Effective Business Development for In-Market IT Innovations with Industry-Driven API Composition

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1 Introduction

Innovation refers to uniqueness in an entity's products, services, processes, or business models with which it serves its customers. It is well known in business world that IT-driven innovations can help a company differentiate its products and services with competition and drive business success through improvements in customer satisfaction, efficiency, productivity, quality, etc. [1, 2]. Some examples are manufacturing where adopting just-in-time (JIT) practices can remove inventory, logistics where an active RF-ID tag-based asset tracking can reduce delays or travel industry where social media can be used to engage customers to improve customer service and attract new market segments.

With millennial generation customers, continuous innovation is necessary to have them continue to stay with the existing services and products. In-market innovation is employed by businesses to both understand the adoption of their services and also to constantly improve the features based on the customer feedback and usage scenarios. This in-market innovation requires agile innovation practices and also has to respond to markets that are dynamic. Previous models of innovation involving longer cycles and catering to captive markets are long gone. Recent in-market innovation requires innovative frameworks to support agile innovation while firmly grounded on the market needs and value addition to existing services.

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Despite the imperatives, businesses find it difficult to make go-ahead decisions on innovative solutions because, by definition, the innovations have not been field tested enough before to become off-the-shelf offerings and thus provide proven cost versus benefit business case. The decision becomes even more difficult if one is trying to purchase the innovation from an external entity like a start-up, university, research laboratory, or non-competing company whose ability to deliver is unknown. They want to know what scenarios can an innovation impact, what will be the business case seen from the point of view of new investments needed and benefit realized, what would be the assumption about other business processes and data to realize the promised value, what are other benefits beyond financial numbers (e.g., strategic, future ease) [3] and what are the sources of risk to guard against.

In the same setting, the providers of innovative solutions also face the problem of communicating business value while making their technology available for demonstration. Although they know the technology best, they do not have the knowledge about the proprietary customer data and business processes to estimate their technology's impact on customer's environment. As a result, they need to convince the potential client on the technology, use-case as well as business case to get the right price for the innovation and turn the client into a satisfied future reference. They also want to be cautious in parting with the details or actual solution without adequate compensation for their intellectual property in the innovations.

The problem we consider falls in the realm of business development for innovations which has received very little scientific attention. For regular IT-driven changes, it is commonplace to analyze a business using value maps and business operation network [4]. As an example of how to use it, in [5], the authors look at the banking industry and the factors which are transforming it globalization, innovation, and competition in the market and how the companies are responding.

To resolve the twin sides of the business development issues raised with innovation, in this paper, we propose an approach for quick prototyping of innovative solutions in the context of industry business processes and metrics by exposing technological capabilities as application programming interfaces (APIs) and assembling prototypes using API composition techniques. We call it accelerating client exchange (ACE) and discuss how it resolves the key issues in business development for IT-based innovation. Although there have been many a prior work on business processes modeling and service composition, they have focused on mainstream business operations and assume that the IT requirements are firm. In contrast, for our case of quick prototyping innovations and discovering business value in-market, to the best of our information, they have not been extended and applied for business development for innovations.

In the remainder of the paper, we first give a background of business development and then motivate our work with an example on how a technology can be used in different business contexts. Then, we derive a problem, provide the ACE framework as a solution, discuss a prototype, and demonstrate its usage. We conclude the paper with a discussion of related work, our limitations, and future directions.

2 Preliminaries

In this section, we first give the background on business development process for innovative technologies and then go through a case study of a technology innovation which can then be applied in multiple business scenarios.

2.1 Business Development Process

The business development process for an innovative technology can be broken into four phases: outreach, diligence, contracting, and in operation (see Fig. 1). Each of them consists of multiple steps.

A. Outreach:

1. Client identification—One forms a list of prospective accounts whom a vendor feels are potential targets. The challenge here is to nail down exact client names and divisions who can use the technology.
2. Client connection—Here, one develops contact with the client either through a known source or by a cold call.
3. Client meeting—One schedules meeting with the client with appropriate stakeholders and people from both sides. The challenge here is to know upfront who will this be most relevant to in the client.

