

# The Analogy Of Orchestration In Systemic Co-Design

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Systemic design often deals with engaging and guiding ecosystems of people and organisations in a complex innovation process of systemic change. The act of directing, coordinating, managing and organising this process is often referred to as orchestration (Bason, 2018; Lingens, Huber & Gassmann, 2022). Systemic design professionals in various fields regularly refer to their profession on platforms like LinkedIn as orchestrators in combination with their field, for example, innovation orchestrators, transition orchestrators and value stream orchestrators.

Two of the authors have professional experience in music. They mentioned that in music, orchestration refers to assigning instruments to different parts of a musical work to be played by an orchestra. For them, connecting the term orchestrator to the various systemic design activities was not self-evident.

This paper aims to shed further light on the analogy of the from origin music term orchestration in systemic design. Following the analogical thinking process as described by Holyoak (2012), we first identify the target practice (what do systemic design orchestrators do?), for which we researched literature where orchestration is described in a non-music way, we sent out a questionnaire, and did four interviews with systemic design orchestrators, plus three interviews with authors that were referred via the survey (Berkers, 2023; Kerstens, 2024; Van Arkel, 2024).

Secondly, we describe the source practice of music orchestration based on a podcast interview with a music orchestrator and our own professional music

expertise. Finally, we explore the mapping of the source onto the target practice and critically analyse the extent of the fit, as well as what the analogy can teach us about the practice of systemic design orchestrators.

As a first insight, systemic design orchestrators describe their practice as a combination of various roles in music, such as the composer, the arranger, the orchestrator, and the conductor, rather than the role of an orchestrator alone. We give possible next steps to enrich the practice of a non-music orchestrator by diving deeper into the analogy of music beyond classical music and the orchestra.

KEYWORDS: orchestration, systemic design roles, analogies

RSD TOPIC(S): Cases & Practice, Methods & Methodology

#### Introduction

When people work together, they often use music terms like:

"Let's rock this" or "Are we in sync?" "I noticed a pattern", "Let's jam about this". "What is the tone of voice?" "We have to find the right rhythm, the right cadence". "Who is playing second fiddle?" "He is riffing on a theme". "Can we improvise on that?" "Does this resonate?" "Let's pull all the stops". "We should make a remix of all this, and orchestrate it".

There is an intuitive relationship between people, the dynamics of working together, and music. It is helpful to examine the analogy more closely.

Systemic design often deals with engaging and guiding ecosystems of people and organisations in a complex innovation process of systemic change. Directing, coordinating, managing and organising this process is often called orchestration (Bason 2018; Lingens, Huber & Gassmann, 2022).

In recent years, the term orchestration has been used in various contexts beyond music alone. Systemic design professionals in multiple fields regularly refer to their profession on platforms like LinkedIn as orchestrators in combination with their field, for example, innovation orchestrators, transition orchestrators and value stream orchestrators.

3

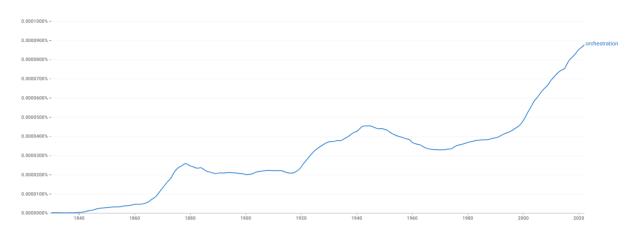


Figure 1: Google Books Ngram Viewer: Usage frequency of orchestration over time

Why is that so, and what are non-music orchestrators doing when they say they are orchestrating? What dominant patterns occur, and how does the analogy with the music field help them solve their challenges?

This paper aims to shed further light on what we can learn from the analogy of the from-origin music term orchestration in systemic design.

Two authors have a professional music background; one is an instrumentalist in an orchestra, and the other is a musicologist, improviser and author of Music Thinking (Zürn, 2022). Another author is the founder and trainer of innovating orchestration, an approach for establishing strategic public-private innovation networks. A 6-day course establishes a community of over 250 innovation orchestrators.

# **Analogy as a Method**

This study employs an analogical thinking process, following Holyoak (2012), as a guiding framework to explore the research questions.

