in a representation that is meant to be a conceptual design, then that’s fine — but conceptual designs don’t need to specify intended outcomes of mechanism-like scenario-processes.

Nora: It sounds like a conceptual design is a flexible concept.

Marshall: Well, I don’t know if the concept is flexible. What I do know is that conceptual designs are mechanism-like phenomena within design-projects. They perform functions. One function is analogous to the commercial function: here, the role of a conceptual design is to secure client approval of what the designer proposes. Another function is analogous to the technical function: here, the role of a conceptual design is to channel the activity of formulating an embodiment design for the same mechanism-intent phenomenon being created. It’s a matter of designer judgment whether to include the intended outcomes of mechanism-like scenario processes within the conceptual design; the alternative is to stick with a higher-level representation and specify those intended outcomes in the course of formulating the embodiment design. So, I’d say that a conceptual design isn’t a flexible concept, but it’s a concept that fits well with design-projects being a kind of mechanism-intent phenomena.

Nora: So, are you saying that intended outcomes of scenario processes might or might not be specified within a conceptual design, but they must be specified within an embodiment design?

Marshall: You’re asking me for a purposive theory of design-projects, Nora. Speaking for myself, I absolutely agree with the first part of this statement; and I have a pro-attitude toward the second part. However, I can imagine a situation where a designer, when presenting an embodiment design, would rather specify scenario-context and scenario-activities, rather than their outcomes. You could imagine this being the case in a design for judicial proceedings, and in some educational settings.

Nora: Let me restate, then: A mechanism-intent phenomenon’s scenario-processes may or may not be specified within a conceptual design, but no representation is rightly considered as an embodiment design unless it includes some specification of its mechanism-like scenario-processes.

Marshall: Nora, I think we’re now in a position to discuss your original question: Why do you introduce the course by presenting what you say is its “conceptual design”?

Nora: Yes, I think so.

Marshall: The conceptual design diagram is a feature of the introductory video, which performs the course-enterprise’s commercial and technical functions.
conceptual design diagram is apt for performing the commercial function, for the reason that it provides a comprehensive, holistic representation of the course, without overloading the viewer with information. That combination of properties is conducive for students deliberating over what optional courses would best be assembled into their overall degree program. Content-wise, the diagram serves as a “prop” in a show that fosters the impression that the professor put in a lot of thought in planning the course, and it establishes an expectation that the course is well-designed and fit for purpose.35

Nora: I see this, and I like the idea that the diagram is a prop in a show, as well as the idea that conceptual designs are inherently comprehensive and compact, qualities that are helpful to client deliberation. Do you want to add anything?

Marshall: Just the obvious, really. The conceptual design diagram is aligned with performing the constitutive technical function of expanding students’ professional knowledge. Specifically, students will see that frameworks for representing artificial-systems-in-the-making can be used to represent enterprises that are being presented to their stakeholders, provided that the frameworks recruit the sort of mechanism-intent theorizing of enterprises that was pioneered by Henri Fayol. Students may also draw the inference that acquiring professional knowledge about designing, as well as acquiring ideas for mechanism-intent theorizing of enterprises, may assist in strengthening their professional practice within enterprises.

Nora: Thanks, Marshall, I’m satisfied, and I am also conscious that others will have their own issues to raise.

Seeing clearly the profile of mechanism-intent thinking

Petra: To be honest, I feel ambivalent about the ideas that you and Nora have been discussing over the course of the meeting today.

Marshall: Perhaps you like some of these ideas, but don’t care for others. Is that the situation, Petra?

Petra: I like the ideas about designing. They are quite popular today, and I have always seen myself as being more creative than some of my professional colleagues. I guess it’s just that I wonder if I am having to change my vocabulary to conform to your language, rather than for any other reason, Marshall. It all makes me feel as though what I do know from experience isn’t going to be valued in the course.

Marshall: It’s not the first time I’ve heard comments like that, Petra. They’ve been voiced by participants on executive programs, on numerous occasions. Is there a specific route of entry into this discussion you think would be most helpful to follow?

Petra: Perhaps we could start from the ideas that I do know and then you can show me what’s better about the ideas and vocabulary you use and want to teach.

Marshall: That would be fine. What ideas are you most comfortable with?

Petra: I’m comfortable with ideas around program design, planning, and evaluation.

Marshall: Okay, do you have in mind frameworks like program results chains?
**Petra:** Yes, I’ve worked with that framework before. Am I to think that you don’t like it?

**Marshall:** I’m ambivalent.

**Petra:** Then we’re even! Seriously, tell me the specifics of your attitude and why.

**Marshall:** My first reservation is tied to the observation that program results chains are representations of programs, rather than of public organizations. From the perspective of purposive theories of public organizations, program results chains are not actually comprehensive, at least as they are stereotypically elaborated: their scope is often limited to the technical function of public organizations; the management function falls outside of scope. As a public management person, it seems to me that it’s important to engage in mechanism-intent thinking about performing the management function.

