CHAPTER 1 :: MEETING ROOM EXAMPLE

One of the easiest ways to understand a method is with an example of something with which most readers will be familiar. Let us consider the example of how best to organize meeting rooms in offices, which seems to be a universal challenge. First, there is the challenge of configuring office space optimally to ensure that there is a right balance of personal workspaces and meeting spaces. If there aren't enough of them, then tensions emerge as different groups vie for the same space. If there are too many of them, then tensions arise as they are used for other things besides productive meetings, such as personal workspaces or storage. Other challenges include how rooms are booked and reserved to ensure their fair usage, and how equipment in these rooms are appropriately secured.

GATHERING STORIES

The process of applying embodied making starts with listening to the stories of people in the space where we want our solutions to live and rest. Stories are narratives as that are faithfully recorded by Makers as they are told. Let us start by considering this 1st story told by an individual who regularly uses meeting rooms:

1 | *"We share 10 meeting rooms, usually named after people to identify them, between 300 people, and the meeting rooms need to be kept locked."*

Although concise, this story leaves a lot unsaid. It has at least three strains, each of which is left unfinished, the first of which is around usage density. Do the 300 people use the 10 meeting rooms frequently? If so, how frequently? Is there a strong culture around having frequent meetings? The second strain concerns how the meeting rooms are identified. Are the current names of the meeting rooms important? Were they named after people in the company to honour them, or were they arbitrarily picked? The third strain concerns the security around the meeting rooms. Why do they need to be kept locked? What is being secured? These are questions once answered help add texture to the story, which is retold as:

1 | *"We share 10 meeting rooms between 300 people. Most of us spend at least 1 hour a day in meetings, and so the rooms are heavily utilized. We arbitrarily selected the names of the meeting rooms after some debate based on our favourite authors, so they have names like Steinbeck and Faulkner. We usually do presentations in our meetings using fairly expensive display equipment that isn't very portable. We've had a few cases of theft in the past, so the meeting rooms need to be kept locked when they're not used."*

Our memories can be deceptive for most us, and the texture of a story becomes harder to remember with time. It is recommended that stories are written down shortly after they're narrated with as much detail as necessary. While excessive detail in a story can distract from story's primary thread, sparse detail deprives us from understanding the experience of the narrator. Texture balance in stories ensures that just they're detailed enough to transport readers into being there while keeping their attention fully engaged. Next, let's consider another story told by the facility manager of the office:

2 | *"The receptionist helps book the room, and room users pick up the key, and usually drop it back."*

While this story explains the procedure for booking rooms and obtaining keys, it doesn't explain the reasons for the procedure. What occurred to have necessitated such a procedure? Can rooms be booked and keys picked up simultaneously? How does the receptionist know about current and planned meeting room usage? And given that keys are usually returned, there is a teasing hint that the procedure doesn't always work. It is very rare that the first telling of a story contains the required granularity, and a story only takes full shape after a few tellings. The 2nd story is now retold as follows:

2 | *"Meeting room booking was quite simple to start with. Each room had a paper calendar with hourly slots, and anyone in the office could write reserve a slot by penciling it in themselves. It didn't take long before different groups would book the same room at the same time, and the group with the most influence would get the room. Then the thefts started, and projectors would go missing. A lot of different organizations share this office, so isn't always easy to regulate who comes in and out of the office. So we had to put locks on the doors. Initially only the keys were kept with the Receptionist, but then the booking errors just got worse, so it made sense to also make them the single point of room reservations. People must book the room at least a day in advance to avoid conflicts, and they are asked to pick up the key at least 5 minutes before their meeting starts. It isn't the most straight-forward process, but it does ensure that people don't book a room unless they really need it. After they finish using the room, people are supposed to return the key with the Receptionist, and that usually happens. No process is perfect, and sometimes people do forget, but by and large this process works. It was quite painful to get where we are today, so I wouldn't change this process lightly."*

The 2nd story now establishes that the principal interactions for the usage of meeting rooms occurs between meeting room users and meeting room users with Receptionists. We also understand that the existing procedure tends to work, but there is a hint that things don't always go to plan. The 3rd story related by a Receptionist, gives us a little more insight.

3 | *"Although people are supposed to pick up and drop off the key with me, they rarely do. We get 300 regular office-goers and 400 visitors a day to these premises, and my main responsibility is help these people. I also receive deliveries, and a lot of people in the office order things from the Internet which I receive in the reception area. There is only one receptionist in the building at a time, and so it's really important that I remain in the reception area. Take yesterday as an example. Someone who needed the meeting room from 10 am to 11 am arrived in the reception area a few minutes before 10 am and waited while I dealt with some visitors. When I eventually finished with the visitors it was just past 10, and the booked meeting room was on the 4th floor. The keys hadn't been returned yet, and I first tried calling the phone in the meeting room. No answer. Then I tried calling the person who had booked the room until 10 am. He picked up to say that he had to run to another meeting, and he'd left the keys in the room. So then I walked up to the room together with the person who had the room next to make sure everything was in order, hoping that people visiting the reception area during this period would just sort things themselves. This happened 3 times yesterday, and yesterday was like most days."*

Obviously all is not well with the existing procedure. How do meeting room users experience the key collection and drop-off process? The 4th story is told by a frequent meeting room user.

4 | *"I use one of the meeting rooms at least once a day. There are 5 floors in this building, and there are 2 meeting rooms on every floor. Other than the holiday seasons or late evenings, the rooms are almost always booked in advance, and sometimes I have to book the room at least 2 weeks in advance. A lot of people block book the rooms for 6 months in advance, and sometimes they don't even show up for the meeting. The meeting schedule shows busy, but the room is locked and empty. I do know a lot of the frequent meeting room users, and sometimes we just swap keys rather than going down to the reception area to first return the keys. I also often have back-to-back meetings, and I don't always have time to return the key, in which case I either leave the key in room, or I give it to one of the people headed downstairs. The smokers are usually a good candidate as they smoke in front of the building and have to pass the reception area on their way out."*

It seems that meeting room users don't always have a pleasant experience in using the meeting rooms, and have developed their own practices to cope with the parts of the procedure they find inconvenient. These practices may initially seem like aberrations or exceptions, but on

deeper inquiry prove to be stable patterns of behaviour. The 5th story is told by a maintenance specialist who is called when things go wrong.

5 | *"I usually get called when people can't get into the rooms or the equipment in the rooms are not working. I keep a spare copy of all the keys in the building. We lose keys to meeting rooms all the time and we usually replace the locks on the doors three or four times a year because we can't be sure if the keys are now with someone who can compromise the security of the building. The other big issue is that people often don't get the presentation equipment working, and I'm usually called in to help them connect their laptops to the projector."*

Together, these five stories give us an adequate coverage of the variety of experiences that happen around meeting rooms. Each narrative also introduced some insights that didn't necessarily concern meeting rooms, such as frequent deliveries in the reception area, the tendency to have a high number of visitors, and the fact that a large number of different organizations share the office. If sharp boundaries are drawn around what these narratives should cover, then the range of insights available to shape solutions will also be limited. If we don't maintain boundaries at all, then the narratives will lack a cohesive theme. Adequacy is judged in terms of whether enough stories have been gathered from the variety of people using the space (coverage), if it is possible to understand each story in terms of each other (scale of interweave), if there is sufficient texture to the collective stories, and their longevity or transience is understood in terms of how frequently they occur in similar incarnations (scale of transience). Gathering stories should be treated as a continuous process, and the adequacy is temporal at best so that we can understand the existing body of stories before returning to gather more.

DERIVING FORCES

When several individuals in the same space share similar stories about their experiences, it is because the body of forces in that space shapes them in recurring patterns. By taking a body of representative stories we can therefore derive some of these forces. By examining the opening sentences of the 1st story, we can derive the following forces.

"We share 10 meeting rooms between 300 people. Most of us spend at least 1 hour a day in meetings, and so the rooms are heavily utilized." ▷ *F001. Meeting rooms are shared by a lot of people.*
F002. High frequency of meetings.

The 1st sentence tells us that there is 1 meeting room for every 30 individuals, but doesn't tell us how frequently the meeting rooms are utilized. The 2nd sentence tells us that the majority spend at least 1 hour a day in meetings, which implies that at least 150 people (50%) require a room together with others for 1 hour a day. Although we are not told about the average group size, we can safely infer that there is meeting rooms are shared by a lot of people and that there is a high frequency of meetings.

We arbitrarily selected the names of the meeting rooms after some debate based on our favourite authors, so they have names like Steinbeck and Faulkner. ▷ *F003. Meeting rooms are named after famous authors.*
?F004. No significant purpose in meeting room names.

We do not know yet if the naming conventions have any significance. Were they selected because of a strong literary tradition in the office? Are most of the meetings about writing? Were the names of famous authors selected as inspiration, or was it completely arbitrary? We do not know yet, but perhaps we will learn more subsequently. It is important to remember this insight, and for now we can express the force with an appended question mark.

"We usually do presentations in our meetings using fairly expensive display equipment that isn't very portable. We've had a few cases of theft in the past, so the meeting rooms need to be kept locked when they're not used." ▷ *F005. Meeting rooms contain expensive equipment.*
F006. Poor portability of meeting room equipment.
F007. Historical incidents of equipment theft.
F008. Meeting rooms are locked when not used.

The forces we have derived thus far are inferred from our progressive analysis of a few stories.

As more stories and forces emerge, we should revisit the assumptions we made, or incomplete fragments that didn't give us enough cause to conclusively derive forces.

"Meeting room booking was quite simple to start with. Each room had a paper calendar with hourly slots, and anyone in the office could write reserve a slot by penciling it in themselves. It didn't take long before different groups would book the same room at the same time, and the group with the most influence would get the room. Then the thefts started, and projectors would go missing. A lot of different organizations share this office, so isn't always easy to regulate who comes in and out of the office. So we had to put locks on the doors. Initially only the keys were kept with the Receptionist, but then the booking errors just got worse, so it made sense to also make them the single point of room reservations. People must book the room at least a day in advance to avoid conflicts, and they are asked to pick up the key at least 5 minutes before their meeting starts. It isn't the most straight-forward process, but it does ensure that people don't book a room unless they really need it. After they finish using the room, people are supposed to return the key with the Receptionist, and that usually happens. No process is perfect, and sometimes people do forget, but by and large this process works. It was quite painful to get where we are today, so I wouldn't change this process lightly."

