Deliverable 6.3

Business Models

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Abstract (for public dissemination only)	Adoption of the GREAT approach and method depends on key actors understanding the costs and benefits which are implied. To this end, the potential business models that can be deployed are identified. A business model canvas and matrix have been created, which represents the value to stakeholders, the use of the technology and the outputs, highlighting the key components and variations. Options on models are explored including price points and value proposition.
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List of Abbreviations

BMC	Business Model Canvas
CA	Consortium Agreement
CAC	Customer Acquisition Cost
CSR	Corporate Social Responsibility
DEFRA	Department for Environment Food and Rural Affairs
DiBL	Dilemma Based Learning
DIH	Digital Innovation Hub
DaaS	Data as a Service
EC	European Commission
EGE	The European Group on Ethics in Science and New Technologies
GA	Grant Agreement
GDPR	General data Protection Regulations
GREAT	Games Realising Effective and Affective Transformation
H2020	Horizon 2020 program of the European Union
IPR	Intellectual Property Rights
LTV	LifeTime Value
NGO	Non-Governmental Organisations
PM	Playmob
SaaS	Software as a Service
SGI	Serious Games Interactive
UNDP	United Nations Development Program
UKRI	United Kingdom Research & Innovation
WP	Work Package

1. Executive Summary

This deliverable provides a summary of the research undertaken by the GREAT project in examining the business models applied in the domain of the use of games to link citizens in dialogue with policy makers examining policy dilemmas related to the climate change crisis.

The existing and current business models applied by the industrial partners SGI and PlanetPlay are examined, using the combined lenses of three variants of the Business Model Canvas, The Business Model Canvas, The Value Proposition Canvas and the Lean Canvas.

This approach exposes the attributes of the partners business models and provides formal conceptualisations of how these organisations function in what is an emerging domain of activity. The assumptions underlying the models, specifically the value propositions, are tested and evaluated in the GREAT case studies currently being undertaken in the accompanying work package 4 of the project.

A number of alternative revenue models are considered, and informed by this analysis, and by contemporary business literature, we conducted in-depth interviews with the industrial partners SGI and PlanetPlay, GREAT stakeholder groups and sponsors to further develop refined business models informed by our research.

This public report highlights the GREAT partners' research into the business aspects of the project. It is anticipated that the content will be of interest to a wider audience including the EU, games development studios, policy-makers and potential sponsors of activities.

1. Introduction

This document has two distinct purposes: the first is to outline potential business models that are informed by the activities and outputs of the GREAT project, which could be deployed by the participating commercial partner. The second is to clarify the potential, costs, benefits and value of engagement with games as tools for linking key policy stakeholders, using business models to assess the use of technology and the value proposition offered by the GREAT methods and approaches. The project applies the Business Model Canvas and Lean Model Canvas as the primary exploratory and investigative tool for highlighting key requirements, aspects and propositions.

The GREAT project employs two contrasting approaches to examine policy dilemmas related to climate change. These exemplify key perspectives and techniques that leverage games technology to engage players and expose their perspectives and

views. The first approach, as applied by commercial partner Serious Games Interactive (SGI), involves facilitating serious games for stakeholders to assist them in identifying and exploring dilemmas presented within a particular area of climate change. The second, as applied by commercial partner PlanetPlay (PP), involves large scale polling techniques embedded in games environments to engage players in response to questions, with the potential to achieve global scale engagement and produce large public open data sets for further or future examination. The two approaches can be combined effectively, for example by exploring a dilemma with a serious game, and then investigating particular aspects through embedded polling. Both of these operational models are highlighted in this report, together with 'value propositions' and perspectives for stakeholders including games developers, policy-makers, and industry. We further explore the use of data within the business model planning process which involves a delicate balance of ethics, access and economics. The business models and matrix can be extrapolated to define a potential GREAT project ecosystem involving sponsors, stakeholders, the games industry, policy-makers and citizens.

The application of the business model process articulates the potential of the GREAT project in line with the expectations of the grant agreement to make a significant impact culturally, economically and on society.

1.1 Purpose, Objectives and Tasks

The purpose of this document is to formulate the business models which have emerged from GREAT project activities and highlight the associated business models of the GREAT project. To operationalise work on this report, two objectives have been defined:

Objective One is to identify and represent the business models of the GREAT industrial partners. These models will support the long-term sustainability of the outputs, as well as the continuous, effective use of the methodologies and technologies developed in the project thereby moving beyond state-of-the-art use of technology to inform priorities in policy making.

Objective Two is to gather a range of contextual business models from stakeholders engaged in the project to effectively illustrate the domain in which the GREAT project is situated. The stakeholders, together, form an ecosystem that includes games, game development companies, and policy-makers concerned with the effects of climate change.

The recommendations of the document are informed by stakeholder consultation facilitated through the use of the business and value proposition canvas and the lean variant to characterise the approach and platform design. The proposed models will support the long-term viability, exploitation and sustainability of the GREAT outputs.

Rationale Significance and methodological approach to business Modelling in the GREAT project

The GREAT project has adopted a multi-disciplinary approach and model, the multi-disciplinary framework, to carry out its research (Hollins *et al.*, 2023), and this involves critical analysis of multiple perspectives. In this document, we examine business perspectives on the GREAT project through the well-established lens of Business Modeling. For the purpose of this project, we have adopted the definition of Business Models proposed by (Massa *et al.*, 2016):

- Business Models as attributes of real firms.
- Business Models as cognitive/linguistic schemas.
- Business Models as formal conceptual representations of how a business functions.

It is critical, not just in terms of the sustainability and commercial exploitation of the GREAT outputs, that we gain a deep understanding of the attributes and functions of industrial organisations involved in this emergent domain. It is with this aim that we have used established tools to provide a conceptual representation of the business functions of the industrial partners and of the wider stakeholder groups engaged in the GREAT project and in the wider emerging business domain. The tools we have selected are:

- The Business Model Canvas (Osterwalder and Pigneur, 2010)
- The Value Proposition Canvas (Osterwalder *et al.*, 2014)
- Lean Start-up Canvas (Reis, 2011)

The Business Model Canvas (BMC) was selected as the primary tool for analysis due to its accessibility and ease of use. This enables the project to capture business complexity in terms of well-defined characteristics, facilitating collaborative analysis with non-academic industrial partners and stakeholders. These tools enhance the project's capacity to conceive of sophisticated potential business models, which are appropriate for the technically and politically complex environment in which the GREAT project is situated.

We recognise that the BMC has its critics (Verrue, 2014) in respect of a perceived lack of consistency due to overlaps caused by the fixed nature of its architecture. However, the useability and depth of the BMC justifies its use in the project. It is also recognised that the Value Proposition and Lean Canvases are both derivatives of the BMC. The Value Proposition Canvas elaborates the value proposition segment of the BMC. Both the Lean Model and the BMC are valuable tools for understanding and structuring a business, but they have different focuses.

Lean Model

The Lean Model is a broader approach to business management that emphasises efficiency and eliminating waste. It focuses on creating value for the customer while minimising resource consumption. As described by Reis (2011), key principles include:
- Customer focus: Understanding and meeting customer needs.
- Value stream mapping: Identifying and eliminating waste in the value delivery process.
- Continuous improvement: Constantly seeking ways to enhance efficiency and quality.
- Just-in-time production: Producing goods or services only when needed.

Business Model Canvas

The Business Model Canvas is a strategic management template that provides a structured overview of a business model. It focuses on nine key building blocks:
- Customer Segments: Defining the different groups of people or organisations an enterprise aims to reach and serve.
- Value Propositions: Describing the bundle of products and services that create value for a specific customer segment.
- Channels: Describing how a company communicates with and reaches its customer segments to deliver a value proposition.
- Customer Relationships: Describing the types of relationships that a company establishes and maintains with specific customer segments.
- Revenue Streams: Representing the cash that a company generates from each customer segment.
- Key Resources: The most important assets required to make a business model work.
- Key Activities: The most important actions a company must undertake to operate.
- Key Partnerships: The network of suppliers and partners that make the business model work.

- Cost Structure: All costs incurred to operate a business model.

The Key Distinctions between the two models are:

- Scope: The Lean Model is a broader framework for managing an entire business, while the Business Model Canvas focuses specifically on the business model.
- Focus: The Lean Model emphasises efficiency and waste reduction, while the Business Model Canvas focuses on creating and capturing value.
- Level of Detail: The Lean Model is more conceptual and high-level, while the Business Model Canvas provides a detailed breakdown of a business model.