B. Diligence: After outreach, one conducts due diligence with the client.

1. Discussion with client—Here, one undertakes open discussion on client businesses, issues, where they need help and what business metric improvement they seek. Technological innovation is usually not an end in itself but a tool to achieve a non-incremental business outcome.

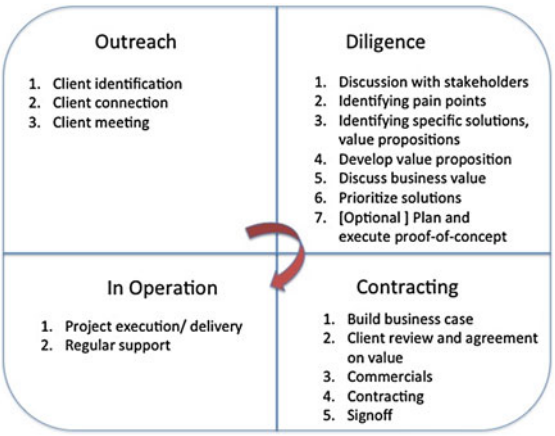

Fig. 1 Business development process for innovations

2. Identify pain points—Post discussions, a few pointed areas of collaboration are identified to tackle pressing problems.
3. Identify specific solutions, value proposition—Usually, there are innovation choices for the identified problems. Working with client explores their feasibility by checking assumptions and verifying with any sample data available.
4. Develop value proposition—Here, one goes beyond the system (input/output) view of the technology to understand the context (tools, procedures, people, regulations) in which it will be used at the client end and list out the impact. The impact constitutes the cumulative value from the technology for the client and needs to be validated with the client.
5. Discuss business value—Here, one collaborates with the client to develop a business case with anticipated potential benefits to the client and the requisite investment needed.
6. Narrow down/prioritize solutions—Now, the identified solutions are prioritized by mapping them with key dependencies and consulting the stakeholders.
7. (Optional) Proof-of-Concept (PoC) prototype—If requested by client, one also needs to plan and executes a PoC prototype where a scaled-down demonstration of the technology is done for the customer to test pre-identified hypotheses.

C. Contracting: Now one negotiates a contract to deliver the innovation to the client.

1. Build business case, cost–benefit analysis—Here, one articulates what the client will benefit from the technology in their business and also what investment is needed. Special attention is also paid to anticipated risks and ways to overcome them.
2. Review with client to agree in-principle on value—Now, one convinces the client to agree with value jointly developed. The client may want additional factors to be incorporated that they had not realized at the outset.
3. Commercials—Here, all parties agree on indicative pricing with timelines, responsibilities, and milestones.
4. Contracting—Now, approvals are obtained by the technology vendor from their sub-units who look into the legal, financial, and strategic aspects of the contract. Once all internal approvals are obtained, the contract can be put on paper in front of the client.
5. Sign-off—the client would also do their due diligence before signing the agreement to adopt the innovation.

D. In operation: Putting the innovation in client's environment.

1. Project Execution—Here, one delivers the technological innovation as per signed contract.

2. Support—One now does regular project management and support with governance to ensure the customer realizes the promised benefits.

2.2 Motivating Scenario

We present a common scenario to motivate the problem. It consists of a technology innovation which may be applicable to multiple industries.

Innovation Example—Linking Enterprise and Social Media Data. Organizations of all types maintain data about their operational activities in enterprise databases. An example of such data is information about an organization's employees, customers, partners, and shareholders. Now some of these entities are also active on social media channels like Facebook, Twitter, LinkedIn, and YouTube expressing both personal and business opinions. However, they may not be using the same identity to interact with an organization as they do on social media.

In this context, one can use technological innovations to link a person whose profile is known and stored in enterprise data against the online profiles available on social media. Such a link can help a business gain deeper insight about its existing customers leading to better suggestions for its product and services. We will call the capabilities social linking, and it consists of two cases:

- Given two datasets related to people, an enterprise dataset with primary keys and a social dataset with identifiers (keys), find a (partial) mapping between the primary keys in the two datasets.
- Given an enterprise dataset and a social dataset related to people, and known mappings between their primary keys, find significant topics [6] related to people spanning structured and unstructured data in the two datasets.

