

#	I. Joint Research Center Projects (Reference: Chapter 5, Section 6.10)	Please provide any comments on the item "I. Joint Research Center Projects" in the following form of a free description. (Long notes are acceptable when you are asked for free comments below.)	II. IMI-Organized Events (Reference: Sections 6.3, 6.4, 6.17)	Please provide any comments on the item "II. IMI-Organized Events" in the following form of a free description.	III. Funds and Intellectual Property Rights (Reference: Sections 6.7, 6.8, 6.9)	Please provide any comments on the item "III. Funds and Intellectual Property Rights" in the following form of a free description.	IV. Research publications (Reference: Sections 6.11, 6.12, 6.13, 6.19)
7	a. Excellent	<p>It is easy for mathematics departments to claim that they are open to industrial applications but harder to maintain a strong track record in fundamental mathematics and industrial applications. IMI is one of the few institutions in the world that has the same people contributing both to fundamental mathematics and industrial applications. One example is the work of topologists. I attended a wonderful IMI conference in which topology was used to classify and predict dynamics of imperfections in crystal lattices. Now the Division of Fundamental Mathematics is finding more efficient ways of extracting unexpected and meaningful information from large practical data sets. The Division of Applied Mathematics also brings to bear powerful mathematical ideas to attack very practical problems. E.g. integrable discrete geometric systems theory has given insight on the nature of aesthetic curves and surfaces that are prominent in architecture and industrial design. E.g. researchers with a background in foundations of fluid mechanics have made progress in understanding soil-water flow, natural disasters and combustion devices. The computer security lab is a natural home for experts in graph theory and combinatorics.</p> <p>Outside of defence laboratories, the "Division of Intelligent Societal Implementation..." was one of the first established groups to mathematically analyse social networks for peaceful purposes. Outside of IMI, this kind of activity became fashionable only during the COVID-19 pandemic.</p>	b. Satisfactory	<p>I have attended several such events. Without exception, they have been well organised, interesting and stimulating. I am also familiar with some successful events that I did not attend, such as the Warsaw conference on nanotechnology in medical sensing.</p>	a. Excellent	<p>All budgets have constraints. In my opinion, IMI has done a good job at spreading its funds across joint activities in the Asia-Pacific region, Divisional projects in Kyushu with other Japanese partners, and joint projects with other institutes such as IICNER.</p>	b. Satisfactory
8	b. Satisfactory	<p>The data of joint research center projects looks fine. It would be better if IMI can try to fund some interesting joint projects with some famous oversea insititites for some special focuse topics, for example, AI for sciences and mathematical fundamental of AI etc.</p>	b. Satisfactory	<p>IMI organized some events. It would be better if IMI can organize more events with Industry companies or institutes in other research fields.</p>	a. Excellent	<p>The number and total amount of contracts for funded and joint Research keep stable. It is a good sign to show that IMI develops well.</p>	a. Excellent

#	Please provide any comments on the item "IV. Research publications" in the following form of a free description.	V. Educations (Reference: Sections 6.2, 6.14, 6.15, 6.16, 6.18, Chapter 10)	Please provide any comments on the item "V. Educations" in the following form of a free description.	VI. International Activities (Reference: Section 6.2, Chapters 8 and 9)	Please provide any comments on the item "VI. International Activities" in the following form of a free description.	VII. Others, including ones towards developments of IMI (Reference: Chapters 7 and 11)	Please provide any comments on the item "VII. Others, including ones towards developments of IMI" in the following form of a free description.
7	Some industrial and government advisers have the misguided impression that joint publications fall out of the tree whenever researchers are introduced to each other. In fact, it takes forward planning and lots of time collaborating, to bring joint research to fruition, especially in multidisciplinary research. Joint publications with distant organizations have been notable but they could have been more numerous.	a. Excellent	I am familiar with a number of graduate courses and research degree projects that have been offered. These are of a high quality and well designed to produce graduates with a like-minded ethos of combining deep mathematics with applications.	a. Excellent	The Australia Branch of IMI at La Trobe University has been a great stimulus for cross-fertilization of ideas, through workshops, colloquia and joint appointments and Japanese visitors. As an example, the highly successful IMI-supported 2016 workshop, "Mathematics for Materials Science and Processing", brought together a number of researchers from different fields that would not normally participate in joint functions. This idea followed from the IMI philosophy. Joint appointees, the latest being Hien Nguyen, have brought high-level applied mathematics and statistics graduate courses to Kyushu, that would not normally be available in Japan. It is fair to say that since the pandemic, a number of universities, particularly in Australia and New Zealand, have not been fully re-energized. Support of the Asia Pacific Consortium of Mathematics for Industry has helped to make the discipline more cohesive, since the Forum Mathematics for Industry was spread from Japan to the larger region.	a. Excellent	The strategy has been well considered, and responsive to evolving societal needs.
8	There are enough publications from IMI members. Are there some important publications which have the influence on solving the important theoretical problems or practical problems.	b. Satisfactory	Education is one of the important issues for a research institute in the university. IMI did well in the past years.	b. Satisfactory	IMI should cooperate with other overseas institute to organize more international activities for expanding its international influence.	b. Satisfactory	With the rapid development of science and technology, mathematics will become more and more important. If IMI can focus on developing the mathematical theory and algorithms for AI and other important practical problems, IMI will play an important role in Applied Math around the world.