The Lean Model provides a broader philosophy for running a business, and is designed for businesses looking to improve overall efficiency, reduce costs, and enhance customer satisfaction. It can be applied to a business of any size. In contrast, the BMC is a tool for understanding and designing a business model, and is best used by start-ups and businesses undergoing significant transformation, helping to visualise and validate business concepts. Many businesses find value in using both approaches together to achieve their goals.

Research Data Gathering

The methodology applied in the preparation of this report has involved in-depth interviews and discussions with the two participant industry partners – SGI and Planet Play and interviews with the engaged sponsors of the GREAT case study – UNDP and Waterwise. Data collected in these interviews is used to populate the segments within each of the canvasses.

- In depth qualitative discussions and interviews with game development studio partners.
- In depth qualitative discussions and interviews with GREAT industrial partners – SGI and Planet Play.
- In-depth qualitative discussions with the GREAT project stakeholders – UNDP.
- Canvas workshop activity with industrial partners – SGI and PlanetPlay.
- Desk research on contemporary approaches to business Modelling.
- In-depth qualitative interview with the Open Data Innovation team.
- In-depth qualitative discussions with ImpactInvest.org on policy interventions and modelling.
- Informed by the outcomes of the associated GREAT case studies undertaken in WP4.

2. Business Models — Discussion and Reflections

In this section, we highlight the existing business models and technologies deployed by the industrial partners of the GREAT project. We then examine and consider alternative potential transferable models and approaches currently deployed in related technological domains.

2.1 Current examples of Baseline Business Models

The GREAT project has two industrial partners whose technologies and processes inform the project research methods. The business models which these technologies and processes imply provide a baseline reference as to how gaming and gaming technologies are currently leveraged to engage citizens and stakeholders in the development of climate change policy and priorities. Both industrial partners currently deploy highly innovative, though quite different, state-of-the-art methodologies, technologies and processes. Through them, they engage a variety of stakeholders (such as citizens, pressure groups, policy-makers and government) through the medium of gaming, in exploring significant policy dilemmas. Both partner approaches are tested and validated within the GREAT project through a series of case studies on climate change policy, the design and methods of which are highlighted in the GREAT deliverables D4.1 (Hollins *et al.*, 2023) and D4.2 (Hollins *et al.*, 2024).

The two industrial partner Baseline Business Models are provided below:

2.1.1 Serious Games Interactive (SGI) — Dilemma Based Learning (DiBL) Model

The Dilemma Based Learning (DiBL) approach (DiBL, 2024) involves a mediated game used with small groups of stakeholders and a facilitator, to gain perspectives on a particular issue through the identification and exploration of a dilemma. The approach is consistent with contemporary citizen science methods of engaging citizens in scientific enquiry. According to Kieslinger *et al* (2018), we are experiencing an exponential rise in citizen science projects and this brings innovation potential for science, policy and society more broadly contributing to transformational change in science and society through new research perspectives on the formulation of new questions. One of the fundamental principles of citizen science is the democratisation of knowledge

production (Irwin, 1995), and this lies at the core of the GREAT project. Citizen Science approaches recognise that scientific research should not be the exclusive domain of experts and professionals but should be accessible and open to all members of society. By proactively involving citizens in research projects, citizen science can break down traditional barriers that may exist between researchers and the public, fostering a sense of ownership, empowerment, and engagement among participants. In the context of the GREAT project, DiBL can be used flexibly as required to understand and develop questions that could be asked of a broader audience.

DiBL is a platform used for the creation and delivery of real-time active learning designs including formats such as case studies, scenarios, dilemmas, micro-simulations, roleplay and workshops. This enables facilitators, or in the GREAT context, sponsors to bring together multiple stakeholders to come together in smaller, organised groups, input their feedback on a particular scenario, to create a 'dilemma' to be addressed. For example, in GREAT Case Study 2 (GCS2) 'Waterwise', in the design phase at the time of writing the scenario involves developing policies to tackle water shortages in the United Kingdom. The stakeholders who are invited to participate include the sponsor Waterwise, the private water companies, the Department for the Environment Food & Rural Affairs (DEFRA), industry and consumer/customer groups and associations and academics, scientists and specialists. The 'Sponsor' is the term applied in the project to the partner organisation owning the dilemma to be explored and subject to the GREAT case study. The dilemma presented involves the presentation of several scenarios involving saving water for example taking less time to wash or limiting the time of showers to less than four minutes. The participants work through the dilemma learning whilst providing valuable insight and data to the sponsor of the activity – Waterwise.

The DiBL model involves both technology (the platform that is used to host the activity) and services (including consultancy, guidance and facilitation). The goal of the business model is to have customers use the platform and services on a periodic basis, providing a learning experience for participants whilst providing a dynamic perspective of sentiment and opinion over time. This extended engagement provides deeper and more meaningful insights than can be obtained in a shorter interaction. The longitudinal model and relationship also provide economies of scale to the sponsor of a DiBL game, resulting in cost benefits and a discount. The DIBL pricing model has a number of variables based upon the number of users, the number of creators i.e., someone with access to administer the DIBL process), the number of use cases, and the type

of data, analytics and outputs required by the sponsor. A DiBL customer is typically an organisation in the EU that uses and/or delivers active learning around an open topic often structured in a scenario with dilemmas. Participation in the GREAT project has provided opportunities to extend the application of DiBL to new areas of application in linking citizens and policymakers.

Price Points

The DiBL price points, as highlighted below, represents a software-as-a-service (SaaS) model enabling customers to have a simple option to get started (starter) and then three tiers of pricing based on a typical size of an organisation, and how many users and usage would be required. The price point offers customers access to the software and data, without ownership, and an affordable opt in/out model which supports budget control both for the customer and for DiBL.

dibl

Yearly Subscription

	STARTER	NORMAL	ORGANISATION	ENTERPRISE
Monthly Users*	500	1 000	3 000	6 000
Number of creators**	1	2	5	Unlimited
Active cases	2	6	20	Unlimited
Analytics	Simple	Advanced	Advanced	Advanced
Data export	-	Yes	Yes	Yes
Localization tool	-	-	-	Yes
Support	Email	Email	Email/Phone	Email/Phone
Price (monthly)	€160	€320	€495	Contact us
Disabled creator (discount)***	40%			
Extra creator	€ 40 pr. month			
Add 3000 monthly users	€ 120 pr. month			

Excl. VAT

* This is how many monthly users you have. The service won't stop working if you go a bit over the limit it.
** You can have unlimited non-creator users in the system.
*** Available after minimum one year when cases are locked down.

Figure 1: DiBL Price Subscription Model

PROBLEM	SOLUTION	UNIQUE VALUE PROP	UNFAIR ADVANTAGE	CUSTOMER SEGMENTS
Engage participants during facilitated events for active learning and real-time insights.	DiBL is a platform to create and deliver active learning with real-time insights including formats like cases, scenarios, dilemmas, micro-sims, roleplays and workshops that are instantly available.	Empower organisations to create and deliver active learning and get real-time insights.	20 years experiences building similar formats that we now productivize. Major existing compay in related space.	Organisations in EU with a learning need within open topics. Education * Higher education * NGOs / IGOs * Government / Muncipalties Work * Corporations * Training companies * Consulting companies

KEY METRICS

North star
* # of participants
* # of active creators
* # of active DiBL cases

EXISTING ALTERNATIVES

Status Quo
* Powerpoints
* Paper handsout
* Facilitator exercises
* LMS solutions

Direct (Realtime audience tool)
* Kahoot, Quizizz
* MentiMeter, Wooclap
* Bespoke solution

HI-LVL CONCEPT

Kahoot for dilemmas

CHANNELS

Direct sales & marketing
Thought leader & SoME
Customers using solution
Direct sign-up own web-site

EARLY ADOPTERS

Organisations which DNA is to deliver active learning and/or covers open topics.

Knowledge about facilitated learning, and existing alternative real-time audience interactions solutions in the markets (that doesn't get the job done).

