Eink

## E Ink Holdings Inc.
Sustainable Product Management Policy

Innovation and Sustainability,
Innovation Facilitated Sustainable Products

E Ink is the leading global manufacturer of ePaper (electronic paper) displays, which have the lowest environmental impact of all electronic displays. E Ink actively engages in development and innovation of advanced technologies to continuously reduce the environmental impact of both manufacturing and using ePaper products, to make real green products.

To extend the benefits of ePaper displays, E Ink is also developing new applications, like Signage, to replace existing products that have large environmental impact. The benefits of ePaper displays extend to better impact on health and wellbeing. E Ink ePaper displays mimic the gentler appearance of traditional paper, without the vivid colors of LCDs and OLEDs. Scientific studies have shown this benefits eye health because typical ePaper lighting only causes one third of the amount of retinal stress of LCDs. Reduced exposure to Blue Light, particularly late in the day, reduces sleep disruption.

To make sure that all Research and Development activities support sustainable development, E Ink implements the policy of Innovation for Sustainability. From initial project proposal to final-lessons-learnt all Research and Development (R&D) projects will have "Ecodesign Assessment" built in to project management. This is first being implemented at E Ink main Research Labs in Taiwan and includes training Project Leaders and key Project Members on how to perform Ecodesign Assessment. This will then be rolled out to all E Ink Research Labs.

Ecodesign Assessment considers and evaluates New Concept Development, Selection of Low Impact Materials, Reduction of Material Usage, Optimization of Production Techniques, Optimization of Distribution, Reduction of Impact During Use, Optimization of Initial Lifetime, and Optimization of End of Life System.

New Concept Development

Optimization of End of Life System

Selection of Low Impact Materials

Optimization of Initial Lifetime

Reduction of Material Usage

Reduction of Impact During Use

Optimization of Production Techniques

Optimization of Distribution
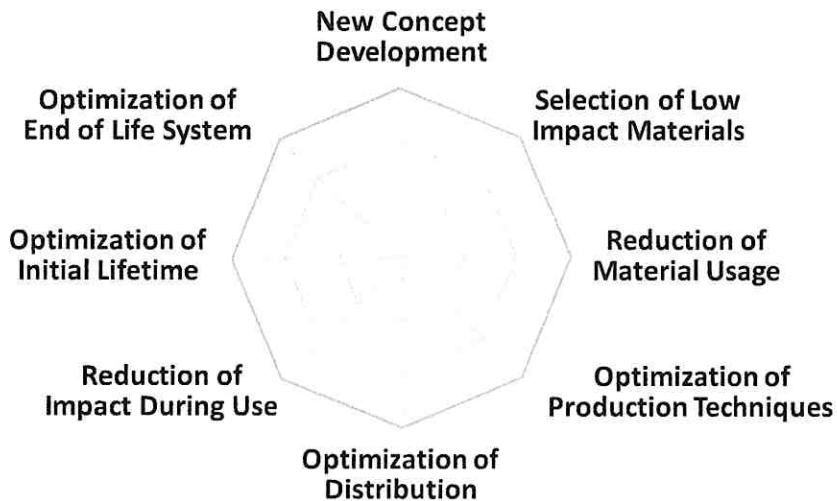
E Ink is also applying full environmental Life Cycle Assessments (LCAs) and Carbon Footprint (CFP) analysis to leading E Ink products. This allows products to be benchmarked against competitors, to provide information to compare the environmental impact of new products with existing models.

Bought-in components account for a large part of the Life Cycle and Carbon Footprint of E Ink products and as a result a major part of LCAs and CFPs is collecting reliable information from suppliers. However, suppliers have different methods of accounting for environmental impact and E Ink is going through iterations of talking to suppliers to improve the data to make it more reliable. When E Ink has developed our methodologies to provide accurate CFPs and LCAs then the analysis will be rolled out to all E Ink products.

"Green Products" concentrate on Lean Design and Material Reduction, Energy Conservation and Carbon Reduction, Recycling, and Green Certifications throughout product material selection, production, distribution, use, and waste disposal and recycling processes.

"Research and Development Innovation" concentrates on Intellectual Property and Risk Management, Application Expansion, Ecosystem Enlargement, and Interdisciplinary Collaboration.
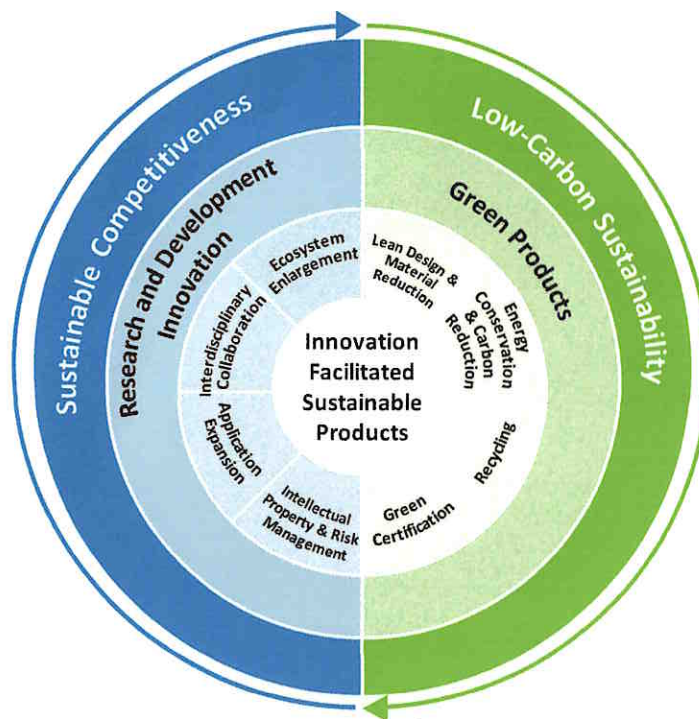
Governance and Management

- The highest governing body for this policy is the Board of Directors, supervised by the "Sustainability Development Committee" under the Board.