The first step involved identifying the 'target' practice: the roles and activities of systemic design orchestrators working outside the music domain. This was achieved through a literature review of non-musical orchestration (detailed in the following subsection) and empirical data collection via questionnaires and four interviews with

professionals identifying as orchestrators (such as innovation orchestrators). The findings from this step, identify key patterns of non-music orchestrators. The second step focused on elaborating the 'source' practice: the roles and activities within music orchestration. Data for this step was primarily gathered through a podcast interview with a professional music orchestrator. The final step involved mapping the source practice onto the target practice by means of a comparative analysis and mapping of roles and activities.

## What does the literature say?

The literature is not clear whether orchestration is a role (Kerstens, 2025) or a competence (Tromp & Van Arkel, 2024); the former sees it as one of the seven roles of an innovation intermediary and the latter as one of the four competencies of a designer.

"Orchestration has proven to be a very fruitful term to use when we try to understand the networked collaborative . . . development. . . . But it is not an easy term to use. It is not a clear process that can be explained in a diagram — Orchestration is an activity that consists of several other, related activities . . . ". (Raijmakers, Vervloed & Wierda, 2015).

Further, we found literature from an educational perspective that defines orchestrator as a role (Frederik, 2023; Drivers et al., 2010; Hordvik et al., 2023) and from an ecosystem perspective where the orchestrator is described as a 'focal firm' (Lingens, Huber & Gassmann, 2022), a company that acts in an ecosystem with other companies.

There is no single definition of orchestration outside of music that covers all the use cases where orchestration is used. Many also state that the term is vague, undefined and needs more research (Lingens, Huber & Gassmann, 2022; Tromp & Van Arkel, 2024).

## **Survey and interviews**

Parallel to the literature study, a call for orchestrators was sent out via LinkedIn, supplemented by a search for profiles containing the word "orchestration" or

"orchestrator". This process identified professionals with a wide range of titles, such as AI orchestrator, cloud orchestrator, data orchestrator, circular economy orchestrator, value stream orchestrator, design orchestrator, and innovation orchestrator.

The survey was hosted in Microsoft Forms. The first questions were designed to get more information about the practice, industry, and how respondents chose their title, followed by three questions about music to understand their level of knowledge and musical preferences. The survey ended with the question of whether the person would be open to an online interview of about 30 to 45 minutes. Interview respondents were subsequently recruited via the survey, direct contact on LinkedIn, and referrals. All data was imported into Atlas.ti (in total 29 documents, 126 codes and 353 quotations).

#### Survey questions

- 1. Describe how the term orchestration/orchestrator is used in your practice and/or industry. Please elaborate here in more than one sentence.
- 2. Please pick your industry (if your industry is not on the list, pick the one closest or share in the comments below).
- 3. Have you used orchestrator, orchestration or a similar term in one of your job titles or job descriptions? What is (or was) the exact title?
- 4. Did you choose the title or description by yourself? If yes, please explain why. If not, who chose the title?
- 5. Was the title part of the job description? If yes, please share the description.
- 6. How do you describe your orchestration work to others? What do you do, and how?
- 7. Do you have a tip, website or person we should contact to get a deeper understanding of orchestration, how you understand, and how you use it?
- 8. Did you ever make the connection between music and what you are doing?
- 9. What is your relation with music?
- 10. What genres do you prefer in music? Please name all that apply.
- 11. Do you play an instrument? Tell us something about it.

We asked respondents how they got their title. For some of them the title was already defined in their job description, as some organisations are actively recruiting using the job title. Other respondents said they have taken a course or training in orchestration before adopting the description. Other respondents have chosen the title in the lack of a better term to cover all the different activities they are doing, and one used AI to find a catch-all term: "... it's hard to capture my job with one title, so I discussed it with ChatGPT, who helped me."

Furthermore, some people use orchestrator in combination with other similar or complementary terms such as impact maker, capacity builder, strategy consultant, and bridge builder.

In the end, 12 people completed the questionnaire. Their working field was innovation, design, circular economy, business, and sales.