COST STRUCTURE

Employee salaries
Marketing
Hosting
Admin cost

REVENUE STREAMS

Yearly subscription
Implementation services
Content services

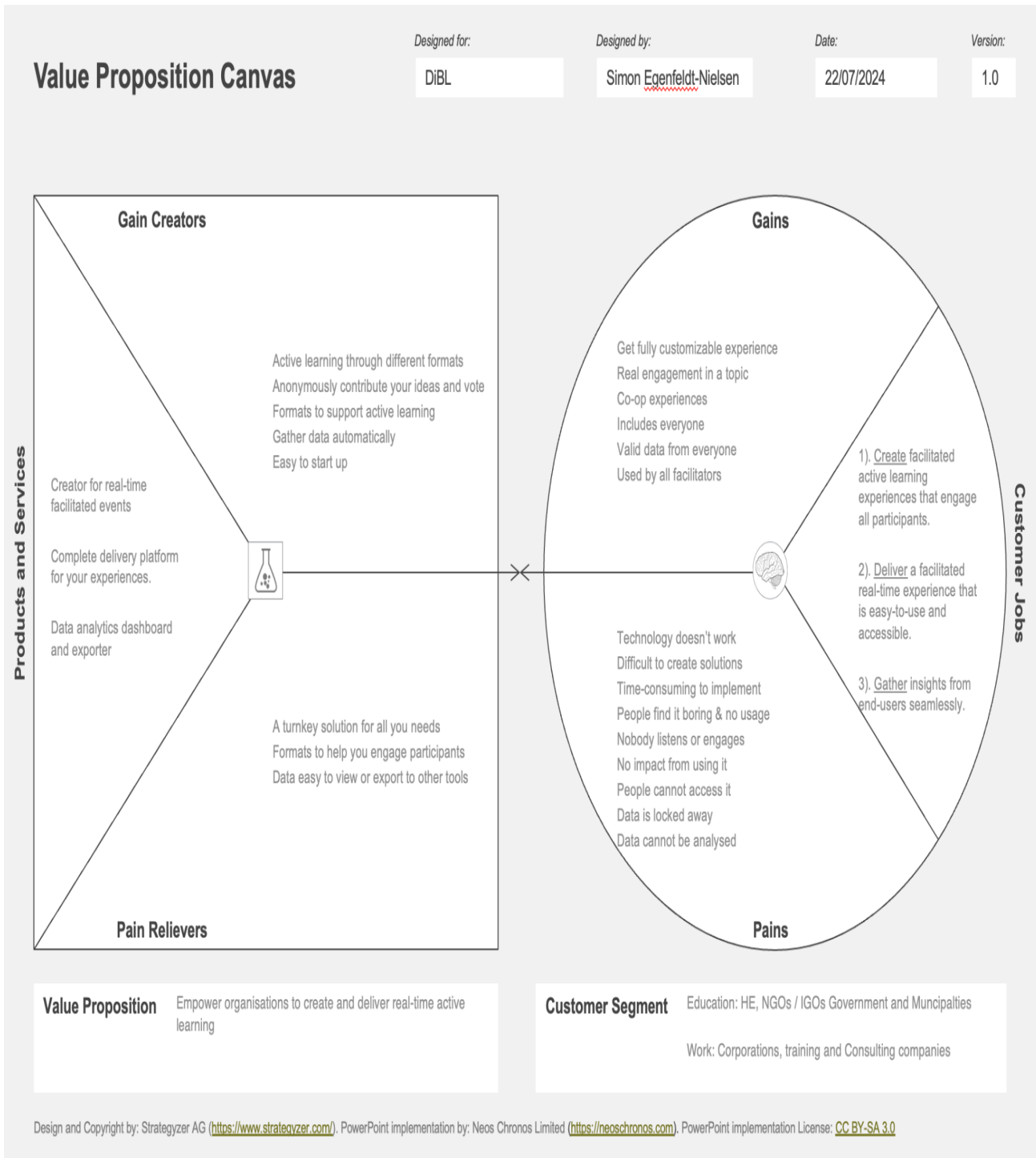*Figure 2. DIBL Lean Business Canvas*

Value Proposition Canvas

Designed for: DiBL
Designed by: Simon Egenfeldt-Nielsen
Date: 22/07/2024
Version: 1.0

Gain Creators

Active learning through different formats
Anonymously contribute your ideas and vote
Formats to support active learning
Gather data automatically
Easy to start up

Creator for real-time facilitated events

Complete delivery platform for your experiences.

Data analytics dashboard and exporter

A turnkey solution for all you needs
Formats to help you engage participants
Data easy to view or export to other tools

Pain Relievers

Products and Services

Gains

Get fully customizable experience
Real engagement in a topic
Co-op experiences
Includes everyone
Valid data from everyone
Used by all facilitators

1). Create facilitated active learning experiences that engage all participants.

2). Deliver a facilitated real-time experience that is easy-to-use and accessible.

3). Gather insights from end-users seamlessly.

Technology doesn't work
Difficult to create solutions
Time-consuming to implement
People find it boring & no usage
Nobody listens or engages
No impact from using it
People cannot access it
Data is locked away
Data cannot be analysed

Pains

Customer Jobs

Value Proposition — Empower organisations to create and deliver real-time active learning

Customer Segment — Education: HE, NGOs / IGOs Government and Muncipalties

Work: Corporations, training and Consulting companies

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Figure 3. DiBL Value Proposition Canvas

Co-funded by the European Union

UKRI UK Research and Innovation

2.1.2 PlanetPlay (PP) – Approach and Business Model

PlanetPlay takes questions, either produced by collaboration with the sponsor directly or working with the DiBL question outputs and embeds these questions into in-game surveys to engage a large-scale audience. This audience profile can be pre-defined, specifying a geographic context (global, a country, an area), or a demographic subset (through the choice of the game context). The PlanetPlay approach leverages existing popular games to potentially reach millions of gamers globally, to provide data, insights and detailed analysis to policy-makers. The approach and model involve three categories of stakeholder groups: *corporate entities*, *government* and *non-governmental organisations* (NGO).

Game studios generate engagement with the players their games attract. High profile games are produced and managed by the developer and this is where PlanetPlay embeds surveys to elicit feedback, sentiment and opinion from players. PlanetPlay believes that games studios are motivated to engage by their interest in the responses from their players and in their playing community. One of the value propositions for the studios is acquiring a data set which can represent an indication of player values. This can be leveraged by the company for future commercial gain through content roadmaps, marketing or other activities. The motivation for leveraging games to gather values, sentiments and attitudes, stems from an understanding that games are one of the most successful entertainment mediums of our time with over 3 billion active players, and revenues larger than the film and music industries combined. The medium has high engagement levels and facilitates two-way communication with its audiences, for example, by delivering studio messages and responding to behavioural characteristics exhibited by players through sophisticated analytical analysis. This rich opportunity for gathering data enables PlanetPlay to sell its services.

Games studios are becoming increasingly conscious of their corporate social responsibilities (CSR). Jones (2013) provides an overview and some reflections on the CSR agenda being pursued by some of the world's leading games companies. This is evidenced by recent industry-led initiatives such as Playing for the Planet (Playing for the Planet, 2024) which provide further incentives for the studios to engage in activities that show the industry in a positive light. In 2019, Planet Play (then Playmob) undertook a climate policy research study with the United Nations Development programme (UNDP). The project involved

testing a 'playable advertisement' method - a paid for advert placed within successful mobile games. Players were served an advert designed as an interactive quiz, involving questions deriving from a range of UNDP stakeholders.

Using this placement method, the revenue model for PlanetPlay consists of a monthly licence fee; scaled to the volume of the audience. If a more bespoke solution is required, with more specific targeted demographics, the licence fee increases. The variable costing model is related to the media that are targeted, as costs differ according to country, demographic and targeting. The more specific targeting the more costly media would become. A second revenue model developed and currently being trialled in the GREAT case study 5 (GCS5) with UNDP involves directly engaging with game development studios to embed the activities within the game playing experience. The initial findings of research within the GREAT project suggest that player engagement rates with the activity are much higher with this approach as opposed to the in-game advertising approach detailed above. The revenue model will change as there are no increases in cost to the sponsor as the activity scales up.

Price Points

Figure 3 highlights the Pricing Model applied by Playmob (now PlanetPlay). This model could be characterised conceptually as a data-as-a-service (DaaS) model with clear focus on the value of the collection, curation and analysis of the data collected from players. Revenue is derived from a customer subscription which provides the customer with access to templated surveys, distribution (via in-game ads and in-game hyperlinks) and access to the data collected which Playmob provides via a licence to the customer. The cost of subscription is dependent on the volume of data collected, due to price sensitivity of scaling support. The price point also varies depending on the status of the customer with not-for-profit organisations benefiting from discounted rates.

