

PAIGNIOPHOBIA. DARING TO USE A SERIOUS GAME IN CHINA

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Abstract

The main purpose of using scenarios in foresight is to make decision making more robust and future-proof by outlining what the future might be, showing plausible alternatives and using them to sensitize decision makers about uncertainties. This empowers people to prepare for the future, to become 'futureproof'. Nevertheless, the usual problem after completing a foresight process and developing scenarios for a third party, is how to engage the "client" with the produced scenarios beyond the study group, and to uncover what these scenarios really mean at many levels for the future everyday activities.

In our case, the DRAGON-STAR^{PLUS} project developed scenarios to investigate the innovation environment, the uncertainties and the specific opportunities for cooperation between the EU and China in research and innovation by 2030. An initial attempt at communicating these scenarios and engaging with policy makers had limited success. As we were aware that in recent years, gamification techniques and serious games have offered increasingly useful tools to engage with scenarios and futures thinking, the project looked for solutions in this direction. Such tools can be used to help internalize knowledge, communicating and sharing ideas, deepening and broadening participation, etc. Therefore, a novel approach was tested: The Scenario Exploration System (SES). The SES, developed by the EC Joint Research Centre, applies gamification techniques to facilitate the use of scenarios to analyse specific and concrete situations. We joined forces with the JRC to create a 'China' edition of the SES, based upon our China 2030 scenarios.

Our experience with this tool was limited: used mostly in Europe and no track record with mid- and high-level government officials. What would happen in China, with its unique cultural and societal characteristics and different communication norms? All these uncertainties generated various fears among the research team. They were put to rest after the successful application of the SES 'China' with 31 participants in Shanghai.

During the scenario exploration session, participants took roles and faced unexpected challenges on the journey to achieve their long-term objectives. They discovered their space of freedom and the importance of the systemic elements by exploring two contrasting scenarios. They composed, described and tested strategies for achieving their long-term vision, and they engaged in discussions about the long-term. They understood that there is no one-size-fits-all strategy in today's complex and rapidly changing environment.

Feedback on the session revealed that the vast majority of the participants saw it as a learning (87%), surprising and fun experience (70%). In addition, SES China was highly valued among participants (77%) for its capacity to serve as a tool for helping understand the scenarios, while 78% declared that SES China helped them develop a long-term strategic perspective.

Thus, our case study proved that the SES, as a serious game, offers a useful communication alternative of the results of a foresight process and engages policy makers in futures thinking. It is also well-suited to help people engage with scenarios and to get strategic insights, while overcoming possible cultural differences.

Keywords:

China, 2030, Gamification, Serious Game, Scenarios, SES

[Overall paper: maximum 5000 words including references]

1. Introduction

Foresight is a systematic, participatory, prospective and policy-oriented process which, with the support of environmental and horizon scanning approaches, is aimed to actively engage key stakeholders into a wide range of activities anticipating, recommending and transforming technological, economic, environmental, political, social and ethical futures (Georghiou, Harper, Keenan, Miles, & Popper, 2009).

The main purpose, and challenge, of using scenarios in foresight is to outline what the future might be, to show alternatives due to uncertainty and to make decision making more robust and “futureproof”, by helping decision makers consider the implications of the future possibilities for planning and decision making today. Nevertheless, there is also the usual problem after completing a foresight process and developing scenarios for a third party, that is how to engage the “client” with the produced scenarios beyond the study group, and to uncover what these scenarios really mean at many levels for the future everyday activities.

Recently this problem seems to be successfully addressed with the use of gamification techniques and serious games, that can enhance the foresight process by creating engaging experiences and increasing interaction between participants. In addition, they can be used to support internalising knowledge, communicating and sharing ideas, increasing and broadening participation and creating new futures knowledge (Dufva et al., 2015).