**Petra:** That’s fair enough.

**Marshall:** Good. My second reservation, Petra, is that the idea of program results chain is a bit of a muddle when it comes to representing the mechanism-like aspects of programs. As you know, the categories are inputs, activities, outputs, and outcomes. As I read this, I see the idea of a conversion process quite clearly. The idea of a conversion process is one where process-inputs feed process-activity, which then yields process-outputs. But then I see the term, “outcomes.” The concept of outcomes is part of the idea of a scenario-process. The idea of a scenario-process is one where scenario-process-context channels scenario-process-activity, which eventuates in scenario-process-outcomes. Part of my reservation is that it doesn’t make sense to see outputs as the source of outcomes. There is no process relation between outputs and outcomes (although there can be a process relation involving multiple conversion processes and multiple scenario-processes). So, you do have to wonder what’s going on.

**Petra:** What are you thinking?

**Marshall:** What I think is going on here is that a program results chain is a strange combination of what a designer would see as a program’s conceptual and embodiment designs. The relation between input-activity-output seems like an embodiment design, with the mechanism-like aspect of the enterprise being a conversion process. However, the comparative relation between outputs and outcomes is trying to do the representational work of a conceptual design, whereby the yielding of outputs represents the functional composition of the enterprise, while outcomes represent program-intent. A consequence is that there’s a lack of clarity about the embodiment design, that is, what a program consists in and how it works, as it’s not clear where outcomes come from. Meanwhile, the utility of working with the conceptual versus embodiment design distinction and relation is lost: for instance, the functional fit between them is presumed, not subject to critical thinking. The whole construct reminds me of the old joke that a camel is a horse designed by a committee. I much prefer the clarity of my approach, which tracks the conceptual versus embodiment design distinction and that sees mechanism-like aspects of enterprises – the embodiment design – as processes, whether scenario-processes or conversion processes (though mainly the former).

**Petra:** As I think about what we’ve just been discussing, I’m now intrigued by
the possibility that frameworks from the field of design will provide more connectivity and coherence among the ideas that I’ve used for program planning and evaluation. So, you’ve definitely begun to neutralize my earlier ambivalence. I think it would really help now to have a good illustration of the use of these frameworks from the field of design.

**Marshall:** How about we illustrate them with our course? Specifically, how about we illustrate it with the course introductory video?

**Petra:** That should work.

**Marshall:** Good – so the course is the overall mechanism-intent phenomenon; it’s analogous to an enterprise. Let us focus on the course introductory video as a mechanism-like aspect of the course, which figures in the lead up to the first class as well as a reference within it.

**Petra:** I get that. It was a take-away from your discussion with Nora.

**Mechanism-intent analysis: realistic evaluation versus reverse engineering**

**Marshall:** There are three essential questions to ask of any mechanism-like aspect of a mechanism-intent phenomenon. First, what is it *for*? Second, what does it *consist in*? Third, how does it *work*?

**Petra:** Those questions make intuitive sense to me, but you probably have a specific source from which they come.

**Marshall:** Actually, the idea comes from reverse engineering. You know that idea, right?

**Petra:** Of course, I have come across it, but I couldn’t define it off the top of my head.

**Marshall:** Then Google it.

(The meeting goes quiet as Petra, Olivier and Nora all search with their smartphones.)

**Petra:** Wikipedia defines reverse engineering as the process by which a man-made object is deconstructed to reveal its designs or to extract knowledge from the object.36

**Olivier:** Lower down in the Wikipedia entry it says that reverse engineering is the process of analyzing a subject system to identify the system’s components and their interrelationships and to create representations of the system in another form or at a higher level of abstraction. The source here was the Institute of Electrical and Electronics Engineers.

**Marshall:** From the context, it seems like they have in mind reverse engineering of a software system, but they’ve used the term “subject system” to be generic.

**Olivier:** Further down, it says that reverse engineering involves both redocumentation and design recovery. Redocumentation is creating a new representation of the computer code so that it is easier to understand, while design discovery is the using of reasoning from general knowledge, or personal experience of the product, in order to fully understand the product functionality.
Marshall: Petra, do you see how these ideas about reverse engineering relate to the three questions about mechanism-intent phenomena?

Petra: I see that what they call the “subject system” is what you call the mechanism-like aspect of a mechanism-intent phenomenon. I think they may have the better term!

Marshall: Perhaps they do, but I don’t want to imply that all mechanism-like aspects of mechanism-intent phenomena are closely analogous to technical systems: many of those I have in mind have emergent properties. But as long as that’s understood, I’m happy for you to use the term “subject system.” Do you see any other connections, Petra?

Petra: Yes, I see a connection between the idea of “redocumentation” and your second question about a subject system, namely, “what does it consist in”?

Marshall: I agree. So, what does the course introductory video consist in?

Petra: Viewed holistically, the course introductory video consists in a fully scripted performance, presented in a video format. Analytically, the scripted performance consists in spoken text and in a diagram representing the course’s conceptual design. In reverse engineering terms, the spoken text and the diagram are system components.

Marshall: Right! And to push the analogy with reverse engineering and redocumentation further, what’s the interrelation among the system components?

Petra: It’s simple: the spoken text includes your discussion of the diagram.

Marshall: Right again! Now, could you focus on the diagram and break this component down further?

