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Theorizing Around the Humble and Ubiquitous API

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Theorizing Around the Humble and Ubiquitous API

Towards a Paradigm Shift

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Application Programming Interfaces (API) have a long history in the relatively short internet era. They are boundary resources that enable the Digital Transformation that many businesses are seeking today. However, little is known about how organizations are using them from a policy, or strategy perspective. This perspective is a rallying cry for more research in this fruitful area.

APIs expose data and functionality in ways that are easily consumed by other systems or apps. Each function of a system such as logging in, payment processing, map display, image analysis, data access, weather info, chat functions, and machine learning can all be added to a system much like a new Lego piece is added to other Legos. Accordingly, they are enabling new business models as core functions of the business can now be run through an API. For example, when Uber launched back in 2009, their app employed the Twilio API to send SMS messages, the Google Maps API to share location data, and a payment processing API to bill the customer.

Individual Level - Many tools enable business users to bring data or functionality from APIs directly into business processes or data analysis. This can result in exaptation, where a feature of an API evolves to serve new functions other than the original intent. As an example, the soft serve ice cream machines at McDonalds are often unavailable. Using the McDonald's API a user created a map of locations where the machines were down (rashiq [[@rashiq](#)] 2020).

Organizational Level - Just as the automotive industry transformed from one company making all parts of the car, to one where each part is now made by different suppliers, we can see a similar shift occurring in the software industry. Tesla manufactures several models of electric cars, but may only make the battery pack, charger, and motor themselves. Should software companies follow Tesla's example? Which theories will guide them?

Teaching APIs - Teaching a student about APIs most often induces a paradigm shift. Their usual way of thinking about how systems are built is replaced by a new way of thinking which is more akin to Lego building (Olsen and Moser 2013). We are doing our students a great disservice if we do not help them uncover this new paradigm.

References

Olsen, T., and Moser, K. 2013. "TEACHING WEB APIS IN INTRODUCTORY AND PROGRAMMING CLASSES: WHY AND HOW," in *International Conference on Information Systems SIG-ED Workshop*, Milan, Italy, December 1, pp. 1–8. (<https://aisel.aisnet.org/siged2013/16>).

rashiq [[@rashiq](#)]. 2020. "I Reverse Engineered Mcdonald's Internal Api <https://t.co/2KsRwAdrMd>," *Twitter*, , October 22. (<https://twitter.com/rashiq/status/1319346264992026624>, accessed October 11, 2022).