

Considering the Role of Personal Informatics Systems in Technology Ecosystems for Complex Health

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Some complex health conditions, such as diabetes and serious mental health issues, require people to monitor a variety of daily behaviors (e.g., diet, sleep, physical activity, and stress level) as these factors are intertwined to influence people's health conditions [4, 7]. In both clinical and personal settings, many people use personal informatics (PI) tools to monitor factors associated with their health, leveraging the value of collecting and reflecting on data to support understanding and management of health and wellbeing [3, 5]. However, the complexity of managing long-term health conditions mean a single technology cannot satisfy people's various needs and often-changing goals. Existing PI tools are typically self-contained experiences focused on collecting single-faceted data, and the lack of support for changing goals often leads to people abandoning or frequently switching PI tools [3]. Aligning with Burgess et al.'s [1] call to build technology ecosystems to manage complex health needs, a technology ecosystem in PI could combine personal tracking technology with other technologies, such as social media and online health interventions, to help people monitor and manage their health.

Our prior work contributed [6] a Model of Socially Sustained Self-Tracking in personal informatics, highlighting where tracking intersects with social technologies in describing an ecosystem supporting long-term and complex behavior change. The model illustrates how people get advice from social platforms on when and how to track, transfer data to and apply knowledge from social platforms, evolve to use social platforms after tracking, and occasionally resume using tracking tools. In the future, we aim to continue exploring how other technologies people use frequently (e.g., social media, online health interventions, digital games, and conversational agents) align with or expand this model to understand the role of personal informatics in supporting people's complex chronic health journeys, and address challenges when incorporating PI into technology ecosystems. For example, privacy issues often arise when patients track data collaboratively with other people, such as family members, caregivers, and healthcare providers [2], with additional work needed to understand how to protect privacy when stakeholders are communicating across a variety of technologies.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**.

Additional Key Words and Phrases: personal informatics, health, technology ecosystem

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