

Multisided Business Model for Platform Offering AI Services



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1 Introduction

Platform businesses have become one of the latest research topics in various management disciplines [10]. A platform is an interface that facilitates interactions between different parties, usually complementors and customers [9]. In the platform business, the platforms and their complementors have a strong one-way complementarity, where the total value of the platform and its complementors is more than the sum of the two combined [18], and this complementarity requires the interdependencies between the platforms and the complementarities to be managed in an ecosystem level.

There are two basic types of platforms: innovation platforms (as an intermediary for direct exchange or transactions) and transaction platforms (as a technological foundation upon which other firms develop complementary innovations). Some

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companies combine the features of the two and create “hybrid platforms” [13]. Multisided platforms (MSPs) allow direct interactions between two or more different entities, where each entity is associated with the platform [17]. Examples of well-known MSPs include Facebook, Uber, PayPal, Airbnb, Alibaba, eBay. The growing interest in MSPs is due to two key factors: their essential role in minimizing the transaction costs between sides [15] and the power of the business models (BM) in the digital economy because of their ability to adapt and cope with complexity, rapid scaling, and value capture [1]. Although many companies are opting for MSP BMs, only a few have been successful. MSPs should strive to attract users and must achieve direct and indirect network effects to be successful. More importantly, they ought to solve the chicken-or-egg problem, which refers to a network effect meaning “one side of the market realizes the value only if another side is fully engaged” [13].

2 Methodologies for MSPs Business Modeling

The pioneering models of MSPs were introduced by Armstrong, Valillaud and Jullien, Parker and Van Alstyne, Rochet and Tirol, as described in more detail in Hagiu and Wright [17]. Allweins et al. [2] proposed a Business Model Canvas [21] to illustrate the MSP businesses. As a result, the cited paper proposed Platform Canvas. The focus of this study was not on the definition of individual entities (having different value propositions) but on the modeling of MSPs’ business transactions. For this purpose, only methodologies dedicated to MSPs’ business models were considered. The Business Model Kit is proposed by the Board of Innovation.¹ It consists of 16 blocks filled with details on various stakeholders and value propositions, resulting in a marketing tool for communicating the BM to different entities. Leanstack² offers a Lean Canvas, adjusted from the Business Model Canvas, with procedures to complete the nine blocks starting with problem definition, modeling customer segments, and finally, the derived unique value proposition. Lean Canvas introduces a phase of finding the solution, identifying channels to reach customer segments, estimating revenue and cost structure, and defining crucial metrics and unfair advantages.

Most papers develop analytical models focusing on a specific characteristic of the MSPs business model, such as pricing structure, network externalities, or competition (i.e., [3, 6, 14, 16]), while a holistic approach to building a business model for MSPs is lacking. Therefore, a methodology that seems to meet the expectations of MSPs in the context of business model development is the Platform Design Toolkit (PDT). This methodology is the first codified platform design method, released in 2013.³ The PDT was developed by a team led by S. Cicero

¹ <https://www.boardofinnovation.com/tools/business-model-kit/>

² <https://leanstack.com/lean-canvas>

³ <https://www.boundaryless.io/pdt-toolkit/>

to provide companies with support in describing the platform's vision, the core and ancillary value propositions, the platform's infrastructure and core components, and the characteristics of the platform ecosystem expressed through transaction dynamics [5, 11]. It was optimized to support the development of multisided, transformative platform strategies to empower ecosystems to create shared value. It is an open-source method adopted worldwide by global Fortune 500 leaders, leading institutions, start-ups, and scale-ups. The PDT covers all stages, from exploration to design, validation, and growth. The core of the PDT methodology in developing a business model is the design stage: an extensive and proven step-by-step process that helps move from contextualizing entities in the ecosystem, their role and relationships, detailing possible transactions between entities, to designing the platform experience.