The article is structured as follows. After this introductory section 1, we provide a brief review of serious games in foresight, a short presentation of SES and of our fears (phobias) for using a serious role-playing game in China, followed by a description of the development and testing of SES China. We conclude with the feedback received by the workshop participants and some overall conclusions

1.1 Serious Games in Foresight

Foresight has been long a terrain for using games, and the first example goes back to the war games played at the U.S. Naval War College since 1866, but the last decade has seen a plethora of new game concepts, using traditional tools or utilising the new internet capabilities (Candy, 2018a).

In the last decade there has been an explosion of new platforms of play and an emergence of exciting new markets and genres of games (Fullerton, 2014). Naturally, the increasing popularity of the concept of gamification, that is the application of game-design elements and game principles in non-game contexts, has also affected the field of foresight with various games serving different objectives and are developed upon different platforms; IT-based tools, as well as physical games, that include card based games introducing different future developments, as well as board games for exploring futures (Dufva et al., 2015).

Popper (Popper, 2008) in his extensive mapping of foresight methodologies, includes simulation gaming and role playing and puts them among the most creative and interactive methodologies (Foresight Diamond, Figure 1).

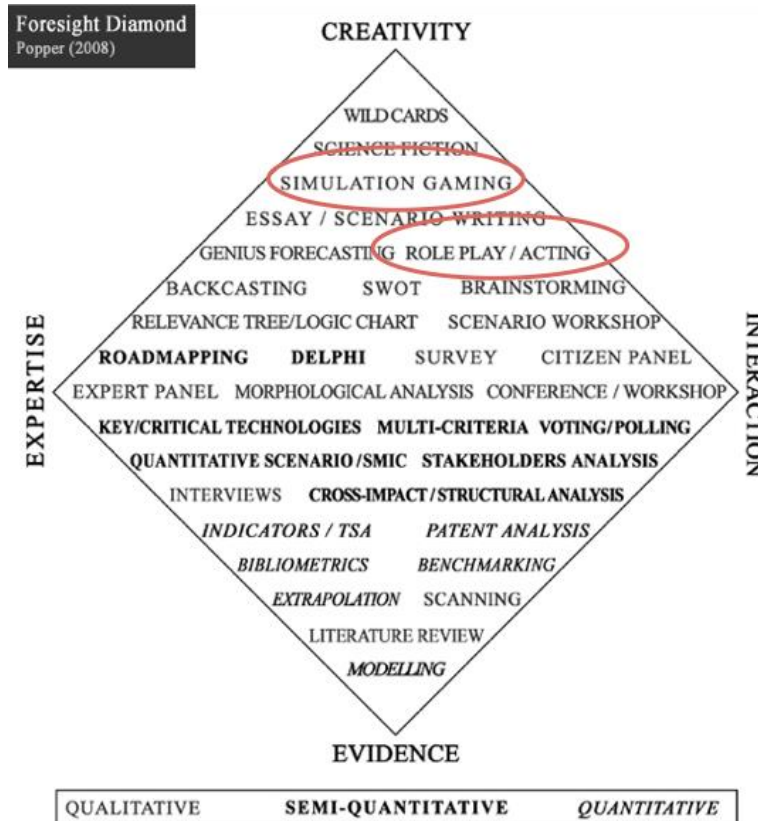


Figure 1. Foresight Diamond (Popper, 2008)

Dufva (Dufva et al. 2015) is suggesting a classification for the foresight games, based upon their specific objectives, ranging between providing information, offering first-hand experience, and/or used as an idea generation platform (Figure 2), but usually foresight games serve multiple objectives or could be used differently in order to serve multiple objectives.