With Playmob now part of PlanetPlay, price points are currently under review with emphasis on open data, especially in support of the not-for-profit side. The GREAT project Business Model research will serve to inform the PlanetPlay Pricing Model options.
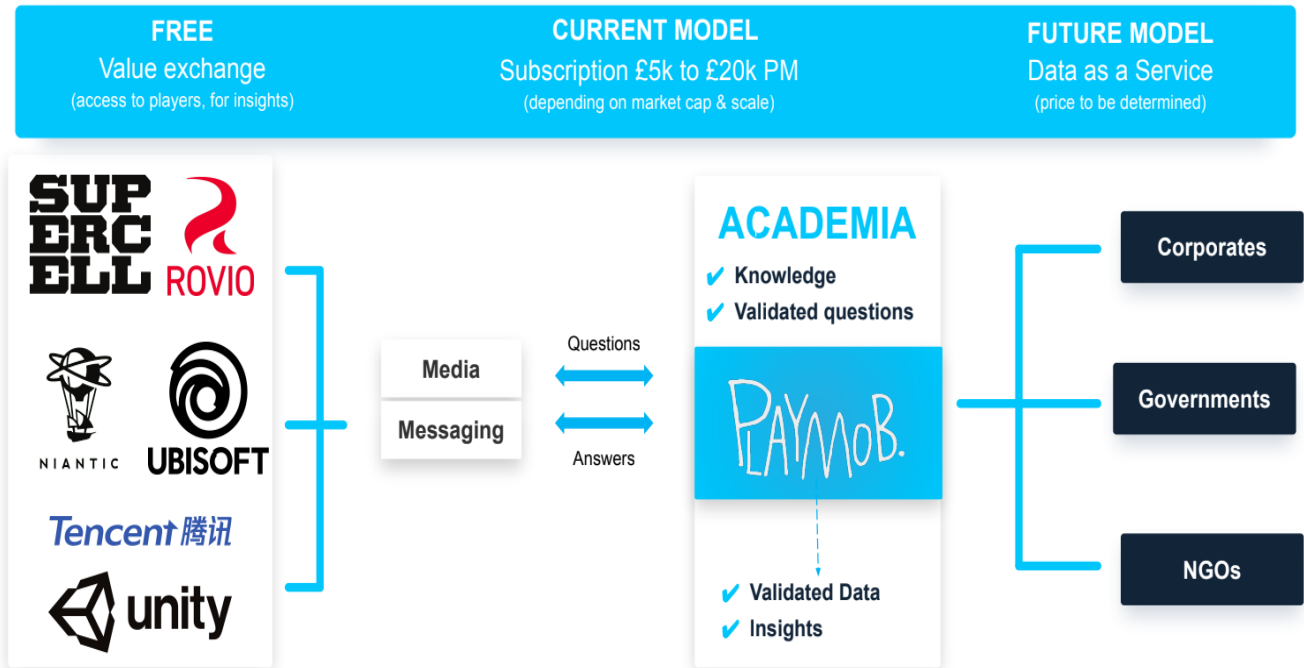
Business MODEL

FREE	CURRENT MODEL	FUTURE MODEL
Value exchange	Subscription £5k to £20k PM	Data as a Service
(access to players, for insights)	(depending on market cap & scale)	(price to be determined)

Figure 4. Playmob (now PlanetPlay) platform and (Pricing) model

2.2 Exploration of alternative models (applied to SGI and PlanetPlay)

Thus far this document has examined and illustrated the models currently deployed by the two industrial partners in the GREAT project – SGI (DiBL) and PlanetPlay. There are, however, a number of alternative revenue and business models in scope that could be deployed by the GREAT industrial partners, or by new entrants into this emergent area of activity. Informed by interviews with the GREAT industrial partners (SGI and PlanetPlay), we discuss these alternatives, benefits and concerns and how they might be applied. The categories and characteristics detailed below have been developed, informed by existing models, as part of the GREAT project research activity.

2.2.1 A Subscription-Based Model

Both GREAT platforms can work on a subscription-based model. Popular with clients or sponsors who want to spread and manage costs, a monthly fee based on usage enables the customers to scale up/down their service. In GREAT, customers could have a subscription to DiBL to run workshops/sessions to gain initial stakeholder insights and define/redefine the dilemma over time. PlanetPlay can then offer a subscription-based model to access data and insights, with a pricing model based on deeper insights and analytics.

- *Target Customers*: Game developers, publishers, marketers, and researchers who require ongoing access to comprehensive game data.
- *Value Proposition*: Offers tiered access to different levels of data granularity, analytics tools, and customization options. Higher tiers may include premium features like predictive analytics, competitive benchmarking, or personalised support.
- *Revenue Generation*: Recurring subscription fees based on the chosen tier and usage levels.
- *Benefits*: Predictable revenue stream, potential for high customer retention with valuable service.
- *Concerns*: Requires ongoing value demonstration to retain subscribers, competition from free or lower-priced alternatives.

2.2.2 Freemium Model

This model may be more applicable to PlanetPlay, however DIBL could explore having an 'entry' free level or a 'try before you buy' model to enable customers to have a taster session before they commit to a premium service. For PlanetPlay, and GREAT as whole, potential customers on the not-for-profit side may not have a budget to buy into new technology and services Therefore, having a free initial service access, and if the service proves useful in solving a problem, then a reduced fee can be established for this type of stakeholder.

- *Target Customers*: A wider audience of game developers, enthusiasts, and smaller studios.
- *Value Proposition*: Offers a free tier with limited access to data and basic analytics, while a premium tier provides more in-depth analysis, advanced features, and larger data sets.

- *Revenue Generation*: Upselling free users to premium subscriptions, potential advertising on the free tier.
- *Benefits*: Large user base potential, easier customer acquisition.
- *Concerns*: Lower initial revenue, requires a compelling value proposition to convert free users to paying customers.

2.2.3 Pay-Per-Insight Model

This model could have potential for GREAT and for the two industrial partners. However, because income streams are unpredictable it would be challenging for start-ups. Nevertheless, this could be an option for customers who wish to have specific insights that might include data, analysed data, reports or briefings, datasets, alongside customers who want a long-term view of data. Having a combination would balance the predictable and unpredictable and provide more certainty to the overall model.

- *Target Customers*: Game developers, publishers, and marketers seeking specific insights or data points for decision-making.
- *Value Proposition*: Offers on-demand access to specific datasets, custom reports, or targeted analysis.
- *Revenue Generation*: Charges per data request or report, potentially with volume discounts.
- *Benefits*: Flexibility for customers, potential for high-value transactions.
- *Concerns*: Less predictable revenue, requires effective marketing to attract customers seeking specific insights.

2.2.4 Platform Licensing Model

The licensing model is used by both SGI and PlanetPlay, however it generates complexity in terms of the types of licence and what is included and significant investment is required to build, maintain and drive sales.

- *Target Customers*: Larger game companies or platforms with internal data teams.
- *Value Proposition*: Licences the platform's technology and tools for internal use, potentially with customization and integration options.

- *Revenue Generation*: Licensing fees, ongoing support and maintenance fees.
- *Benefits*: High-value contracts, potential for long-term partnerships.
- *Concerns*: Longer sales cycles, requires significant investment in platform development and customization.

2.2.5 Potential additional revenue streams

The combination of DiBL and PlanetPlay platforms is being tried and tested through the GREAT project. Although they both operate on their own price points and model, the two can be combined to create one offering, or an 'upsell' of each other's platforms to add value to them on their own. There is the potential to further develop revenue through what we will term 'premium services'. These would involve a subscription fee for access to advanced analytics to generate customised reports and priority access to activity support. Data licensing fees could be applied to the commercial use of data based on volume, the industry or exclusivity. Consulting and support services present opportunities to charge for technical support, advice, training and technical advice. This model is discussed in the SGI summary in section 7 of this document described as the 'advantage' model. Consideration could be given to charging for targeted advertising or promoting complementary products and services.

2.2.6 Additional considerations

There are other considerations to be taken into account in developing business models. These include further exploitation of the value of the data generated by the GREAT activity to drive revenue. These could include working in partnership with games development studios and platform owners to provide access to exclusive data. This can add to the value proposition and attract additional customers. There is an opportunity to provide value added services such as support and consulting services and data interpretation analysis services; these services can serve to generate additional revenue streams and deepen customer relationships.