PDT, in the design stage, contains eight templates (canvases) to be completed, considering as many aspects of the business. The steps are as follows:

1. *Mapping the ecosystem*: entities present in the ecosystem are mapped onto the canvas, allowing us to understand the role they may play and identify possible clusters.
2. *Portraying ecosystem's entities roles*: a coherent and deep picture of the role of each of the entities identified in step 1 is created by defining what their context is, what they want to achieve, with whom and how they want to integrate, what potential they can represent and what kind of experience gains they are looking for, and what the platform shaper can provide them with.
3. *Analyzing the potential to exchange value*: using the so-called "ecosystem's motivation matrix," entities' potential to exchange value flows is analyzed. This is a mapping of what type of value exchange is already being performed (or attempted to be performed) by the entities and what additional value they could exchange if adequately enabled.
4. *Choosing the core relationships you want to focus on*: the platform shaper needs to identify which entities in the ecosystem they want to focus on and which relationships will form the core of the platform design.
5. *Identifying the elementary transactions*: the "transaction board" tool is used to map how the ecosystem currently exchanges value (focusing on the entities and relationships prioritized in step 4) and how the platform's strategy is to help them make value transactions more manageable, faster, and cheaper by providing and curating channels and contexts that increase the likelihood of interactions and transactions.
6. *Designing the learning engine*: through the "learning engine canvas," a step-by-step process has been designed to support/enable services that will support entities to adopt the platform strategy. These services will not only help them evolve and become better producers and consumers but also radically evolve and discover new opportunities and behaviors that were not initially intended.
7. *Assembling the platform experiences*: with the "platform experience canvas," the elements emerged from the transaction board (step 5) and those from the learning engine canvas (step 6) are combined to create an experience persistence

model that summarizes the key value propositions arising from the strategy being developed. This allows consideration of what resources and components need to be put in place and managed to deliver these experiences and derive value from them.

8. *Setting up the minimum viable platform (MVP)*: this allows us to test in the natural environment (market) whether the design assumptions are suitable for the future. By analyzing design products, in particular the compiled “platform experience canvases” (step 7), the riskiest assumptions of the strategy are isolated, as well as experiments and indicators to validate them with the ecosystem are identified.

The resulting business model is then summarized in the platform design canvas, which is the final output of this reference methodology. According to the author’s knowledge and experience, by far, the most essential element of business models for MSPs is to identify the value that can be transferred to the different entities through the platform [12]. Taking this into account, it was decided to focus on the first five steps of the PDT methodology.

3 Application of PDT for the Design of AI Platform as a Service Business Model – KITT4SME Case Study

3.1 Introduction to the KITT4SME Project

KITT4SME (platform-enabled KITs of arTificial intelligence FOR an easy uptake by SMEs) is a Horizon 2020 project (GA 952119). It is explicitly aimed at European SMEs and mid-caps to provide them with scope-tailored and industry-ready hardware, software, and organizational bundles, delivered as modularly customizable digital platform that seamlessly introduce AI into their production systems.⁴

Among the main objectives of the KITT4SME project that need to be included in the business model are [20]:

- to provide SMEs with ready-to-use, customized digital packages to harness the capabilities of AI at an affordable price and a proper scale,
- seamlessly combine AI and human problem-solving expertise (know-how) into a single digital platform with unparalleled shop floor orchestration capabilities, and
- expanding the local ecosystem offerings so that entities with different competencies can grow by collaborating on customizable AI kits.

⁴ <https://kitt4sme.eu/>

3.2 *Needs Elicitation*

The process of creating a BM for AI platform as a service was initiated by identifying the main stakeholders (manufacturing SMEs, AI developers, DIHs) and their needs. The needs elicitation process was conducted by adhering to iterative stakeholder engagement based on interviews and workshops, as proposed by Azadegan et al. [4] and confirmed by Bettoni et al. [8]. To identify needs/expectations, 29 interviews were conducted with samples of different types of stakeholders. AI developers (13 respondents) and SMEs (10 respondents) are the most represented entities [7], as they will be the primary and direct users of the KITT4SME platform (supply and demand side). Entities of different sizes, from different EU countries, and with different scopes of activity (from national to global) were involved (for more details about this analysis, see [19]).

The following needs were identified:

- modularity of solutions,
- the possibility of integrating implemented AI solutions with already existing ones,
- increased data transparency and traceability,
- identification of hidden problems to improve processes,
- defining solutions to the identified problems,
- personalizing the platform, allowing to tailor solutions to individual needs,
- matching potential partners,
- access to multilevel knowledge transfer,
- simplified AI implementation algorithms,
- generalization of implementation middleware,
- integration of modules to facilitate deployments,
- ability to integrate with low-digitized infrastructure,
- introduction of preventive maintenance,
- improved analytics and a better understanding of customer behavior and purchase decisions, and
- personalization of actions in real-time.

