Antanas Kučinskas

The New Technologies Orchestras:
Between Innovation and Simulation

Anotation. In its most general sense, an orchestra conventionally refers to any large instrumental ensemble, starting with a symphony orchestra and going back to orchestras of the Old Testament Times. If viewed in historical perspective though, some specific orchestra features appear to be articulated. Thus in the 20th and 21st centuries there appear to emerge quite a number of collectives calling themselves orchestras and playing such new technology "instruments" as record-players, tape-recorders, compact disc players, computers and other electronic devices. Therefore, the purpose of this report is to give a glimpse into such new technology orchestras within the spectrum of innovations and simulations by comparing them with what is customarily attributed to the orchestra as a historical phenomenon.

Keywords: traditional orchestra, new technologies orchestras, simulational direction, innovative direction, interior aspect, exterior aspect.

In the 20th–21st c. the new technologies have become an indelible part of our life. Penetrating into every aspect of our life, they transform conventional attitudes and norms, and the way we communicate. Art has not been an exception. The beginning of the 20th c. saw the fascination with machinist images in terms of both stylistic approach and search for new instruments. Intrigued by the sound that the new technologies can produce Italian futurists started constructing the noise machines (*intonarumori*). Already in the middle of the 20th c. sound generators, oscillographs, radio sets, audiotapes, etc. were applied in music composition (P. Schaeffer, K. Stockhausen, J. Cage among others). Today, construction or use of such instruments in concert halls is no surprise. A number of art trends are influenced by or even directly depending on the technological progress. In this article I will address the influence of the new technologies on the orchestra, and describe the new "technologized" orchestras as innovative or simulational phenomena of orchestral music making.

In general sense, the term orchestra refers to any large instrumental ensemble from a symphony orchestra to the Old Testament era orchestra. Keeping in mind the historical conditionality and changeability of the definition, it is not easy to grasp a common denominator in this assortment of very different phenomena[1]. As mentioned Neal Zaslaw, the conception of orchestra, which usually we use today, was formed on the 18th century orchestras. According to that conception not every orchestra is an orchestra. He sets several mandatory requirements as basic definitions of the orchestra. That includes a certain instrumental line-up, a specific discipline and coordination of collective music making, standardization of instruments and repertoire, and organizational-administrative structure of the collective[2]. Depending on epoch and place these aspects of orchestral music making have manifested differently.

In the 20th–21st c. we notice different collectives, calling themselves orchestras, which use not the traditional instruments, but the instruments of new technologies exclusively – turntables, audiotapes, CD players, computers, and other electronic equipments. In which sense we could call them as an orchestra and what relations with traditional orchestra conception they have? That is the main questions of my paper.

In spite of big diversity of such orchestras we could notice two main tendencies. Some of these collectives foster the classic orchestral tradition by imitating traditional sonorities, while the others pitilessly cross out the remnants of the traditional orchestra to create new conventions. **The stylistic and artistic orientation** of the concrete collective predetermine all main features of the orchestra, which we mentioned above. That aspect (stylistic and artistic attitude), I think, should be the starting point for looking arguments for explaining of any orchestral phenomens. We see that the radical orchestras profess modern, avant-garde, post-modern or even various pop-, rock-, techno or experimental music genres, while the collectives aimed at classical-romantic music and form have not only aesthetical but also educational and applied objectives.

Secondly, I want to talk about the **instrumental set up** of the new technology orchestras. Before that I have to emphasise the instrumental origin of the orchestra, as opposed to vocal-choral music. Even though, in

---

[1]   In terms of etymology, the orchestra indicated the place for musicians (in Greek Antiquity it was a lower level of amphitheatre, Renaissance – the space in front of the stage, beginning of the 17th c. – simply the space for an ensemble accompanying dancing or singing) and only in the 18th c. its meaning was expanded to incorporate the definition of musicians and their collective.

[2]   For more information see N. Zaslaw's *When is an Orchestra not an Orchestra?* (1988) p. 483–95.

baroque epoch large choral works often involved instrumental ensembles, and romantic composers frequently included choir and vocal soloists in symphonic orchestra, the identity of the orchestra has to be associated with instrumental music making[3]. Orchestral innovations most clearly manifested in the transformation of instrumental arsenal. With time the medieval string orchestras[4] were expanded by adding wind and percussion instruments, while these in the 20th c. – by introducing new electronic, ethnic and various other instruments associated with different genres.

Many collectives employing computers, synthesisers, samplers or other electronic equipments, ex. Theremin Orchestra and The Fauxharmonic Orchestra, imitate or even simulate traditional orchestras. They usually perform adapted classical-romantic scores or their arrangements. Collectives such as Modified Toy Orchestra, Typewriter Orchestra and Vegetable Orchestra, that perform on different and often amplified items, or orchestras such as Lexus or Ford, that use parts of the aforementioned cars and are formed for advertisement purposes, can also be ascribed to the group of the ensembles imitating or paraphrasing traditional orchestras.