This is an area of much ongoing research and innovation, and a further variation involves linking open data as well [7]. We now show some examples of using this innovation in mainstream and new industries. See [8] for more examples and details.

Application Example 1
Purchases by a bank's account holders. Finance is a well-entrenched industry. Here, banks maintain extensive information about their account holders as part of government mandated regulations (e.g., demographics) and normal operations (e.g., credit and debit to accounts). They are always eager to get a higher share of their customer's wallet with their portfolio of financial offerings.

In this context, a bank can use the social linking innovation on its account holders and data about their social activity wherein the bank's offerings could be relevant. The bank could even customize their products if they see an unmet demand from this analysis. Any leads which the bank gets can be seen as improving its marketing and promotional operations.

Application Example 2
Increasing online booking for an airline. Like finance, transportation is a well-entrenched industry. Here, airlines book customers on their flights via their online Websites, booking cum sales offices and also through third-party travel agents as well as partner airlines. Among these options, booking customers via their Websites are the most desirable because it is not only the cheapest to operate (per ticket sold) but also the one giving the highest revenue (per ticket sold since no portion of the fare has to be shared). Hence, airlines would like to shift more of their bookings to their online platforms. In the travel context, the airline can use the social linking innovation on its previous fliers, whose data it already has in enterprise databases, and data about their social activity, to highlight flights, travel packages and offers that will match their expressed or predicted needs. Indeed, this will meet the airline's objective of getting more business from their established clients while also improving the customer's perceived satisfaction from the airline due to their customized overtures.

Application Example 3
Tracking people of interest for safety and security. Public safety and national security are high priorities for government's worldwide. Here, they build profile of people that are of interest and want to continuously update them. Private businesses are also sometimes interested in tracking people to avoid theft and disruptions to their operations.

In safety context, agencies can use social linking innovations on its citizens and visitors to build a holistic behavioral profile and prevent untoward incidents in a timely manner. The biggest practical challenge (and opportunity) for innovations is adhering to data privacy laws across multiple agencies (public, private) and countries.

Example 4
Increasing student enrollment in online courses in education. Innovations in online education are aiming to transform the way we learn with Massive Online Open Courseware (MOOCs) [9] in higher education and lifelong learning segments. Here, online education providers have to design curriculum that is relevant to industry needs, consists of appropriate learning pathways leading to appropriate skilling, and leverages customizations based on the existing courses (content, experts, ecosystem of learners) [10].

Existing information on existing courses and learner population and experts can be obtained from the enterprise data maintained by the online education providers. The information about the job opportunities is available in open (from job advertisements and blog posts of companies) and from the social data posted by various companies. The learner profile and their biography can be obtained from both internal information about the learner and their social profile from LinkedIn, Facebook, and other social communities. In order to improve course enrollment, the courses offered must demonstrate measurable outcome in terms of new opportunities or career progress of past learners to current learners. These could be determined from the changes in their profile before and after the course completion from the social data and references to positive sentiments on the course offerings (if

any). Therefore, to enable in-market innovation of new course offerings relevant to changing workforce requirements, there has to be a constant feedback of social data about the skill demand and change of profile of learners toward customized offering.

Summary in above, we presented just one example of a technology innovation (on linking enterprise and social data) which could be applicable in finance, travel, government, and education sectors. A technology organization would be looking to bring 10–100s of such innovations to market quickly, and we want to enable their business development.

3 Problem

The problem we seek to tackle is that given a technology

1. demonstrate that it works in the advertised setting(s)
2. show that it can work in the client setting
3. show that it can improve the business metrics of client interest
4. without revealing the internal working of the technology

The above scope will help the business development process in the following phases and steps:

- In diligence phase, facilitate ease in #3 (identifying solutions), #4 (developing value proposition), and #7 (conducting proof-of-concept prototype)
- In contracting phase, facilitate ease in #1 and #2 (building business case and reviewing) as well as justifying #3 (commercials)
- In operation phase, enable better project execution

For the rest of the paper, our running example for the problem will be social linking innovation for the finance domain. As [8] points out, the business case for innovations in this space is still not clear, and hence, co-creation is the best way to engage customers.