3.3 *KITT4SME Business Model*

The first step in developing the KITT4SME platform BM consisted of identifying the crucial entities that will form the platform ecosystem and have a significant impact (direct or indirect) on the functioning of the platform. These entities have been mapped into a unique canvas, as shown in Fig. 1.

The idea behind the canvas is to divide the entities in the ecosystem into three main groups: impact entities (platform owners, external stakeholders) – they are not involved in the continuous interactions happening in the ecosystem; demand entities (peer consumers) – they are interested in “consuming” the value produced

THE KITT4SME ECOSYSTEM CANVAS

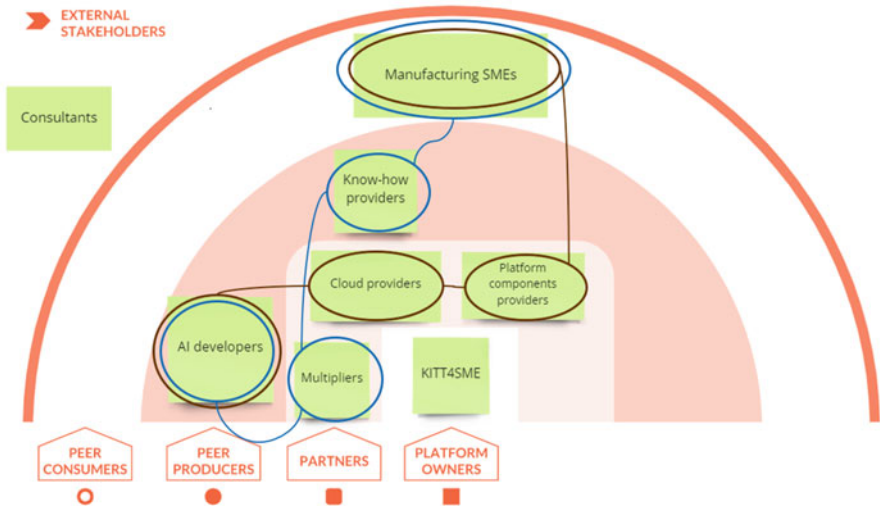


Fig. 1 KITT4SME ecosystem canvas (step 1) + core relationships (step 4)

in the ecosystem; supply entities (partners, peer producers) – they are interested in “producing” the value consumed in the ecosystem.

Considering a single entity, its position in this framework may vary. For example, an AI developer (peer producer) may become a partner after a certain period of time if it provides many AI solutions and takes an active part in the development of the platform. An entity may also have a dual role, as access to the platform may create new opportunities: a company initially interested in offering its products (peer producer) may later be interested in using its belonging to the ecosystem to seek ideas for improving manufacturing processes in SMEs (peer consumer).

In the second step, the aim is to develop a portrait of the leading entities accessing the platform from both the demand and supply sides. It should be noted that this second step aims to map what the entities are currently looking for rather than what the idea behind the platform service is. Thus, it is possibly better to characterize the value from their point of view. In the KITT4SME ecosystem, six different entities have been identified (Fig. 1). Figure 2 shows a portrait of AI developers, as they appear to be the most important in the initial lifecycle of the platform – they will be responsible for delivering AI solutions/services that can be transacted. Similarly, portraits should be taken for all other identified entities.

The ecosystem motivation matrix (step 3) maps the values exchanged between pairs of entities through the KITT4SME platform. Money is undoubtedly exchanged as a consequence of interactions through the platform, but even more important for shaping the KITT4SME BM is the identification of intangible values resulting from the opportunities the platform brings. The matrix shown in Fig. 3 details the central