Petra: Sure. It consists in a collection of shapes and text elements that’s about the functional composition of the course, as well as in a collection of text elements about the course’s intent. I can also break down the functional composition of the course further. It consists in three boxes, labeled, respectively, as expanding professional knowledge, improving professional abilities, and strengthening professional competence. Situated between these boxes are arrows, alongside the word “enables.”

Marshall: Thanks, Petra. I appreciate that your redocumentation was entirely descriptive: you didn’t make any claims about how these “signs” – whether shapes or text – were intended to be meaningful to a viewer. You stuck to redocumentation, and avoided design discovery.

Petra: I’m wondering if you have some terms we could use to refer differentially to the short and long answers to the redocumentation question.

Marshall: That would be useful. What terms come to mind for you?

Petra: The short answer is a “high-level representation”; the long-answer is a “granular representation.”

Marshall: I think that those terms work well, at least for someone who knows a bit about system design or reverse engineering.

Petra: These are common terms in my professional circles.

Marshall: Keep the distinction in mind: I plan to use it later. For now, let’s revisit the idea of design discovery. Olivier, could you repeat the definition?

Olivier: Design discovery is the using of reasoning from general knowledge,
or personal experience of the product, in order to fully understand the product functionality.

**Marshall**: Let me reword this definition to make the idea clearer. Design discovery is a process for understanding the functionality of a subject system. That understanding eventuates from reasoning. The reasoning relates facts about what the subject system consists in, to statements about what the subject system is for. The reasoning process involves general knowledge, or what we in social science call “theory,” in combination with inferential moves, or what many philosophers call induction.37

**Nora**: Marshall, these reverse engineering terms are completely new to me, but now I think I am beginning to understand the ideas of redocumentation and design discovery. In social science terms, can we say that redocumentation is descriptive, while design discovery is explanatory?

**Marshall**: Nice point, Nora. Your suggestion that redocumentation is similar to description, on the one hand, and that design discovery is similar to explanation, on the other, is cogent.38

**Petra**: Marshall, was your answer to Nora’s question anything different than “yes”?

**Marshall**: My answer was “yes,” but that doesn’t mean that design discovery and social science explanation are so closely analogous that there’s no distinction to be made at all between them.

**Petra**: Nora, is that what you understood Marshall to be saying?

**Nora**: I do now. But what I don’t know is what distinction is to be made between design discovery and social science explanation. What is it, Marshall?

**Marshall**: Let me start with the similarity. Design discovery involves explaining selected facts about a subject system that come from doing redocumentation. If a subject system is described as a scenario-process, then the selected facts are going to be its trajectory and/or outcome. Now for the difference. Design discovery explains functionality: that concept relates to a scenario-process, but it isn’t identical to it. Functionality is an assessment of the adequacy of a scenario-process (or of a subject system more generally) relative to a mechanism-intent phenomenon’s conceptual design and, especially, the aspect of intent. So, in understanding a subject system’s functionality, you are both explaining and assessing it. You explain a scenario-process’ trajectory and/or outcomes – and you assess its adequacy relative to intent. In sum, design discovery depends on explanation, but it also depends on mechanism-intent thinking.

**Petra**: I think I understand the idea now. What’s called the “subject system” in reverse engineering is called the “evaluand” in evaluation research,39 where the goal is to learn how things work.

**Nora**: Is Petra right about that, Marshall?

**Marshall**: Yes. There’s a much-cited book by Pawson and Tilley, entitled Realistic Evaluation.40 It argued that the goal of program evaluation research is exactly as Petra said.

**Olivier**: We read that book in our evaluation research methods course. One of the main things I remember about it is the equation, C + M = O, where O stands for a program’s outcome. The idea was the outcomes depend on mechanisms and context.
Petra: I remember hearing about $C + M = O$ in a short course on evaluation. I didn’t know who came up with it. Marshall, can we say that $C + M = O$ is an approach to design rediscovery?

Marshall: Yes, Petra.

Petra: Plain “yes”? No “if, ands, or buts”?

(Nora and Olivier laugh out loud.)

Marshall: I can add a “because.” We can say that $C + M = O$ is an approach to design rediscovery, because it is a model of a subject system and because it outlines an explanatory argument in which outcomes are the argument’s *explanandum*.

Nora: Petra, be careful what you wish for.

(Marshall and Petra now laugh out loud.)

Petra: I certainly didn’t wish for Latin. What’s an *explanandum*?

Nora: It just means “the conditions that are to be explained by an explanatory argument.”

Olivier: Is an *explanandum* a dependent variable?

Nora: Yes, if you’re talking about variable-centered research designs. But the *explananda* within case-oriented research designs aren’t theorized as variables, so they can’t be dependent variables. In other words, all dependent variables are *explananda*, but not all *explananda* are dependent variables.

Olivier: Can you give us any references on this?

Nora: The book I remember is Charles Ragin’s *The Comparative Method*.41 Marshall: Good going, Nora. There are also good discussions of this idea in Andrew Abbott’s *Time Matters* and in Howard Becker’s *Tricks of the Trade*.43 Petra, if you’re interested, I’d recommend Robert Stake’s books, both the *Art of Case Study Research* and *Qualitative Research: Studying How Things Work*.45 Stake writes for a broader audience than academic researchers in political science, sociology, and anthropology.