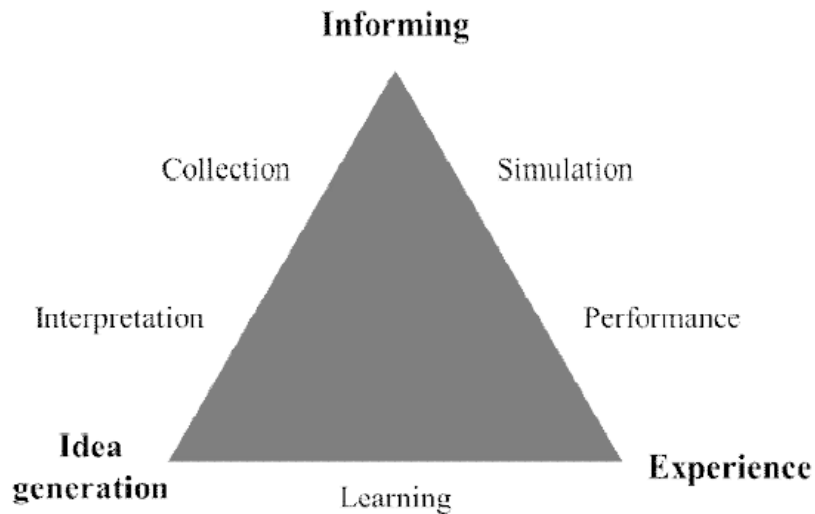


Figure 2. Three main purposes of games in foresight (Dufva et al., 2015)

Another classification can be introduced between traditional physical games and IT-based games. IT-based foresight tools engage up to thousands of players in collaborative scenario development (e.g. Foresight Engine¹), knowledge creation and trend scanning (such as Co:tunity² and TrendHunter³). However, usually the outcome of these IT-based games is a massively unstructured dataset that needs to be analysed and interpreted (Schatzmann, Schäfer, & Eichelbaum, 2013).

On the other hand, it seems that a greater engagement level of participants is achieved through the use of physical games, which include card-based games, board games, and role-playing (Dufva et al., 2015). Recent popular examples of such games include:

- “SES” (Scenario Exploration System), developed by the JRC Policy Lab in cooperation with the Hawaii Research Center for Futures Studies (HRCFS) and the Center for Postnormal Policy and Futures Studies (CPPFS) (Bontoux, Bengston, Rosa, & Sweeney, 2016);
- “IMPACT”, a foresight game focusing on the future of work, developed by idea couture, and funded through kickstarter.
- “The Thing From the Future” developed by the Situation Lab and aiming to offer a mind opening and fun experience (Candy, 2018).
- The “Sarkar game”, created by Sohail Inayatullah, Joe Voros, and Peter Hayward (Inayatullah, 2013), is a role-playing game based on theories of social change aiming to help participants get better understanding of the future.

¹ <http://www.iftf.org/what-we-do/foresight-tools/collaborative-forecasting-games/>

² <http://www.cotunity.com/>

³ <http://www.trendhunter.com>

Finally, the fun experience is another aspect of foresight games. Indeed, as explained by Inayatullah (Inayatullah, 2017), foresight games are not introduced for the fun per se, but for enhancing productivity and efficacy, although fun is also an important aspect.

1.2 The problem

Since 2012 the research team has been involved in two consecutive foresight projects in China (DRAGON-STAR and DRAGON-STAR^{PLUS}) which focused on the future development of the research and innovation landscape in China, with the objective to enhance the on-going bilateral cooperation policy dialogue between the EU and China by providing a long-view perspective.

The first foresight exercise was concluded in 2016 and produced scenarios for the research landscape in China by 2025 (Christofilopoulos & Mantzanakis, 2016). In order to communicate the results of the study, titled “*China 2025: Research and Innovation landscape*”⁴, and to engage the relevant stakeholders, a dissemination strategy, based on traditional tools, was designed. The outcome of the foresight exercise was largely communicated through presentations to stakeholders and conferences, publications in scientific or thematic publications, and through the production of a top-quality monograph that was distributed electronically and in-print form. Nevertheless, and besides the substantial resources invested for the communication of the scenarios, the actual use of the “China 2025” report has remained largely uncertain, and especially whether it has served its objective to engage stakeholders in a more strategic long-term thinking and planning.