4 Solution

The outline of our solution is the following:

1. Leverage industry-accepted ontology of business processes and metrics as the lingua franca for business development communication.
2. Enable capabilities and data in scope, both innovative and preexisting, as APIs.
3. View market-wide use-cases clients are talking about as business processes implemented by IT applications that are themselves assembled by composing APIs.

4. Execute interactively and live while engaging the client using the API platform.
5. Discuss business metrics for evaluating impact.
6. Take go-ahead decisions proactively and transparently to improve client satisfaction.

In Step 1, we start by using an industry-wide ontology. We will use American Productivity and Quality Center (APQC) process classification framework (PCF [11]) as the industry-accepted ontology of business processes and metrics. APQC's PCF, APQC for short, is a standard for terminology on process definitions and measures for benchmarking. The development of APQC taxonomy started in 1992. More than 80 organizations have helped it evolve, and it is now being used by thousands of organizations worldwide. APQC is organized into five hierarchical levels representing business functions at different levels of granularity categories, process groups, processes, activities, and steps. To convey the level of granularity, roughly put, a level five tasks can be done by an individual, a level 4 activity is done by one or a group of individuals, and a level 3 process is accomplished by an organizations group. Companies organize functions at level 1 and level 2 in many ways depending on size, geography, and other considerations. At each node, there is a number in the bracket referring to a unique identifier assigned in BPH. APQC offers one, industry-neutral, hierarchy (also referred as cross-industry) plus many industry-specific frameworks to describe processes (or process nuances) specific to the industry. Note that a company might be identified by more than one industry BPH, depending on their profile.

As illustration in Fig. 2, APQC's business processes from the finance industry are shown (version 6.1.1). Our example use-case falls under 3.0 category of business processes dealing with selling of products and services. This is further scoped down to 3.4.6 for promotional activities. The metrics related to the business process are shown on lower right based on their match using the Process IDs (10,152 and 10,167). Thus, any company wanting to use linking innovation should be looking at improving one or more of these business metrics.

In Step 2, the access to data and capabilities is viewed as application programming interfaces (APIs). APIs are popular building blocks for open-standards-based IT today. Here, service providers publish specification of their IT capabilities wrapped as services onto registries. The services can be discovered by potential consumers later and then invoked on the providers, all using standardized interfaces. The idea has been popular as service-oriented architecture (SOA) which could run with proprietary technologies, as Web services with their focus on XML format for data serialization, and today using representational state transfer (REST) and JSON data format. We use a common term, Web APIs, or APIs for short, to refer to them.

In Step 3, the use-cases of client interest are viewed as applications that can be assembled from APIs. The API platform, thus, is used to encapsulate sample data, compose using unique innovations and preexisting capabilities, to trigger necessary decisions (visualizations, actions). There are many choices for composition techniques to use [12, 13], and the most popular is to do composition on the glass.

