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# Resolution Revolution: The Future of Ultra High Definition Television

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## Abstract

High Definition Television (HDTV) has reached a period of relative maturity after a considerably long gestation period from early experiments in the 1970s through to final international agreement on HDTV standards in the mid-2000s. A number of drivers advanced the final successful widespread introduction of HDTV around the world. Many of these factors were closely related to key advances in technology, including the development of flat-panel displays which presented the possibility of larger screens than had been possible with older Cathode Ray Tube (CRT) technology. The introduction of Digital Television (DTV) standards and platforms allowed signal compression which afforded the extra bandwidth required to deliver additional channels and HDTV services.

With HDTV equipment now firmly embedded within consumers' homes throughout much of the developed world, manufacturers of televisions and display equipment are looking to the next innovations that can drive sales of equipment over the coming years. The position of front-runner for the next potential evolutionary step in mainstream television is Ultra High Definition Television (UHDTV), with the "4K" format being widely adopted by manufacturers and offered in many medium-cost televisions and projectors. Japanese broadcaster NHK is working toward the launch of an "8K" resolution UHDTV service, offering 16 times the number of pixels of HDTV, within the next five years. In addition to increased image resolution, the UHDTV formats promise faster frame rates, greater dynamic range and a wider colour gamut.

As with all prior innovations in the field of consumer audio visual equipment, the success of UHDTV will depend upon a critical mass of support from both content providers and consumers as well as equipment manufacturers. This research paper examines the challenges that UHDTV faces in the current environment and the future within the context of historical examples of both successes and failures in the field of television and home video. Opportunities for UHDTV are also identified and conclusions are drawn regarding the future of UHDTV.