The second phase of our foresight work, titled *China 2030*⁵, initiated back in 2016 in the context of the follow-up DRAGON-STAR^{PLUS} project and mostly focused on the innovation environment in China, the uncertainties, and the specific opportunities for cooperation between EU and China (the work was performed by KAIROS Future, FORTH⁶/PRAXI & Phemonoe Lab). As in the first case, after the conclusion of the main part of the foresight work, the main challenge was again the same: How to actively engage stakeholders in long-term thinking and planning based on the outcome of the China 2030 scenarios.

A new methodology, based on the concept of gamification, was decided to be tested that time. Working together with the [Policy Lab of JRC](#), it was decided to use the JRC Scenario Exploration System (SES), as a tool to communicate the outcome of our work and actively engage stakeholders in long-term thinking.

2. Methodological Approach - SES

The Scenario Exploration System (SES) is a serious gaming platform that was developed by the European Commission's Joint Research Centre to facilitate the practical use of scenarios from

⁴ <http://www.dragon-star.eu/china-2025-research-innovation-landscape-report-just-released/>

⁵ <http://www.dragon-star.eu/china-2030-research-and-innovation-landscape-just-released/>

⁶ Foundation of Research and Technology Hellas

foresight studies (Bontoux et al., 2016). The SES offers the opportunity to four '*scenario explorers*' representing different stakeholder groups (typically policy makers, businesses, or civil society organisations) to take action to reach their long-term objectives. They do so across three-time horizons starting from the present in a context created by a scenario while interacting with each other under the judgment of a '*public voice*'. A full session consists in the consecutive exploration of two contrasting scenarios in which participants keep the same roles and objectives.

The fact that the SES is based on future scenarios, creates a safe space to simulate possible responses connected to any issue of interest to the participants. Its set up is a vast oversimplification of reality but it still provides enough complexity to challenge participants in a way that is usually perceived as realistic. Also, the fact that '*scenario explorers*' only have a limited amount of resources to spend over their complete exploration and can only take one action per round, focusses minds and pushes them to prioritise and be strategic.

The above described game characteristics, as well the relative easy adaptability of the game to different scenarios, made SES an ideal candidate in our quest for more effective ways to communicate the outcome of our foresight work in China, and to actively engage our main target group, the Chinese and European policy makers, in a long-term policy discussion based on our China 2030 scenarios.

2.1 Paigniophobia⁷

As it is explained, the use of a serious game like SES in foresight, allows the active and close interaction with stakeholders and enhances learning in forward-thinking while, at the same time creates a fun experience (Dufva et al., 2015).

Nevertheless, whilst academic evidence demonstrates the benefits of the use of games to address engagement problems across a wide range of contexts, developers of serious games often face (like in our case) a challenge in presenting a compelling business case for their use (Petridis et al., 2015). This is critical as business games need support from top executives and an effective top-down communication process, especially as the name of the word 'game' may be biased in the corporate world, otherwise participants may perceive games as foolish activities (Petridis et al., 2015).

In our specific case, an additional challenge was added due to the unique Chinese cultural and societal characteristics and special communication norms. The research team was not aware of any serious foresight games having been tested in China before, neither had any tacit examples of previous use of serious games with medium and higher level governmental stakeholders. On the contrary, existing literature on the cultural differences between Europe and China, and personal previous first-hand experience, alarmed the research team of several potential culture-related risks.

⁷ Paigniophobia comes from the Greek παίγνιον (game) and φόβος (phobos= *panic, fear*)

Hofstede (Hofstede, n.d.; Minkov & Hofstede, 2012) describes six cultural dimensions (Individualism, Power Distance, Masculinity, Uncertainty Avoidance, Long-term Orientation, and Indulgence) that define national cultures and affect the organisation and operation of the society. For most of these dimensions, China is placed at the opposite side of the Western countries, indicating a substantial cultural chasm that could create additional challenges for the successful use of SES China:

- **Masculinity:** Chinese society is more openly gendered, and this could affect game effectiveness and interaction between participants, in the case of game players of different genders, adding constraints in the free expression .
- **Power distance** is the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally. This cultural dimension could also affect game operation, especially when high level officials are playing at the same table with less lower level experts.
- **Uncertainty Avoidance** deals with a society’s tolerance for uncertainty and ambiguity. According to Hofstede, China is among the most uncertainty intolerant societies, and this characteristic adds additional challenges for “playing” a game dealing with uncertainty.
- **Long-term Orientation** deals with change. In a long-time-oriented culture, the basic notion about the world is that it is in flux and preparing for the future is always needed. In a short-time-oriented culture, the world is essentially as it was created, so that the past provides a moral compass, and adhering to it is morally good. China is ranked among the most long-term oriented countries, and the Chinese society is used in following specific long-term strategies (e.g. five-year or ten-year plans). However, the conception and the drafting of these long-term strategies is largely a top-down complicated process (involving the highest-level management) while there is limited flexibility in their implementation (both characteristics are quite opposite to the logic of the SES).
- **Indulgence** is about being free. In an indulgent culture it is good to be free and doing what you want to do is a good thing. In a restrained culture, as it is the Chinese, the prevailing feeling is that life is hard, and duty, not freedom, is the normal state of being. Composing and testing strategies, and at the same time having fun (playing SES China), seemed distant from the Chinese culture.

The cultural differences described above and the challenges due to the lack of any previous experience of using a serious foresight game in China, especially with such a diverse mixture of participants⁸, have blown up the uncertainty related to the success of using SES.

For a long period during the preparation phase and prior the implementation of the SES China workshop, the project team has suffered from serious anxiety and various fears. In order to describe this stressful situation, often experienced by foresight experts, we have introduced the

⁸ European and Chinese participant from government, academia and business areas

term “paigniophobia”, that comes from the Greek words “παίγνιον” (*pégnion* = game) and “φόβος” (*phobos* = panic, fear), and includes the various game-related fears (phobias):

- Phobia that the game would not be approved and perceived seriously by the participants;
- Phobia that the game would not prove effective to communicate the scenarios and engage the participants in an open long-term discussion;
- Phobia that the participants would not be able to play sufficiently the game roles, taking into account the above mentioned cultural differences;
- Phobia of not being able to offer a genuinely fun and creative experience;

According to the American Psychiatric Association (Winerman, 2005), a **phobia** is a type of anxiety disorder, defined by a persistent fear of an object or situation. The phobia typically results in a rapid onset of fear and is present for more than six months. The affected person will go to great lengths to avoid the situation or object, typically to a degree greater than the actual danger posed.

However, as the usual treatments for phobias are exposure therapy, counselling, or medication, we took the decision to proceed with the workshop as planned. The workshop was organized on May 16, 2017, in Shanghai and included a morning session with presentations, and an afternoon session where SES China was used as the main tool for communicating the scenarios for the innovation future of China and for engaging policy makers in long-term discussions.

3. Results, Discussion and Implications

As previously explained, the SES China edition was developed by the DRAGON-STAR^{PLUS} foresight team with the help of the JRC, aiming to offer a basis for an EU-China conversation on long-term cooperation in science, research and innovation. The team used the 4 scenarios (Figure 3) developed in the context of the DRAGON-STAR^{PLUS} project (Christophilopoulos et al. 2017) and accordingly adapted the game roles. The main objective in our case was to create conversations between European and Chinese stakeholders involved in R&I and to feed long-term strategy development.

The Shanghai workshop was divided into two parts. In the morning, participants were presented the China 2030 scenarios, while in the afternoon session was organized with JRC and used SES China to engage European and Chinese stakeholders in a discussion over the China 2030 scenarios and the strategies for cooperation.