We asked them to define orchestration in the way they use it in their business; here are some definitions:

- Someone who can build a network and operate it in such a way that the intended collaboration, the learning community, and the ecosystem can work together in optimum form.
- To set up collaborations where public & private organisations want to participate and invest in working on one or more innovations or a fertile ground for innovation in light of a common (societal) mission.
- I help people move from their local optimums to a more regionally, nationally or globally optimised situation. Focusing on how we bring new innovations to the market.
- We play a central and pivotal role in breaking down silos between different departments or teams and use 'orchestration' as a way to describe how we get them to work together for a common purpose or outcome.
- Orchestration of innovation is the practice of managing and coordinating the alignment between different teams, processes and technologies.

These definitions have in common the depiction of the non-music orchestrator as a facilitator of collaborative ecosystems, driving complex, often societal, goals. This role emphasises integration and alignment across diverse stakeholders, fostering innovation

through strategic organisation and coordination of multiple tasks. The orchestrator's function optimises systemic performance by creating conditions for collective action rather than directly generating outcomes.

For now, we can state that this parallels, yet diverges from, the music orchestrator. While both coordinate diverse elements for a unified output, the non-music orchestrator primarily focuses on enabling collaborative processes and ecosystem development rather than directly creating a singular, artistic product.

#### **Target practice - Main patterns of non-music orchestrators**

After collecting and analysing the data from the literature, the survey and the interviews, we identified three main themes: Multi-dimensionality, Leading and giving directions, and Change and Dynamics.

### **Multi-dimensionality**

The multidimensional theme is prominent in many data points, including words like multi-stakeholder, multi-perspective, multi-disciplinary, multiple skills, and multiple interventions, describing what an orchestrator does. This multi-prefix indicates the complexity and heterogeneity of different relations in the system of mutual collaboration. As one respondent noted, "So it's about, you know, bringing a group, usually multi-stakeholder, multidisciplinary, together and managing that, which you can do, for instance, through design objects. But it's also, in a way, orchestrating multiple interventions at the same time".

In that sense, (non-music) orchestration is the universal symbolic expression of the interconnected force of everything in and around an orchestra (or any other ensemble) that makes the performance work.

#### Leading and giving directions

In many descriptions of a leadership role, steering process, and control mechanisms, the conductor was associated with a positive connotation, in the sense that a responsible element was felt to be necessary for bringing everything together to a positive outcome. When describing what an orchestrator does, a conductor's role was often intended and sometimes literally named (although wrongly explained): "Orchestrating a network like a conductor guides an orchestra".

The role of the conductor was by far the most named term. Negative, in the sense that the conductor is a visible figure with an often authoritative connotation and the impression that this leadership style is outdated and too centralised to one person: "Most of the time, the conductor role is NOT what we want to broadcast".

One orchestrator explained: "The problem with the conductor analogy is that it is a single person. That's also the tension between the one designer doing it all versus genuinely being a multi-stakeholder process. And I think the term orchestration has more dimensions than just conducting because that's very much about steering".

## Change and Dynamics

The theme of change and dynamics is hidden in many patterns that we have found, such as dynamic and complex, orchestrating change and improvisation. This links with the multi-dimensionality and the ambiguity of the conductor role in the sense that non-music orchestration happens in a changing dynamic environment with many elements that are not predictable and need a kind of adjustment on all levels. Orchestrators often refer to wicked problems to describe their contexts. This is in contrast to the classical orchestra, where everything is fixed, and most effort is made to execute the idea of a composer.

The unpredictability and changeability of many elements like players, relations and conditions lead away from the classical- everything is precisely written down in the score - execution type of music. One of the interviewees mentioned: "We always improvise in every given situation, and if that sticks, you know we learn from that, then we do it differently. But of course, there is always this element of control in the design process. So it's not a fully open improvisation.... I think an interesting way to approach

these kinds of processes, a sort of added experimental component of design, is, of course, a sort of guided improvisation."

When asked actively about improvisation, nearly all interviewees answered, "Yes, constantly!" Improvisation is directly and indirectly named. This makes sense because leading and giving direction in an unpredictable, multi-dimensional environment needs a flexible and dynamic component.