2.3 The Business Model Matrix – applying tools and defining the model

In this section, we consider the Business Models that apply to the various stakeholder groups engaging with the GREAT project.

As detailed in section 1.1 of this document, we use the open licenced tools – the Business Model Canvas (Osterwalder, 2010), the Value Proposition Canvas (Osterwalder *et al.*, 2014) and the Lean Start- up Canvas (Reis, 2011) variant of the Business Model Canvas to represent the stakeholder business models in a matrix relating to the GREAT project. The models provided in this section of the document are representative models for key stakeholder groups in the GREAT project. For each of the identified stakeholder groups as detailed below, a Lean Canvas and Value Proposition Canvas are presented.

Key identified Stakeholder Groups:

- The games development industry
- NGO/Not for profit Organisations
- Industry Alliance (Waterwise as a representative stakeholder sponsor and subject of GREAT Case Study 2 GCS2)
- DIBL

2.3.1 The games development industry – Lean Canvas

- The games development industry is a key stakeholder in the GREAT project. This business model is informed by in-depth, qualitative discussions and interviews with game development studio partners and GREAT industrial partners – SGI and Planet Play. Entertainment games (mobile, PC, Console) are the primary route through which the PlanetPlay approach is able to reach and engage with citizens. Surveys are embedded within these games using either as a hyperlink placed in editorial, messaging or visually such as a green button. Alternatively, on PC and console games, a QR code can be placed in the game for the player to scan and open up the survey on their mobile device. Whilst these are straightforward mechanisms, PlanetPlay provides services and value with their expertise and deep understanding of the games development industry and market, in collating, managing and analysing the data collected for stakeholders and can be highly effective tools for games studios.

- The players may develop a positive perception of the studio by feeling that their voices and views are heard and to be provided with an opportunity to provide input into policy. Players are able to speak up on climate change and feel heard.
- The data generated can provide valuable insight to understand players sentiment, attitudes and motivations.

The lean canvas below provides an overview of the opportunity for the games industry representing a model based on shared value. There is potential for games studios to earn a royalty based on this data. However, this is predicated on sponsors or the private sector becoming willing in future to pay for valuable and trusted data, for example, to inform their 'green' product marketing campaigns.

PROBLEM	SOLUTION	UNIQUE VALUE PROPOSITION	UNFAIR ADVANTAGE	CUSTOMER SEGMENTS
Little to no data on players climate attitudes Rising regulation requirements to be more sustainable Extremely long to-do lists and little time to action data or sustainability	In-game survey designed by experts, to ask players quickly how they feel about climate change Understanding what they can do in their games and as a studio, to comply to regulation while engaging players in the process - show they are taking action A simple solution which requires no integration into a game - simple link to add to editorial	Engage deeply with your audience bu understanding their values and attitudes towards the environment	Partnership with the UN and Policy Makers 10+ years of connecting games to climate action Existing insight and data from UN, GGJ and other games x climate activations	Mobile games PC Games Console Games Games Platforms i.e. Unity
EXISTING ALTERNATIVES Survey Monkey Qualtrics Zoho	**KEY METRICS** Engagement % of survey completed Completion rates Click through rates	**HIGH-LEVEL CONCEPT** We are the data.ai for climate change.	**CHANNELS** Direct to studios Through groups and alliances such as P4P, UKIE, TIGA, NEO etc Major events; GDC, Gamescom, PG Connect, Develop, Games Beat, TGA/SGF,	**EARLY ADOPTERS** Games part of the Playing for the Planet Alliance and/or GGJ or other group Studios with a sustainability lead Studios who have done something 'green' before
COST STRUCTURE People Servers Tech stack			**REVENUE STREAMS** Shared value model - no cost to games studios - they provide access to gamers, we provide them the data back	

Figure 5: Lean Canvas for Gaming

2.3.2 The games development industry – Value Proposition

The games development industry is a key stakeholder in the GREAT project. This business model is informed by in-depth, qualitative discussions and interviews with game development studio partners and GREAT industrial partners – SGI and Planet Play. The value proposition for the game development studio represented below is twofold:

- Informed by data gaining an improved understanding of their audience, which may ultimately drive deeper engagement with the game (which could result in increasing life-time value and monetisation).
- Improved and visible Corporate and Social Responsibility activity.

The game development industry is proactively addressing their corporate and social responsibility. An example of this is the The Association for UK Interactive Entertainment (UKIE) production of the Green Games Guide https://ukie.org.uk/greengamesguide and recent partnership with the United Nations Playing for the Planet initiative https://www.playing4theplanet.org/.

In the future, a royalty model could provide revenue for games studios, who would provide access to their players and receive a revenue share of any commercial arrangements from the aggregate data. For example, a brand may wish to learn more about green attitudes of a specific demographic and would value the vast datasets that can be collected through gaming. Although the data collected is intended to inform policy, it could also inform commercial brand owners and other sectors on the attitudes and preferences on key issues of demographic groups globally.
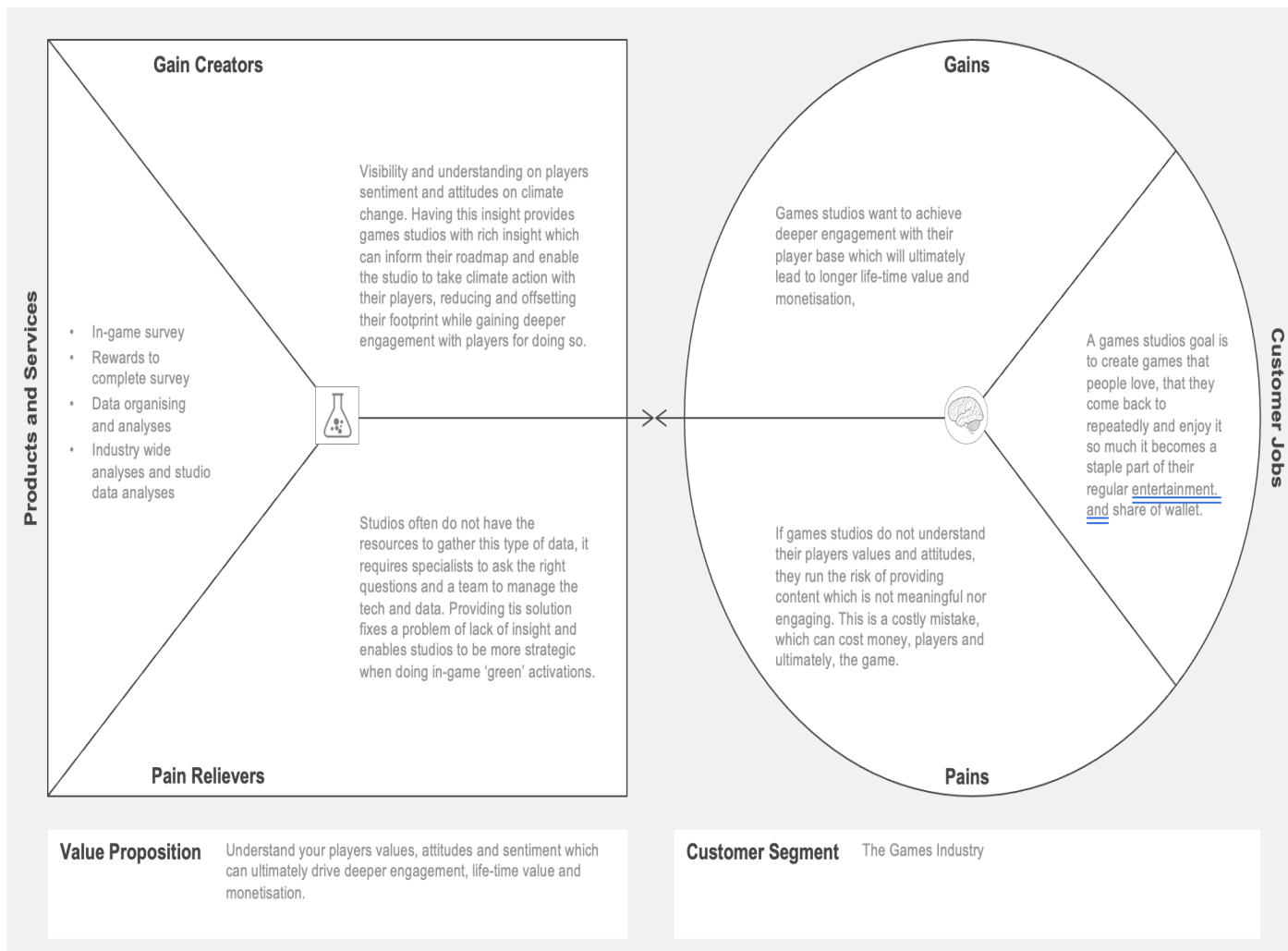
Figure 6: Value Proposition for Gaming

2.3.3 NGO/Not for Profit – Lean Canvas

Informed by in-depth qualitative discussions with GREAT stakeholders – UNDP, the Lean Canvas Business Model canvasses for a Non-Government Organisation (NGO) or not-for-profit, such as the United Nations, is provided in figure 7. This group of stakeholders may have difficulty reaching and engaging large audiences, and in particular in targeting groups such as millennials and Gen Z. Traditional methods can be costly and ineffective, for example, email surveys, survey tech, telephone interviews etc.

