In today's age, core deep learning techniques are being extensively used in finance and trading, offering several benefits and impacts. Here's an overview of the technology being used, the work being done, and its implications on the ethical, privacy, and social aspects:

Technology and Techniques:

1. Deep Neural Networks (DNNs): DNNs are the core architecture used in deep learning. They consist of multiple layers of interconnected neurons, allowing the network to learn complex patterns and representations from data. DNNs are used for tasks such as market prediction, risk assessment, and fraud detection.
2. Recurrent Neural Networks (RNNs): RNNs are suitable for sequential data analysis, making them valuable in modelling time series financial data. They can capture dependencies and patterns over time, enabling tasks like stock price forecasting and algorithmic trading.
3. Convolutional Neural Networks (CNNs): CNNs excel in image and signal processing tasks. In finance, CNNs can analyse financial charts and patterns, identifying key indicators for trading strategies and technical analysis.

One example of a firm that utilizes deep neural networks (DNNs) and other tools in its product or service is AlphaSense. Here's an overview of the technology, tools, ethical considerations, social implications, and privacy-related concerns associated with AlphaSense:

Company Overview: AlphaSense is a leading provider of AI-powered search technology for financial professionals. Their platform leverages deep learning and natural language processing techniques to extract insights from vast amounts of unstructured financial and business data.

Technology and Tools:

1. Deep Neural Networks: AlphaSense employs DNNs to analyse textual data, such as financial reports, news articles, and regulatory filings. These networks enable the platform to understand context, detect patterns, and extract relevant information.
2. Natural Language Processing (NLP): AlphaSense utilizes NLP techniques to enhance search capabilities, sentiment analysis, entity recognition, and language translation. NLP enables users to find specific information quickly and gain insights from a wide range of sources.

How It Works: AlphaSense's platform allows users to search for specific financial and business information across a vast corpus of documents. The DNNs analyse the text, extract relevant data points, and provide users with accurate search results, summaries, and key insights. The platform aims to save time for financial professionals by streamlining research processes and providing actionable information.

Ethical, Social, and Privacy Considerations:

1. Ethical Concerns: Ethical considerations with AlphaSense's technology revolve around the potential for bias in the training data used for DNNs. Ensuring that the algorithms are trained on diverse and representative datasets is essential to mitigate biases and ensure fair treatment and unbiased information retrieval.
2. Social Implications: The use of AI-powered platforms like AlphaSense can impact the job market for financial professionals. While the technology enhances efficiency and productivity, there may be concerns about potential job displacement or changes in the roles and responsibilities of financial analysts.
3. Privacy-related Concerns: AlphaSense's platform relies on access to a vast amount of financial and business data, raising privacy concerns. It's important for the company to establish robust data protection measures, including data anonymization, encryption, and compliance with relevant regulations, to safeguard user privacy and ensure responsible data usage.

Reference:

Mamorita, K. (2020). AlphaSense: How AI-powered search technology is transforming the financial industry. In A. Marcus (Ed.), Design, User Experience, and Usability: Design for Happiness (pp. 84-91). Springer.