Petra: Thanks, Marshall, that’s considerate. I’ll add Stake’s books to my ever-growing reading list. Getting back to $C + M = O$, can I take it that it’s the right approach to design rediscovery?

Marshall: It’s a good point of entry into a discussion of approaches to design discovery, because it has the same goal as design discovery and because so many people in the evaluation field know about it. But I think it’s flawed.

Petra: Great. The one thing I felt I knew about design rediscovery turns out to be flawed. You’ve made my day, Marshall.

Olivier: Actually, I always felt a sense of unease about $C + M = O$, although their case illustrations made it seem okay. So, maybe it is flawed, somehow.

Nora: Marshall, what’s your version of $C + M = O$?

Marshall: The short answer is $C + M = O$ in Pawson and Tilley’s approach represents what I’ve been calling the mechanism-like aspect of a mechanism-intent phenomenon, which, in turn, I have been theorizing as scenario-processes. So, $C + M = O$ is a scenario-process, within my design-oriented or mechanism-intent thinking approach to public organizations and public management.

Petra: Are you saying that your approach is different because it involves mecha-
nism-intent thinking, whereas Pawson and Tilley’s approach didn’t? Or are you saying that your approach is different because it is about public organizations, rather than public programs?

**Marshall:** More the former than the latter but both are at play. There’s mechanism-intent thinking in Pawson and Tilley, but it’s not as thorough-going as what you see in our course. Pawson and Tilley don’t embed their discussions in the literature on engineering design. They do so in a line of philosophy known as critical realism, which made sense given what they were up against.

**Petra:** I’m still not absolutely clear about what’s different about your approach, Marshall.

**Marshall:** I think it will be clearer once you see that my approach involves several small differences, which in combination makes for a bigger difference. And I think the best way forward is to complete the illustration that you asked for, when we started going down this path of discussion in today’s meeting.

**Petra:** I’m all ears.

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**Mechanism-intent analysis illustrated: the course introductory video**

**Marshall:** Right, let’s first take stock of where we are. What you like to call the “subject system” is the course introductory video. We agree that this subject system is a scenario-process, whose overall profile is that of viewing a performance presented in a video format. We agree that we want to consider three questions about the subject system: what the video is for; what it consists in (“redocumentation”); and how it works (“design rediscovery”). We agree that, within the course, the subject system performs two of Fayol’s enterprise-functions: commercial and technical; that’s what it is for, in broad functional terms. We agree that you provided two good answers in redocumenting the subject system: one, a high-level representation, limited to the spoken text and conceptual design diagram and their interrelation; the other, a granular representation, focusing on the shapes and text in the diagram and their configuration. We agree that answering the third question involves explanation of *explananda*, which would normally be the trajectory and/or outcome of the scenario-process; however, we also agree that the choice of *explananda* has to be based on mechanism-intent thinking about the relation between the scenario-process, on the one hand, and the commercial and technical functions that the video is designed to perform, on the other.

**Petra:** Put that way, Marshall, we have already covered a lot of ground and are on the same page.

**Marshall:** Now, we also have some loose ends in our discussion so far. One is about a feature of mechanism-intent thinking, namely the distinction between a mechanism-intent phenomenon’s conceptual design and its embodiment design. Another is about how to explain the *explananda* that have been chosen, when it comes to answering the question of how the subject system works, if its mechanism-like aspect is theorized as a scenario-process.

**Petra:** Yeah, I remember the distinction between a conceptual design and an
embodiment design, from an earlier discussion, but I’m not sure I got my head around it yet. And the second issue is one that I thought that Pawson and Tilley had addressed, as Olivier also had thought.

**Marshall:** Do you see why the conceptual design versus embodiment design distinction is important, Petra?

**Petra:** I grasp why it’s important to define the conceptual design when you’re doing forward engineering; you want to make sure that you achieve great clarity about the intent of the mechanism-intent phenomenon you’re creating, and you want to make explicit your general lines of mechanism-thinking about how to effectuate such intent. Armed with a conceptual design, you’re in a position to design a technical system for implementing it – and evaluate alternatives, in making a decision. The same argument holds when the conceptual design is implemented by scenario-processes.

**Marshall:** Splendid! I’m pleased you’ve picked up on the fact that the conceptual versus embodiment design distinction originated in professional discussions of forward engineering. Do you think the distinction has a role in reverse-engineering, too?

**Petra:** I’m not sure, except for the fact that reverse-engineering isn’t an end in itself: it’s meant to be a basis for forward-engineering.

**Marshall:** That’s the big picture, yes. I’d say that a useful outcome of reverse engineering is a high-level characterization of a mechanism-intent phenomenon, with a clear conceptual design, alongside a more detailed characterization of the same mechanism-intent phenomenon. The high-level one will be most useful early in a design-project: it will help in deciding whether the subject system is a good precedent for the mechanism-intent phenomenon to be created, and it will be useful in building up analogies between the subject system and the one to be created, as the design-project proceeds.