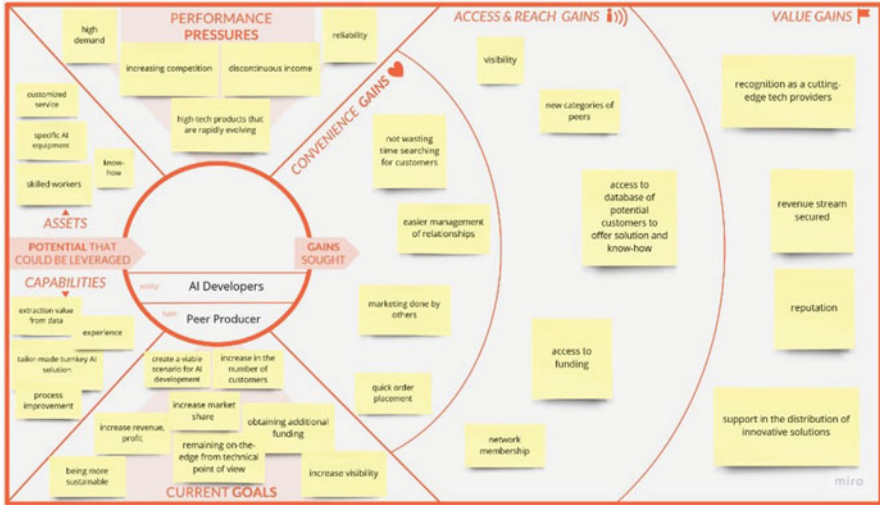


Fig. 2 Portrait of the entity “AI developers” (step 2)

gives to	Manufacturing SMEs	AI developers	Know-how providers	Platform components providers	Cloud providers	Multipliers
Manufacturing SMEs		<ul style="list-style-type: none"> real scenarios to develop AI solutions training data money feedback for improve AI solutions visibility (advertising) reputations and connections 	<ul style="list-style-type: none"> money feedback help to better understand expectations regarding AI in which direction the market is going inspirations and contributions 	<ul style="list-style-type: none"> ideas for new or extended platform functionalities business comments 	<ul style="list-style-type: none"> new customers cross-selling opportunities 	<ul style="list-style-type: none"> trends of AI needs in manufacturing sector regarding AI paying association fee (privileges)
AI developers	<ul style="list-style-type: none"> AI solutions extract value from data knowledge customized services reputations and connections access to product, new competences and technologies 		<ul style="list-style-type: none"> AI solutions as a basis for training and knowledge expansion 	<ul style="list-style-type: none"> enhance value of solutions 	<ul style="list-style-type: none"> new customers (2nd-3rd step) 	<ul style="list-style-type: none"> services to offer reach new association supply better some needs
Know-how providers	<ul style="list-style-type: none"> access to new competences, skills and knowledge innovation support 	<ul style="list-style-type: none"> visibility dissemination of the solutions offered through training and user support 		<ul style="list-style-type: none"> ideas for new or extended platform functionalities feedback keep up with market trends 	<ul style="list-style-type: none"> more cloud contents democratization of cloud usefulness feedback keep up with market trends 	<ul style="list-style-type: none"> training innovation money
Platform components providers	<ul style="list-style-type: none"> access to AI solutions innovation support 		<ul style="list-style-type: none"> customers increase revenue keep up with market trends experience and knowledge on the specific platform component 			<ul style="list-style-type: none"> extend the network knowledge
Cloud providers	<ul style="list-style-type: none"> access to cloud infrastructure innovation support consulting services servers 	<ul style="list-style-type: none"> consulting services servers 	<ul style="list-style-type: none"> customers increase revenue keep up with market trends experience and knowledge on the specific cloud solutions 	<ul style="list-style-type: none"> technical competence and experience (deployment in cloud) 		<ul style="list-style-type: none"> extend the network knowledge
Multipliers	<ul style="list-style-type: none"> innovation support new ideas feedback networking opportunities consulting support or contact with the platform's other page networks of contacts 	<ul style="list-style-type: none"> networking opportunities consulting impact on local/regional innovation markets and networks contribution with the demand side networks of contacts 	<ul style="list-style-type: none"> extends market increase revenue and customers' goodwill impact on local/regional innovation markets and networks contribution with the demand side networks of contacts 	<ul style="list-style-type: none"> visibility business contacts transparency dimension 	<ul style="list-style-type: none"> visibility European dimension 	

Fig. 3 KITT4SME ecosystem motivation matrix (step 3)

values exchanged between peer consumers (PC), peer producers (PP), and partners (Pa) – previously mapped in the ecosystem canvas (Fig. 1). The cells report what the entity in the first column from the left can “give to” the entities on the upper axis.