Gaming is not necessarily the primary choice for this stakeholder group when seeking to understand the views of citizens, as games can have negative connotations. As a result, gaming has historically not been seen as an effective

communication tool. However, this is changing as further research is undertaken, and as the result of generational change.

PROBLEM	SOLUTION	UNIQUE VALUE PROPOSITION	UNFAIR ADVANTAGE	CUSTOMER SEGMENTS
Reaching the hard to reach Engaging people in complex decisions Reaching people globally at mass scale Engagement rates	Use existing games as a means to reach and engage In-game technology to talk to players (people/citizens) Simplify messaging into short quiz type experiences	Engaging hard to reach and global audiences through gaming.	Direct partnerships with multiple major gaming studios. Existing knowledge and experience in impacting major decisions through insights from gamers (People's Climate Vote).	Policy makers NGOs Local Councils
	KEY METRICS Engagement Rate Completion Rate		**CHANNELS** Reaching audiences directly through major games titles Reach audiences through gaming communities (channels around games such as Discord, X, Facebook and TikTok)	
EXISTING ALTERNATIVES Email surveys Phone surveys Doorstep/F2F Surveys		**HIGH-LEVEL CONCEPT** PlanetPlay = Yougov for the next generation		**EARLY ADOPTERS** Have a priority area to gather public insight about Targeting hard to reach demographics Need insight for strategic planning and/or manifestos
COST STRUCTURE People Servers Other tech Services Media (potentially) for in-game ads		**REVENUE STREAMS** Licence fee (based on volume and scale) Media fee (% of media bought) Services - bespoke surveys, additional support		

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Figure 7: Lean Canvas for NGO/Not for profits

2.3.4 NGO/Not for Profit – Value Proposition

This business model is informed by in-depth qualitative discussions with GREAT stakeholders – UNDP. The Value Proposition model canvasses for a Non-Government Organisation (NGO) or not-for-profit, e.g. United Nations, is provided in figure 8. The value proposition for this group of stakeholders lies in access to a vast dataset from a demographic group that is often hard to reach.

This valuable information can then be used to inform policy at a speed and scale, which was previously not possible to achieve. This is tangible value for this stakeholder group due to the urgency in the impact work that they exist to do. For this stakeholder group also, the project will explore a reduced rate fee or free version, an open data model, which would also give stakeholders the value but with no big budget commitment.
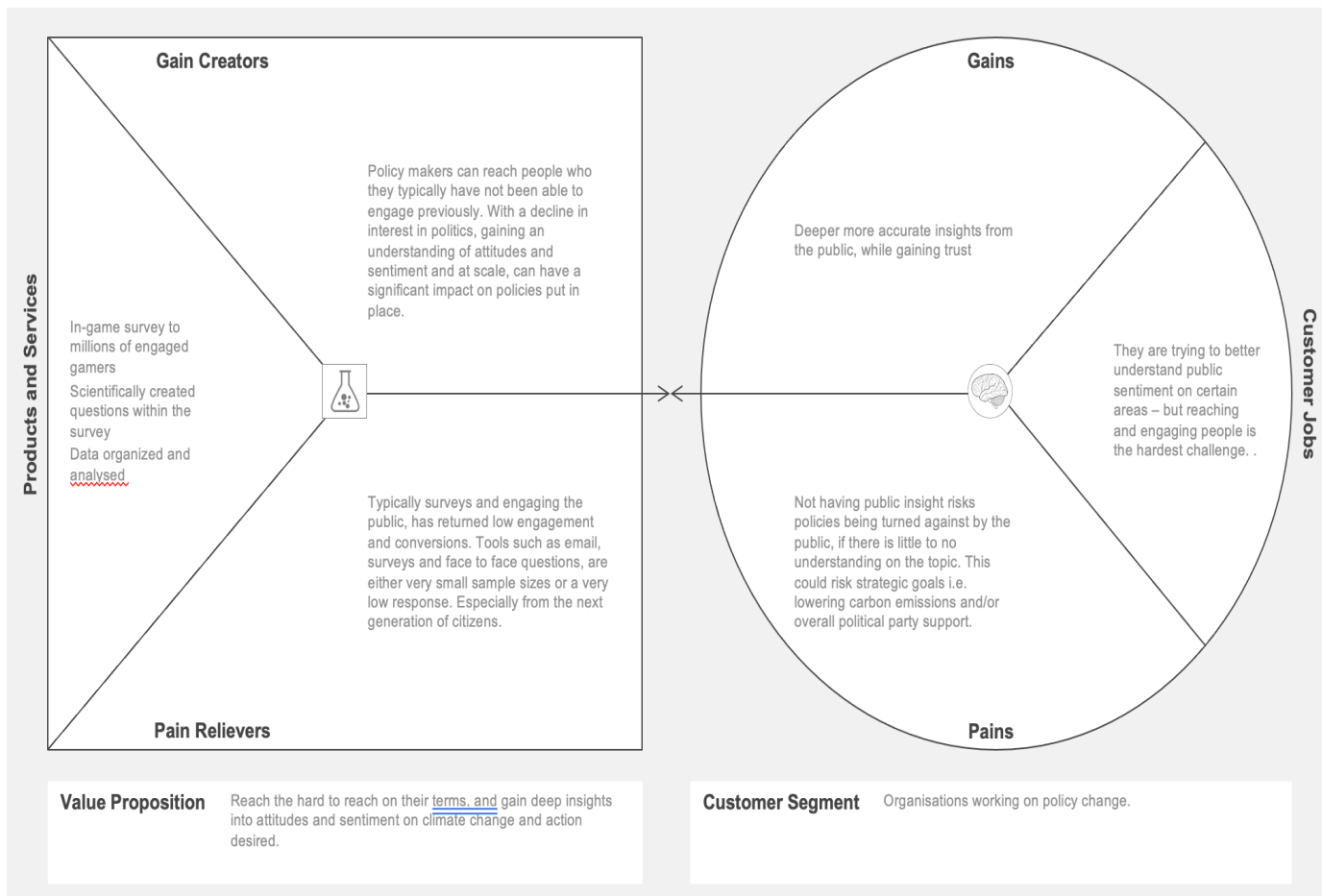
Figure 8: NGO/Not for Profit – Value Proposition

2.3.5 Industry Alliance informed by Waterwise GCS2 (Both PlanetPlay and DiBL methods)

Based on the preliminary findings of the GREAT Waterwise case study (GCS2), we examine the first 'end to end' solution combining both the DiBL and PlanetPlay approaches, to develop a GREAT Business Model illustrated in figure 9.

The most challenging aspect in gaining meaningful data of large-scale sentiment analysis is to ensure that the questions used in any survey are rigorous, ethical, well considered and constructed. To ensure this, sponsors need a deep understanding of the problem or dilemma, and the DiBL approach provides this rigour through enabling facilitated activities to elicit multi-stakeholder perspectives or citizen scientific approaches.

Informed by the DiBL approach to the development of questions and dilemmas, the PlanetPlay approach is deployed to a wider audience. The resulting data can be analysed using a variety of proprietary tools, such as Microsoft power BI, SPSS analytics, or open-source alternatives such as R and Metabase.