**Petra:** I can see that reverse- and forward-engineering would ideally work together like that.

**Marshall:** So, we now have the idea, from reverse engineering, of what a subject system is for; what it consists in; and how it works; and we have the idea from forward engineering, that conceptual designs have different roles in a design-project than do embodiment designs.

**Petra:** Yes, we do have those ideas, Marshall. And what are you going to do with them?

**Marshall:** I am going to combine them into a unified whole – something that Pawson and Tilley didn’t attempt.

**Petra:** Will you illustrate this grand synthesis with the mundane example of the course introductory video?

**Marshall:** Indeed, I will.

(Marshall pulls out a sheet of paper from a plastic document wallet and sets it on the table, so that Petra, Nora, and Olivier can see it (Table 3.1).)

**Marshall:** I call this table a mechanism-intent analysis of the course introductory video. It consists in a 2 x 3 matrix. As you can see, the columns reference the forward-engineering distinction between conceptual and embodiment designs,
Table 3.1  Mechanism-intent analysis of the course introductory video

<table>
<thead>
<tr>
<th>Conceptual design</th>
<th>Embodiment design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What's it for?</strong></td>
<td>(No different from cell to left)</td>
</tr>
<tr>
<td>• Perform the course's commercial function (outcome: decisions to take the course)</td>
<td></td>
</tr>
<tr>
<td>• Perform the course's technical function (outcome: receptivity to the course content)</td>
<td></td>
</tr>
<tr>
<td><strong>What does it consist in?</strong></td>
<td></td>
</tr>
<tr>
<td>• Projection of the conceptual design diagram</td>
<td>• Conceptual design diagram features:</td>
</tr>
<tr>
<td></td>
<td>- Functional composition (3-functions)</td>
</tr>
<tr>
<td></td>
<td>and (3-fold) enabling relations, with vocabulary drawn from realm of professional education</td>
</tr>
<tr>
<td></td>
<td>- Main intent and side-benefits, tied to public management as professional practice and discipline</td>
</tr>
<tr>
<td></td>
<td>- Effectuation relation</td>
</tr>
<tr>
<td></td>
<td>• Spoken text features include vocabulary of mechanism-intent thinking, enterprises, features, effectuation of intent</td>
</tr>
<tr>
<td><strong>How does it work?</strong></td>
<td>• Meaning of “functions” grows out of cultural background about “management” courses</td>
</tr>
<tr>
<td>• Frame activation (evokes the frame of a show)</td>
<td>• Meaning of ideas is conveyed through visual markers of relations among concepts, such as between functions and between functional composition and intent</td>
</tr>
<tr>
<td>• Frame alignment (the video is evidently meant to introduce the course, during the ‘shopping’ phase of course selection, within a setting of education for professional practice)</td>
<td>• Meaning of ideas is conveyed through the labeling of relationships, with the vocabulary of enabling and effectuation</td>
</tr>
<tr>
<td>• Cultural authority of established professors (important for credibility of ideas that differentiate course from stereotypes of management courses)</td>
<td>• Ideas are presented with historical references and disciplined style</td>
</tr>
</tbody>
</table>

while the rows reference the reverse-engineering distinctions among the questions: what is the subject system for, what does it consist in (“redocumentation”), and how does it work (“design rediscovery”). I’ve filled in the cells with content that is specific to the course introductory video.

(Marshall looks to see how Petra, Nora, and Olivier react to the table.)

**Petra**: That seems interesting. Maybe we should all comment on this.

**Olivier**: I like the title of the table: mechanism-intent analysis of the course
introductory video. In this context, it suggests that mechanism-intent analysis has a role in both reverse- and forward-engineering. That seems to make sense, for your design-oriented approach to public management, Marshall.

**Marshall:** Yes, if you try to do forward-engineering without having done mechanism-analysis of a subject-system, you can’t learn from experience – and, more importantly, you can’t readily use what you’ve learned from experience to solve problems in public organizations, or other enterprises, at least via design-projects.

**Petra:** That’s actually a cool point: I suspect I’ll remember it, and tell others about it.

**Nora:** How did you get the idea for this table, Marshall?

**Marshall:** Truth be told, the precedent for it is a table that comes at the end of Chapter 7 of Michael Barzelay’s new book, the one I talked about in our last meeting. The table presents the analysis of what he calls a design-focused case study. Specifically, the case is one of an international cooperation project between a donor country and a partner organization in a developing country. I liked the idea of the table, and I was looking for a way to introduce it into today’s meeting.

**Nora:** You really need to get us those page proofs, Marshall.

**Olivier:** Yeah, Nora’s right. Looking at this table, I’m not entirely clear why there’s nothing in the upper-right-hand cell.

**Marshall:** That’s because an embodiment design doesn’t add clarity about the intent of the mechanism-intent phenomenon you’re creating; that’s entirely the role of the conceptual design. Olivier, it’s simply down to the meaning of these concepts.

**Nora:** As I look at the table’s second row, the relation between the cells seems to be consistent with what Petra said earlier on. The cell on the left is the high-level representation, while the cell on the right is the granular representation.

