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Halcyon Principles for Connected Intelligent Technologies

Guidelines for the responsible building and deploying of modern digital technologies

HALCYON DIALOGUE

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FOUNDATION FOR THE HALCYON PRINCIPLES

Corporations face unprecedented pressure to innovate, alongside equally unprecedented mobilization among consumers demanding corporate responsibility, transparency, and accountability. While this is true across sectors, some of the greatest speed of innovation and need for accountability exists in the area of intelligent technologies – a growing number of products and services that talk to each other, creating a flow of information that can be a massive benefit to society – or, if abused, a breach of trust.

Over 8.4 billion integrated intelligent technology products, from voice recognition speakers to industrial equipment, fall into the category of integrated intelligent technology. These emerging technologies are poised to deliver positive benefits to consumers and to society as a whole. They include interconnected systems in which machines with embedded, internet, or wireless devices have the ability to analyze data and openly communicate with other systems. With the adoption of 5G networks, these abilities will become even more pronounced throughout society. Intelligent technology systems can intake, incorporate, and utilize available data while complying with emerging legal frameworks, preventing privacy and security threats, and maintaining the flexibility to upgrade in response to future innovations, malfunctions, and shifting public sentiment. All the while, they improve the lives of consumers in ways we couldn’t have imagined just a few years ago.

But innovation on this scale and at this speed demands care. Consumers are right to raise questions about privacy, democratization of technology, and competitiveness. Many corporations are looking to get ahead of these concerns, forming policies to guide the research, development, and deployment of connected intelligent technologies, but thus far no overarching principles have informed those policies.

As part of its mission to address 21st century challenges, Halcyon hosted a two-day dialogue with 25 leaders from across the U.S. government, industry, startups, civil society, think tanks, and academia. The goal was to develop a set of guiding principles for companies developing and deploying integrated digital technologies, to minimize harmful risks and maximize societal benefits.

The group decided on four principles, tangible steps that digital technology companies can use for building trust among stakeholders and creating continuity across industries. Instead of corporations developing their policies in a vacuum, the Halcyon Principles can offer a framework so that intelligent technologies, whether part of Smart Cities or Smart Homes, can adhere to the same best practices.

The first principle speaks to performance accountability – the essential question of whether a product does what a corporation is promising. The second principle surrounds consumer safety, user privacy, and security. The third principle demands that intelligent technologies ultimately provide a positive benefit to society. The final principle speaks to competitiveness, requiring interoperability so that a small group of corporations aren't able to dominate to the exclusion of other innovators.

THE HALCYON PRINCIPLES

1) We will implement systems to monitor, publish, and adhere to performance accountability standards.

During the performance accountability process, while documenting factors that qualify towards profitability, efficiency, and adherence to budget, we will articulate a clear roadmap:

a) We will define and publish clear performance and accountability objectives.
b) We will verify that the system has satisfied these objectives.
c) We will define and publish an evaluation process for satisfying objectives.
d) We will consistently follow the process that has been defined.
e) We will assure that the output is safe, fair and human-centered.
f) We will consistently monitor variability in the output and adapt accordingly.

2) We will make transparent our consideration of the security, safety, and privacy of our users.

The nature of integrated technologies is such that some risks cannot be foreseen. Some contexts for deployment can possess high consequences for failure. Complexities of standards, version control, and code quality can exacerbate potential safety, security, and privacy issues. The scale of adoption can, however, mean that small percentage failures nonetheless equal large positive impacts. Furthermore, the diverse set of vendors and stakeholders involved can easily lead to compounded security risks.

We will be transparent throughout the development and deployment of integrated technologies in order to safeguard the security, safety, and privacy of users.

a) We will work to articulate the tradeoffs that have been made to establish our standards.
b) We will act deliberately to ensure the security of data and create a clear process of accountability for data security in an organization.
c) We will endeavor to have an analog option or other backup method for every digital technological process.
d) We will work to have multiple layers of human touch-points to reduce risks of catastrophic failure in high-consequence contexts.
e) We will regularly consider and monitor the safe use of technology among a diverse and representative set of users including the most vulnerable in our society.
f) We will only collect user data for which the user has clearly acknowledged informed consent.
g) This consent will be time and context limited in plain language.
h) We will set data to user-requested defaults with clear settings communicated throughout the user experience to protect individually attributed data.