PROBLEM	SOLUTION		UNIQUE VALUE PROPOSITION	UNFAIR ADVANTAGE	CUSTOMER SEGMENTS
Difficult to reach and engage large volumes of hard to reach demographics Hard conversations to simplify Solidarity between stakeholders and agendas	Games reach 1 in 2 people in the UK and using a simple survey to reach people through games, where they are at already Simplify conversations through easy to answer questions A small scale facilitated gaming experience to gain insights into perspectives and find a unified 'dillema'		Reach hard to reach people, on their terms, and understand what they really care about	Industry convener Trusted organisation Seat at the table for political influence and decision making	NGO/Charity Industry Alliances Government Organisations
	KEY METRICS Engagement Completion Click through rates			**CHANNELS** Industry Government	
EXISTING ALTERNATIVES Survey Monkey / email surveys Telephone surveys F2F surveys Surveys through social channels			**HIGH-LEVEL CONCEPT** Public polling for millennials and Gen z Stakeholder engagement to define problem areas		**EARLY ADOPTERS** Forward thinking with technology Big challenges which involve public opinion Priorities to engage public and stakeholders

COST STRUCTURE	REVENUE STREAMS
People Servers Other tech stack costs	Licence fee Media buy fee Consultancy - bespoke support

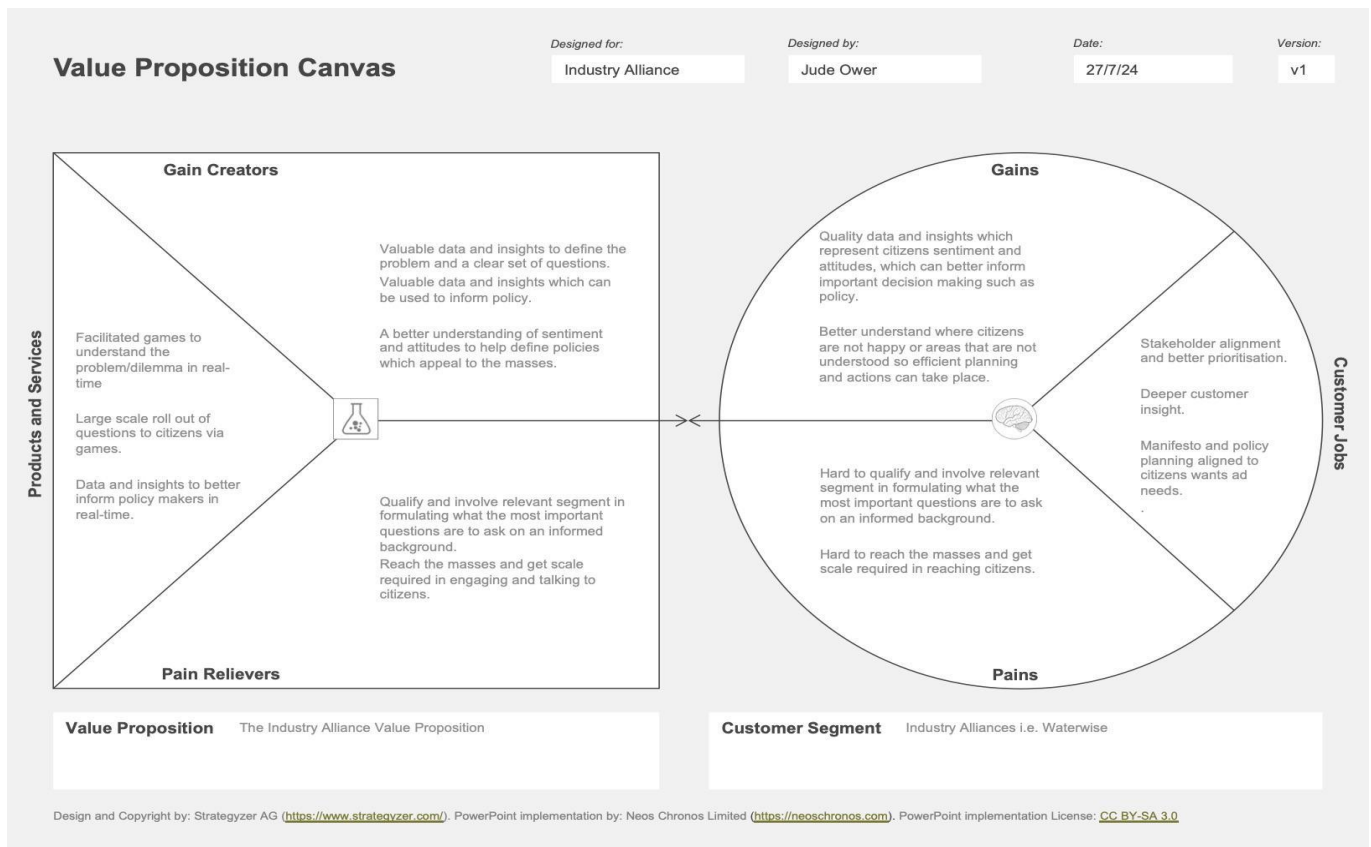**Figure 9: Industry Alliance – Lean Canvas**

Figure 10: Industry Alliance – Value Proposition

3. The Business Model Matrix

In this section, we focus on the customer segments and value proposition for stakeholders and sponsors engaging with the GREAT industrial partners – SGI and Planetplay. These are summarised in the Business Model Matrix table below. We define customer/sponsor as an organisation who benefit from using the technology and methodologies to address a specific challenge or dilemma. The GREAT project is complex and involves interactions with multiple stakeholders with the potential of engaging both paying and non-paying customers. The Business Model Matrix provided in Table I below highlights the four key stakeholder groups, which will interact with the methodology being developed within the GREAT project. These are businesses, games studios, government/policy/NGO and citizens.

Target Customer / Sponsor Segments	Value Proposition
Businesses: Large and small companies across various industries seeking data-driven insights. For example, an FMCG (Fast Moving Consumable Goods) business wishing to better understand their customer demographic's attitudes towards climate change, to better communicate and position their own green actions as a brand. Such as, a kitchen roll brand who has to communicate a sustainability message to a particular demographic and needs to be able to have insight in order to do so. With a hard to reach demographic that they know are playing games (millenials, hispanic, US-based) a platform like this would give them access to the information required.	**For Businesses**: Access to high-quality, reliable open data to inform decision-making, improve operational efficiency, and drive innovation. The data is at a very large scale and accesses hard to reach audiences, consequently not only be quality, but in some instances, unique or hard to obtain for certain businesses. Having a constant flow of this insight will enable business to add more relevant message and optimise as they learn more about their customers attitudes and sentiment.
Games Studios: All games studios, who are prioritising their impact on the planet, and address a demographic that cares deeply about climate change and taking action. Studios will range across platforms (mobile, PC, console and VR), and games platforms such as Unity.	**For Games Studios**: In-game survey tools to access their players, API, dashboard or similar, to provide data back in a seamless way - no tech integration which saves games studios time and concern, simply a link placed in-game. This simple technology and methodology will give a constant flow of data which can be leveraged to inform green content strategies and engage players in climate action. There are two fundamental values here; 1) engaging deeply with the player base (thus monetising) and 2) actioning sustainability goals as a game and games studio.
Governments/Policy/NGO: Local, regional, and national government agencies committed to climate change and orchestrating policies that support reducing carbon emissions, cleaning and greening the planet.	**For Governments/Policy/NGO**: A platform to publish and share data, this may be in report format, a dashboard, or an API to pull data into their existing data sets. Getting the data to this segment in a useful way enables big data to become 'small data' which is actionable.The platform will enable stakeholders to speak up about the priorities in their view, to then narrow down on dilemmas and finally reach hard to reach audiences that this segment are finding it progressively more difficult to engage with.
Citizens: Individuals interested in accessing and using open data for personal or professional purposes.	**For Citizens**: Improved access to information, greater transparency, and opportunities to participate in civic life/have their opinions heard on an important topic, climate change. It may also enable a building of trust between citizens and decision makers, whereas before it has been opaque and in some cases not reliable.

Table 1. The Business Model Matrix

4. Potential Business Models for GREAT

The GREAT project business research activity has shown that the two industrial partners have quite distinct business models incorporating different value propositions. Given this, it is not appropriate to propose a single Business Model in a market that is still emerging, both in terms of technology and in terms of customer demand. It is in this context that we discuss what both organisations have learned both in the research and analysis underpinning this deliverable and the associated GREAT case studies.

4.1 SGI DIBL

As illustrated in the Value Proposition Canvas, DiBL has a unique value proposition that provides a real-time space for informed conversations between policy-makers and citizens. The DiBL proposition has been extensively trialled and tested within the GREAT case study programme and specifically in the Waterwise case study (GCS2), the Green Jobs case study (GCS3) and the Rooftop Revolution (GCS4).