But, similar to the conductor perception, improvisation also has a negative connotation for some interviewees: "So it is always control instead of play; it is orchestrating instead of improvisation. No world yet exists where improvisation, play, liveliness, or experimentation is valued enough to finance such projects".

Unlike the knowledge of classical music, most interviewees have listening experience of improvised music, whether it is rock, traditional, experimental music or jazz. One mentioned that "improvisation is based on excellent preparation. You need to master the path and the rules. To make a good improvisation".

#### Source practice - the music orchestrator

We made and analysed a podcast episode of The Power of Music Thinking podcast (Zürn, 2025) with a music orchestrator whom we also contacted via LinkedIn. We asked him about his work as an orchestrator for pop musicians like Anastasia or Chaka Kahn, his work for film and games and how this differs from the traditional orchestrator in classical music. He summarises all the aspects of an orchestrator, including the composer, arranger, and conductor. In the interview we allowed our own experience and knowledge into the conversation, leading to collective insights. Finally, we asked him how this might relate to non-music orchestration.

#### The Role of the Music Orchestrator

The orchestrator's primary function is to translate a composer's musical idea into a playable score for an orchestra. This process involves taking the composer's input, ranging from a basic piano sketch to a highly produced demo using a Digital Audio Workstation (DAW), and adapting it for instrumentalists who play from a score during a

live performance. A crucial aspect involves understanding instrumental limitations and possibilities, ensuring parts are within playable ranges, allowing sufficient time for wind players to breathe, and balancing the instruments effectively. A significant challenge in modern film scoring is the pressure from production entities (directors, producers) for the final live orchestra recording to mimic the composer's initial sample-based demo closely. Managing expectations regarding the sound achievable with specific live ensembles and recording environments versus high-end sample libraries is also crucial. The orchestrator's goal is to remain faithful to the composer's presumed vision, acting as a craftsperson executing it rather than imposing their own compositional ideas.

#### Distinctions Between Composer, Arranger, Orchestrator, and Conductor

The interviewee outlined the following roles: The composer creates the original musical ideas. The orchestrator translates these ideas for the orchestra, focusing on instrumentation and playability without adding new compositional content. The arranger occupies a middle ground, transforming existing material by adding elements like introductions or bridges, reharmonising sections, or changing the style or time signature; this involves more creative input than just orchestration.

The conductor's role varies significantly between contexts. In classical concerts, the conductor often holds considerable interpretive and creative authority, shaping the performance of (often historical) works. In film scoring sessions, however, the conductor's role is often more functional; they lead the orchestra precisely to a click track synchronised with the moving picture, while the primary creative decisions (dynamics, balance, interpretation) are made by the composer and communicated from the recording booth. The conductor serves as the immediate communication link to the musicians, efficiently addressing technical issues and maintaining morale, particularly in international recording sessions.

Historically, composition and orchestration were often inseparable tasks for musicians like Gustav Mahler, who was also a famous conductor in his time. He composed directly for the orchestra, working on every single instrument of the entire score. No extra orchestrator was needed.

The emergence of the specialised orchestrator role is linked to the high-volume demands of the early Hollywood studio system in the 20th century, where composers wrote rapidly on condensed "short scores," which orchestrators then expanded into full orchestral scores.

#### **Perspectives on Non-Music Orchestration**

When asked about the use of the term "orchestration" in business contexts (e.g., "design orchestration", "innovation orchestration"), the interviewee suggested a distinction based on his understanding of music roles. He perceives music orchestration primarily as a planning function – a craft determining how the composer's ideas will be realised with an orchestra. In contrast, he views the typical business usage of "orchestration" as encompassing the execution and coordination of different elements or people to achieve a goal. This, he argues, aligns more closely with the role of the music conductor, who actively directs and synthesises the efforts of the musicians during the execution phase. He proposed that a musician like Gustav Mahler or John Williams, who embodies the composer, orchestrator (in planning), and conductor (in execution) roles, might represent a more holistic analogy to the concept of orchestration as it is often employed in non-music fields.