#	VIII. Overall Evaluation The past initiatives (operations and activities) of the Institute of Mathematics for Industry of Kyushu University have been	IX. Please provide a free description below of any matters that should be noted or addressed in IMI's future activities or any expectations you would like to express.
7	a. Excellent	It might make sense to have a small number of Asia-Pacific institutions, as well as individuals, listed on the IMI International Advisory Board. In that way, the geographic spread could be more stable.
8	a. Excellent	In the past years, IMI is well developed and it has been one of the key institutes for applied mathematics, especially for industry mathematics, around the world. In my opinion, IMI is comparable with Fields Institute in Canada. It is expected that IMI can have the successful future.

#	I. Joint Research Center Projects (Reference: Chapter 5, Section 6.10)	Please provide any comments on the item "I. Joint Research Center Projects" in the following form of a free description. (Long notes are acceptable when you are asked for free comments below.)	II. IMI-Organized Events (Reference: Sections 6.3, 6.4, 6.17)	Please provide any comments on the item "II. IMI-Organized Events" in the following form of a free description.	III. Funds and Intellectual Property Rights (Reference: Sections 6.7, 6.8, 6.9)	Please provide any comments on the item "III. Funds and Intellectual Property Rights" in the following form of a free description.	IV. Research publications (Reference: Sections 6.11, 6.12, 6.13, 6.19)
9	a. Excellent	<p>Good idea to gather means to hire mathematicians with an interest towards industry with manifold and complementary actions:</p> <ul style="list-style-type: none"> - organisation of gatherings - study groups - long-term internships - invitation of researcher from industry and the reverse dispatch researchers to industry - two calls for proposal, one once per year and another anytime <p>Several categories, project research, based on gender equality, international activity, for young researchers or general purpose research, that way addressing a bit all needs.</p> <p>This can be about workshops or research, emphasis is made on universality and transfer which is in line with the objective of the institute.</p>	a. Excellent	Workshops, SGW (Study Groups Workshops), and Forum of Mathematics for Industry (FmI) are held almost every year. SGW are a great occasion for students to gain awareness of industrial problems.	b. Satisfactory	Maybe what is lacking is some startup of company started by one of a few individuals from the institute.	b. Satisfactory

#	Please provide any comments on the item "IV. Research publications" in the following form of a free description.	V. Educations (Reference: Sections 6.2, 6.14, 6.15, 6.16, 6.18, Chapter 10)	Please provide any comments on the item "V. Educations" in the following form of a free description.	VI. International Activities (Reference: Section 6.2, Chapters 8 and 9)	Please provide any comments on the item "VI. International Activities" in the following form of a free description.	VII. Others, including ones towards developments of IMI (Reference: Chapters 7 and 11)	Please provide any comments on the item "VII. Others, including ones towards developments of IMI" in the following form of a free description.
9	Nothing much to comment here, in the activity report there seems to be concerns about top 10% journal papers (or conferences). While this is theoretically appealing, there are always issues identifying what really is a top journal. Another (complementary) approach is to focus more on the impact of the researchers: like number of citations or any other impact measure (invited talks as well).	b. Satisfactory	It is a good thing to have a program of mathematics for innovation, from my understanding the number of applicants is larger than the number of students (around 12). I wonder if this number could be increased in the future. Taking into account the industry needs, this could be pretty useful.	a. Excellent	The establishment of an Australian branch of IMI at La Trobe University in Australia at the end of FY2014 has naturally increased the collaboration between IMI and La Trobe University. Another nice thing is the Forum of Mathematics for Industry which is located every year in a different place in Asia, this can easily foster international collaboration.	a. Excellent	The institute has a wide range number of activities from training and research to organisation of events between academics and industry and editorial activities (the Mathematics for industry journal).