Initially, the DiBL proposition involved the provision of a self-service platform for sponsors or policy makers but case study activities and evaluation have shown that this proposition has limitations. Very few sponsors and policy-makers have either the capacity or capabilities (human and technical) to manage the processes involved in establishing the focus of the dilemma, establish and manage the DIBL process and deliver the activity to their constituents.

Even if the sponsors or policy makers were to have the capacity and capability, this would still result in a limited market as a classic 'platform only' approach. The GREAT case studies have revealed a significant requirement and dependency on what we describe as content and implementation services.

Content Services relate to creating narrative and game like formats to prompt discussion amongst sponsor stakeholders supplemented with support on the visual aspects of the DIBL through the creation of visual content, imagery or simple animations. Enhancing the visual aspects or increasing the fidelity would result in prohibitive cost increases that would result in limiting the potential for this new market.

Implementation Services involve delegation of responsibility to customers, has been challenging as the sponsors or policy-makers do not have the skills and capability to establish or distribute the DiBL activity. In this business model, sponsor stakeholders have access to an item bank of content containing materials and detailed information

on the sponsors / policy-makers' key dilemmas and messages to gather insight which is then provided back to the sponsor / policy-maker. For example, in the Green Jobs case study (GCS3) situated in Austria, the initial concept was to develop an experience where the sponsor or policy-maker invested in creating a DIBL that could be used in schools as a way to both communicate a message to students with the aim of gathering their responses which would be used to inform the Austrian government ministry concerned. In the Rooftop Revolution case study (GCS4), situated in Cyprus with an NGO called Urban Gorillas (https://urbangorillas.org/about/), a DIBL experience was created that facilitators could deploy in face-to-face workshops to prompt stakeholder discussion and reflection, and the insights and data gained were automatically gathered in the technical platform. In this example, the DiBL created value from multi-stakeholder perspectives: the users or students, the enabler, the teachers concerned and the creator sponsor or policy-maker.

Discussion

In both cases the envisioned process or model was based on the assumption that the sponsor or policy-maker had the skills, capacity and capability to manage the entire DiBL process from end to end and this was not the case. This indicated that a detailed assessment of organisational capacity and capability should be undertaken as part of the customer segmentation. In reality, it is evident that sponsors generally have only a subset of the capabilities required to undertake DiBL activities and that their work flows can be characterised as being on a project-by-project basis. This situation challenges the viability of a subscription-based model or a recurring fee for the platform to undertake regular updates. The sponsor still requires the platform as a means to offer DIBL to users to both communicate and gather data, provide ongoing access and support of the data and to change, reuse or repurpose existing content as opposed to creating entirely new DIBL games.

This experience suggests a revised or emergent model for DiBL for the policy-making customer segment, one where dedicated or bespoke services are tailored to their individual requirements, capacity and capability supplemented by an ongoing subscription for the technology i.e. the DiBL platform. Historically, start-ups have veered away from the model suggested above as profitability has been identified in a classic business to business software-as-a-service (SAAS) type model with focus on the easily scalable part of the offer being the technology and platform supplied to the user as an ongoing subscription-base model or where a yearly fee is paid (Giese & Hilpert, 2021). However, recently there has emerged an appreciation of what is termed 'camels over unicorns' (Lazarow, 2020), referring to the adoption of the pragmatic and functional over the attractive, and opening up an 'advantage' model that incorporates aspects of both ongoing charges and recurring service, maintenance and support (Giese & Hilpert, 2021). The advantage referred to is that businesses are able to recoup

their initial Customer Acquisition Cost (CAC) through the service and support aspects and the remaining Lifetime Value (LTV) is gained through the classic business to business model with the potential for additional sales as new projects emerge from the sponsors.

Future Work

As the GREAT project progresses further evaluation of these approaches will be undertaken for the DIBL model with specific focus on the sponsor/ policy maker customer segment specifically but more broadly over the other segments of the model should the need arise.

The advantage model is potentially scalable not just in the GREAT project context but more broadly across other game development domains operating a business-to-business model or working for hire type arrangements opening up opportunities to develop further revenue streams and long-term relationships through operating the advantage model as described in this document above.

4.2 PlanetPlay

The PlanetPlay approach offers a way to engage with global citizens at mass scale, through existing successful games, specifically mobile games, to engage players with surveys in exchange for an in-game reward. Where previously PlanetPlay leveraged in-game advertising placements to engage gamers, the GREAT project has enabled PlanetPlay to test extensively a way to reach and engage players through in-game hyperlinks. Both methods are deployed in the GREAT project, for example, GCS2 Waterwise will deploy in-game ads whilst GCS1 UNDP trialled the in-game hyperlink. For both methods, data is curated consistently. There are three components to the PlanetPlay approach, which have been characterised as *Surveys, Distribution* and *Data*.

- Surveys are created from a templated survey tool. This has been designed for a maximum number of ten multiple choice questions with both single response or multiple response options. The survey incorporates demographic data capture. Where questions are fact based, points can be attributed to show players their score. There is an option to provide bespoke surveys incorporating engaging ways to gamify the surveys. Bespoke templates could be offered incorporating branded colours and logos, for additional cost.
- Distribution - There are two methods of distribution:
  Firstly, via in-game ads, which is costly, however, the benefit of this methodology is that detailed targeting can be applied. For example, with

Waterwise, we have targeted a specific audience to their individual postcode. Therefore, if specific demographic groups such as age, gender, socioeconomic, education level etc, is required, then this can easily be accommodated.

The second option is an in-game hyper-link, which was trialled in GCS1 UNDP. The link for the survey is placed in-game such as a message, events system, player chat box, a pop-up message, loading screen or even an airship (as suggested by Pokemon GO!). Players click on the survey, complete the questions, and are rewarded with an in-game reward. The player would then go back to playing their game, ensuring that the quality of the experience was maintained, not distracting the player away from the game for long.

- Data - the data generated has multiple uses and value to the different stakeholders. For games studios who are providing access to their player base, the value exchange is through providing them with analysed data from their players allowing them the opportunity to understand their players sentiment and attitude towards climate change. This enables the games studio to refine their green content roadmap to deeply engage their players. This feature has significant value to studios. The data is also valuable to stakeholder groups such as governments tasked with making decisions on policy change, and for businesses with decisions on areas such as communications for their products to customers and for NGOs who wish to influence policy and work with governments to inform their decisions. The GREAT project research has facilitated the development of improved data user interfaces including dashboards and exploration of API to draw data for use by stakeholders. These improved data services provide the opportunity to develop chargeable services.

Future Work

The research undertaken in the GREAT project has provided the opportunity to further the business offerings of the industrial partners specifically in the collection, curation and analysis of data. As the GREAT project progresses, further evaluation of these approaches will be undertaken for the PlanetPLay approach with specific focus on the Value Proposition offered to customers, stakeholders and sponsors related to the use of data and analytic services. As GREAT develops, so will each of the areas above, whether it be redesigning of the survey system, which could also open up new revenue streams with a selection of survey types, the distribution types will also widen as more games studios come onboard and work with us to better understand where and how

in-game links can be placed and even potentially automated to enable PlanetPlay to automatically notify studios when a new survey is 'live'. And finally, the data side will be a key element in terms of usage and price points, mainly to governments, NGOs and business, however there could be a way to provide a royalty back to games studios based on a fee charged for access to the data. This could be a very interesting model as it is an untapped revenue stream back into games studios which could open up more data and frequently, if their shared value became a monetary value.

5. Conclusions

This deliverable has highlighted the business models applied by the GREAT industrial partners (objective 1). Informed by qualitative interviews, desk research and the GREAT Case Studies the project team has explored alternative business and revenue and models with a view to the long-term sustainability of project outputs, to the future development of the industrial partners and long-term sustainability of the project outcomes (objective 2).

Our research has exposed both deficiencies and merits of the existing models and has supported the trialling of new approaches and new models; for example, in partnering game studios with a new value proposition recognising CSR as a key driver to engaging with the industry.

The models and approaches discussed in this deliverable will be subject to ongoing evaluation and further testing as the GREAT project and more specifically the case study research progresses with a view to informing the final Sustainability Strategy (D6.5) in month 36 of the project.

The project research team will also continue to explore the potential to link the two approaches modelled, DIBL and PlanetPlay, into one seamless end to end integrated value proposition and how this solution might be presented to future sponsors.

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