**Marshall:** That’s correct. What this means is that the conceptual versus embodiment design distinction is no different from the high-level versus granular distinction, when it comes to the second row, which is about redocumentation, in reverse-engineering terms.

**Nora:** So, it looks like you’re stretching the concept of “conceptual design” as you create the grand synthesis of mechanism-intent thinking, so that it spans forward- and reverse-engineering.

**Marshall:** That’s correct. That is what I think Barzelay was doing in Chapter 7 of his book.

**Petra:** I think I’m beginning to see the potential value of this grand synthesis, Marshall.

**Nora:** I want to make sure I understand the bottom row, about how it works. What do you have in mind as outcomes?

**Marshall:** The meaning of the course introductory video to the students.

**Nora:** Fine, now I’m interested in the terms “frame activation” and “frame alignment.”

**Petra:** If I may interject, do these terms signify *explananda*, or something else?
Nora: They are not *explananda*: they do the explaining of them. They fall under the concept of *explanans*.

Petra: I now know what to talk about at dinner tonight with my kids.

Olivier: What sort of *explanans* are “frame activation” and “frame alignment”?

Nora: I’ll give it a shot, as I recognize these terms from the social movements literature, and specifically from a book entitled, *Dynamics of Contention*, by a distinguished gang of political sociologists, Doug McAdam, Sidney Tarrow, and Charles Tilly. They present *explanans* like these as social mechanisms.

Marshall: Exactly. Social mechanisms are non-lawlike theories about social processes and the conditions that result from them. As theories, they involve descriptive and causal idealization. They often go together with descriptive idealizations where reality is represented as social processes, with flows of action and interaction being integral. Lines of action and actor beliefs are typically seen as reciprocally related – something that is definitely true of frame activation and frame alignment. Causation is taken to be emergent rather than deterministic.

Olivier: I keep coming across the idea of social mechanisms, but I hadn’t seen this compact definition of them before. Did you take it from *Dynamics of Contention*?

Marshall: Yes, but I have other sources, too, including one that was published a few years before *Dynamics of Contention*, in 1998. It was an edited book, entitled *Social Mechanisms: An Analytical Approach to Social Theory*. In what I just said I added the line about theories involving both descriptive and causal idealization, going hand in hand. I took that idea, which is called construct idealization, from some of the chapters in an edited book that came out in 1999, entitled *Models as Mediators: Perspectives on Natural and Social Science*.

Olivier: These books haven’t been on our reading lists in public administration.

Nora: I didn’t know about these references, either.

Marshall: I’m not surprised. From the perspective of sociology, contemporary public administration and political science are both a bit insular. Frankly, it’s a bit of an accident that I know this literature. I was luckily put onto it by a senior colleague, a sociologist interested in management, at the end of the last century, just as these books were being published.

Olivier: Is there anything in public administration that reflects these ideas?

Marshall: Certainly. You can read a review of this work in Chapter 6 of Barzelay’s book, in a dialogue format. It’s funny, because that chapter has the same feel as the discussions we’ve been having together in our own meeting!

Petra: That’s hilarious. I think I’ll read that.

Marshall: Great. I actually think it will help you make sense of what we’ve been discussing. For one thing, it tries to clarify terminological confusions in this design-oriented approach to public management. Specifically, it shows how to integrate the vocabulary of mechanism-intent analysis with the vocabulary of social mechanisms, where the latter is used in understanding the causal properties of scenario-processes and in explaining their trajectories and outcomes in empirical cases of subject systems. And then you can see how these ideas are applied to an actual design-focused case study, about the international cooperation project I mentioned a moment ago.
Petra: Then maybe we should all read those chapters before spending time discussing the bottom row of the 2 x 3 matrix that analyses the introductory course video?

Nora: I think Petra is right.

Marshall: Okay, I’m fine with that. Petra, how would you like to achieve closure to the discussion of these matters today? After all, you kicked it off.

Petra: I’d like for each of us to say something about what we understood and what we still want to understand better. And then maybe you can comment on what Nora, Olivier, and I said.

Marshall: Good suggestion; let’s do that, and then we can call it a day.

Nora: I like Petra’s sense of good meeting process, but I don’t think we have time left in this meeting for the three of us to do this.

Marshall: You’re probably right, Nora. Let’s make sure we get the full benefit of Petra’s perspective. So, with Olivier’s permission, Petra, give us your thinking, without worrying about stepping on anybody’s time.

**Summing up**

Petra: I’m game: here it goes. What I understand from the course introductory video and from our discussions in our two teaching team meetings so far, is that we are engaging with an unusual – and possibly unique – approach to public management. I understand that the course we are teaching provides a window on that approach, probably not the totality of it, but an essential aspect of it. I understand that the conceptual design of the course – as diagrammed – is emblematic of the approach. Along those lines, I understand that the intent of this approach to public management includes strengthening the practice of public management, specifically in relation to undertaking design-projects as well as in performing the management function of enterprises that we can call public organizations. I understand that what’s called the side-benefit in that diagram – strengthening the identity of public management as a professional practice, tied to a professional discipline – is more than a side-benefit, when it comes to the approach to public management overall. I understand that strengthening professional competence is a function to be performed by the course, and that performing this function is held to depend on improving the students’ professional abilities and expanding their professional knowledge.