F009. Historical tendency to start with minimal solutions.
F010. Historical preference for paper-based solutions.
F011. Tendency to prefer self-service solutions.
F012. Historical tendency for booking conflicts.
F013. Tendency to use influence to obtain meeting rooms.
F014. Office space shared by different organizations.
F015. Difficulty in regulating visitors.
F016. Preference for using locks to control room access.
F017. Desire for bookings at least a day before usage.
F018. Desire for keys to be picked up prior to usage.
F019. Current meeting usage procedure is not convenient.
> F020. Cumbersome procedure deters frivolous usage.
? F021. Keys may not be returned on occasion.
F022. Arriving at an agreed procedure is difficult.
? F023. Consensus required for agreed procedure.
F024. Aversion to changing existing procedure.

There are at least 2 forces cannot be conclusively inferred from the 2nd story alone. Although there is a hint that keys may not always be returned, there aren't any conclusive elements in this story. Similarly, we are unable to determine why it took so much effort to establish an agreed process, and given that there are several organizations in the same building, perhaps it's because consensus was required from different parties. We also know that some parties have more influence than others. Where does this influence come from? While we cannot have conclusive inferences, we can denote our uncertainty by placing question marks next to these forces.

From the 3rd story, we can now confirm our earlier inference (Force 20) that there may be

"Although people are supposed to pick up and drop off the key with me, they rarely do. We get 300 regular office-goers and 400 visitors a day to these premises, and my main responsibility is help these people. I also receive deliveries, and a lot of people in the office order things from the Internet which I receive in the reception area. There is only one receptionist in the building at a time, and so it's really important that I remain in the reception area. Take yesterday as an example. Someone who needed the meeting room from 10 am to 11 am arrived in the reception area a few minutes before 10 am and waited while I dealt with some visitors. When I eventually finished with the visitors it was just past 10, and the booked meeting room was on the 4th floor. The keys hadn't been returned yet, and I first tried calling the phone in the meeting room. No answer. Then I tried calling the person who had booked the room until 10 am. He picked up to say that he had to run to another meeting, and he'd left the keys in the room. So then I walked up to the room together with the person who had the room next to make sure everything was in order, hoping that people visiting the reception area during this period would just sort things themselves. This happened 3 times yesterday, and yesterday was like most days."

F021. Unreturned keys after usage a frequent occurence.
F025. High ratio of visitors to regular office-goers.
F026. Receptionist formally responsible for office access.
F027. Receptionists have several informal roles.
F028. Tendency for Receptionists to receive deliveries.
F029. High frequency of personal deliveries to the office.
F030. Frequent queues in the reception area.
F031. Tendency of missing keys just before usage.
F032. Most office-goers have a mobile phone.
F033. Tendency to leave keys in the room for next usage.
F034. Receptionists desire to know of actual room usage.
F035. High organizational dependency on Receptionists.
? F036. Receptionists not rewarded for informal roles.
F037. Reception area can often be left unsupervised.

occasions when the keys are not returned. We have also obtained a better understanding of how crucial Receptionists are in the organization of meeting room usage beyond their formal roles. Also given that the organization of meeting rooms is not formal responsibility of the Receptionists, the motivation to help meeting room users in difficult situations is left to the

individual Receptionist.

"I use one of the meeting rooms at least once a day. There are 5 floors in this building, and there are 2 meeting rooms on every floor. Other than the holiday seasons or late evenings, the rooms are almost always booked in advance, and sometimes I have to book the room at least 2 weeks in advance. A lot of people block book the rooms for 6 months in advance, and sometimes they don't even show up for the meeting. The meeting schedule shows busy, but the room is locked and empty. A lot of these people who book rooms just have 2 people in a room designed for 10 people, and I wonder if they really even need a meeting room? I would understand for confidential things, they would need their own rooms, but for other things, I would expect them to give the room to people who really need it. There's always something with these tiny keys and returning them as well. I do know a lot of the frequent meeting room users, and sometimes we just swap keys rather than going down to the reception area to first return the keys. I also often have back-to-back meetings, and I don't always have time to return the key, in which case I either leave the key in room, or I give it to one of the people headed downstairs. The smokers are usually a good candidate as they smoke in front of the building and have to pass the reception area on their way out."

F001. Meeting rooms are shared by a lot of people.
F002. High frequency of meetings.
F038. Meeting rooms spread out over the building.
F039. Tendency to book rooms well in advance of usage.
F040. Tendency to block book 6 months in advance.
F041. Meeting rooms are often unused despite bookings.
F042. Tendency for informal meetings to use rooms.
F043. Desire for informal meetings not to use rooms.
? F044. Lack of spaces for informal meetings
F045. Desire for confidential meetings to use rooms.
F046. Frequent room users usually know each other.
F047. Familiar users can hand each other keys.
F048. Users don't infom Reception of key possession.
F049. Users often have back-to-back meetings.
F050. Tendency for busy individuals not to return keys.
F051. Tendency to leave the key in the room when busy.
?F052. Receptionists held accountable when theft occurs.
F053 Frequent ground floor visitors often return keys.
F054. Smokers are regulated to smoke outside the office.
F055. Smokers often return the keys to meeting rooms.

Are some forces more important than others? Should we attach weights to derive relative importance of each force? In Embodied Making, all Forces are treated equally. Some forces may present in a lot of stories, and other forces may occur only once in a while. It is tempting to deal with fewer forces to deal with less complexity, and a process of force elimination would help reduce complexity. Whether forces manifest themselves repeatedly or occasionally is immaterial, as their significance is felt irrespective of their frequency, and unaddressed forces will unravel solutions that don't balance them.

As we delve deeper into our understanding of this space, we can see greater complexity

"I usually get called when people can't get into the rooms or the equipment in the rooms are not working. I keep a spare copy of all the keys in the building. We use standard locks and keys so if all else fails, we can us a masterkey. We lose keys to meeting rooms all the time and we usually replace the locks on the doors three or four times a year because we can't be sure if the keys are now with someone who can compromise the security of the building. They're small and you can't tell them apart. The other big issue is that people often don't get the presentation equipment working, and I'm usually called in to help them connect their laptops to the projector."

F056. Maintenance staff often help with equipment.
F057. Maintenance staff have all spare keys.
F058. Usage of standardized locks and keys.
F059. Master keys are used when keys are lost.
F060. Tendency to lose keys frequently.
F061. Tendency for keys to be small.
F062. Tendency for keys to be indistinguishable.
F063. Frequent replacement of locks.
F064. Desire for key possession not to be compromised.
F065. Frequent issues configuring display equipment.

emerge. Some of the forces we have derived may seem incidental or superficial, and the effort to catalog each individual force may seem like over-engineering. New innovations sometimes occur because new technology or social advancements make new solutions possible. They also occur when we look more closely at a problem and identify seemingly inconsequential forces and channel them into a new solution.

From 5 stories, we've now derived close to 60 forces. There are almost always more stories to gather, and more forces to derive from these stories. We must decide if our current body of stories and forces are adequate, and this calls for a judgement. We also found forces that may exist in the stories, where we placed question marks, with insufficient detail in the story to truly conclusively infer those forces. It is very possible that by speaking to others, or speaking again to those who have shared stories earlier, we can conclusively derive infer the forces. For the purpose of this example, let's assume that we have an adequate number of stories, and that all of the possible forces can be conclusively inferred.

REFLECTING ON INDUCED COMPLEXITY

Forces help us understand the inherent complexity in a space, which were already present before the involvement of designers or analysts. What about the complexity introduced by an analyst or designer through their involvement in that environment? Or the complexity introduced by their limited knowledge, personal values, or desires? Or the complexity introduced by specific choices of paradigms, methods, frameworks, or tooling? If there exists a formal assignment or charter to make a solution, what about the constraints introduced by stakeholders or

When is complexity inherent and when is it induced? What is a paradigm, and how can selecting one paradigm over another induce complexity? How do we distinguish between our experience of a situation, and our opinion of what happens in that situation, influence complexity. More on ⟶

patrons such as the amount of available money or how quickly the solution must be realized? Induced complexity is rarely introduced consciously, and therefore it can be harder to address than inherent complexity. It is often difficult for most designers, stakeholders, and analysts to own up to their own bias, which in itself is almost a universal force. For the purposes of this example, let's consider ourselves consultants who've been hired by the building's facility managers. Through some reflection on the questions we've just asked, we can understand some stories and forces of induced complexity.

We're the building's facility managers, and we've hired some consultants for coming up with better ways to use the meeting rooms. We've hired other expensive consultants before who used other methods, and this time we want to make sure any solutions can be sustained after the consultants leave without needing more consultants. *This building has several companies in it, all of whom are our tenants. The meeting room situation is one of the principal reasons we lose tenants, and the office property market is very competitive.* We wonder how effectively the new consultants will do with this Embodied Making method. People aren't usually open with someone walking around with a clipboard, and they selectively filter what's being said. Some people also feel that Consultants don't credit the people that came up with good ideas, and usually take the credit for themselves.

F066. Tendency to be politically correct with Consultants.
F067. Perception of Consultants as being expensive.
F068. Perception of Consultant solutions as poor value.
F069. Consultant's solutions deteriorate after they leave.
F070. Consultant's solutions often require consultants
F071. Building is occupied by independent companies.
F072. Poor meeting room solutions cause tenants leaving.
F073. Prevalence of competitive office property market.
F074. Caution of unfamiliar methods.
F075. Tendency not to be open to Consultants.
F076. Tendency to provide partial stories to Consultants.
F077. Perception that Consultants don't credit sources.

As the consultants on this assignment, we prefer some paradigms, tools, and methods over others, including the method we're using at the moment, Embodied Making. Our introspection can also be reflected through a story.

I've been a consultant for 20 years, and I have used a variety of methods over my career. Some I've initially liked, and as I learned more about other methods, I stopped using them. Some methods complement others quite well, and these I've combined to create a consulting toolkit. I really like visualizations, and I usually try communicate with case-specific diagrams as it helps explain complex situations and solutions. I use Embodied Making because it complements a lot of my existing toolkit and gives me the freedom to use it together with other methods. It took me a while to understand it for what it really was, mostly because I was trying to understand a new method based on my understanding of other methods. I have realized that I often want to try out the latest thing I've learned in my next assignment, so I want to be careful in only applying something because it truly solves something. I enjoy creating solutions for companies together with people that work there everyday. I don't like being perceived as an ivory tower consultant. It gives me great pleasure to see solutions working and evolving long after my involvement has ceased, and being called in to support the new challenge than the same ones.