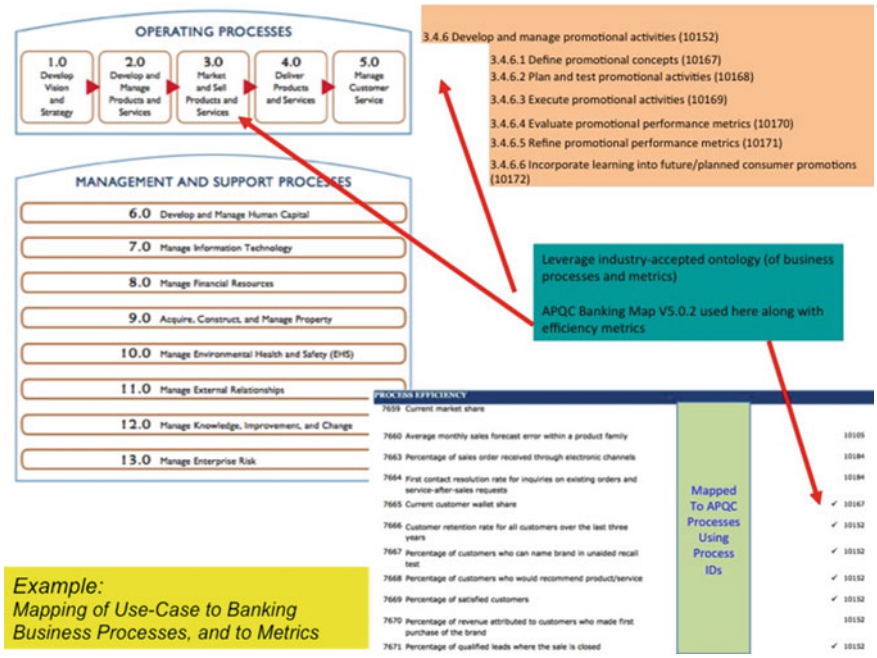

Fig. 2 A finance use-case with social and enterprise data

In Step 4, the innovation provider and client explore the different situations in which the innovation can be used. Some of them may not have been discussed earlier, but now seem feasible and the client would want them to be considered. For example, in our running example of finance, the bank may want to offer not only the finance products to its existing customers based on their social expressions but also (travel) insurance products that it had little insights about earlier for its customers.

In Step 5, the client and innovation provider discuss the metrics that should be the focus for determining business success. Here, there are many models which finance stakeholders (e.g., Chief Financial Officers) prefer like return on investment (ROI) or payback period [14] while others that technical stakeholders prefer (e.g., Chief Information Officer) like improvement in productivity, decreased costs, and added flexibility with some overlap. Even when the two stakeholders may agree on a metric like ROI, they may put different emphasis [3].

Finally, since the client can see the innovation in action, albeit in the small, and understand their potential as well as assumptions, they can take go-ahead decisions effectively. The innovation provider will also be confident that the client has co-validated the solution to meet their business goals, thereby increasing the chance of their initiative's success. APQC provides industry benchmark values for the most common metrics, and this can help set unambiguous objectives.

In the next section, we show how these steps come together in a prototype we have developed to validate these ideas.

5 Prototype

Figure 3 shows a prototype for our solution from the point of view of an innovation provider who wants to pitch innovations to multiple potential clients built around the example use-case. It follows the composition on the glass composition style where results from individual APIs are shown on a common portal (i.e., glass). The left column in the figure is dedicated to output from APIs related to data access. The middle column shows output from APIs related to technological innovation. The right column depicts the results in the context of the overall APQC industry map and other innovations listed on an API registry so that they can be used for what-if exploration during client interactions. We now look at them in detail as they realize the solution for the stated business development problem.

5.1 IT Capabilities as APIs

Data is a crucial element for running any IT capability. In the context of change, i.e., innovation, there may be issues regarding data access and quality which varies from client to client. Hence, in the prototype, we have APIs that connect to sample data on which the innovations can be demonstrated to run. In the sample data itself, the schema is important while the content is illustrative with personally identifiable