To sum it up: "Music orchestration is just a part of what orchestrating in the business sense means. ... You would need to look at this more holistically if you wanted to find an analogy between the business orchestration term and the music orchestration term". (Zürn, 2025)

# Mapping roles and activities from source to target

Because of the nature of the source practice, where the orchestrator is more closely related to a role or an activity, and based on the interviewee's roles, we focus on innovation as a target to make a mapping between target and source activities. In the source, we added more roles, now expanding from the classical genre to other music practices, and distinguished between classical and modern composition.

Table 1 Basic mapping of music (source) to innovation (target) mentioned in research

|                       | SOURCE   |   | TARGET                                       |   |
|-----------------------|--|---|--|---|
|                       | MUSIC  | EXPLANATION   | INNOVATION                                   | EXPLANATION   |
| COMPOSER<br>CLASSICAL | Creator and<br>author of a<br>piece of<br>music  | The process of writing and rewriting a score  | Innovation<br>roadmap                        | Often, a guided participatory consensus process   |
| COMPOSER<br>MODERN    | Same as<br>above   | The process of creating music with software   | Innovation<br>modelling                      | Creating<br>simulations and<br>digital twinning   |
| ARRANGER              | Creator of additional and/or changed parts based on the original composition                             | Process of<br>translating<br>and/or adding<br>and/or re-<br>arranging and<br>crafting a score<br>for musicians to<br>play |  | This would align<br>more with tactical<br>practice, where<br>plans must be<br>adapted to local<br>circumstances   |
| ORCHES<br>TRATOR      | Translator of<br>the original<br>sketch or<br>music piece<br>for an<br>orchestra or<br>other<br>ensemble | Crafting a score<br>for musicians to<br>play in an<br>orchestra (or<br>other ensemble)                                    | Strategic operationalisation of the roadmap. | Ensures that parts of the roadmap are programmed as funded projects and committed by partners (private/public).   |
| CONDUCTOR             | Music coach,<br>team leader,<br>chief listener,<br>responsible<br>for the<br>creative<br>output          | Leading people<br>on all aspects of<br>a collective<br>performance of<br>the initial idea of<br>a composer.               | Team, people and community management        | Day to day,<br>ensuring that<br>innovation teams<br>are performing.<br>Identify things<br>are 'out of tune',<br>e.g., on basis of<br>progress<br>measurement. |

In addition to mapping the most prominent roles, we added more music related roles and made it possible to map it to innovation orchestration.

Table 2 Extra mapping of music (source) to innovation (target) not mentioned in research

|                       | SOURCE   |   | TARGET                  |  |
|-----------------------|--|---|-------------------------|--|
|                       | Music  | Explanation   | Innovation              | Explanation  |
| CONCERT<br>MASTER     | Leading player<br>and main nexus<br>between<br>conductor and<br>orchestra                          | Leads the violin section and coordinates with the other section leads.                                      | Figurehead              | Typically a well-<br>respected authority<br>who is able to<br>connect leading<br>organisations and<br>influence policy                                 |
| MUSICIAN              | Play<br>instruments in<br>the orchestra  | Doing the actual job of producing sound output  | Project team<br>members | A professional who is an expert in his own part  |
| RECORDING<br>ENGINEER | Responsible for<br>the technical<br>quality of the<br>recording                                    |   | Performing<br>analyses  | E.g., stakeholder<br>analysis, progress<br>monitoring,<br>ecosystem  |
| PRODUCER              | Responsible for<br>the creative,<br>technical and<br>marketable<br>outcome                         | Makes everything work for everyone connected with the creative process                                      | Orchestrator            | Role is often<br>associated with<br>orchestrators in the<br>sense of ensuring<br>the right pre-<br>conditions are met                                  |
| IMPROVISOR            | A player who collaborates with other players on a mutual level for a collective unplanned outcome. | Often active in different ensembles and constellations. Focus on the ad hoc creation of new kinds of music. |                         | This refers to adhoc actions sometimes needed or performed to meet a deadline, e.g., when a demonstrator needs to function for essential stakeholders. |

| MASTER | Active player, | Keeper and         | This role can be   |
|--------|----------------|--------------------|--------------------|
|        | teacher, and   | interpreter of the | associated with    |
|        | custodian of a | tradition and new  | senior experienced |
|        | certain        | development        | persons with a     |
|        | traditional    | concerning the     | longstanding       |
|        | music style.   | field.             | reputation in a    |
|        |                |                    | domain.            |

The mapping shows that the field of an innovation orchestrator is quite broad and multidimensional — it is not clearly defined by only one role.