F078. Experienced consultants often know many methods.
F079. Preference of using some methods over others.
F080. Some methods work better together than others.
F081. Tendency to learn new methods using old ones.
F082. Consultants often consolidate methods into toolkits.
F083. Desire to use visualizations.
F084. Tendency of audiences to prefer visualizations.
F085. Desire to try out newly learned methods in practice.
F086. Desire to only try out methods that truly work.
F087. Desire to create participatory solutions.
F088. Aversion of being seen as an ivory tower consultant.
F089. Desire for solutions that live beyond engagements.
F090. Desire for solutions that adapt to change.
F091. Desire for new consulting challenges over old ones.

Understanding and deriving forces, whether inherent or induced, is a continuous process of reflection. While we can only derive inherent forces from the few stories we've gathered, we can derive induced forces from a lifetime of introspection. While being openly introspective is a quality all analysts should aspire towards, moderation in introducing them as induced forces ensures that the focus remains strictly on outcome influencers.

DEVELOPING A FEELING OF THE FORCES

How do we find solutions that are able to resolve 90 forces collectively that we know of at this stage? It is possible for each of these 90 forces to interact with each other to produce positive, negative, or neural effects. Let's start by considering how to resolve the first force in isolation.

> *F001. Meeting rooms are shared by a lot of people.* This force by itself doesn't tell us much. Is meeting room usage concentrated around specific times of the day, or do they occur all the time? Do these people work in the same company or do they work for different organizations? Are people happy to share these meeting rooms with others, or is it a necessary inconvenience? This force considered in isolation forces us to make assumptions, which is induced complexity. We can think of solution patterns that make meeting room usage at any time highly visible, which can be realized in the forms of transparent glass for meeting room doors and walls or indicating meeting room occupancy in areas of the building with high traffic using light cues such that when the lights in a meeting room are switched on the indicator lights in high traffic areas are switched on. Both forms in this case may or may not work in practice, as we haven't considered how this individual force would resolve itself with 74 other forces.

Coming up with solutions that resolve 1 or 2 forces is a lot less daunting than coming up with solutions that are able to resolve 90 forces. Forces usually manifest themselves together with other forces. They rarely exist in isolation and interact with other forces to create positive, negative, or neutral effects. Let's consider the 1st and 2nd force on our list. That a lot of people share the meeting rooms, and that they have frequent meetings, means that meeting rooms become a scarce resource, leading to conflicts. Thus they act on each other to create a negative effect. We can show this relationship by placing a negative mark between the two forces (F001 ⊖ F002). Intially keeping our focus on the interactions of individual forces with the 1st force, we can now progressively analyze its interaction with all of the other forces, applying a plus sign (⊕) for a positive effect, a minus sign (⊖) for a negative effect, and a tilde (⊗) for an ambivalent or neutral effect. As we progressively work our way down this list of forces, you will observe an increased ability to understand a force in terms of all of the other forces you've already contemplated. We will also notice that the stories are incomplete (marked by ♡), that all of the forces in the space have not been considered (marked by ↻), and ideas for solutions will emerge (marked by ⬡). A convenient way to reference all of the forces in this exercise is to place all of the forces on a single sheet of paper.

F001. Meeting rooms are shared by a lot of people.	F029. High frequency of personal deliveries to the office.	F058. Tendency for keys to be indistinguishable.
F002. High frequency of meetings.	F030. Frequent queues in the reception area.	F059. Frequent replacement of locks.
F003. Meeting rooms are named after famous authors.	F031. Tendency of missing keys just before usage.	F060. Desire for key possession not to be compromised.
F004. No significant purpose in meeting room names.	F032. Most office-goers have a mobile phone.	F061. Frequent issues configuring display equipment.
F005. Meeting rooms contain expensive equipment.	F033. Tendency to leave keys in the room for next usage.	F062. Tendency to be politically correct with Consultants.
F006. Poor portability of meeting room equipment.	F034. Receptionists desire to know of actual room usage.	F063. Perception of Consultants as being expensive.
F007. Historical incidents of equipment theft.	F035. High organizational dependency on Receptionists.	F064. Perception of Consultant solutions as poor value.
F008. Meeting rooms are locked when not used.	F036. Receptionists not rewarded for informal roles.	F065. Consultant's solutions deteriorate after they leave.
F009. Historical tendency to start with minimal solutions.	F037. Reception area can often be left unsupervised.	F066. Consultant's solutions often require consultants
F010. Historical preference for paper-based solutions.	F038. Meeting rooms spread out over the building.	F067. Building is occupied by independent companies.
F011. Tendency to prefer self-service solutions.	F039. Tendency to book rooms well in advance of usage.	F068. Poor meeting room solutions cause tenants leaving.
F012. Historical tendency for booking conflicts.	F040. Tendency to block book 6 months in advance.	F069. Prevalence of competitive office property market.
F013. Tendency to use influence to obtain meeting rooms.	F041. Meeting rooms are often unused despite bookings.	F070. Caution of unfamiliar methods.
F014. Office space shared by different organizations.	F042. Frequent room users usually know each other.	F071. Tendency not to be open to Consultants.
F015. Difficulty in regulating visitors.	F043. Familiar users can hand each other keys.	F072. Tendency to provide partial stories to Consultants.
F016. Preference for using locks to control room access.	F044. Users don't infom Reception of key possession.	F073. Perception that Consultants don't credit sources.
F017. Desire for bookings at least a day before usage.	F045. Users often have back-to-back meetings.	F074. Experienced consultants often know many methods.
F018. Desire for keys to be picked up prior to usage.	F046. Tendency for busy individuals not to return keys.	F075. Preference of using some methods over others.
F019. Current meeting usage procedure is not convenient.	F047. Tendency to leave the key in the room when busy.	F076. Some methods work better together than others.
F020. Cumbersome procedure deters frivolous usage.	F048. Receptionists held accountable when theft occurs.	F077. Tendency to learn new methods using old ones.
F021. Keys may not be returned on occasion.	F049. Frequent ground floor visitors often return keys.	F078. Consultants often consolidate methods into toolkits.
F022. Arriving at an agreed procedure is difficult.	F050. Smokers are regulated to smoke outside the office.	F079. Desire to use visualizations.
F023. Consensus required for agreed procedure.	F051. Smokers often return the keys to meeting rooms.	F080. Tendency of audiences to prefer visualizations.
F024. Aversion to changing existing procedure.	F052. Maintenance staff often help with equipment.	F081. Desire to try out newly learned methods in practice.
F021. Unreturned keys after usage a frequent occurence.	F053. Maintenance staff have all spare keys.	F082. Desire to only try out methods that truly work.
F025. High ratio of visitors to regular office-goers.	F054. Usage of standardized locks and keys.	F083. Desire to create participatory solutions.
F026. Receptionist formally responsible for office access.	F055. Master keys are used when keys are lost.	F084. Aversion of being seen as an ivory tower consultant.
F027. Receptionists have several informal roles.	F056. Tendency to lose keys frequently.	F085. Desire for solutions that live beyond engagements.
F028. Tendency for Receptionists to receive deliveries.	F057. Tendency for keys to be small.	F086. Desire for solutions that adapt to change.

While it is useful to index the forces with numbers, they soon start inducing complexity as new forces are discovered (numbers are hard to remember, numbers require reassignment, desire to assign sequential numbers to similar forces, etc.). It is easier to remember them through memorable names.

> *F001. Meeting rooms are shared by a lot of people (shared by many).*
>
> ⊖ ♡ *F002. High frequency of meetings (frequent meetings).* A lot of people sharing rooms and having frequent meetings makes meeting rooms a scarce resource. A solution would be to make the times at which meeting rooms are used more visible so individuals with flexible meeting times can plan them at other times and create spaces for informal meetings (assumes that not all meetings need a closed room). Meetings are a structure for individuals to get together to discuss one or more topics, but are meetings always necessary? A further line of inquiry in this space would be to understand why there are frequent meetings, and then find solution patterns for other ways people could discuss things without resorting to meetings. For discussions with a few people, there could be small spaces with access to beverages spread over the building.

F003. Meeting rooms are named after famous authors (author's names). No significant effect. If meeting rooms are shared by a lot of people, it may help if they have concise, meaningful, and memorable names.

F004. No significant purpose in meeting room names (purposeless names). No significant effect. It might be interesting to factor in solutions that use a unified purpose for the names of meeting rooms beyond a common theme. It's useful to remember this force as we consider other forces, as the meeting rooms could be named after their characteristics (their size or features), position in the building (making them easier to find), or linking them somehow to solutions that we may come up with in this exercise.

F005. Meeting rooms contain expensive equipment (expensive equipment). There is an increased possibility of misplacing parts (like remote controls), breaking the equipment, misconfiguring the equipment so that others can't use it after one group has used it, optimizing the projector to work with some computers so that it doesn't work with others, and perhaps even theft. Each of these may be potential forces, but only the theft-related force was reflected in the stories. Solution patterns can range from fixing the equipment to the room where possible, protective casing, tying the parts that get lost such as the remote control with cabling to furniture, locking the door to the meeting rooms after usage (if theft has occured in the past), setting the most frequently used configuration as the default on the equipment, and providing instructions for other frequenlty used configurations on paper or some other medium.

F006. Poor portability of meeting room equipment (hard to move equipment). No significant effect. It isn't so easy to move the equipment around. If it were possible, the people who were sharing the rooms may have similar problems like trying to source the missing keys. The fact that it isn't probably helps deter theft a bit, which is a different force. Solutions to improve the portability of meeting room eqiupment can possibly remove the need to keep the rooms locked. One possible solution pattern is to keep the equipment at the reception and have moving equipment to help improve portability (e.g. trolleys). Another possible solution pattern is to stock the expensive equipment in locked locations near the meeting room, so meeting rooms need never be locked, just the premises that store them. People who borrow the equipment would still need to return them to the locked premises, and the forces that keep them from returning keys may keep them from returning the equipment.

F007. Historical incidents of equipment theft (theft). Equipment theft is more likely when high volumes of people use the rooms. This is a crucial force, and a lot of the existing solutions such as locked rooms and keeping the keys at the reception area stem from trying to resolve this force. It would be good to understand how many thefts occured, when they occured, and what was stolen. If the meeting room equipment is not that portable, how was it stolen? Are there smaller pieces of expensive equipment that are more susceptible to theft?