3) We will work to ensure that our digital technology provides positive benefits to society.

We will declare the expected benefits from new technology and will measure outcomes against those expectations. We will watch for edge cases and unexpected outcomes as interactions necessarily deviate from theory.

a) We will work to achieve positive societal outcomes.
b) We will consider scenario planning exercises for how to mitigate and recover from unintended consequences and bias that ensure:
   - Fair treatment for every demographic and social group
   - Dignity for all technology users
c) We will include provisions to ensure that technologies we design will serve the whole of our diverse society and provisions for those who are unable to typically afford access.

4) We will ensure competitive interoperability

To further build trust and encourage a vibrant ecosystem in which consumers and companies engage, the sharing of user data is an asset to be treated with care. When sharing data between different organizations, it is important to allow for data to be non-attributable to respect user autonomy and to encourage fair competition. Competitive interoperability requires that technologies developed by different companies can work in concert with each other, adhering to smart standards and open competition.

To achieve competitive interoperability:

a) We will ensure that the technologies we develop include considerations of interoperability across brands, infrastructure and geographies.
b) We will comply with standards for interoperability throughout the procurement and contractor selection process.
c) We will ensure a set of rights around data that includes the:
   - Right to data portability
   - Right for users to update their data.
   - Right to user notification if data is sold.
   - Protection against attributable data being used as a weapon for bargaining power.

EXECUTION OF THE HALCYON PRINCIPLES

The Halcyon Principles are not comprehensive and may not be applicable under every circumstance. These principles propose a structure by which these principles can be dynamically updated and modified according to changes in interconnected technology industries, then tied to a certification companies can apply for. A certification based on these principles needs to be continuously linked with the understanding, concerns, and needs of consumers and policymakers, and cannot be static.

Furthermore, where firms are working to establish principles for engagement in technologies such as AI, terms such as “privacy” and “interoperability” may find different definitions. Trust may then be diminished among consumers and policymakers. A certification available to consumers and linked to the dynamic principles laid out here can work to build that trust and ground it in shared definitions for these key terms.

In order for these principles to maintain their relevance and evolve effectively over time, they may be allowed to vary in the following way:

1. Dynamic: The Halcyon Principles must be allowed to be enriched or culled. There will also be a tension between brevity and being comprehensive.
2. Time: As our understanding changes, a ‘certification 2020’ is likely to look different than ‘certification 2022’.
3. Level: Adherence to the principles should respect the different contexts under which technology is deployed. Companies should have the freedom to choose the appropriate circumstance while having a facility to communicate that choice. For example, users may reasonably expect the privacy controls to vary between a movie recommendation engine and those controlling personal healthcare records. Security considerations for financial data and restaurant reservations should not have the same level of scrutiny. Testing for edge case failures is a life-and-death choice in aeronautics. Not so in entertainment.
4. Industry: Differences may become sufficiently large to justify application-specific certifications. For example, the deployment of modern energy grids and the serving of digital ads may lose meaning by sharing a certification.
5. The actual certification may be best served by allowing for a distinction between self-certification and 3rd-party certification.

As stated at the outset, the goal of the experts convened at Halcyon was to minimize harmful risks and maximize societal benefits, acknowledging both the speed of innovation and the concerns of consumers. A flexible, dynamic certification based on these principles achieves the goal by naming the standards to which best practices should be aligned, then enabling firms to communicate their adherence to those principles to consumers.

Understanding starts with the development of a common language that companies, consumers and policymakers can all understand. The Halcyon Principles aim to create such an understanding, paving the way for rapid but ethically sound innovation in the exciting area of integrated intelligent technologies.

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About Halcyon:

Halcyon is a new kind of nonprofit organization. We lift up innovators and creators, giving them the tools and opportunities they need to bring their ideas to life. Some of Halcyon's signature programs are residential fellowships including the Halcyon Incubator and Halcyon Arts Lab. Other programs include By The People, an arts and dialogue festival, and the Halcyon Awards, which recognize extraordinary accomplishment in areas like art, social enterprise, and policy. The Halcyon Dialogue is our signature policy program. Since its founding, Halcyon has built programing around the core tenets of space, community, and access, continuously evolving to identify and provide a haven for big dreamers and risk-takers the world over.

For more information, visit www.halcyonhouse.org.

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