#### **Discussion**

#### Why music?

One of the survey respondents mentioned, "Music captures complexity, dynamics, nuances, and fluidity (process, not a static state) in ways words can't." Yet, some interviewees play an instrument like a guitar or ukulele or sing and generally feel positive about music. None of them is trained or experienced in (listening to) classical music, orchestral music or opera. The knowledge of the difference between what a composer, an arranger, an orchestrator, or a conductor does is missing. However, everyone knows the overall music analogy of people playing together in an orchestra with a joint effort and outcome. Because of a lack of a better word, they use orchestrator because it sounds better than conductor or improviser, which, as we learned, would also be a part of the whole.

The logic is then that everything that is done actively in an orchestra is, or can be, orchestrating, except the physical activity of producing sound. In scope of the course, sometimes orchestration is even referred to as an overarching activity that is only there to ensure and oversee that everything that needs to be done, can be done, and is done. This parallels Christopher Small's (1998) theory, in which he talks less about music but coined the term *musicking*, a verb that encompasses all music activities.

# What did we learn about the analogy of music orchestration?

Our research provides insights into what non-music orchestrators do and shows that these roles go far beyond what an orchestrator does in music.

Holyoak (2012) briefly overviews three types of analogies: proportional analogy, metaphor and analogy as knowledge representation.

In proportional analogy, a source is mapped to a target in the sense that A is related to be in the same way as C is related to D. Here, the analogy does not work with orchestrating innovation, because there is no one-on-one mapping as illustrated in table 1.

Practically, analogy works well as a metaphor or symbolic expression in a new conceptualisation, such as orchestrating innovation. It is a figure of speech that works in communication, and also in the way it is explained, for example, in an orchestrating innovation training. After discussing the mapping, one of the founders of an extensive orchestrating innovation course (Berkers, et al, 2023) concluded "Because in music, there's such rich variety in roles and styles, it actually helps to define, or at least communicate about the fuzzy concept that orchestrating innovation is, or could be. This analogy can work as a semantic tool to explore how participants (in the course) interpret their work".

The third type, analogy as a knowledge representation, would be interesting to research further, using music's structure, relations, and attributes in the broadest sense (the source) to model, understand, or reason about innovation (the target). It's about how analogy functions as a fundamental tool for learning and structuring knowledge, going beyond a single figure of speech or proportional statement. Here table 2 can be used as an extra inspiration.

#### What can non-music orchestration learn from music?

The world of music provides an opportunity to look broader into music genres and styles of leading and following. What does leadership mean in a multi-dimensional, dynamic environment? Non-music orchestrators could benefit from expanding their

music knowledge into fields like music pieces and approaches with more freedom and more open character, thereby expanding their repertoire.

There are examples of classical music from the 60s and 70s with pieces like *Canto Ostinato* by Simeon ten Holt or *In C* by Terry Riley, where musicians work without a conductor, but with a given set of patterns with clear instructions and much freedom to play when and as long as they think it benefits the performance. Of the latter, there are recordings with different instruments, such as classical instruments, African instruments, or even a modular synthesiser. There is even an online application that might be useful for people with no music experience by Wetzel, Moe & Thiruvathukal (2024), where users can experience the principles of the piece, experiment with the possibilities and make changes. The process and principles are the same, and the performances are unique, dynamic, and flexible. It may help orchestrators envisage different operationalisation styles as if they were scenarios. This may bring forward a shared view and deeper understanding of personal or organisational styles and culture.

More inspiration can be found in attempts to structure improvisation, like in the work of the late Butch Morris and his concept of 'conduction' (a portmanteau of conducting and improvisation), with a distinct set of hand signs and a role for the improvising strong leader. This calls for a more deliberate choice in the decentralised and centralised governance of collaborative innovations.