F008. Meeting rooms are locked when not used (locked when unused). It's harder for individuals to use the meeting rooms with minimal fuss. Does the locking mechanism clearly indicate whether something is locked or unlocked? If the doors and walls of the meeting room are not transparent, can the current status of meeting room usage be inferred from a glance at the door? A solution pattern can be visibly indicating locking status, the form of which can be realized through the kind of locks used in bathroom cubicles that visibly indicate whether they are vacant or occupied.

F009. Historical tendency to start with minimal solutions (minimal solutions). Does minimalism imply something that's quick to implement, quick to learn, inexpensive to implement, or combinations of all of three? Does it indicate an aversion to high-tech solutions (e.g. locks that can be remotely opened or closed)? It's hard teaching people a solution that may be better, but requires more training. Someone minimalist is probably easier to learn, assuming minimalism is defined as something that's relatively simple to understand.

F010. Historical preference for paper-based solutions (paper-based solutions). Low-tech solutions are easier to share and learn with lots of people. On the other hand, paper can get misplaced or manipulated easily, so unless there are stories of them getting misplaced or manipulated, it's probable there is a high quotient of self-governing through honour codes. The incidents of theft run contrary to observing honour codes, but need to know more about the nature of the thefts becomes more important.

F011. Tendency to prefer self-service solutions (self-service) . Placing dedicated staff to help with meeting room usage is probably not a good solution, although Receptionists are currently expected to help along with their other responsibilities.

F012. Historical tendency for booking conflicts (booking conflicts). A high number of people using meeting rooms frequently is likely to cause booking conflicts. Booking is a standard practice (an intangible solution) for reserving a resource in advance, whether that resource is used or not. The further in the future the intent to use the resource, the weaker the probability that it is going to happen as planned. Solution patterns here could be to restrict the window of how far in advance things can be booked, realized through bookings only being available for the week ahead at any given time. Bookings are also usually provided in slots, and if the slots are too large (1 hour or 30 minutes), then people might feel the need to fill the slot by discussing topics. On the other hand, if booking slots are too small, then individuals might feel the need to get multiple booking slots.

Historically induced complexity is one of the largest sources of organizational waste, and their deep entrenchment requires great skills for their removal.
More on _.

⊖ *F013. Tendency to use influence to obtain meeting rooms (influence).* What gives some individuals influence over others? Is it based on how important the person is within an organization? Or how important the organization is within the building? Other ways rooms are usually obtained are "first come first serve" or through pre-arrangements (on-demand bookings, timeshares, quotas, etc.). What if meeting room usage was made more visible? What if usage information was visible down to who was in the meetings? What if meeting room taxes were levied on frequent meeting room bookers and participants?

⊖ *F014. Office space shared by different organizations (several organizations).* Are these organizations autonomous or part of a single larger organization? Where does the power and influence come from if these organizations are autonomous? How many organizations are involved? What if we made usage information visible on the level of organizations?

⊖ *F015. Difficulty in regulating visitors (unregulated visitors).* Are visitors active meeting room users? Do visitors usually have commercial importance to the organizations in the building? To what extent would making meeting room usage by visitors visible help? Are visitors allowed to use meeting rooms if they have no affiliation to an organization in the building?

⊖ *F016. Preference for using locks to control room access (locked access).* Meeting rooms are supposed to be kept locked when they're not used, so locking the room is indicative of availability. The purpose of a lock is to secure access to a room. Are there other ways to secure access to a room? Are the meeting rooms close to other office-goers who could keep an eye on usage? Could these office-goers at close proximity to the meeting rooms become the meeting room custodians?

≎ *F017. Desire for bookings at least a day before usage (book day before).* This is a good example of historical induced complexity, or induced complexity that exists from previous solutions that aren't a part of the problem itself. Last minute bookings can be annoying, especially if several people want them. Some meetings are difficult to plan and occur on the spur of the moment. Meeting room usage would end up favouring activities and individuals that are able to plan ahead. Such a structure would probably lead to people who have frequent meetings sporadically booking meeting rooms in advance, regardless of whether they need them or not. A possible solution here is to charge, either in terms of money or some other form of value, for bookings done in advance, and available rooms on the day are provided on a first come first serve basis. This force manifests itself positively in some situations and negatively in others. This is indicative of this force being harbouring other forces, which are the tendency for advance bookings to favour plannable activities and the tendency for advance bookings to be advantageous for good planners. It is also unclear through the stories if meeting rooms usage is free of charge. Payments for usage are not reflected in any of the stories, so perhaps the usage of meeting rooms is not charged.

⊕ *F018. Desire for keys to be picked up prior to usage (pickup before).* This seems fairly reasonable, especially if a lot of different people share the room.

⊖ *F019. Current meeting usage procedure is not convenient (not easy procedure).* Hence our desire to find new solutions. We can make light of this force, but it's the principal reason we have a charter to effect change.

⊕ *F020. Cumbersome procedure deters frivolous usage (frivolous usage).* Nevertheless, frivolous usage can occur inspite of the cumbersome procedure. Critical meetings that need to occur on the spur of the moment will suffer due to the cumbersome procedure. This force indicates the presence of another force, which is that cumbersome procedure impedes critical usage.

⊖ *F021. Unreturned keys after usage a frequent occurence (unreturned keys).* Keys are physically small things, and with a lot of people sharing rooms, a small thing becomes even more critical. It's easy to misplace small things.

⊖ *F022. Arriving at an agreed procedure is difficult (difficult agreement).* As there are a lot of meeting room users who work in different organizations, who probably have different areas of focus, culture, and values, it will be difficult to find a procedure that makes everyone happy. The current procedure favours people who have been in the office for a while, as they would be the most familiar with the procedure and would now how best to exploit it to get optimal meeting room usage. In fact any solution, or set of solutions, would reward those who are the most familiar with it. A solution could be to structure meeting room usage as a game, where the meeting room slots could be linked to a game element. For example, individual meeting room slots could be represented by a square chip, each chip bearing the logo of an organization and representing a unit of time (say 15 mins). A board in front of the meeting room can have slots for each chip that meeting room users would have to place in order to use the room. To use a room for 1 hour, a meeting room user would need 4 chips. Once the chips are put into the slot, they can't be taken out. Chips can be bought or they can be earned by performing services around the buildng, such as being meeting room key custodians.

≎ *F023. Consensus required for agreed procedure (consensus).* As the office is shared by a lot of different organizations, it seems natural that common consensus is required to make sure all parties are happy. However, consensus often requires long discussions and needs to reconcile a lot of different opinions, cultures, and values. In cases where opinions, cultures, and values don't reconcile easily, compromises are required. Compromises aren't elegant solutions, and continued stress on a compromise creates greater divides. However, unless we are able to find truly elegant solutions, compromises are often the best solutions available to us.

⊖ F024. Aversion to changing existing procedure (keep procedure). This is another example of induced complexity. A lot of peopple sharing meeting rooms have different needs, and a rigid procedure will not adapt to the needs of a changing environment. If we come up with solutions that we want to successfullly implement, we will have to involve those who have this aversion changing the existing procedure into this very process of understanding forces.

⊖ *F025. High ratio of visitors to regular office-goers (many visitors).* Visitors increase the number of people using the meeting rooms. It's likely that visitors to the building are meeting the regular office-goers, and these meetings probably occur in meeting rooms. These assumptions should be verified. How do the facility managers feel about the high volume of visitors? Do Receptionists know how many visitors there are on any given day? Are there any existing sources of additional income linked to the visitors?

⊖ *F026. Receptionist formally responsible for office access (receptionist responsible).* The Receptionist is the best person to understand the total number of people in the building at any given point, and how many of those people are regular office-goers or visitors. The Receptionist is also the best person to understand meeting room usage, and can easily identify the most frequent users and the nature of usage. Recognizing and training in Receptionists becoming usage facilitators will help them make better decisions in the face of complex situations.

⊖ *F027. Receptionists have several informal roles (many roles).* What other roles do they play beyond those of guiding unfamiliar visitors, regulating visits, assisting regular office-goers, meeting room facilitation, and receiving deliveries? Understanding all of the different roles would help come up with solutions that have better balance with these varied roles.

⊖ *F028. Tendency for Receptionists to receive deliveries (receive deliveries).* If a receptionist is not at Reception, what happens? Does the person making the deilvery wait? While the behaviour delivery persons is not specific to this building, perhaps there are special arrangements?

⊖ *F029. High frequency of personal deliveries to the office (many deliveries).* Receptionists are kept busy trying to serice both meeting users and receiving deliveries. Are personal deliveries picked up throughout the day? Do individuals pick-up their packages right away? Are there office-goers who regularly get deliveries? Would it be possible for these individuals to also assist in meeting room usage? Would it be possible for these individuals to drop-off keys at the reception?

⊖ *F030. Frequent queues in the reception area (reception queues).* Given the large number of meeting room users, and that there are 10 meeting rooms, it's likely that as many as 10 people in the queue could be waiting for a meeting room. Queues could be sorted by those who have other business and those who are waiting to pick up keys. If keys are clearly sorted and arranged in the reception area, meeting room users could pick up keys without involving Receptionists, who would be free to serve other people in the queue.

⊖ *F031. Tendency of missing keys just before usage (missing keys).* Given the high volume of usage, the critical moment is when keys are handed over between users. A formal procedure for handovers may help, although formal procedures are rarely followed when other things take priority. If the formal procedure could somehow be fun, it might help.

⊘ *F032. Most office-goers have a mobile phone (mobile phones).* As most people tend to carry their mobile phone on their person, complex situations involving meeting rooms (unreturned keys, clarifying if an unused meeting room can be used by someone else, confirming a cancellation, etc.) be resolved with a phone call. If individuals are busy, they may not pick up the phone, especially if they have back-to-back meetings or are otherwise occupied, and they recognize the phone number being from someone within the building or they know the receptionist's number. Also being reachable on a mobile phone might make people less careful as they would except complex situations to be resolved with a phone call. If the majority of these phones are smartphones, they could possibly connect to a common information system.

⊘ *F033. Tendency to leave keys in the room for next usage (keys left next usage.* On one hand it is inconvenient for receptionists to have keys left in the meeting rooms after usage, and on the other hand, it is more convenient for the next group. If the receptionist was always aware of who had the key at any time, then it would be less of a problem. If there were meeting room custodians distributed across the building, and they had the responsibility for managing rooms close to them, then keys could either be left with them, in the room for them to pick up, or the door could be locked and unlocked by them. Every day they could receive the booking schedule from the Receptionists, who would remain the central point of booking the rooms, and they could also administer ad-hoc usage.