The goal of the fourth step is to decide which subset of relationships to focus on to ensure that enough attention is paid to defining and implementing the core

experience. The value flows identified in the ecosystem motivation matrix (Fig. 3) were transferred to the ecosystem map (Fig. 1). Figure 1 shows the division of relationships into those relating to resource sharing (brown lines) and those supporting AI solution implementation (blue lines). In the first case, entities contact each other to share resources. Manufacturing SMEs in this context seek dedicated AI solutions to develop and improve their production capabilities. The remaining entities, i.e., AI developers, cloud providers and platform components providers, are identified as suppliers and partners, offering their knowledge, expertise, and AI solutions through the platform. Supporting AI solution implementation is a relationship that involves entities seeking to collaborate on creating and improving AI solutions.

The identification of the underlying transactions and channels serves to illustrate how the ecosystem exchanges value (step 5) and highlights the role of the KITT4SME platform as an intermediary in this process. Most of the interactions take place through the platform itself, which creates value from the exchange of information, while the three interactions involving the exchange of software (AI solution/module), AI service (e.g., support to solving problems using AI, implementation AI solution, consultation), and payment are realized outside the platform.

The transaction matrix helps analyze the relationship between the demand side (entity 1) and supply side (entity 2). It helps identify all transactions/interactions and their channels that are already taking place or may take place. In addition, for each transaction/interaction is assigned what is the unit of value. One of the key roles of the platform (owner) is to create channels that can reduce coordination/transaction costs.

The transaction matrix (Table 1) confirms that the KITT4SME platform is the main channel of interaction and, to be successful during each interaction, the exchange of information must add value for the stakeholders. A crucial role of the platform is to participate in the facilitation of the communication process actively and the interaction between stakeholders, thereby reducing transaction costs and facilitating transactions.

3.4 *Business Model Design Canvas*

The analyses conducted in the previous chapters were finally aggregated into the platform design canvas and structured as follows:

- *Enabling services (platform to partners)*: focused on helping partners generate/create value from their assets and capabilities, access to potential consumers, increasing competitiveness and visibility, and decisively improving as professional entities (reputation). For KITT4SME, these are designed services to facilitate the implementation of technical specifications and core service stan-

Table 1 KITT4SME transaction board for core relationships

Entity 1	Transaction/ interaction	Entity 2	Currency/value unit	Channel or context
Mfg. SMEs	Request for support to solve a problem/implement a solution High level of request Request or complete NDA Sending enquiry Communication/interaction Sending offer Reply to the offer	AI developers Cloud providers Platform components providers Multipliers Know-how providers	Information	KITT4SME platform
Mfg. SMEs	Development/tailored of an AI solution Problem-solving/implementation of AI solution	AI developers Cloud providers Platform components providers Know-how providers	AI solution AI module AI service	Companies developing AI solutions Software houses Companies implementing AI solutions AI consulting firms
Mfg. SMEs	Testing/validation of the AI solution	AI developers Cloud providers Platform components providers	Information	KITT4SME platform
Mfg. SMEs	Corrections/elimination of errors	AI developers Cloud providers Platform components providers	AI solution AI module	Companies developing AI solutions Software houses
Mfg. SMEs	Reply to the AI solution Reply to the problem-solving/implementation of the AI solution Payment	AI developers Cloud providers Platform components providers Know-how providers	Information	KITT4SME platform
Mfg. SMEs	Feedback/reputation	AI developers Cloud providers Platform components providers Know-how providers	Information Money	Independent channel
Mfg. SMEs		AI developers Cloud providers Platform components providers Multipliers Know-how providers	Information	KITT4SME platform

dards for AI developers providing solutions for KITT4SME and disseminating KITT4SME in the AI field.

