

# MSE Partnership and Survey Model

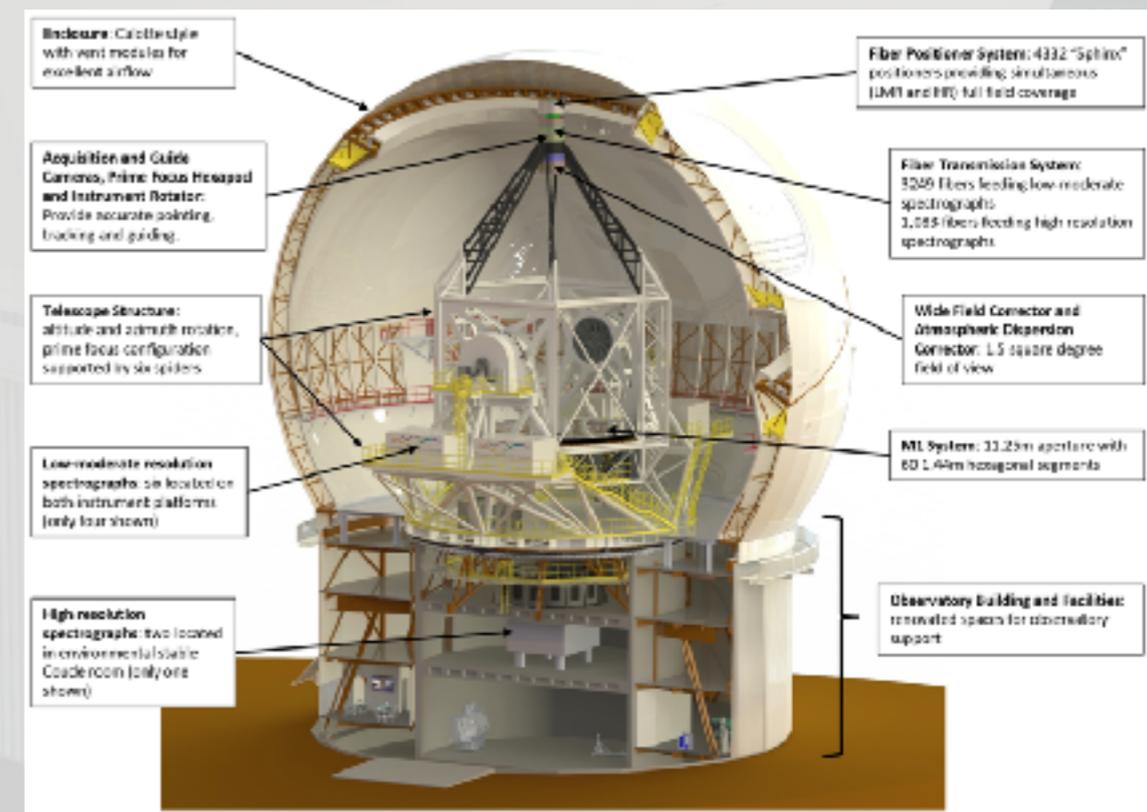
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Maunakea Spectroscopic Explorer

# Overview

- MSE is a dedicated spectroscopic survey facility.
- It is designed to facilitate major next-generation survey programs, of tens to hundreds of millions of astrophysical objects.
- It is expected that the bulk of observing time, perhaps 80%, will be allocated to large-scale **Legacy programs**.
- The remaining 20% will be for smaller-scale **Strategic programs**.
- The partnership model is aimed at attracting partners who can fund construction and subsequent operations to deliver this approach to a major survey facility.



# Statement of principles

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- MSE will provide to the partner communities the world's largest dedicated spectroscopic survey facility.
- The partnership model for MSE is designed to encourage partner communities to join by offering (1) the opportunity to design and lead major survey programs with MSE; and (2) access to data from all Legacy survey programs.
- Especially during design and construction, there is an excellent opportunity for partners to contribute to the instrumentation program. After the operations phase begins, partners will be able to contribute toward instrument upgrades and new instrumentation.
- In-kind contributions count toward partnership level.
- Cash contributions are essential, and to attract those in particular they may attract a bonus toward partnership.
- The key product delivered by MSE will be vast volumes of survey data. This will be accessible to partners early and seamlessly.



# MSE Partners: PDP

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- Preliminary design phase (PDP) is budgeted at \$25M. To join PDP a minimum contribution of \$0.5M to \$1M is expected.
- Current partners are formalising their participation in PDP through a Statement of Understanding (SoU). This agreement only covers PDP.
- After PDP there will be a new formal agreement between partners, with details established through a process being initiated now. This will be developed and formalised by PDP partners during PDP.
- New partners are very welcome! They will be able to join the PDP SoU, and contribute to the discussions developing the agreement for subsequent phases of MSE.
- The new agreement will detail the benefits received by partners, encompassing the scientific and survey leadership opportunities, data access benefits, technical and instrumentation opportunities, and role in governance.
- There is a 25% bonus on cash contribution commitments until September 2019.