⊕ *F034. Receptionists desire to know of actual room usage (actual usage).* Rooms could remain unused inspite of being booked in advance. If Receptionists know of actual usage, meeting room users could check actual availability with them. Even better, meeting room users could check actual availability themselves.

⊖ *F035. High organizational dependency on Receptionists (receptionist dependency) .* If it all comes down to a few individuals keeping things together, then it's likely that things will go wrong very often. If a few are trying to administer the many through control structures, it's bound to fail.

F036. Receptionists not rewarded for informal roles (no rewards). On one hand recognizing that Receptionists have several informal roles would give them the room to perform them. Not formally recognizing the informal roles would lead to inconsistencies between Receptionists, and the quality of service would vary from individual to individual. If Receptionists were to be formally rewarded, then their informal roles may have to be formalized. Rewards may also be in the form of other individuals in the office recognizing their role and expressing their gratitude directly through occasional and culturally appropriate gifts, such as a bottle of wine in a European country during Christmas or a box of chocolates.

F037. Reception area can often be left unsupervised (reception unsupervised). Meeting room users may arrive to see that no one is a the Reception. If the Receptionist also plays a role in the building's security or granting access to visitors, there may be severe lapses in fulfilling their obligations.

F038. Meeting rooms spread out over the building (rooms spread out). On one hand people throughout the building will be able to use the rooms close to them, and on the other hand, people administering the rooms have problems trying to manage usage from a single place. Solutions which try and administer usage near the meeting rooms will probably enjoy greater success.

F039. Tendency to book rooms well in advance of usage (advance booking). Meeting rooms are used because a group of people have a need to discuss something. These discussions could have occured in an open space, but this would probably bother non-participants and restrict conversations to non-confidential ones. The exact number of participants, the nature and the course the actual discussion will take, the duration of the discussion, and the desired results from the discussion, are usually unknown in advance. Meeting rooms bookers will at a very minimum need to anticipate the number of participants and the duration in advance when booking a room. Although we are increasingly able to predict a lot of things in our society, the situation in organizations often changes daily, making the likelihood that a meeting arranged months in advance will turn out exactly the way it was planned. There are some forms of meetings that occur on a very large scale, such as conferences, that are organized with well-defined topics, purpose, speakers, and capacity for participants, but these meeting rooms don't seem to be utilzed for that sort of purpose (additional story coverage is required to make sure they aren't).

F040. Tendency to block book 6 months in advance (6 months). As meeting rooms are a scarce resource with a lot of demand, it is natural for individuals to try and obtain as much of the resource as possible. While it's still unclear why things need to be booked so much in advance, other than because it's allowed, it might probably be because people want to claim a scarce resource as soon as possible. We could create a solution where the more in advance you book a room, the more you pay, in order to penalize individuals that book meeting rooms without actually need them. But this would not be fair for individuals who have genuine needs for meeting rooms. We could try and understand the different types of meeting room usage, and then create a classification for the different types of usage. Some forms of usage that have genuine need would be charged less, and other forms where the participants could have done without the meeting room would be charged more. But this would probably lead to individuals without genuine need pretending that they do. And who would judge which needs are genuine and which aren't?

F041. Meeting rooms are often unused despite bookings (unused). Now we have a confirmation of the waste. Not only is a scarce resource being reserved for usage in anticipation of usage, it's not being used a lot of the time. Non-usage could be penalized, but then those who can afford the penalty would be more likely to book the rooms whether they use it or not.

F042. Tendency for informal meetings to use rooms (informal usage). How can informal usage be identified by someone who isn't part of that meeting? Is the judgement that the content being discussed in a meeting room is confidential or open easy to establish without being in the room? To what extent are people participating in the meeting open to sharing if the meeting is confidential or open? Declaring a confidential meeting as confidential probably removes some of the natural confidentiality it enjoys as a consequence of not making that clear to everyone not participating in the meeting ("confidentiality by obscurity").

F043. Desire for informal meetings not to use rooms (informal elsewhere). Are there other spaces for people who want to conduct an informal meetings? How accessible are these spaces? Do they require travelling a long distance away, or are there spaces for informal meetings spread out over the building? Are these spaces self-contained, so that conversations between people don't bother others?

? F044. Lack of spaces for informal meetings (no informal space). Are there other spaces outside the building that can be used for informal meetings? How long do informal meetings tend to last? If they are short, participants would be probably be unwilling to travel a long way to them. Is there unused space spread out throughout the office that can be used for informal meetings. Do informal meetings tend to happen with between organizations, or just within organizations? Perhaps a common space can be developed near the reception area, which would serve coffee, tea, and other beverages.

F045. Desire for confidential meetings to use rooms (confidential). Do confidential meetings tend to happen between large groups of people or smaller groups of people? How often do they happen compared to informal meetings? Are all of meeting rooms the same size, or are they different sizes? Do meetings rooms use their full capacity? If there are several meeting rooms, perhaps

F046. Frequent room users usually know each other (familiar frequenters). Are most of the frequent users from a few organizations? Do they know each other because they work together? Or is it because they meet each other in other social spaces in the office? Or perhaps because they meet as one group is leaving a meeting room as the next group is moving in to occupy it? How amicable are the relationships between these frequent users? Could some of the more frequent users absorb some of the responsibilities around assisting with meeting room usage? Could frequent users become key custodians? Do frequent users usually sit close to the meeting rooms?

F047. Familiar users can hand each other keys (keys to familiars). Although there are a lot of people who use the meeting rooms, some people seem to know each other. While it's efficient for people who know each other to hand each other keys directly without involving the receptionist, only the individuals involved have the knowledge of the interchange. This practice is difficult to regulate, and if a solution were to offer a way to notify the Receptionist without much hassle, perhaps this practice would be perfectly acceptable. What could be a good solution to notify the Receptionist that the key has been given to the next legitimate room user? In some cases, no news is good news. So can the Receptionist safely assume that if no notification occurs, then the keys have been successfully exchanged with the next valid party to have booked the room? Probably not, as any number of things can go wrong, such as the interchange happening with the wrong party, the key getting lost, or no plans to use the room after another group has finished with it. What if there was a messaging protocol based on all of the possible eventualities? Key has been interchanged with the next party. Key cannot be found by next party. No next party, key and/or room being temporarily held by current party a bit longer and will be returned to reception shortly. The current meeting room users could transmit the status of room usage through this messaging protocol, and the transmission medium could be decided upon by the scale of the available budget. It could vary from a collection of switches (combinations of ON/OFF are relayed between the room and the reception area) to a mobile communications application.

F048. Users don't inform Reception of key possession (Key possession). Do people not inform the receptionist because they are busy? Or because the Receptionist is also busy most of the time? What sort of relationship do people have with the Receptionist? Are they generally approachable and friendly? How well do people work with the Receptionist? Do they empathize with them when things go wrong, or resort to blaming them? Are Receptionists perceived as being empowered hosts in the building?

F049. Users often have back-to-back meetings (back-to-back). Are some of these meetings in another meeting room in the building? Do individuals that have back-to-back meetings also have them frequently? Are these individuals also the organizers of the meeting or just participants? Organizers of meetings have an active role in booking and assume responsibility in returning the keys. Participants often have a more passive role. What if there wasn't a distinction between participants and organizers? What if all participants in the meeting were considered organizers? What is the nature of their work that requires them to be in meetings? Is it because it's often easier to discuss things face-to-face than other forms of communication such as writing?

F050. Tendency for busy individuals not to return keys (no return). Despite a lot of people sharing the meeting rooms, some individuals can knowingly or unknowingly inconvenience others. When an individual chooses not to return a key, they may have genuine reasons for doing so. Perhaps a solution would be to leave the key somewhere where it could be retrieved by the next party using the room or the receptionist without inconveniencing everyone as little as possible.

F051. Tendency to leave the key in the room when busy (key left in room). Are the keys left in the room after one group of individuals have finished with the room and another group has yet to arrive? Do people know there is someone else about to use the room after them when they leave the keys in the room? Are they also left in the room when it's unlikely there will be someone else who will use the room after them, such as the end of the working day? If the people that use the meeting rooms quite often tend to know each other, then leaving the keys in the room with the next party also seems natural. Leaving the keys hidden somewhere near the room also defeats the purpose of locks and keys once it becomes common knowledge. The place they are hidden could also changed frequently, which would require that meeting room users be notified of the change frequently. If there is a fixed pattern to the changing of the hiding places, then anyone who learns about the pattern can gain access to the room. The easiest thing might be to leave the key with custodians near the rooms.

F052. Receptionists held accountable when theft occurs (theft fault). How formally are they held accountable if managing meeting room usage isn't a formal responsibility? Are they blamed by others or do they feel blamed when theft occurs? So although the accountability may or may not be formal, perhaps there is informal accountability?

F053. Frequent ground floor visitors often return keys (1st floor returners). Are the frequent visitors to the ground floor well known? Are the frequent visitors also frequent meeting room users? Are the frequent visitors spread across the building? Could these frequent visitors to the Reception also be key custodians?

● *F054. Smokers are regulated to smoke outside the office (smokers outside).* Do smokers only smoke outside the buildng, which is presumably near the Reception area? Or do they also smoke in other areas of the building that are technically outside the building, such as Terraces, Balconies, or Rooftops. In a multi-storey building with multiple spaces that are technically outside the building, what factors determine where a smoker would prefer to smoke? A smoker may prefer to smoke in a location far away from their working location if the social company or the view were better. What solutions can we use to entice the smokers to smoke in front in the building so that they are drop off keys at the Reception on their way out? Free cigarettes at the reception area for every key dropped off? Probably not, as that might violate a few laws about employers encouraging smoking as a habit. Ensuring there is better social company in the front of the building? Or providing free coffee, discounts on nearby coffee chains, canteen coupons, or other incentives, with every key dropped off? However this may encourage some meeting room users to ask others to return the key in order to secure rewards. If anything, meeting room users who don't return the key themselves should reward the individual returning the key on their behalf. This rewarding should not be awkward, where a person doing someone else a favour by returning the key on their behalf also feels obliged to ask for their reward. The reward system is a solution for when things don't go as planned, and should not encourage the non-returning as keys as acceptable behaviour as meeting room users, receptionists, and key returners have figured out a reward structure. Meeting room users who frequently don't return keys should be made visible, perhaps by how many rewards they issued, and there should be some sense of mild stigma attached to the behaviour.