- *Empowering services (platform to peer producers)*: aimed at helping peer producers start executing transactions, improve their capabilities, improve on the platform, and enter the development stage (growth phase). The KITT4SME platform aims to support the development of EU-compliant applications, modules and services for AI solutions through dedicated consulting, training, success stories, and best practices.
- *Other services (platform to peer consumers)*: there are many cases in which platforms provide more classical industrialized services to users. They are complementary to the value exchanged, experiences provided by the ecosystem, and they provide powerful, robust usability for the individual user. Like empowering services, support and training will also be provided for those consumers who intend to use other AI platforms or switch to solutions offered by other AI vendors.
- *Core value proposition*: stands for the core value that the platform is trying to create for the main purpose of its operation. It usually targets consumers, as they usually represent the broadest market segment of peers and are the customers who buy products or services. Particularly, in dynamic market networks and in more niche contexts, where transaction value is higher and transaction volume is lower, partners or peer producers may be the basic recipients of the core value proposition.
- *Ancillary value propositions*: these are ancillary values offered by the platform. Ancillary value propositions can be aimed at the same market segment as the core value proposition or at others. It is common for MSPs to supplement the core value proposition for the demand side of the platform (manufacturing SMEs) with a proposition aimed at the supply side (AI developers, know-how providers). KITT4SME provides an entire environment (infrastructure) that enables not only real interaction between entities in a multisided ecosystem but also the resources necessary to increase their visibility in the AI field. Ancillary value propositions for the KITT4SME platform could be SME issues assessment, modules combination and kit composition, kit deployment and maintenance, shop floor data acquisition, extraction, synthetization and reporting of data, generation of real-time interventions, workforce assessment and upskilling, best practices, and knowledge creation. Most of them can be assigned dedicated assistance, and these services can be the basis of the membership fee. Advertising services can also be considered as ancillary values. With the development of the platform, the growth of the number of users and increasing platform reach – it will be possible to provide advertising services to interested entities (e.g., advertising AI services), which may be the basis of advertiser fees.

At the beginning of the platform's life, the platform will charge mostly transaction fees for the transfer of AI solutions and apply membership fees only for some services while the rest will be offered for free. In the future, when a critical mass of consumers is reached, the platform will charge mostly membership fees.

- *Infrastructure and core components*: these are assets owned and controlled by the platform owner. They are managed according to the platform’s governance rules. Assets can be tangible (e.g., server or venue) or intangible (e.g., common standard – FIWARE). They guarantee the platform’s operation and use by the ecosystem. KITT4SME identifies the critical elements of the platform’s IT environment as the core components of the platform BM, namely the AI module standards, protocols, the standard enablers (CPS-izers, runtime), codes, and the functionalities and channels that enable its dissemination (such as RAMP).
- *Transactions*: are part of a more complex “experience.” They should be understood as a sub-activity during which value is created, delivered, exchanged, or transferred between typically two (or more) platform users. KITT4SME assumes two main types of transactions: the first is intangibles (information), which the platform completes by providing it through the systems typically used in such kinds of platforms; the second is monetary and related to AI services that are exchanged through the platform (AI solutions, applications, modules, services, runtime).
- *Channels and contexts*: enable exchanges within the platform and are the platform’s interface with users. Channels are user touch points that play an essential role in the user experience. They are crucial in creating added value: they should be actively created and continuously improved by the platform owner. The marketplace should be considered the principal channel provided by the KITT4SME ecosystem, where AI solutions, applications, modules, and services are purchased, exchanged, transferred, and downloaded, respectively. Channels for exchanging/obtaining information and processing payments are also important.

3.5 Revenue Model for the KITT4SME Platform

After a literature analysis of MSPs’ pricing strategies, a review of the monetization strategies of other platforms offering AI services, and an internal workshop of the partners involved in developing the KITT4SME revenue model, it seems possible for the platform to generate revenue through all three main streams [22]:

- subscriptions (membership fee),
- advertising (advertisers fee), and
- transactions (transaction fee).

For the KITT4SME platform, several revenue streams can be combined and different models can be adopted at different stages of the platform lifecycle.