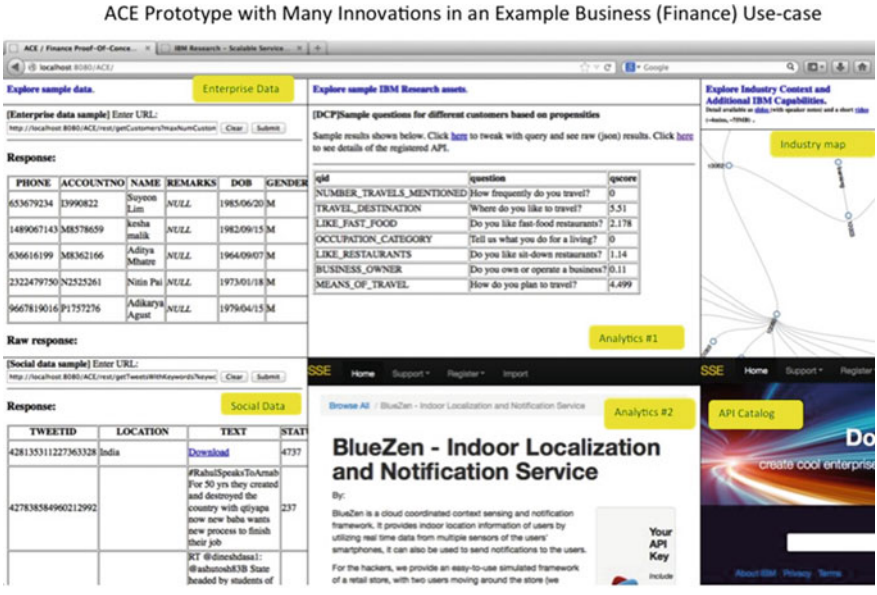

Fig. 3 A prototype for a finance use-case with social and enterprise data

information anonymized. The data-related APIs further help to transparently highlight dependencies which need to be captured in subsequent business value discussion. In our prototype, we provide sample enterprise data in the form of demographic information for a set of hypothetical people who may be a client's customers and social data in the form of Twitter updates by another set of hypothetical people, with some overlap.

Another set of APIs relates to demonstrating the IT innovations in scope for a client. Each innovation is available as an API which exposes multiple endpoints. The prototype calls specific endpoints in the innovation with default sample data which can be overridden as the client interacts with it in a live session. In the screenshot, two other innovations are shown available for exploration [15] in addition to the example one on social linking. The advantage of using APIs to demonstrate innovations is that one does not have to install the technology at the customer premise or reveal details of the internal workings, both of which help in preserving the innovations' intellectual property.

Finally, a low-level detail worth highlighting is that the results from the APIs are obtained in JSON or in XML format or different visualization formats. The prototype provides converters to turn them into human readable renderings.

5.2 *Business Value Calculation from Innovation Investment*

As noted earlier, there are many investment evaluation methods preferred by financial and technical (IT) stakeholders in businesses [3]. However, despite the divergence, return on investment (ROI) is the most common among them [14]. It is defined as:

$$\text{ROI} = \frac{(\text{Benefit} - \text{Cost})}{\text{Cost}} * 100 \tag{1}$$

We provide a template calculation for ROI where components for benefit include metrics mapped to the 3.4.6 business process (and its sub-activities), their targeted improvement (a percentage which the customer can override), and the financial interpretation of that improvement (a formula to arrive at $ impact) for the client. Similarly, the components for cost include the cost of making the data available for innovation, the change to client's existing IT systems to store new results, and the cost to procure the innovation.

The client can look at the ROI components, tweak the default values, add more components that they deem necessary, and get a quantitative indication of innovation's impact. All assumptions and default values in the calculation are highlighted and referenced to industry baselines from APQC.

5.3 APQC Industry Map as Interactive Map

Although the focus of the ACE demonstration is around a particular use-case (i.e., finance), the client may want to explore other related business processes, metrics, or other capabilities that the innovation provider may have beyond our example innovative solution (i.e., linking enterprise and social data). Therefore, we provide a novel interactive visualization in the form of a radial map (see Fig. 4) in the prototype. The client and the innovation provider can interact using the APQC PCF finance industry ontology to explore different what-if cases. As the user scans the processes, the full names emerge as also does the matching business metrics. Here, process identifiers from APQC are used for correlation. Further, industry-specific benchmarking data from APQC can be used to establish what the client objective may be with respect to their competitors.