Petra: I understand that professional abilities are not unlike skills, but they aren’t skills in using established tools for making decisions about enterprises within organizations. I understand that the course highlights professional abilities that have been theorized in different fields, like psychology, design studies, philosophy, and sociology. I understand that professional competence depends on the abilities called sense-making, designing, argumentation, and dramatization. I understand also that professional knowledge and professional practice both involve mechanism-intent thinking. I understand that mechanism-intent thinking is core to public management as a design-oriented professional practice. I understand that mechanism-intent thinking has a long history in the field...
of management and in human culture. I understand that we need to find a way to bring mechanism-intent thinking to life for our students. Finally, I understand that the way our course is introduced – by presenting the mechanism-intent thinking behind the course design – is a way to bring this way of thinking to life, as well as to motivate students to decide to take the course.

**Marshall:** You nailed it, Petra. How about what you still want to understand?

**Petra:** There are things that I want students to understand that I am already beginning to understand, and there are things I want to understand that I’m just beginning to become aware of.

**Marshall:** What do you have on these two lists, by way of an indication?

**Petra:** On the first, I’d like the students to understand the vocabulary of mechanism-intent thinking about enterprises and, specifically, public organizations. On the second, I’d like to understand how to explain how enterprises work, using the idea that scenario-processes are mechanism-like aspects of them.

**Nora:** Marshall, do you want to say anything about how you’re going to get students to understand mechanism-intent thinking?

**Marshall:** There’s really two ways. The main way is through immersion. They just keep seeing it, no matter where they look. They’ll see it in the introductory course video. They’ll see it when I lecture about the readings in the course, as I present them in these terms. They’ll see it when they use the discussion questions in preparing for class. They’ll see it in using the guides to doing their writing assignments. The secondary way is to make the vocabulary of mechanism-intent thinking and analysis explicit. What I’ve done in the past is to tell the students that there’s a pattern language of mechanism-intent thinking and analysis, and they might want to keep it in mind as they try to make sense of everything they are reading and doing in the course.

**Nora:** Pattern language?

**Marshall:** I took the term from the title of a book on designing, but the authors use the term in a different way. I prefer to say pattern language, rather than “standard vocabulary,” because I don’t think professional practice requires using the terminology of the pattern language. But I do think there needs to be a mechanism-intent pattern to the ideas that practitioners use in their professional life.

**Petra:** Can you illustrate the pattern language of mechanism intent thinking and analysis?

**Marshall:** Yes. Let’s begin with two statements:

- Humans and organizations create, use, and improve purposeful, or mechanism-intent, phenomena.
- Enterprises are a kind of purposeful phenomena, in relation to which public organizations are a sub-type.

**Petra:** So far, so good.

**Marshall:** I’m now going to give you a string of statements about an enterprise’s conceptual design:
An enterprise’s conceptual design is a representation of thinking about enterprise-intent and about the effectuation of enterprise-intent through the performance of enterprise-functions.

Effectuating enterprise-intent depends on performing enterprise-functions; equivalently, functions effectuate intent.

How well one enterprise-function is performed can depend on how well other enterprise-functions are performed; equivalently, functions enable functions.

How well an enterprise’s functions are performed depends on how its management function is performed.

Petra: I like those short-hand phrases: within an enterprise’s conceptual design, functions effectuate intent, and functions enable functions. I recognize this part of the pattern language from the diagram on the course’s conceptual design. I’m not sure whether I want to use the term “effectuate” outside our course, but I am happy to see it used intramurally. There must be more to the pattern language, Marshall, so please continue.

Marshall: I’m now going to give you a pattern language about an enterprise’s embodiment design, while elaborating it through use of ideas taken from both forward engineering and processual sociology, beginning with three basic statements:

- An enterprise’s conceptual design is implemented by its embodiment design.
- An enterprise’s embodiment design is constituted by its scenario-processes.
- Scenario-processes are mechanism-like aspects of enterprises.

Petra: That’s so clear. Please continue.

Marshall: By all means. You’ll recall that reverse engineering an enterprise consists in redocumentation, together with design discovery. So, here is a string of statements about redocumenting enterprises:

- Redocumenting an enterprise consists in describing its scenario-processes and connections among them.
- A scenario-process consists in events that begin with initial conditions and end with outcome conditions; the difference between them is change; the similarity between them is continuity.
- A scenario-process is an event-like process that consists in activity, its context, and its outcome.

Petra: I’m tracking this, Marshall. I do now see how scenario-processes are mechanism-like aspects of enterprises, and that’s what’s redocumented in reverse-engineering.

Olivier: If I can jump in, I think I now better grasp the concept of a scenario-process. As a scenario, it’s like an event with a pattern. As a process, it’s a relation of activity, context, and outcome within events. You can place the accent on either process, or on events, but it’s the same idea overall.
Nora: That’s quite subtle, Olivier. It helps me to relate ideas about process within policy process theories, with ideas about case studies in historically-oriented political science.