#	VIII. Overall Evaluation The past initiatives (operations and activities) of the Institute of Mathematics for Industry of Kyushu University have been	IX. Please provide a free description below of any matters that should be noted or addressed in IMI's future activities or any expectations you would like to express.
9	a. Excellent	<ul style="list-style-type: none"> - It is difficult to target any weak point given the unique edge the institute has at the crossing point of mathematics and industry. - One thing that may be improved from my point of view is the number of students in graduate program, master and PhD as their number is seemingly low compared to the number of academics and industry needs. - This may be related to a lack of funding for PhD students as seemingly a way to fund them is to have them being hired by industry, which is a good thing per se, but additional funding for PhD students would be great too.

#	I. Joint Research Center Projects (Reference: Chapter 5, Section 6.10)	Please provide any comments on the item "I. Joint Research Center Projects" in the following form of a free description. (Long notes are acceptable when you are asked for free comments below.)	II. IMI-Organized Events (Reference: Sections 6.3, 6.4, 6.17)	Please provide any comments on the item "II. IMI-Organized Events" in the following form of a free description.	III. Funds and Intellectual Property Rights (Reference: Sections 6.7, 6.8, 6.9)	Please provide any comments on the item "III. Funds and Intellectual Property Rights" in the following form of a free description.	IV. Research publications (Reference: Sections 6.11, 6.12, 6.13, 6.19)
10	a. Excellent	[see IX. below]	a. Excellent	[see IX. below]	b. Satisfactory	[see IX. below]	b. Satisfactory
10							

#	Please provide any comments on the item "IV. Research publications" in the following form of a free description.	V. Educations (Reference: Sections 6.2, 6.14, 6.15, 6.16, 6.18, Chapter 10)	Please provide any comments on the item "V. Educations" in the following form of a free description.	VI. International Activities (Reference: Section 6.2, Chapters 8 and 9)	Please provide any comments on the item "VI. International Activities" in the following form of a free description.	VII. Others, including ones towards developments of IMI (Reference: Chapters 7 and 11)	Please provide any comments on the item "VII. Others, including ones towards developments of IMI" in the following form of a free description.
10	[see IX. below]	a. Excellent	[see IX. below]	b. Satisfactory	[see IX. below]	b. Satisfactory	[see IX. below]
10							

#	VIII. Overall Evaluation The past initiatives (operations and activities) of the Institute of Mathematics for Industry of Kyushu University have been	IX. Please provide a free description below of any matters that should be noted or addressed in IMI's future activities or any expectations you would like to express.
10	a. Excellent	<p>I don't have detailed comments on the individual sections of the Report, but I do have some overall impressions. My evaluation is based on my impression of the Institute's achievements in what I think are four key areas: (1) aligning the Institute's activities with the mission set out in Section 7.2; (2) demonstrating the usefulness of the Institute's outputs by attracting a steady flow of joint research studies with industrial partners; (3) demonstrating the usefulness and visibility of the Institute's teaching by attracting a sufficiency of high-quality students; (4) demonstrating the quality and visibility of the Institute's research by publications in high-quality venues, both conferences and journals. The performance of the Institute in these areas ranges from satisfactory to excellent, and I think that the Institute's members can be well satisfied with their achievements and current status.</p> <p>I am particularly impressed by the scope of the research projects that the Institute has engaged in, as documented in Table 5.1. This is an admirable range from fundamental yet applicable mathematics to investigations of specific and focused industrial applications. The increasing trend in the number of joint research projects (Figure 6.13) is also good to see. These research efforts exemplify what I would hope an Institute of this nature would be concentrating on.</p> <p>Attracting good students is an essential part of the Institute's mandate, and it is good to see (Table 10.2) that the available courses are oversubscribed.</p> <p>Publications are a key output of any public research institution. The number of publications - 72 refereed publications in 2022 from a faculty of 35-40 people - seems satisfactory. It is difficult to assess the quality of these publications from in the information presented in the Report, It is good to see that several Institute members have received the Hiroshi Fujiwara Prize, which recognizes "mathematical theories that have useful applications in real society". This indicates that the Institute's research is fulfilling its mission of "pioneering new mathematics that promotes breakthroughs in technological development in industry".</p> <p>I don't have any recommendations for changes in how the Institute operates. You are making good progress, and you should continue to develop the activities that are currently in place. As COVID restrictions continue to diminish, there will be opportunities to organize and participate in more in-person events. If you are not already doing so, I suggest intensifying your interest in generative AI models (large language models, foundation models, etc.) This is an area where practical advances are occurring rapidly and will have an enormous impact in industry over the next 5-10 years, yet the fundamentals of why these models perform so well is not deeply understood, and mathematical insights could be critical in enabling the effective and fair use of generative AI methods.</p>
10		<p>One point that could be addressed, as noted in the final section of the Self-Assessment Report, is the lack of a reliable system of management for the Institute. It is concerning that, as noted in the Report, "there is no mechanism in place to indicate and evaluate whether each department [within the Institute] can carry out activities that embody its own philosophy", and that "for faculty members, the increase in various [administrative] tasks has a serious impact on the reduction of their research time." The ability of the Institute to deliver exceptional results will be enhanced if a consistent governance structure can be established that avoids, wherever possible, restricting the ability of faculty members to conduct their research without interruption.</p>