When designing a business model that assumes revenue from all three main streams, a fundamental issue to have in mind is the evolving network effects. These are generated from the interaction of user pairs and strongly influence the level of interest in the platform. Given the resource-sharing scenario of the platform, network effects are generated when the availability of more resource providers

(AI developers, know-how providers) attracts more entities seeking resources (manufacturing SMEs), which in turn causes more providers (peer producers) to join the platform. Finding the right balance at the outset is problematic because if there are not so many providers, there is a risk that the peer consumers may not find what they are looking for and will use a competitor's platform. The same consumer could abandon the KITT4SME platform and not return when it is upgraded with updated versions of its services, such as an advanced matchmaking mechanism or new AI solutions/modules. On the other hand, a provider that does not receive contacts may choose to post its offer in multiple places (e.g., AI platforms) if the cost of staying on the platform is affordable. The first effort should be to build a good peer producers base, while the right message needs to be sent to potential peer consumers.

In order to support the creation of this kind of dynamics while generating revenue for the platform, the following approach can be used, especially in the initial lifecycle stage of the platform:

- A free trial period is offered to each type of entity. This gives access to a primary or all set of services. The KITT4SME platform owner has to decide whether to keep the free access with no time limits forever;
- After the trial period, a peer producer (AI developer, know-how provider) and peer consumer (manufacturing SME) access fee is required;
- A transaction fee is charged and paid by the peer producer, who will set the final price offered to the peer consumer.

For the solution implementation scenario, a different revenue mode should be used. Most likely also, in this case, the initial access will be free of charge for each type of entity. Then a lead fee model is considered more appropriate than the one based on commissions, as the final exchange value may be differently related to creating and improving customized AI solutions.

For both scenarios, some incentives can be offered to active entities of the KITT4SME platform ecosystem. For example, an opportunity can be created for a platform member to invite some of their contacts (e.g., suppliers or customers) to the KITT4SME platform; if onboarding is achieved, the platform member may receive some benefits (e.g., discounts on the transaction fee, extension of the trial period, special rates). It can also be more complex and linked to the actual activity of the invited new members. For example, a platform member may receive the first set of benefits when their contacts are onboard and the second when their contacts start transacting on the platform. This can also be valuable for partners who can use the platform to gain benefits by including their network in the KITT4SME ecosystem.

All the considerations so far have allowed the construction of an initial revenue streams model to determine the pricing strategy for the KITT4SME platform and to assess the financial sustainability of the KITT4SME platform (Fig. 4).

Figure 4 illustrates the different revenue streams of the KITT4SME platform, which include several interdependent groups of entities (manufacturing SMEs, AI developers, know-how providers, cloud providers, platform components providers, consultants, multipliers), the KITT4SME platform owner, and their interactions. For instance, a usage externality exists when peer producers and peer consumers



Fig. 4 Revenue streams in the platform within the KITT4SME ecosystem entities defined in PDT

need to work together to generate value using the KITT4SME platform (enhancing the quality of the match). Interactions can also occur between peer consumers and advertisers (very often advertisers will be peer producers, but not only, e.g., consultants). In this case, no transaction is taking place. Furthermore, the KITT4SME platform can enable advertising services or matching offers and charge an advertising fee for this and charge a premium fee for continued access to all KITT4SME services (i.e., a membership fee).

4 Conclusions and Next Steps

In addition to most traditional strategies for defining business models, this study allowed us to understand better the users' needs of the platform offering AI services, to identify the values that can be exchanged through the platform, and to formalize the relationships and partnership mechanisms between entities accessing the MSP. This was done using the platform business model developed for the KITT4SME ecosystem as a case study.

The adoption of the PDT method has shown that this tool provides a relevant methodological approach to define business model scenarios dedicated to MSPs qualitatively. Dividing the development of a business model into a few canvases allows one to focus on the different steps and to go deeper into the details of their design. The first five stages of the PDT have made it possible to define which entities can exchange values through which transaction channels. Although the completion of the canvases still does not allow a quantitative approach to assess the extent to which the elaborated BM can remain sustainable under the dynamic evolution of the boundary conditions.

The following steps should be setting up the MVP and determining the value of the different fees charged for using the platform. The KITT4SME project will be used as a case study for these steps. In this way, the canvases proposed by Cicero [11] will be expanded by developing a methodology that guides the user to quantify the BM elements required for economic feasibility.

Acknowledgments The work presented in this chapter was developed within the project “KITT4SME – platform-enabled KITs of artificial intelligence FOR an easy uptake by SMEs” and received funding from the European Union’s Horizon 2020 research and innovation program under grant agreements No. 952119.

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