# MSE Partnership Model

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- This model is still evolving, with a number of topics still under discussion. This presentation reflects the current status.
- There will be two broad partnership levels, referred to as Full Partner and Associate Partner. The level of partnership will be determined according to the level of financial contribution.
- The goal is to encourage partners to buy in at a high level by offering significant return through scientific leadership and comprehensive access to high-quality data products, while also providing an equitable return for partners who are only able to join at a lower funding level.
- It will also be attractive for institutions/consortia/participation groups to join as Associate Partners, even if their national community is a Full Partner, in order to have greater opportunities for scientific leadership with a unique facility.
- Significant scientific contributions are already being made by researchers not associated with partner communities. Their effort is recognised and valued, and MSE will ensure they receive appropriate recognition through opportunity for involvement in MSE projects. Regardless, we strongly encourage them to advocate for their institutions and communities to join as partners!

# Survey development

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- Survey programs will be peer-reviewed by an international TAC.
- **Legacy programs:**
  - Very large scale programs, perhaps 100+ nights, potentially over multiple years.
  - These will be solicited from the MSE community through periodic calls.
  - Only researchers from Full Partners may lead Legacy programs.
  - Self-organisation of partners is expected to take place in proposing Legacy programs.
  - Associate partners may participate on Legacy programs.
- **Strategic programs:**
  - Programs of smaller scale than Legacy programs, perhaps up to a few tens of nights.
  - These will also be solicited from the MSE community through periodic calls, likely more frequently than Legacy program calls.
  - Partners may combine to conduct Strategic programs.
  - Full and Associate partners may lead Strategic programs.