● *F055. Smokers often return the keys to meeting rooms (smokers return keys).* What motivates smokers to return the keys to the Reception? Is it because they know the meeting room users well, and want to help out? Or perhaps because they know the receptionist well? Perhaps its because they are frequent meeting room users themselves? Perhaps there are existing motivations for the returning keys?

● *F056. Maintenance staff often help with equipment (equipment help).* While it's nice that maintenance staff help out with the equipment, it is a case of a few people trying to help many. What sort of help is tyically required with the equipment? So the equipment is also difficult to use, unreliable, or both along with being expensive? Do maintenance staff help with the settings of the equipment, such as the display settings for a projector, or perhaps they help with malfunctioning equipment. Is it usually the same things that go wrong with the equipment? What if the most common ailments were documented in a guide? Given that people in meetings want to set up the equipment as quickly as possible, the guide should be as concise as possible. Is it obvious to meeting room users that the maintenance staff are the ones to call for these sorts of issues? Who else do meeting room users typically consult for help before contacting maintenance staff? Frequent meeting room users? Whoever's nearby? Reception staff? How responsive are the maintenance staff when help is needed? It might help to identify those who use the meeting room the most often, and ask them to help others whenever possible to help troubleshoot with the most common problems.

● *F057. Maintenance staff have all spare keys (spare keys).* If the key to a room cannot be found, then the maintenance staff can presumably provide a spare or duplicate key. However, if a key is lost, it could be in someone's possession who could compromise the security of the room. Those are two "coulds", but it's usually enough for most to change their locks. So despite possessing spare keys, which might grant temporary access, lost keys will probably require lock replacement.

● *F058. Usage of standardized locks and keys (standardized locks).* Using the same locks and keys probably means they can be procured consistently from a few sources and more economically. As a consequence, all of the keys may appear indistinguishable from each other, making it harder to associate them to a specific room. What could be done to distinguish the keys from each other? Perhaps each one could be colored differently, with the keys either having a different color or attached to keycaps or keychains in varying colours?

● *F059. Master keys are used when keys are lost (master keys).* When are master keys used over spare keys? If the maintenance staff have both master and spare keys, then they can open rooms without possession of the spare keys. If a key cannot be found, and the only way to open or close the room is by contacting the maintenance staff, could the spare keys be with other individuals in the building such as receptionists? What criteria is used to decide when to use the master keys over the spare keys? Master keys probably need to be stored more securely than the spare keys, so the receptionist can be the 1st line of defense with the maintenance staff could be the final line of defense with the master keys? As the usage of spare and master keys is an intervention when the usual keys can't be found, they should always remain in responsible custody.

● *F060. Tendency to lose keys frequently (keys lost).* Do keys get lost once a day, once every week, or once every month? What is the last time a key got lost? How soon after a key was lost did the receptionist or maintenance staff learn about it? How was it established that the key was definitely lost? How are lost keys reported? Is it the responsibility of the last meeting room user to notify the building staff (facility managers, receptionist, maintenance staff) or the meeting room user unable to use the room? Do most people know what to do when a key is lost? What do people typically do when a key is lost? What happened the last time a key was lost?

F061. Tendency for keys to be small (small keys). Small keys are compact and easy to transport and store, but they are also easy to lose. Although the keys may be small, they could be attached to a larger keychain. Is it so important to use keys? How about keycard systems, or remotely opened keys? Is the building open to the extra expenditure that will be incurred by the installation of such a system? While keycard systems do not necessarily reduce the loss of keys, re-keying is easier with keycards.

F062. Tendency for keys to be indistinguishable (indistinct keys). Keys could be distinguished on the basis of attaching them to different keycaps or keychains. Keys need to be distinguished from each other because they open different rooms. The keychains or keycap attached to each key could have a link to the room, such as the room's name being on the keychain. This may compromise security if the key is lost, especially as someone with the intent of conducting theft will know exactly which room the key opens.

F063. Frequent replacement of locks (replace locks). Are locks replaced or are they re-keyed? Who does the replacing or re-keying of the locks? Is it the maintenance staff or is a specialist locksmith called to replace the locks? If locks need to be frequently replaced, then it might be worthwhile to invest in re-keyable locks, where the same lock can be reused with new keys.

F064. Desire for key possession not to be compromised (comprise keys). With so many people, key possession is bound to compromised. When key possession is compromised, keys must be easily found, identified, and returned. Keys to meeting rooms must appear distinct from all other keys, such as the personal keys of other office-goers. Decorative themes can be used to create associations between the keychains and rooms.

F065. Frequent issues configuring display equipment (configure displays). What sort of computers do most of the individuals in the office use? Are the computers supported by people who also work in the building? Would it be possible to pre-configure the computers to work well with the display equpiment? Or perhaps provide instructions for the most common configurations in the meeting rooms with the display equipment?

F066. Tendency to be politically correct with Consultants (politically correct). If meeting room users and others in the building perceive a firm divide between the Consultants and themselves, will they be open about sharing experiences and contributing their ideas on effective practices? The extent to which they are open probably depends upon cultural parameters, but they probably would not be as open as they could be if they perceive such a divide in any culture. With whom would these indviduals be the most comfortable sharing their real experiences in using meeting rooms? Probably other individuals that they perceive to be going through what they are experiencing? Perhaps it is important that the Consultants are perceived as being just another group of meeting room users? What if the Consultants experienced what it means to be a meeting room user by just trying to use the rooms themselves? One of the criteria for success for the Consultants is that they understand, and are able to explain, what really happens in the building around meeting room usage.

F067. Perception of Consultants as being expensive (expensive consultants). Consultants are usually engaged to come up with solutions when the existing people in an organization or space have been able to do so themselves. They are perceived as expensive if they are unable to sufficient value for the rates they charge. Consultants should ideally generate more value what they've charged, but the perception of what is valuable and what isn't can vary. Even when Consultants provide valuable solutions, it can be difficult to distinguish which solutions the Consultants genuinely helped realize. If the result of the exercise is a big report, it's unlikely anyone will read it. Conversely, if the result is a presentation summarizing the recommendations, it's unlikely that everyone will be able to correlate the summary with the actual solutions that must be practiced. One of the criteria for success should be that the solutions are provided in a form that summarizes in sufficient texture, and progressively reveals more to those who want to delve deeper.

F068. Perception of Consultant solutions as poor value (poor value consultants). Solutions with poor value either work badly when implemented or are never implemented beyond a paper exercise. The best solutions are undone by poor implementations. Solutions for meeting rooms will be perceived as being effective when usage becomes easier and hassle-free for everyone in the building. A criteria for success should be that the solutions are easy to understand and practice for the meeting room users.

F069. Tendency for consultant's solutions to deteriorate after they leave (solutions fall apart). If the behaviour and practices regress to how things used to be before the Consultants were engaged, then the Solutions were never provided in a form that ensured sustainability or continuity. A criteria for the success should be that the solutions get better with usage.

F070. Consultant's solutions often require more consultants (more consultants). The best Consultants work to make themselves redundant, and hopefully most Consultants will try live up to this ideal. In order to ensure that the Consultants maximize the value of their customer before their own, a criteria for success can be that the solutions be applied, developed, and practiced without the involvement of Consultants before their engagement is complete.

F071. Building is occupied by independent companies (independent companies). Independent companies would imply that the organizations in the building are not bound by commercial relationships with each other. To what extent are the companies in the building reliant on business from each other? Are some companies more influential than others, either because they generate more revenue or others are rely on them for their revenue?

F072. Poor meeting room solutions cause tenants leaving (tenants leave). Do tenants leave because their usage of the meeting rooms are unsatisfactory or is it because of the poor availability of the meeting rooms given the high numbers of users? What sort of buildings do the tenants go to after they leave? What sort of meeting room solutions do those buildings have? Are poor meeting rooms solutions the primary reasons they leave?

F073. Prevalence of competitive office property market (competitive market). If there is more supply than demand when it comes to office spaces, then the companies in the building would be able to find other office spaces that promise better amenities and solutions easily. What induces a company to stay in the office beyond the amount of space and how easily they can get access to facilities like the meeting room? How big are the individual companies, and to what extent do they have common interests? Do these companies tolerate each other's presence, or do they work together on joint initiatives?

F074. Caution of unfamiliar methods (unfamiliar methods). There are many methods to understand a complex set of problems and craft a set of solutions to resolve those problems. What methods have been applied before in trying to understand the problems around meeting room usage? What solutions were suggested in the past, and what worked well and didn't? A method provides little more than the means to solve a complex problem, and even the best methods, when poorly applied, generate poor results. If a new method requires deep expertise before it can be applied, then the method generates a high scale of induced complexity. Methods that can be progressively applied with varying level of expertise with progressive improvements in the quality of the comprehension, analysis, and solutions are more prone to success.

F075. Tendency not to be open to Consultants (closed to consultants). What sort of consultants were engaged before? What did they produce? Which of their solutions are still being applied and which aren't? If Consultants haven't been open themselves in the past, there is little reason to be open to new Consultants. A solution would be for this exercise to be completely open to all of the people in the building for participation in terms of comprehension, analysis, and solutions realization.

F076. Tendency to provide partial stories to Consultants (partial stories). How can we judge if a story being provided to us is complete or partial? What part of the story is being told to us and what is being left out? Or indeed, whether it is even true? A solution is to ask the permission of the person telling the story if they would give us permission to record the story. If there is flat out refusal, it may be because the story is sensitive, untrue to some extent, or partially being told to us. This may be a story that we then verify with others by asking if they had similar experiences.

F077. Perception that Consultants don't credit their sources (no credit to source). People often value their ideas, and feel disappointed when others take credit for them. A solution would be to make the process of story collection and solution attribution a completely transparent one, where all meeting room users and building occupants will be able to access, view, and edit their stories and solutions.

F078. Experienced consultants often know many methods (know many methods). Do Consultants have an equal amount of familiarity with all the methods they know, such as Value Chain Analysis, Strategy Maps, and Balanced Scorecards? How compatible are the methods with each other? How do the Clients of a Consultant know that the best method is being selected for the purpose, rather than being subject to a Consultant's personal reasons for selecting a method?