#	I. Joint Research Center Projects (Reference: Chapter 5, Section 6.10)	Please provide any comments on the item "I. Joint Research Center Projects" in the following form of a free description. (Long notes are acceptable when you are asked for free comments below.)	II. IMI-Organized Events (Reference: Sections 6.3, 6.4, 6.17)	Please provide any comments on the item "II. IMI-Organized Events" in the following form of a free description.	III. Funds and Intellectual Property Rights (Reference: Sections 6.7, 6.8, 6.9)	Please provide any comments on the item "III. Funds and Intellectual Property Rights" in the following form of a free description.	IV. Research publications (Reference: Sections 6.11, 6.12, 6.13, 6.19)
11	a. Excellent	The five general types of research project are inline with internationally recognised needs to increase the participation of women and young researchers in projects. The topics chosen so far are inline with key developments in industrial applications.	a. Excellent	<p>The main formal events of IMI are the SGW and FMfI. SGW brings together members of academia and industry to develop mathematical solutions to problems, and it also considers novel mathematical approaches to solve industrial problems. A wonderful feature of such workshops is to expose students to industrial research and industries, something that they cannot get through standard university courses.</p> <p>FMfI is an international meeting, bringing together international participants who are working on industrial applications in their own countries. Participation is enhanced by the fact that meetings are held in member countries of the APCMfI. The sharing of information is invaluable; for example the mathematics used on the recent covid epidemic. Student participation is excellent, and this is enhanced through a poster competition with prizes designed to enhance student research.</p>	b. Satisfactory	This is a difficult area to deal with and it is good that the IMI has this as one of its goals and is making progress with it.	a. Excellent

#	Please provide any comments on the item "IV. Research publications" in the following form of a free description.	V. Educations (Reference: Sections 6.2, 6.14, 6.15, 6.16, 6.18, Chapter 10)	Please provide any comments on the item "V. Educations" in the following form of a free description.	VI. International Activities (Reference: Section 6.2, Chapters 8 and 9)	Please provide any comments on the item "VI. International Activities" in the following form of a free description.	VII. Others, including ones towards developments of IMI (Reference: Chapters 7 and 11)	Please provide any comments on the item "VII. Others, including ones towards developments of IMI" in the following form of a free description.
11	Publications are excellent. It would be nice to get more publications in the International Journal of Industrial Mathematics. MI preprints have been discontinued - could some of the work that would have appeared in these be directed to the journal?	a. Excellent	One strength here is the alignment of the mathematics graduate school with the IMI - being housed in the same building enhances this. Further strengths are the student involvement in SGW and FMfI, as mentioned earlier. One further thing to consider is outreach activities for high school students, and increasing the participation of female students.	a. Excellent	IMI recognizes the strength in international collaboration - it acts as a catalyst for research and education. The initiatives involving the strong links with APCMfI and Latrobe University clearly show that the IMI recognizes these strengths. The international conference FMfI, which brings together members of APCMfI, is a stunning success. Not only does this bring an exchange in research ideas, but it brings together people from different countries who also face the challenge of attracting mathematical research in industries. This allows for an important exchange of ideas.	a. Excellent	The IMI is an excellent initiative for Japan, especially as Japan is a world leader in industry and technology. It provides a bridge between academia and industry that was largely absent, or just random in the past. I expect the links between mathematics and industry to continue to flourish.

#	VIII. Overall Evaluation The past initiatives (operations and activities) of the Institute of Mathematics for Industry of Kyushu University have been	IX. Please provide a free description below of any matters that should be noted or addressed in IMI's future activities or any expectations you would like to express.
11	a. Excellent	The report highlighted difficulties due to the administration of IMI being within the mathematics department. This included data retention, problems the occur with university administration changes, and conflicting objectives. If the IMI could be given some independent structure, such problems could be minimized.