# Data access

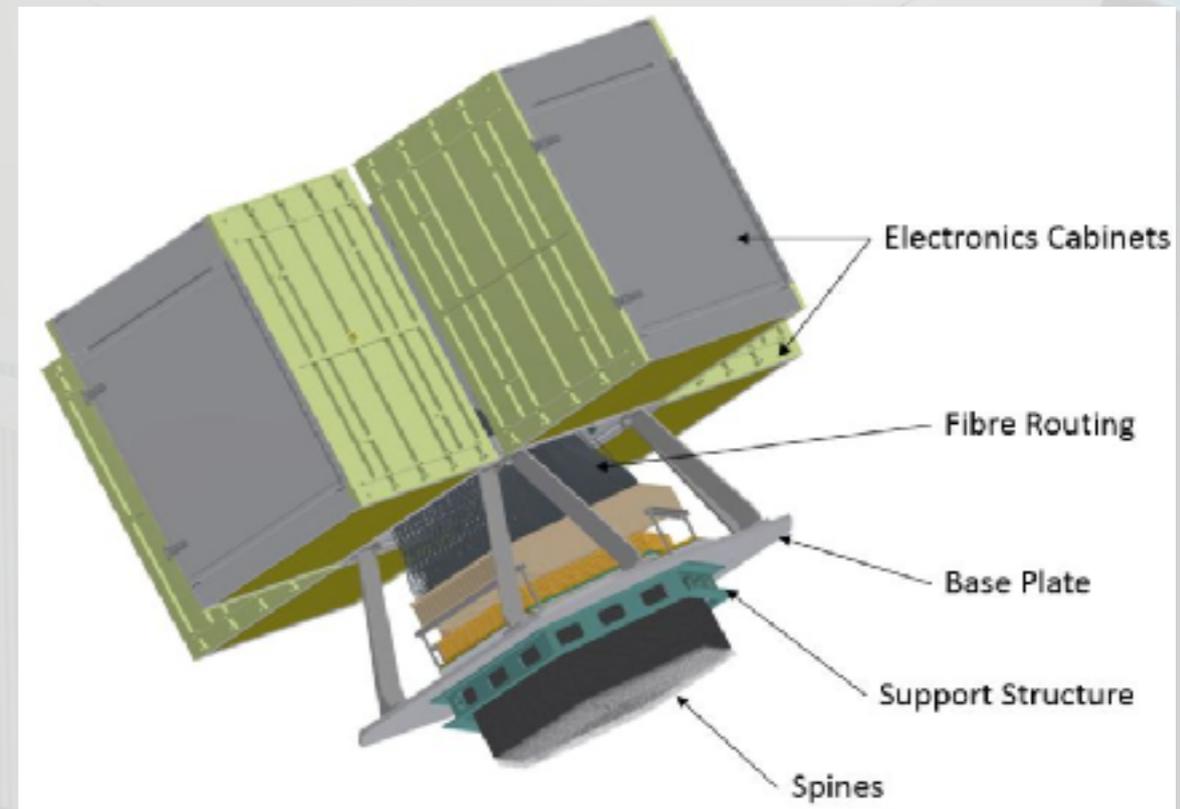


- The data products from MSE are perhaps the highest value scientific outputs from MSE.
- The philosophy of MSE is to enable large-scale Legacy programs, only possible with such a unique and dedicated survey facility, and to maximise the scientific return from these programs.
- Data from all MSE Legacy programs will be available to all Full Partners on a very short timeframe (~weeks) after suitable quality control. This is the main scientific benefit from joining as a Full Partner, rapid access to *all* Legacy data.
- Legacy program data becomes available to Associate Partners not involved in the program after a proprietary period (perhaps 18-24 months).
- The broader community (non-partners) will only be given access to MSE data after an extended proprietary period (perhaps 3-5 years).



# Technical development

- All partners are eligible to bid on and/or receive contracts to build MSE infrastructure.
- All partners are eligible to bid for instrumentation contracts, or to provide instrumentation through workshare (in-kind) agreements.
- These opportunities are available during design+construction, as well as after operations begins.
- The MSE project retains the option to extend a tender beyond the partner communities where technical developments are outside the capabilities of the partners, or where they may be otherwise delivered externally at a substantial financial saving.

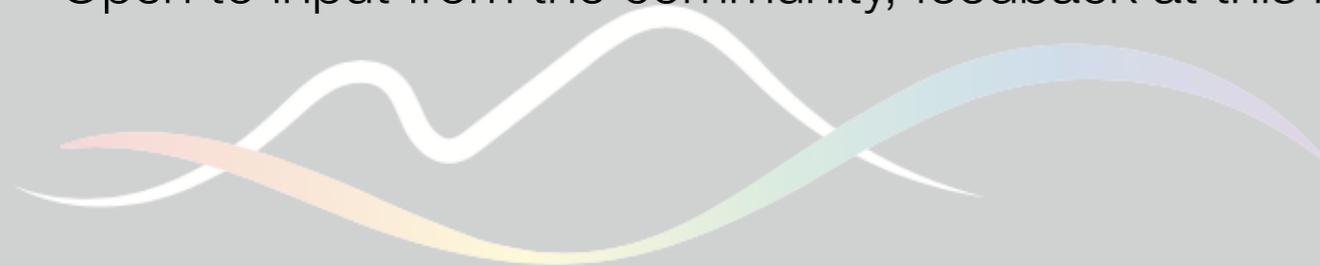


# Governance

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- The project through PDP is overseen by the MSE Management Group, with representation from all current partners. The future governance model for the latter stages of the project, and for transition into operations, is being developed now.
- It is anticipated that the existing CFHT Corp. will evolve to become the body that manages MSE, through mechanisms already in place for adding new partners. The new structure will be managed by a board and a number of advisory committees.
- Full details of future governance model still TBD. Aspects under discussion include:
  - Structure of the Board. It is expected that the MSE Board will evolve from the CFHT Board as new partners join.
  - Full Partners will have seats and voting rights on the Board and other advisory bodies (such as a Science Advisory Committee), but the formal structure and voting process of the board and advisory bodies are still under discussion.
  - Associate Partners will not have voting rights on the Board, but may have observer status, especially if they are looking to upgrade to Full Partners.
- Open to input from the community, feedback at this meeting is encouraged!



# Partnership overview



Partner level	Science	Data	Technical	Governance
Full	<ul style="list-style-type: none"><li>• Lead Legacy surveys</li><li>• Lead Strategic surveys</li></ul>	<ul style="list-style-type: none"><li>• Access to all Legacy data</li></ul>	<ul style="list-style-type: none"><li>• Can contribute instrumentation</li></ul>	<ul style="list-style-type: none"><li>• Board seats</li></ul>
Associate	<ul style="list-style-type: none"><li>• Participate in Legacy surveys</li><li>• Lead Strategic surveys</li></ul>	<ul style="list-style-type: none"><li>• Delayed but still preferential access to all Legacy data</li></ul>	<ul style="list-style-type: none"><li>• Can contribute instrumentation</li></ul>	<ul style="list-style-type: none"><li>• Board observer</li></ul>

# Summary

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- MSE will really clean up! It is an exciting time to join MSE!
- Great opportunity now to help influence the direction of the facility, with so many of the key decisions currently being discussed and established.
- Detailed science case now needs to be developed into design reference surveys, good opportunity to influence future facility programs.
- Cash contributions now accrue extra credit.
- Happy to take questions and feedback!

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