Other collectives (ex. laptop orchestras such as Stanford Laptop Orchestra, Princeton Laptop Orchestra, Moscow Laptop Orchestra, Diisc Orchestra etc.) also use mostly the same equipment but perform new electronic music. Some formal attributes of the traditional orchestra sometimes are preserved – conductor, arrangement of the performers, local sound broadcast controlled not by one sound engineer, but by every performer independently, etc. Yet there are others that have mostly nothing in common with traditional orchestra. Ex. MIMEO[5] (*the Music In Mouvement Electronic Orchestra*). Or Australian collective Loop Orchestra[6] uses only audiotape players without any live performer on the stage, samely Hard Disk Orchestra[7] manipulates sounds generated by PCs, etc. The projects of that collectives get a very close to sound sculptures, or installations.

All instrumental innovations inevitably affect **the quantitative aspect of the orchestra**. Usually, the orchestras are large ensembles that occupy the highest position in the soloist-ensemble-orchestra hierarchy, i.e. a quantitative chain. However, what is a large ensemble (or many) is a contextual if not philosophical concept. Whereas the divide in the soloist-ensemble or soloist-orchestra concept is sufficiently apparent, the quantitative dividing line between ensemble and orchestra is obscure. Indeed, some ensembles can be larger than smaller orchestras, not to mention such extreme cases as 'one-man orchestra' (which is possible with modern technologies) or a hypothetical virtual orchestra in the Internet with on-the-spot and continually changing line-up. In fact, the new technologies enable production of complex orchestral sound without a large number of performers. Ex. at The Fauxharmonic Orchestra's concerts the audience sees only one pseudo conductor who coordinates computer equipment, a new Lithuanian collective Diissc Orchestra involves 4–6 people performing on CDs. Other collectives manage without people on the stage – Tape Desk Orchestra or some projects organised by Immersion Music are realised by one person in a studio and exist only as electronic phonograms. Thus, large quantity of performers on stage is not obligatory in the new orchestras.

Invasion of the new technologies has made corrections not only in exterior (line-up, quantity), but also **interior aspects of orchestral music making**, such as discipline and coordination of collective music making, functional definition of its components, etc. in many cases it is preconditioned by a style, genre or epoch. These transformations become obvious in the first half of the 20th c. Ex. P. Hindemith describes his *Kammermusik No. 1* as opus for 12 solo instruments thus not only juxtaposing a *quasi* orchestral line-up to gigantic Mahlerian or Straussian orchestras, but also emphasising transformation of functions of instruments within the orchestra towards individualist, ensemble and polyphonic nature.

---

[3] In the first case the instruments mostly double the choral lines becoming *a la* vocal extension, while in the second case the voice is seen as yet another instrument, a new timbre.

[4] English language has two terms to describe orchestral collectives – *orchestra* and *band*. *Orchestra* originates from medieval "soft, gentle" instrumental ensembles (generally string) associated with aristocracy and with music making inside, ex. church. *Band* – with wind, percussion collectives associated with music making outside, secular life and people.

[5] **M.I.M.E.O.** (or **MIMEO**) is an experimental electroacoustic free improvisation group formed in 1997 on the initiative of several independent concert promoters in Europe. The abbreviation stands for "Music In Movement Electronic Orchestra". They have issued recordings on Erstwhile Records, Cathnor, Perdition Plastics, Grob and other labels. Their latest album is *Sight* (2007), inspired by painter Cy Twombly. Each of the eleven members of M.I.M.E.O. (spread across Europe) placed approximately five minutes of sound anywhere they chose onto a blank sixty minute CDR. This was done independently of one another, with no communication between the musicians about how or where the music should be distributed on the disc. The CDRs were then compiled onto 1 cd, and sent to a pressing plant.

[6] Loop Orchestra is an Australian orchestra formed in the 80s that experiments with audiotape players, tape loops, organises sound installations, performances, recordings, etc.

[7] Hard Disk Orchestra was a sound installation created in 2004 by Czech artist Valentina Vuksic. It involved hard discs of various computer producers.

The new technologies orchestras, simulating traditional orchestras, generally maintain one characteristic feature of the classical-romantic orchestra – the differentiation into functionally subordinated timbral groups. However, not limited by the possibilities of traditional orchestra or technical possibilities of separate instruments, the new technologies also offer new timbral, instrumental and line structuring possibilities.

