

Evolution to an Artificial Intelligence-Enabled Network



Foreword

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1. Introduction

Artificial intelligence (AI) and machine learning (ML) have been active areas of research and development since the 1950s. Over time, enthusiasm has waxed and waned as AI has struggled to insert itself into mainstream commercial applications. However, in recent years, advances in processing power, the availability of large amounts of data, research advances and a healthy community of open source developers have enabled AI technologies to become an essential part of many industries. In recognition of this success, this report explores how AI and ML can be leveraged to address the pressing challenges facing the ICT industry today.

1.1 What is AI?

AI can enable more intelligent and efficient automation. However, AI is much more than automation. Automation covers a wide variety of examples. Most people would not label basic programmable automation as AI but do recognize AI as the automation of tasks or functions which otherwise require human intelligence to execute properly. Alternatively, many consider AI to be intelligence exhibited by machines or computational systems that perceive their environment and take actions to satisfy an intent. As such, AI can enable automation of many routine, well-defined tasks and activities. However, AI's ability to engage active learning while analyzing very large amounts data means it also has the ability to orchestrate innovative capabilities that were previously impossible.

AI is typically considered to be systems that perform some form of reasoning, planning or object management, using knowledge as well as perceived information that, in the past, required human intervention. In many cases, AI technology can detect subtle patterns in data that humans can't easily identify. Therefore, AI applications can provide expert assistance to people responsible for a specific task or function. Leveraging this attribute, AI applications span a wide range:

- **Assisted Intelligence** – Targeted/narrow expert systems that help people to perform tasks faster and more accurately.
- **Autonomous Intelligence** – Fully automated decision-making processes coupled with ML to perform a narrow task without human intervention while adapting to changing conditions.