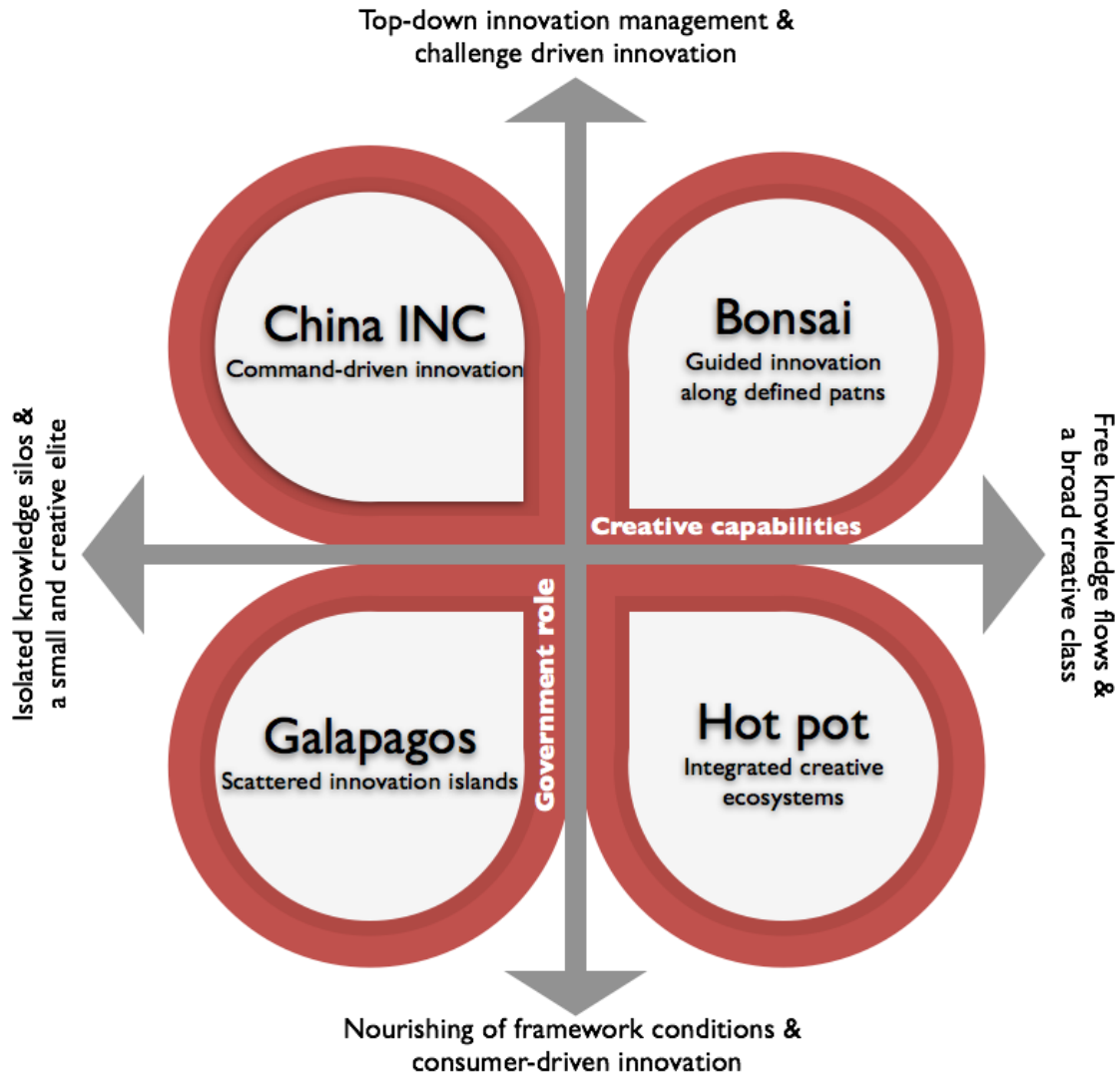


Figure 3: The China 2030 Innovation Scenarios developed in the context of the DRAGON-STAR^{PLUS} project

Over the course of a session of the *China 2030* edition of the SES, **four explorers** representing **two Governmental Policy Makers** (one from Europe and one from China), **an Industry** and **a Research or Technological Organisation (RTO)** act over three rounds to reach their visions in a 15-year time horizon.