F079. Preference of using some methods over others (preferred methods). What are the reasons for a Consultant selecting some methods over others? Are the trade-offs for each methods clearly understood by the Consultant and the Client? A solution could be to have a trade-off for each method, and then provide rationale to Client on the best set of applicable methods.

F080. Some methods work better together than others (methods together). Do the same methods always work well together in all situations? Under what circumstances do some methods have more affinity with other methods? Methods from the same paradigm usually complement each other much better than methods from different paradigms. There is a risk that a mix of pre-combined methods may not always be collectively applicable for all situations. A solution could be to make an analysis of how these methods compliment each other and don't.

F081. Tendency to learn new methods using existing ones (new method old way). New methods can be learned using the knowledge of older methods as long as they stem from the same paradigm. Learning a new method from an older and incommensurate paradigm means that the understanding of the new method will be limited to what the older paradigm permits.
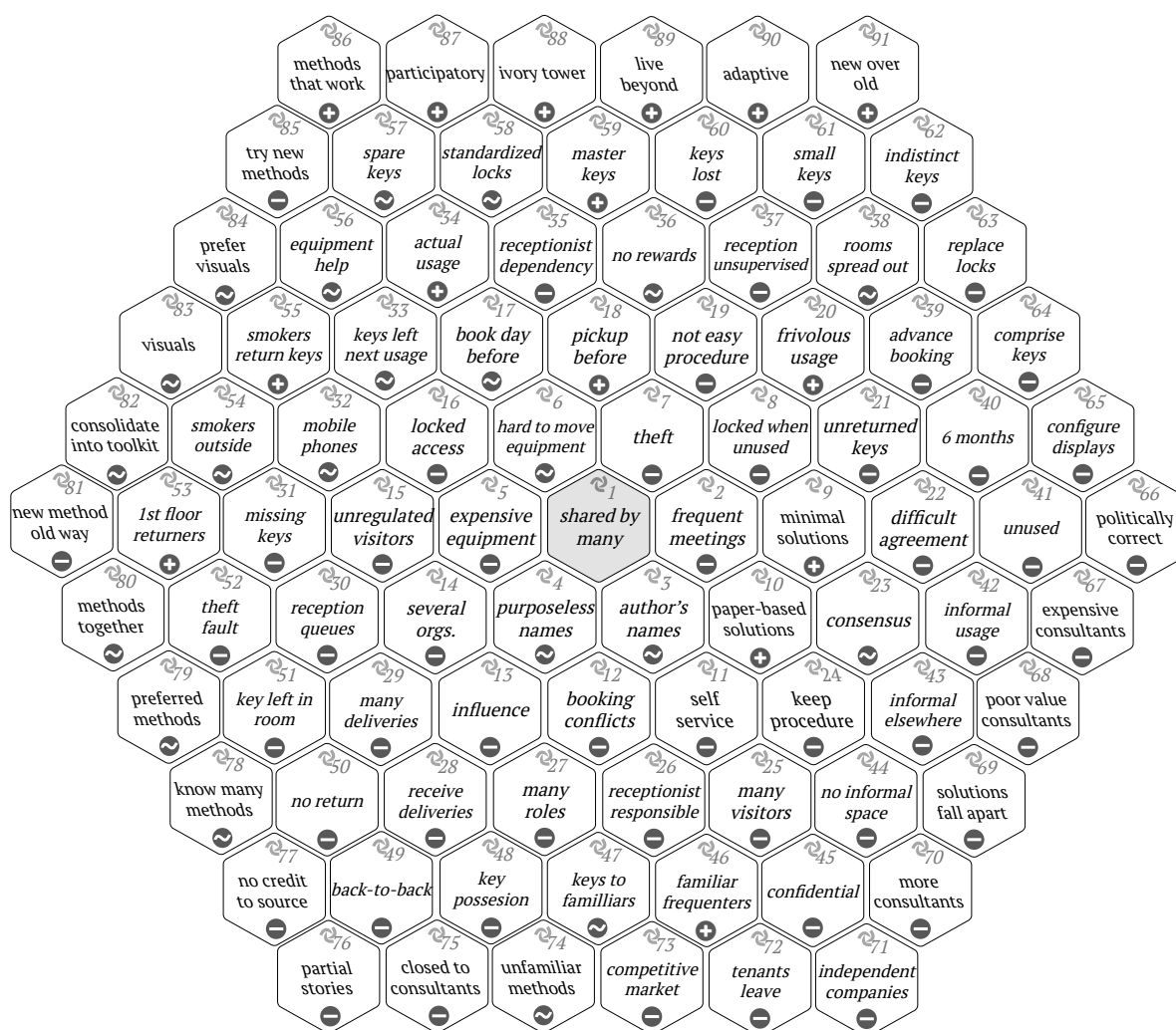
F082. Consultants often consolidate methods into toolkits (consolidate into toolkit). What form do the toolkits usually take? Are these guides on best practices, collections of methods, or a collection of document templates? While reuse of stable practices and templates can save time, they can also impose solutions and ideas where they aren't necessarily applicable. On the other hand, evaluating a toolkit for all its constituent parts defeats the very purpose of having a toolkit. As a minimalist solution, a toolkit could contain some examples of applicability, and leave it to the Consultant and Client to judge applicability.

F083. Desire to use visualizations (visuals). Explanations can be made with pictures, words, or combinations of both. Murals can tell stories only with pictures. Comics use combine pictures and words to tell stories. And novels use only words to tell a story. Although popular culture would have that "a picture is worth a thousand words", it would also imply, as John McCarthy pointed out, "1001 words is worth more than a picture." Words or pictures are only as effective as the person that communicates them. When communicating with a large audience with a passing interest in the problem, visualizations can be used to attract attention and highlight commonly understood situations. Innovative solutions that do not bear a resemblance to existing solutions or practices often require more than visualizations.

F084. Tendency of audiences to prefer visualizations (prefer visuals). How many members of the audience have a real interest in understanding the situation and solutions for meeting rooms given that there are so many meeting room users and all of them are part of that audience? Is the purpose of a visualization to engage or inform members of the audience? An individual with a passing interest may not want to spend too much time trying to understand an artifact, pressing the case for having more pictures than words. On the other hand, establishing a context that is not commonly understood would require a lot of pictures or words. A solution would be to have both pictures and words available for different audiences, and to permit audience members to choose their balance of pictures and words depending on the scale and medium of interest. How do we account for the different scale of interest? A meeting room user, for instance, can have a lot of valuable input for both situations and solutions, but may not have formal time to allocate into a research exercise. How can members of the audience who only have a passing interest be enticed to develop an active and participatory interest? What if the visualizations could both inform and engage? In that case, perhaps the visualizations would permit access, contribution, and attribution for anyone who would be interested in situations and solutions for meeting room usage? This would probably help artifacts become more than temporary entertainment value and become sustainable, living, and evolving artifacts.

F085. Desire to try out newly learned methods in practice (try new methods). We cannot become better at a method until we practice it, and the first time we practice it will probably yield our worst results. When does a method require genuine application, and when does it become an imposition because of its novelty? Consultants and Customers should be able to work on a foundation of trust, and being the an unwilling or uninformed guinea pig doesn't usually contribute to those foundations. Consultants should be able to rationalize the application of any method regardless of their familiarity with it, and be open about their familiarity with the method. The application of a method should not hinge around the Consultant's familiarity with it, and Customers should not use a Consultant's familiarity of a method as a bargaining chip.

F086. Desire to only try out methods that truly work (methods that work). What is the criteria for applying a method? Do all methods work well in all situations? How can Consultants gauge which methods work well in which situations? Given that a lot of people use the meeting rooms, and that the selected methods will be tried out on a large-scale, it's important to select the most applicable set from the start. Therefore some time should be taken before the assignment starts to select the most applicable set of methods.

F087. Desire to create participatory solutions (participatory). Given the high number of meeting room users, it's very probable that there is a high scale of complexity, several insights into that complexity, several stories around meeting room usage, and some solutions that are actively practiced without being completely transparent. It's therefore important to create a transparent structure where all meeting room users and administrators can access and contribute stories and solutions.

F088. Aversion of being seen as an ivory tower consultant (ivory tower). The perception of someone preaching from an Ivory Tower usually occurs when solutions are shaped without the involvement of those who must live with those solutions. It also tends to occur when consultants engage with values, concepts, and terminology not practiced by their customers or people who must live with their solutions. A solution might be for consultants to first spend time understanding the style of a workplace in terms of culture, value systems, conceptual structures, and terminology, and adapt their work to that style.

F089. Desire for solutions that live beyond engagements (live beyond). When solutions require dedicated specialists to sustain them, and it takes significant effort to establish and sustain that specialization, it's highly probable that those solutions will deteriorate if there aren't formalisms in place to sustain the solutions. Therefore new solutions should ensure that their adoption and sustenance is possible without specialization or dedicated personnel. Ideally, these solutions should be sustained in the course of meeting room usage.

F090. Desire for solutions that adapt with change (adaptive). People and the organizations they work for will leave and join the building. The nature of their work may be prone to change, and the building may face new situations they have not encountered before. It is also difficult to predict the nature of change before it happens. Solutions that require formal governance, complex change management, and administration or other overhead are not adaptive by design. At the same time, if solutions are too adaptive, they tend to lack form and appear chaotic. Therefore solutions must strike a balance between resilience and adaptability.

F091. Desire to work on new challenges over old ones (new over old). Consultants may not always be able to choose the exact nature of their next assignment. Most clients tend to hire people based on what they have been doing in the past, and not what they would want to do next. A good way to demonstrate versatility to potential clients is focusing on abilities in applying a method in a range of situations or industries rather than being a specialist in a single situation or industry.

