

## Collaboration and Innovation Patterns in Diabetes Ecosystems

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**Background:** The global prevalence of diabetes is increasing and has stimulated new technological advancements in disease management. Although there are many digital health companies with a focus on diabetes, building them up at scale is difficult due to a heterogeneous, inefficient, and fragmented healthcare system. While ecosystems, or collaborative value creation, could help address system fragmentation; the current diabetes ecosystem remains not fully understood. Therefore, this paper analyzes the digital transformation of the diabetes ecosystem and deduces innovation patterns. We address the following research questions: (1) What are emerging organizations in the current diabetes ecosystem? (2) What are the value streams in the current diabetes ecosystem? (3) Which innovation patterns are present in the ecosystem?

**Methods:** We conduct a literature review and a market analysis to describe the organizations and value streams in the diabetes ecosystem, both before and after the digital transformation. We visualize the diabetes ecosystem using the e3-value methodology (RQ1 and RQ2). Next, expert interviews are conducted to validate the resulting diabetes ecosystem and deduce innovation patterns (RQ3).

**Results:** First, we show that the digital transformation gives rise to emerging organizations across eight segments: real-world evidence analytics, healthcare management platforms, clinical decision support, diagnostic and monitoring, digital therapeutics, wellness, online community, online pharmacy (RQ1). Secondly, we visualize the value streams between emerging organizations in the current diabetes ecosystem, highlighting the key role of patient data as currency (RQ2). Ultimately, we derive four innovation patterns in the current diabetes ecosystem (RQ3); namely open ecosystem strategy, outcome-based payments, platformization (connecting stakeholders), and user-centric software.

**Conclusions:** We demonstrate how traditional value chains in the diabetes ecosystem transition to platforms and outcome-based payment models, guiding strategic decisions for companies and healthcare providers. These innovation patterns may apply to similar ecosystems in other disease areas, aiding organizations in forecasting future dynamics.

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