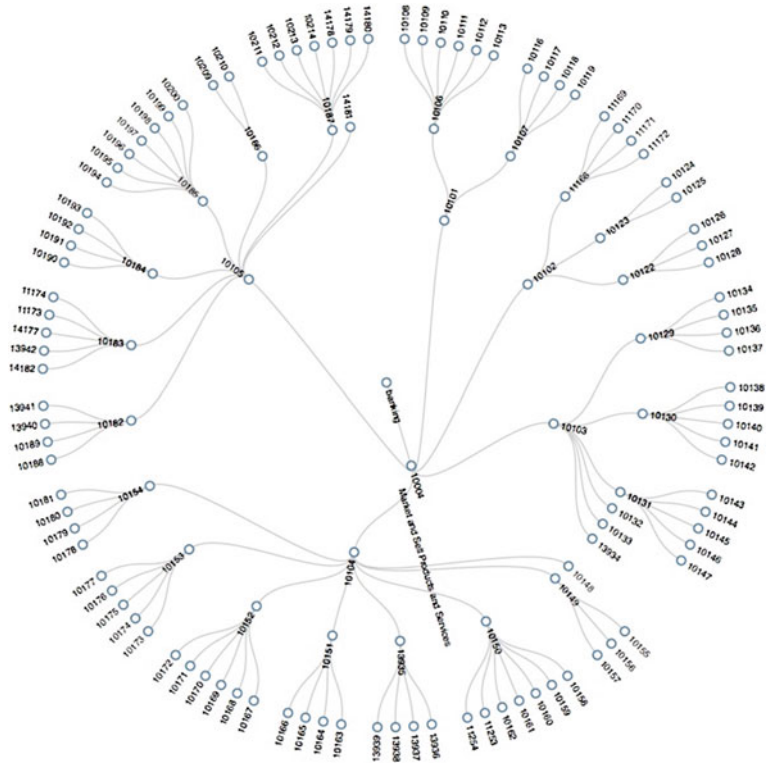

Fig. 4 APQC PCF for finance viewed along with mapping business metric(s)

5.4 Industry-Customized Functional API Search in Registry

Like the use-case, the client may also want to know what other capabilities the innovation provider has. Hence, we allow the ACE prototype to access an API registry where in addition to basic information about APIs that are captured in a typical registry [16] (i.e., name, description, endpoints), the APIs are also tagged with industry-specific or cross-industry business process and metrics that they can influence. Thus, in the context of the business process and metrics the client is interested in, we can search the registry for other related innovations. This not only enables a thorough discussion with the client but also provides additional cross-selling opportunities that business development is always interested in.

A demonstration of API search is shown in Fig. 3. Here, when the client wanted to see capabilities beyond social linking as applicable for a financial firm for marketing, innovations related to contextual questioning of customers and tracking in closed spaces [15] are discovered and shown.

5.5 Early Experience

Recall that the impact of our approach would be in diligence phase in the steps of identifying solutions, developing value proposition, and conducting proof-of-concept prototype; in contracting phase in facilitating ease in building business case, reviewing with client and justifying commercials, and in better operational execution. Prior to using the new approach, the critical steps in business development process with clients would involve showing video demonstrations of innovative technologies, questioning the client on their pain points, understanding their business process and data to estimate the scope of changes, setting up a proof-of-concept demonstration to justify a business case, and then concluding a contract. The efforts would span proving the new technology, understanding the client's industry and their unique situation, and establishing a business case for innovations of interest. It was typical to spend months completing all the whole process.

We have started applying our solution as implemented in the ACE prototype for finance industry with select clients offering a range of innovations with promising results. As the innovations are demonstrated to run live with sample data, there is minimal effort spent in proving the technology. Further, a standard industry ontology is used to discuss business processes, metrics, and baselines, understanding client's unique situation is simpler. Consequently, most of the time during the business development process is spent in building the business case—a drastic reduction in end-to-end business development time. We have been able to respond to potential clients in days where it was taking months earlier.[1]

[1]Note that due to business reasons, exact case studies cannot be shared.

Finally, it is easy to pursue an innovation in multiple industries by switching to corresponding industry maps that contain relevant business processes and metrics. ACE's underlying framework for composing APIs, allowing browsing of the industry, searching the registry of APIs with industry tags and business value calculation remains unchanged. This will come handy in exploring clients for the example innovation in the transportation industry and new industry like education in future.