Marshall: I agree fully with Nora on that, Olivier.

Petra: Can you please give us your pattern language around design rediscovery, Marshall?

Marshall: Here is a string of three statements about that:

- Rediscovering a design within an enterprise consists in explaining the outcomes of its scenario-processes and assessing the functional fit between scenario-processes and the enterprise’s conceptual design.
- An explanation of a scenario-process’ outcome involves relations among scenario-activity, scenario-context, and scenario-outcome.
- An explanation of a scenario-process’ outcome includes some construct (and causal) idealization of how scenario-context channels scenario-activities and how scenario-activities eventuate in scenario-outcomes.

Petra: I like those short-hand phrases: within an enterprise’s embodiment design, context channels activity, and activity eventuates in outcomes.

Nora: I like these phrases, too. But how would you justify using the terms “channels” and “eventuates” here, Marshall?

Marshall: I could cite some precedents for my choice of words, but that would divert attention from the main issue, which is about how explanation works within case-oriented research and processual sociology. I see them as placeholders for more substantive ideas about the causal properties of the context-activity relation, on the one hand, and of the activity-outcome relation, on the other. The place occupied by “context channels activity” and that of “activity eventuates in outcomes” can be filled, for instance, by ideas related to social mechanisms. For example, in the mechanism-intent analysis of the course introductory video, the “context channels activity” placeholder was replaced with frame-activation, while the “activity eventuates in outcome” placeholder was replaced with frame-alignment.

Olivier: Is it fair to ask what is your precedent for using the term “placeholder,” Marshall?

Marshall: Surely it is! The placeholder idea – and the phrasing – comes from philosophy of science. Specifically, it comes from the philosophy of biology. The title of the book that I am referring to is In Search of Mechanisms: Discoveries Across the Life Sciences.

Olivier: That’s not what I expected to hear.

Nora: As a matter of fact, I once heard a philosopher of science say that biology has come to be the queen of the sciences, and I have been given the impression that the social mechanism literature in social science has consciously emulated biological system research. So, Marshall’s finding a precedent in the philosophy of biology is actually not hugely surprising to me.

Marshall: It’s also true, Nora, that ideas about reverse engineering emulate ideas in biological system research. Some philosophers have traced this connection back to Aristotle.
Petra: I feel we’re in an airplane that just ascended from 15,000 feet to 40,000 feet in 20 seconds. Can we get back closer to Earth now?

Marshall: Yes, that would be a good idea, as we only have use of this meeting room for another two minutes.

Nora: I think a take-away from this meeting is that because there’s so much going on in this idea of design-oriented public management, some of it will have to remain behind the scenes for our students.

Marshall: I agree with that! Along these lines, we also need to think more about how to position the very idea of a pattern language of mechanism-intent thinking and analysis. My main pedagogical idea, though, as I said earlier, is that we should immerse students in it, rather than tell them how to swim, from the edge of the pool. Coming to think of it, one way to immerse them in mechanism-intent thinking about public management is to have them read Chapter 4 of *Public Management as a Design-Oriented Professional Discipline*.

Petra: Should we read that chapter of Barzelay’s book ourselves before our next meeting, then discuss that idea?

Marshall: That’s a fine proposal, Petra. I will get you the material before the end of the day.

Petra: Good meeting, Marshall. Thanks, everybody.

NOTES

2 Simon (1996).
3 Lynn (1996).
4 For an extended discussion of this point, read Chapter 8. For a quick encounter with it, browse the Glossary.
8 Pawson and Tilley (1997).
10 Barzelay and Gallego (2010).
15 Tendler (1997).
16 Barzelay and Campbell (2003).
18 Patton (2011).
20 Ariew and Perlman (2002).
22 Funnell and Rogers (2011).
24 The idea of a conceptual design is discussed in Cross (2008). Cross attributes the idea to Pahl and Beitz (1999), who draw on German traditions of engineering design. Cross says that a conceptual design establishes function structures and suitable solution principles, which are combined into concept variants. As for an embodiment design, “starting from the concept, the designer forms and develops a product or system in accordance with technical and economic considerations” (Cross 2008: 36).
25 Fayol (1919/1984). The full list of enterprise-functions in Fayol’s purposive theory of enterprises is technical, commercial, finance, accounting, and security.
Among many sources, see Abbott (2016), especially the chapter on outcomes, which was originally published as Abbott (2005).

Abbott (2001). The best single source on this perspective is the chapter in this collection entitled “From causes to events.” It was previously published as Abbott (1992).

Abbott (2016).

Schelling (1978).

Lakoff and Johnson (1980, 1999).

Fauconnier and Turner (2002).


On dramatization, rhetoric, and stage-management, see Goffman (1959) and Hilgartner (2000).


Baggini and Fosl (2003: 8).

On the idea of cogency, within argumentation theory, see, Rehg (2009).


Pawson and Tilley (1997).


Stake (2010).

McAdam, Tarrow, and Tilly (2001).


Craver and Darden (2013). I’m grateful to Professor Alan Love of the University of Minnesota’s Philosophy Department for this reference.

Wimsatt (1997).

Ariew and Perlman (2002).