- R&D Heads make sure that the principles of Innovation for Sustainability, including Ecodesign Assessment, is applied to all R&D projects so that E Ink develops green products.

- Operational units implement Sustainable Product Management including Ecodesign Assessment and related procedures based on their functionality, focusing on "Research and Development Innovation" and "Green Products".

New Product Development

E Ink has a deep understanding of the materials and manufacturing processes used in ePaper displays and how they interact with each other, and with E Ink waveforms and image rendering, to produce the products used by consumers. Research and Development teams continuously use this knowledge to develop new ways to improve performance and reduce environmental impact and make green products.

Research and Development Innovation

- **Ecosystem Enlargement**

  This involves increasing the number of companies in the ePaper ecosystem. Actively managing and expanding the ePaper ecosystem allows E Ink to introduce new partners with better or novel capabilities and work with existing partners to jointly develop improved products. The main aim is through partnering with ecosystem partners to reach mutually beneficial goals for green and sustainable development.

- **Interdisciplinary Collaboration**

  Interdisciplinary collaboration is working with external units in different areas of expertise to produce new methods and materials to optimize E Ink products. Working together E Ink is igniting the energy of sustainable technology and product design and practice.

- **Application Expansion**

  Expansion of applications involves entering new markets where E Ink performance, particularly ultra-low power usage, offers significant advantages over existing products. It needs careful study of the market to understand key requirements, current products and the market ecosystem of suppliers and distributors. E Ink must then develop products for the market and promote the new technology through conferences, exhibitions and customer visits, while at the same time preparing manufacturing capacity for the new market. This takes a significant investment in time and capital from E Ink, with the final aim being to promote the technology and products of ePaper that are green, low-carbon, and beneficial to environmental and human eye health.

- **Intellectual Property and Risk Management**

  Enhanced intellectual property management and product risk consideration. Efforts should be made to strengthen intellectual property and patent management and consider product risks. This includes maintaining intellectual property management systems, focusing on patent portfolio and strategy, technology implementation, and target markets, while minimizing risks associated with the entire product lifecycle, including technology research and development, product material selection, production, distribution, use, and waste disposal and recycling processes.

Green Products

- **Lean Design & Material Reduction**

  Focuses on reducing the usage and waste of product materials and packaging. The selection of product materials considers minimizing the negative environmental, social, and economic (sustainability) impacts, collaborating with internal and external stakeholders to pursue the best practices in sustainable materials.

- **Energy Conservation & Carbon Reduction**

  Product energy usage efficiency enhanced and carbon footprint reduced. The selection of product materials aims to maximize the use of materials with low carbon footprints and low environmental impacts.

- **Recycling**

  Products should be designed to incorporate recyclable materials and easy disassembly, and proper disposal of waste should be ensured. The selection of product materials strives to maximize the use of recyclable materials.
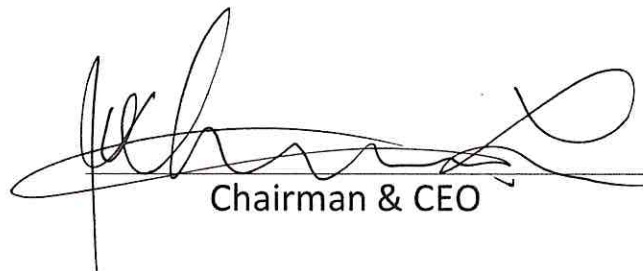
- **Green Certification**

  Materials and products undergo green-related verification or certification. The selection of product materials complies with Product Restricted Substance Management Procedure, Chemical Management Practice, Biodiversity and Non-Deforestation Commitment, and Conflict Minerals Policy and Declaration. There is a focus on increasing third-party certification and traceable material sourcing, by avoiding materials sourcing from globally or nationally significant areas of biodiversity or neighboring regions, or other controversial sources.

Eye Safety

E Ink teamed up with a group at the Harvard School of Public Health to study the impact of different display types on eye health. The study compared two different kinds of displays: LCDs and ePaper displays with front lights.

In order to view an image on an LCD screen, the displays use a backlight, usually LED based. In contrast, E Ink's ePaper displays are just like paper: they do not emit any light. Instead, they reflect the ambient light to illuminate the display. In dim or dark situations, when there is not enough light for reading, ePaper displays employ front lights, which perform the role of a built-in booklight.

The study showed that spectra of light from displays is a leading trigger for stress on retinal cells and that retinal cells stressed by blue light produce "reactive oxidative species" (ROS), which can accumulate during prolonged viewing, leading to photo-oxidative retinal damage. Devices using E Ink's ComfortGaze™ front light for eReaders were up to three times less stressful for retinal cells than LCD devices.

Chairman & CEO