



# Building Foundations and Developing Applications for Next-Generation Media Content Ecosystem Technologies

## Offering active music experiences by analyzing music content automatically

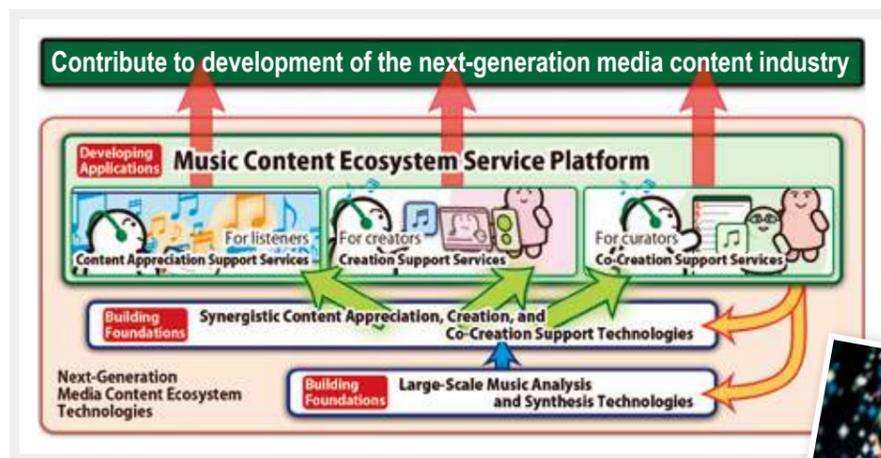
Digitization of music dramatically improves the enjoyment of music. We have been carrying out R&D on information technology as a way to bring out the true value of digital music and allow people to actively enjoy it, thanks to state-of-the-art music-understanding technologies that can estimate musical elements from audio signals.

So far, we have created services such as *Songle*, which visualizes the elements of music, *Songrium*, which visualizes and provides a bird's eye view of a huge amount of musical content, and *TextAlive*, which generates lyrics animations, and which have been released on the Internet. These services offer active experiences for music appreciation and creation as a way to deepen people's understanding of music, and can add new value to the huge amount of media content that has been accumulated so far.

## Building a platform that creates value from a huge amount of media content

In the ACCEL project, our aim is to contribute to the development of the next-generation media content industry by establishing a technology that helps people to both appreciate and create music, and by building a service platform for music content ecosystems.

Specifically, we will enhance music-understanding technologies to analyze large amounts of music in more diverse ways, and develop Content Appreciation Support Technologies that can allow people to enjoy their favorite pieces of music more actively. We will also advance R&D for Content Creation Support Technologies that allow people to freely create music content to reflect themselves and their tastes. In addition, we will support co-creation actions that convey the appeal of content to others, and further amplify the value of music content.



### Music-understanding technologies

These technologies analyze musical audio signals to automatically estimate important elements of music, such as melody, beat, chord, and chorus sections. We are studying ways to further increase the types of elements that can be estimated with the goal of enabling the current technology to evolve into Large-Scale Music Analysis and Synthesis Technologies. Such technologies enable the development of a wide range of Content Appreciation Support Services, Creation Support Services, and Co-creation Support Services.



### Research Director

#### Masataka Goto

Prime Senior Researcher, National Institute of Advanced Industrial Science and Technology (AIST)

I have been broadly engaged in R&D, from fundamental to applied research, with the intent to publicly present through interfaces and demonstration systems how the results of fundamental research can be utilized. In addition, I have released them publicly in the form of services that can be readily used on the Internet.

In the ACCEL project, I am engaged in creating a platform that acts as the base of these various services, maintaining a balance between building foundations and developing applications, in order to open the way to the future of music content industry through the power of technology. Our goal is that this platform will create new value and make it available to society. Mr. Itoh, the program manager, has long played an important role in music industry, and I would like to carry out R&D with him so that we can change the world together.

I would like to tackle the challenge of creating new academic, industrial, social, and cultural value; a challenge that will have a considerable impact on the world.

### Program Manager

#### Hiroyuki Itoh

ACCEL Program Manager, Japan Science and Technology Agency

I have been involved with music software and observed music and technology for many years. Dr. Goto's research uses computers to automatically analyze and annotate music content, which was not possible in the past. I have been amazed at his innovative efforts to open the way to the future of content from an academic standpoint. I am looking forward to working together on this project.

In the ACCEL project, as the program manager, I would like to create new business models for the music and video industry by applying research results to business enterprises and society. Japan has a culture where listeners and creators appreciate and create music by actively enjoying new technologies. I will use this cultural advantage and accelerate it further, doing what I can to expand R&D and "creator culture."

As music can be easily combined with other content, I will establish new business models through far-ranging collaboration with related industries.



#### PROFILE

MASATAKA GOTO  
1998: Ph.D. (Engineering), Waseda University. Joined Electrotechnical Laboratory, currently National Institute of Advanced Industrial Science and Technology (AIST); in current post since 2011. Field of expertise: Music information processing. Over 25 years of music-related research, such as music-understanding technologies, music interfaces, and music appreciation/creation support services.

#### PROFILE

HIROYUKI ITOH  
1989: Graduated from the Faculty of Economics, Hokkai-Gakuen University. 1995: Founded Crypton Future Media, Inc. Over 20 years of sound-related business and research, such as sound delivery, aggregator for music distribution, concerts featuring three-dimensional computer graphics, and "Hatsune Miku".