In the Shanghai SES workshop, in five tables, there were 31 participants in total, including the Minister Counsellor in charge of research from the EU Delegation in Beijing and the President of the Chinese Academy of Science and Technology for Development (CASTED). At each table participants interacted, and experienced plausible futures through roleplaying practicing one of the five (5) different possible roles: Chinese Government, European Commission, Industry,

Academia and Young Researcher/Public Voice. There were also game masters at each table guiding the process.

The first reactions from the participants encountering the game boards (Figure 4) were characterized by surprise and a positive attitude to follow the process and have a unique experience, while during the action, the role-playing aspect seemed to be rather difficult for some participants.

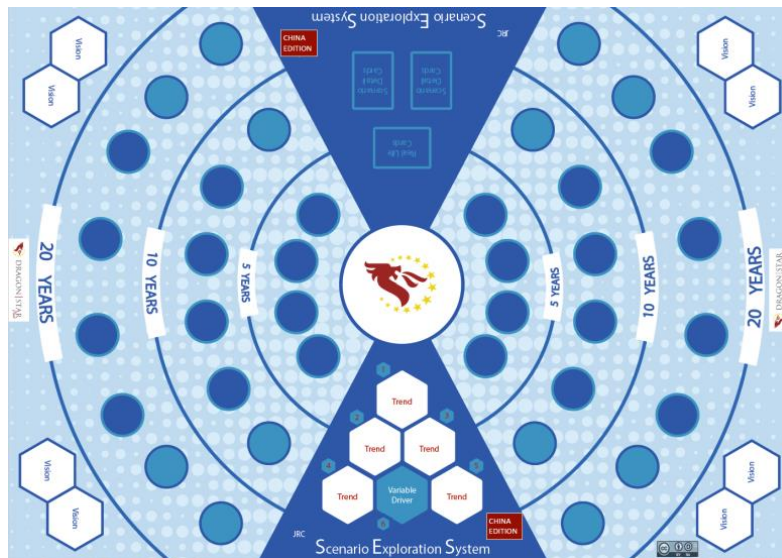


Figure 4: SES China game board

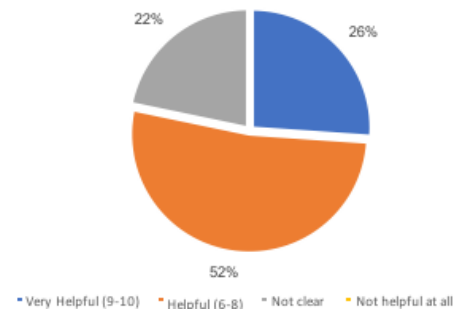


Figure 5: Participants playing SES China, 16 May 2017, Shanghai

After the end of the exercise, all participants were given a questionnaire to evaluate the methodology (Figure 6) and according to feedback received, SES China was considered a deeply learning (87%), surprising (87%) and fun experience (70%) by the vast majority of the participants.

In addition, SES China was highly valued among participants (by the 77% of the participants) for its capacity to serve as a tool for helping understanding the scenarios, while 78% of the participants declared that SES China helped them to establish a future oriented perspective and

How Helpful was SES China for establishing a future oriented perspective?

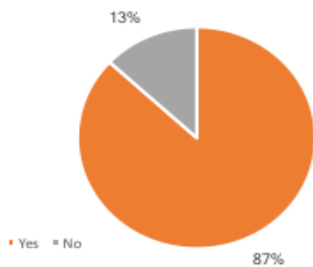


Did SES China helped you develop a strategic perspective?

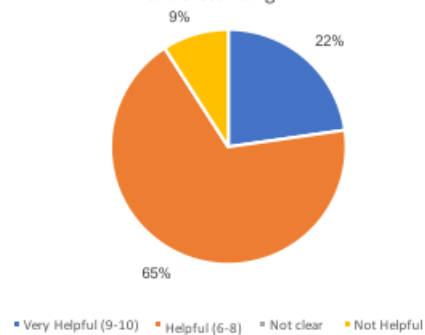


Figure 6: Participants evaluation of SES China in Shanghai.