Hexagon grid of forces:

- 86 methods that work
- 87 participatory
- 88 ivory tower
- 89 live beyond
- 90 adaptive
- 91 new over old
- 85 try new methods
- 57 spare keys
- 58 standardized locks
- 59 master keys
- 60 keys lost
- 61 small keys
- 62 indistinct keys
- 84 prefer visuals
- 56 equipment help
- 34 actual usage
- 35 receptionist dependency
- 36 no rewards
- 37 reception unsupervised
- 38 rooms spread out
- 63 replace locks
- 83 visuals
- 55 smokers return keys
- 33 keys left next usage
- 17 book day before
- 18 pickup before
- 19 not easy procedure
- 20 frivolous usage
- 39 advance booking
- 64 comprise keys
- 82 consolidate into toolkit
- 54 smokers outside
- 32 mobile phones
- 16 locked access
- 6 hard to move equipment
- 7 theft
- 8 locked when unused
- 21 unreturned keys
- 40 6 months
- 65 configure displays
- 81 new method old way
- 53 1st floor returners
- 31 missing keys
- 15 unregulated visitors
- 5 expensive equipment
- 1 shared by many
- 2 frequent meetings
- 9 minimal solutions
- 22 difficult agreement
- 41 unused
- 66 politically correct
- 80 methods together
- 52 theft fault
- 30 reception queues
- 14 several orgs.
- 4 purposeless names
- 3 author's names
- 10 paper-based solutions
- 23 consensus
- 42 informal usage
- 67 expensive consultants
- 79 preferred methods
- 51 key left in room
- 29 many deliveries
- 13 influence
- 12 booking conflicts
- 11 self service
- 2A keep procedure
- 43 informal elsewhere
- 68 poor value consultants
- 78 know many methods
- 50 no return
- 28 receive deliveries
- 27 many roles
- 26 receptionist responsible
- 25 many visitors
- 44 no informal space
- 69 solutions fall apart
- 77 no credit to source
- 49 back-to-back
- 48 key possession
- 47 keys to familliars
- 46 familiar frequenters
- 45 confidential
- 70 more consultants
- 76 partial stories
- 75 closed to consultants
- 74 unfamiliar methods
- 73 competitive market
- 72 tenants leave
- 71 independent companies

The interplay between F001 and all of the other forces can be visualized by drawing lines between them, and indicating the parity (positive, negative, or neutral) on these lines. The solution of drawing lines between entities to indicate their relationship starts producing induced complexity as the volume of lines increase, and the diagram becomes difficult to understand as it becomes harder and harder to trace lines. An alternative is to visualize the relationships in a hexagon grid, one of the most efficient ways to fill space.

By understanding force interactions between 2 forces at a time, it is possible to get a feeling of how each force manifests itself in terms of another force. By incrementally analyzing and understanding interactions between 2 forces, it gradually becomes possible to understand a interactions between several forces simultaneously. Through understanding how a single force interacts with 90 others, it is possible to develop an adequate feeling of all of the forces. This feeling, however, can be fleeting and transient, especially if the analyst starts doing something completely different and starts experiencing different things. In order to

develop a fresh feeling, it's advisable to take another force, and examine that particular force's interactions with all of the other forces. As the analyst develops a refined feeling for the space, their sensitivity for understanding necessary texture and coverage in stories, missing or incorrect forces, and balanced solutions also increases. It is important not to practice Embodied Making as a discrete process bounded by the strict steps of getting as many stories as possible, thoroughness in deriving forces, and only then thinking of solutions. It is important to work progressively on stories, forces, and solutions simultaneously.
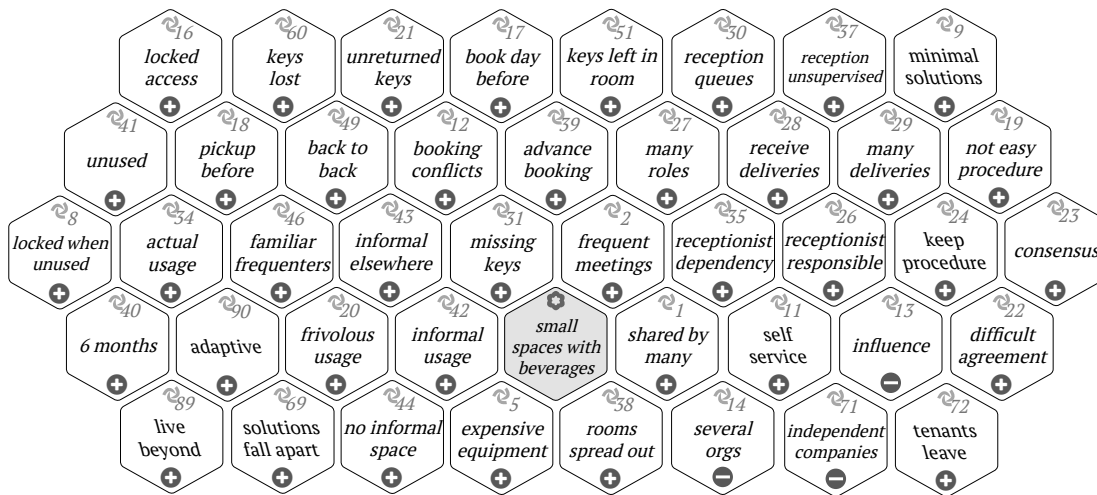
DERIVING SOLUTIONS

Through our understanding of the force interations, we were able to derive several solutions while trying to develop a feeling of the forces. The solutions were mostly rough ideas at best, and in many cases, were formulated as questions of whether a solution could work or not or the goals of a solution. It is still not clear how the solutions will be practiced, whether they will work at all, and how they are related to each other.

Small spaces for informal discussions

Small spaces for informal discussions spread throughout the building, preferably with access to some beverages. Given that it would be expensive to staff each of these spaces, it would be preferable to have either fridges, coffee machines, or kettles that people can use to store and make beverages the way they wish, or to have vending machines that provide the beverages in a standardized way. Given the tendency for theft, it may be required to secure the coffee machines or kettles, which would make the solutions for vending machines more attractive. On the other hand, small kitchens where people can have their own equipment would personalize the space, but then they would still need more space for conducting the meetings. The kitchens might be good solutions for people making their own food, but do not solve the need for informal meeting spaces. Therefore the solution is to provide small spaces spread throughout the building with access to beverages. Whether beverages should be dispensed by vending machines or made by the people themselves depends on other stories and forces we have yet to consider. We could structure this as two solutions, where the first would be "small spaces spread out over the building" and the second would be "access to beverages". But these two solutions would always work well together, so it would be better to combine them into a single solution. Therefore we can structure this solution as "small spaces spread out over the building with access to beverages", which we can call "**small spaces with beverages**" for brevity. How well does this solution resolve the forces we identified earlier?

"Small spaces with beverages" helps positively resolve the following forces. *Shared by many, frequent meetings, expensive equipment, theft, locked when unused,* minimal solutions, self-service, *booking conflicts, locked access, book day before, pickup before, not easy procedure, frivolous usage, unreturned keys, difficult agreement, consensus,* keep procedure, *receptionist responsible, many roles, receive deliveries, many deliveries, reception queues, missing keys, keys left next usage, actual usage, receptionist dependency, reception unsupervised, rooms spread out, advance booking, 6 months, unused, informal usage, informal elsewhere, no informal space, familiar frequenters, back-to-back, keys left in room, keys lost, solutions fall apart, tenants leave,* live beyond, & adaptive: When many people share an office, they interact in different ways. Creating a small space where small groups of people can interact without bothering others requires lowers the usage of meeting rooms. As they won't be using meeting rooms, the booking procedure and the receptionists will not be bothered. It is possible that the voices of people speaking to each other could bother others, and even more so if they do not find the conversation relevant or important. It might therefore help to make these small spaces enclosed without making them feel congested, making the solution "**enclosed cozy spaces with beverages**".

"Enclosed cozy spaces with beverages" conflicts or isn't able to positively resolve the following forces. *Influence, several orgs* & *independent companies*: It may become possible that influential individuals or companies in the building get more frequent access to meeting rooms than other individuals or companies. One way to prevent such bias is to ensure that meeting room usage is transparent to all.

| 16 locked access | 60 keys lost | 21 unreturned keys | 17 book day before | 51 keys left in room | 30 reception queues | 37 reception unsupervised | 9 minimal solutions |

The hexagonal diagram contains the following cells:

Row 1: 16 locked access ⊕ | 60 keys lost ⊕ | 21 unreturned keys ⊕ | 17 book day before ⊕ | 51 keys left in room ⊕ | 30 reception queues ⊕ | 37 reception unsupervised | 9 minimal solutions ⊕

Row 2: 41 unused | 18 pickup before ⊕ | 49 back to back | 12 booking conflicts ⊕ | 59 advance booking ⊕ | 27 many roles ⊕ | 28 receive deliveries ⊕ | 29 many deliveries ⊕ | 19 not easy procedure

Row 3: 8 locked when unused ⊕ | 54 actual usage ⊕ | 46 familiar frequenters ⊕ | 43 informal elsewhere ⊕ | 31 missing keys ⊕ | 2 frequent meetings ⊕ | 35 receptionist dependency ⊕ | 26 receptionist responsible ⊕ | 24 keep procedure ⊕ | 23 consensus ⊕

Row 4: 40 6 months ⊕ | 90 adaptive ⊕ | 20 frivolous usage ⊕ | 42 informal usage ⊕ | ⚙ small spaces with beverages | 1 shared by many ⊕ | 11 self service ⊕ | 13 influence ⊖ | 22 difficult agreement ⊕

Row 5: 89 live beyond ⊕ | 69 solutions fall apart ⊕ | 44 no informal space ⊕ | 5 expensive equipment ⊕ | 38 rooms spread out ⊕ | 14 several orgs ⊖ | 71 independent companies ⊖ | 72 tenants leave

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Meeting rooms have concise, meaningful, and memorable names using a common theme or metaphor. This theme or metaphor should provide space to name rooms after their characteristics (their size or features)or position in the building (making them easier to find). For example, if we named the rooms using the theme of a ship, the rooms in the building could have names like gangway, upper deck, stern, galley, and cockpit. We could call this solution "**meaningful room names**".

C03. Solutions can range from fixing the equipment to the room where possible, protective casing, tying the parts that get lost such as the remote control with cabling to furniture, locking the door to the meeting rooms after usage (if theft has occured in the past), setting the most frequently used configuration as the default on the equipment, and providing instructions for other frequenlty used configurations on paper or some other medium. Ther

INTERPURPOSING SOLUTIONS

C01. What metaphor could we apply to capture the essence of a space where people return frequently during the course of a day to meet each other and enjoy nourishment? A watering hole is a space where different animals come to drink, and both solutions could be combined as "**scattered watering holes**".

DERIVING PATTERNS

C01. What metaphor could we apply to capture the essence of a space where people return frequently during the course of a day to meet each other and enjoy nourishment? A watering hole is a space where different animals come to drink, and both solutions could be combined as "**scattered watering holes**".

PATTERN LANGUAGES