6 Discussion and Related Work

We now discuss how our work connects to prior work and can be improved further.

6.1 Related Work

The prior work related to our problem can be found in management literature around business strategy and processes and (CS/IT) services literature around Web services and APIs.

It is commonplace to analyze a business using value maps and business operation network. As example, in [5], the authors look at the banking industry and the factors which are transforming it—globalization, innovation, and competition in the market. They then discuss an integrated approach for business network redesign for the financial industry that covers the layers of strategy, business process, and operational (IT) systems. However, there is interest to know how innovation impacts a business. In [1], the authors look at why some companies do exceedingly well compared to their competition and articulate the reason to be how they question the assumptions of the industry and provide new products or services that disrupt the traditional value chain. To do so, the successful companies embrace technical and business innovation which leads to a quantum jump in revenues and profits compared to the competition which is still in incremental improvement mode. In [2], the authors discuss the experience of a large research-driven organization, Xerox, on how they fared in realizing value and success from innovative technologies. Specifically, they highlight that apart from the technical ingenuity, new business model may also have to be explored which is in line with client's perception of value.

In services literature, tieing business processes and objects with their service-oriented architecture (SOA)-based IT implementation is well understood. Packaged integration platforms like IBMs composite business services [17] or SAP have pre-configured business processes that are implemented and exposed as services. Using them, service composition [13] can help accelerate time to value for a business and service customization can help handle changes [18]. However, there are choices which must be considered judiciously. In [12], the authors proposed that

common service composition techniques fall into six patterns with distinct characteristics of their integration intermediary: (1) composition on the glass, or Type G, where services are connected by presenting their user interfaces on a screen and having a human operator serve as an intermediary to route connection messages; (2) composition by widgets, or Type W, where services are connected programmatically by interactions between their on screen representations, such as forms, maps, and buttons triggered by humans; (3) composition by direct invocation, or Type D, where services are connected by developing a custom application that calls the services and handles the data and control flow explicitly; (4) composition by information sharing, or Type I, where services are connected by a shared access to persistent storage space which holds service invocation information; (5) composition by orchestration, or Type O, where services are connected by a workflow specification which defines both communications among services as well the behavior of the composed process; (6) composition by events, or Type E, where services are connected by publishing and receiving event messages to predefined topics on a pub/sub server, which serves as an intermediary to asynchronously deliver connection messages. They compare the patterns around ability to scale with transactions, ease in monitoring, robustness against exceptions, evolution to changes, and data interoperability, and find that no pattern is better than others in all business and IT situations. We chose composition on a glass in our prototype.

6.2 Limitations and Future Work

As previous sections noted, the ACE approach has shown that business development duration can be reduced by having API technologies and reusing industry knowledge. However, the current prototype is limited to finance industry and needs to be expanded. Further, there are many financial and technical models to evaluate IT change [3]. We focused on ROI, and one can incorporate others. The current composition approach in the ACE prototype is Type G (glass), and we can incorporate further automation by moving to Type W (widget). Additionally, one needs to gain more experience with a wider client base as well as have the approach tried by other innovation providers.

For the ACE approach to work, the IT innovation needs to expose an API endpoint. However, many innovations do not do this at the outset and converting them to support API interfaces becomes time-consuming. But evidence shows that doing so makes the innovation available to multiple usage contexts which were cumbersome to pursue earlier. As example, in ACE prototype, the social linking innovation can be pursued in multiple industries easily by switching to appropriate business maps—a capability we plan to incorporate in future.

7 Conclusion

Continuous in-market innovation facilitated by IT has become an imperative for business across industries. Motivated by the need to accelerate such innovations while balancing the concerns of both clients and innovation providers, in this paper, we proposed a framework, called ACE, to develop and incorporate innovative solutions in the context of industry business processes and metrics using (Web) API composition. We have implemented the ACE approach into a prototype, and early experience shows that it is able to expedite business development by either reducing the turn around time to contract or in identifying the mismatch between the features and the targeted market segment. Overall, the proposed framework has helped in communicating value to clients toward planned or proposed in-market innovation features.

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