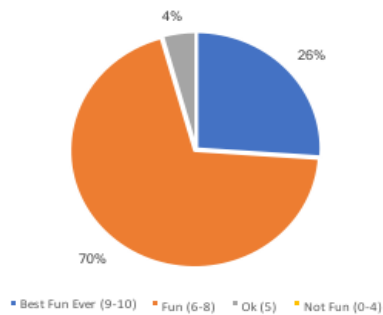
Learning Experience: Did you learn anything through the session?



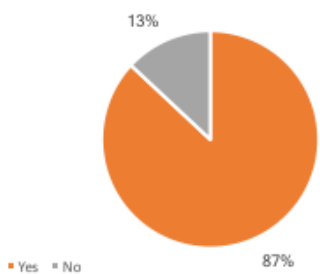
How Helpful was SES China for Scenarios understanding?



Please rate the SES China session enjoyability



Surprise Aspect: Did anything surprise you during the exploration?



to develop a strategic perspective.

Furthermore, the answers received from the participants in two open text questions, are worth mentioning. For the question: “**What element(s) created the most enjoyment?**” the following answers were received:

- *I was amazed by the unexpected decisions from other players;*
- *It helps us imagine the future and take actions;*
- *It helped me see the dynamics of actions;*
- *The collaboration part is the most exciting element I enjoyed adopting a role and work well on it;*

- *It was great taking part in negotiations on future actions Discouraging balance decisions between participants;*
- *Listening to colleagues and the different views and choices made;*
- *The approach to think strategically and to project my ideas in the future;*
- *The whole structure, innovative, dynamic Collaboration. People get in the role.*

While, for the question: **“How will you remember this scenario exploration session?”** the following answers were received:

- *A fun experience;*
- *Inspiring hand-on practice;*
- *Interesting exchange with people;*
- *Interesting to learn about Dragon-Star Plus & Joint Research Lab An interesting experience;*
- *Nice and new experience;*
- *It is a very enjoyable session and it made the comprehension of each scenario case to understand;*
- *Cooperation. How to think based in real life. Open mind to imagine Interesting, fun and inspiring;*
- *Helps posing many questions;*
- *A very nice learning exercise and pleasant afternoon;*

Besides the final positive feedback, it should be underlined that the initial participant reaction facing the game setting, was a mixture of curiosity and mistrust. However, (i) the sound organisation of the game session and the good preparation of the game masters in every table; (ii) the commitment from the top-level participants (especially the EU’s Minister Counsellor and the president of CASTED) to participate in the “game”; and (iii) JRC’s prestigious “seal of excellence” behind the game, created a safe atmosphere and provided the necessary legitimacy that allowed the smooth and successful implementation of the SES session.

3.1 Conclusions

The experience of using serious games in traditional setting like a workshop with high level policy makers is limited, while the use of such games in China is completely unknown. The research team had no previous reference of using SES or any other serious foresight game in such a group of participants, and naturally was seriously affected by paigniophobia. Nevertheless, as the previous experience of applying traditional communication tools (presentations, printed reports, scientific publications, etc) had proven insufficient for engaging the target audience (policy makers), the team invested all the resources in developing and testing SES China.

During the game session, participants faced unexpected challenges on their journey to achieve their long-term objectives; they discovered their space of freedom and the importance of the systemic elements by exploring two contrasting scenarios for the innovation future of China. They composed, described and tested strategies for achieving their long-term vision, and they engaged themselves in a long-term discussion and understood that there is no one-size-fits-all strategy in today's complex and rapidly changing environment. Above all, it was rated as a fun and useful activity by the large majority of the participants, offering a tested phobia-free tool to foresight experts in Europe and China.

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