Orchestras, focusing on innovations, form individual orchestral inner (functional) organisation every time. In such orchestras the orchestral music making often is determined by its idiosyncratic performing technique rather than the timbres of the instruments. Often the instruments are assigned individual tasks. Ex. the aforementioned Loop Orchestra's music is united by the repetitive cycles of tape rotation, whereas the autonomy of each member of the ensemble is at the core of Scratch Orchestra[8]. In such collectives a traditional conductor coordinating the whole process is replaced by a performer-leader (especially collectives of improvised music) who partly controls the process, or the new technologies equipments (MIDI controllers, timers, metronomes, clocks) or the performers simply rely on coordinating facet of sound structures such as beat, loop, etc.

The aforementioned transformations have also influenced the metamorphosis of **the orchestra as a social object**. In terms of organisational-administrative structure very few of the new orchestras could be compared with traditional symphony orchestras involving a number of staff musicians, managers, publishers, etc. Majority of the new orchestras are separate solitary collectives whose comparison would reveal more differences than similarities. Each of them selects specific instruments, repertoire, and often is active for short period of time. In most cases these features are determined by the nature of the new technologies themselves, their large assortment and continuous transformation.

This concise table offers a systematic comparison of the traditional and the new technologies orchestras.

	Traditional orchestra	New technologies orchestras	
		Simulational direction	Innovative direction
Stylistic orientation	Classical-romantic, modern music	Classical-romantic, modern music	Modern, avant-garde, post-modern music, pop-, rock-, techno, etc.
Instrumental set-up	Acoustic instruments	The new technologies instruments	The new technologies instruments
Quantitative set-up	Domination of large collectives	Imitation of a line-up of a large traditional orchestral	Domination of moderate collectives
Discipline and coordination of the orchestral music making	Differentiation of groups, coordinated by a conductor	Differentiation of groups, coordinated by a pseudo conductor	Individual differentiation, coordinated by the new technologies (MIDI, timer, etc.)
Standardisation of instruments and repertoire	Strongly expressed (traditional instrumental line-up and repertoire)	Strongly expressed (instrumental line-up and repertoire varies moderately)	Weakly expressed (instrumental line-up and repertoire are individualised, still in transition)
Organisational-administrative structure	Elaborated, commercialised	Generally elaborated, commercialised	Generally weakly elaborated, commercialised

To summarize, it could be stated that the new technologies exert twofold influence over the orchestra. On the one hand, they are employed in order to enrich, expand or even simulate traditional orchestras. On the other hand, the up-to-date equipment helps to form a new orchestral performance practise, which often has quite weak link with the phenomenon of the traditional orchestra. Few of such orchestras display boldly expressed orchestral attributes. Thus they are regarded as the new shapes of music making whose association with the orchestral performance practice can be seen in separate parameters, genric parallels or allusions rather than formal quantitative, qualitative and functional commonalities.

---

[8] Initiated by Cornelius Cardew, Scratch Orchestra was a group of 50 like-minded people. It was active in 1969–1974. Ideologically the Orchestra reflected the ideas of J. Cage and Fluxus. Scratch Orchestra used to organise free improvisation concerts, graphic score readings, etc., plays on various kinds of items from sound recording segments to sundries.

Bibliography

Burkholder J. P. The Twentieth Century and the Orchestra as Museum. *The Orchestra: Origins and Transformations*, ed. J. Peyser. New York, 1986, p. 409–33.

Peyser, J., ed. *The Orchestra: Origins and Transformations.* New York, 1986.

Spitzer, J., Zaslaw, N. Orchestra. *The New Grove Dictionary of Music and Musicians.*

Zaslaw, N. When is an Orchestra not an Orchestra? *EMc*, xvi 1988, p. 483–95.

Zaslaw, N. The Origins of the Classical Orchestra. *Basler Jb für historisches Musikpraxis*, xvii 1993, p. 9–40.

http://en.wikipedia.org/wiki/M.I.M.E.O. (visited 2009.06.17)

http://plork.cs.princeton.edu (visited 2009.06.17)

http://slork.stanford.edu (visited 2009.06.17)

http://www.archive.org/details/ca205_do (visited 2009.06.17)

www.fauxharmonic.com (visited 2009.06.17)

www.thelooporchestra.com (visited 2009.06.17)

Santrauka

Naujųjų technologijų orkestrai: tarp inovacijų ir simuliacijų

Orkestru priimta laikyti bet kurį didelį instrumentinį ansamblį – pradedant Senojo Testamento laikų orkestrais ir baigiant simfoniniu orkestru. Tačiau žvelgiant istoriniu aspektu artikuliuojami specifiniai orkestro ypatumai. XX–XXI a. atsiranda nemažai orkestrais besivadinančių kolektyvų, muzikuojančių naujųjų technologijų „instrumentais" – patefonais, magnetofono juostomis, kompaktiniais grotuvais, kompiuteriais ar kitais elektroniniais prietaisais. Šio pranešimo tikslas – apžvelgti naujųjų technologijų orkestrus inovacijų ir simuliacijų aspektu ir palyginti juos su orkestro, kaip istorinio fenomeno, atributais.