Another conceptual and highly dynamic piece is *COBRA* by John Zorn, which introduces the role of a prompter (Brackett, 2010), which is not included in table 2. It is a composition inspired by a war game, where the players give signals to each other and the prompter, who directly uses the information to prompt all or individual players with the next action. Operating in a game piece with clear rules of interaction requires preparation and quick decision-making. Prompting might be a way to get out of deadlock situations. Specifically, in the context of wicked problems, it can be expected that teams get stuck. Being able to set up 'out of the box' experiments, e.g., by foreseen budgets, may just help to deliver the breakthroughs that are needed.

Modern studio production in popular music, especially the producer role, offers many opportunities to learn from. What started in popular music in the 1960s with productions like *St. Pepper* from the Beatles is the de facto standard of the last decades

of popular music, with the producer (in the case of the Beatles, George Martin) as a hidden member of the production. This emphasises that impact based on innovation may benefit from less strict boundaries between roles and that mutual understanding and communication across different roles is key. Further, some (non-music) orchestrators are known for their 'whispering' qualities. They seem to intuitively know what a specific person or organisation needs to hear, if a project is slowing down.

In the last decade, through the ubiquitous availability of ever-cheaper hardware and software instruments and digital audio workstations (DAW), asynchronous co-creation of many collaborators on different levels has become the new standard. For example, Beyonce's album Renaissance has more than 100 songwriters credited on her website and was recorded in various studios with even more collaborators. This emphasises that innovations are indeed a multi-person effort, and those who can contribute can be credited for it.

To end this list of suggestions, experimental and improvised music has many different and dynamic forms of direct co-creation and collaboration in real-time, live on stage and is a useful tool for sense-making (Stark, 2024).

Gupta and Surisetti (2022) relate improvisational forms of collaboration to start-ups, where shared ownership of the outcome, flat hierarchy, and a diverse experience working towards a common goal dominate. Similar experiences can be explicitly observed in the parts of innovation that require creativity, e.g., in hackathons and experiments. Nevertheless, in many innovation settings, the 'technology readiness level' is considered a natural phasing for developing technology. However, many applications require parallel development and social and technical integration, which we believe could benefit from more parallel interactions.

#### Conclusion

The field of music is a vibrant source for analogies in knowledge representation, learning, modelling, and activating new ways of co-creation in dynamic systems. Focusing just on century-old classical music is a limiting factor in non-music orchestration. This common perception of a rigid, score-bound orchestra overlooks the

18

tradition's more dynamic and improvisational roots. As conductor and pianist Daniel Barenboim states, "[...] when we talk about Mozart and Bach... they were all great improvisers, and now we have become the slaves of the written note..." (Zürn, 2025). This historical context reinforces why a broader view is needed.

To build upon whether orchestration is a role or a competence, we suggest seeing it as a mindset and a position to take, see figure 2.

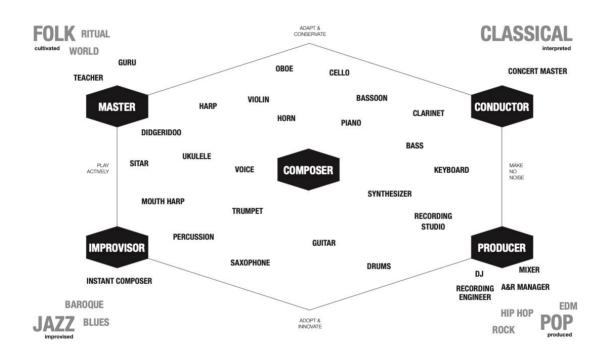


Figure 2 Leadership positions in Music Thinking (Zürn, 2022)

A non-music orchestrator could learn and use not just one fixed position but a repertoire of positions depending on what is needed at that stage. This repertoire might draw inspiration from various facets of musical practice, such as the foresight and imagination of the composer, the adaptability and adoptability of the improviser, the leading qualities of the conductor, the holistic view of the producer, and the deep knowledge and wisdom of the master. Talking about and understanding these positions

in different kinds of music could benefit the collaboration and understanding of the changing dynamics in a complex relational system.

With the musicians in the centre, switching activities, roles and perspectives is possible.

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