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Concept design overview

This section first describes four fundamental design activities: 'Explore', 'Create', 'Evaluate' and 'Manage'. The principles of concept generation are outlined, followed by a summary description of these four design activities.

Completing these activities delivers a lead concept, complete with evidence of why it is better across 'People', 'Profit' and 'Planet' performance indicators. Subsequent design activities will be required to take this concept to market, but these are not covered here.

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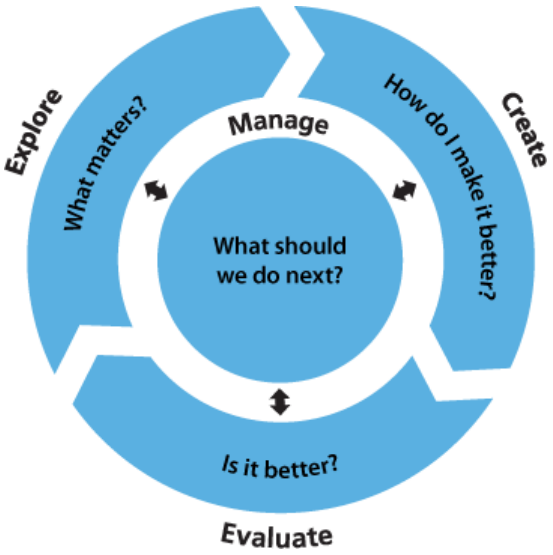
Four fundamental design activities

Four fundamental design activities are:

1. **Explore**: Choose a benchmark, then understand the stakeholders, tasks and performance indicators.
2. **Create**: Develop concepts in order to maximise performance across the performance indicators that were identified within 'Explore'.
3. **Evaluate**: Evaluate whether it is better or worse …
    - Against the chosen benchmark,
    - For each stakeholder,
    - For each task within the whole-life of the product,
    - For each performance indicator.
4. **Manage**: Plan the next steps, based on the evidence.



The four fundamental questions of design are solved through successive cycles of 'Explore', 'Create' and 'Evaluate', guided by 'Manage'.

The diagram opposite shows how these four fundamental design activities represent phases within a design cycle. These activities answer four key questions of concept design, which are: 'What matters?', 'How do I make it better?', 'Is it better?' and 'What should we do next?'.

Other design models

This 'Explore', 'Create', 'Evaluate' design model is similar to many other design models such as Cross (2000), and ties the fundamental questions of design together with the types of design activities that answer them. The Bio mimicry Institute also promote a similar model for implementing bio mimicry thinking within design.

'Explore', 'Create' and 'Evaluate' are generally applicable to problem-solving. These activities are readily identifiable in other design models, including the Waterfall, Double Diamond, V and Spiral models (Clarkson and Eckert, 2005; Design Council, 2007). Although compatible with these other models, This 'Explore', 'Create', 'Evaluate' model is more specifically focused towards concept design, and gives enhanced prominence to rapid iteration and early-stage evaluation.

References

Cross (2000) Engineering design methods: Strategies for product design. (Third edition) John Wiley & Sons, Chichester, UK. ISBN 0471872504.

Clarkson and Eckert (2005) Design process improvement: A review of current practice. Springer, London, UK. ISBN 185233701X.

Design Council (2007) 11 lessons: Managing design in 11 global brands. Download PDF.

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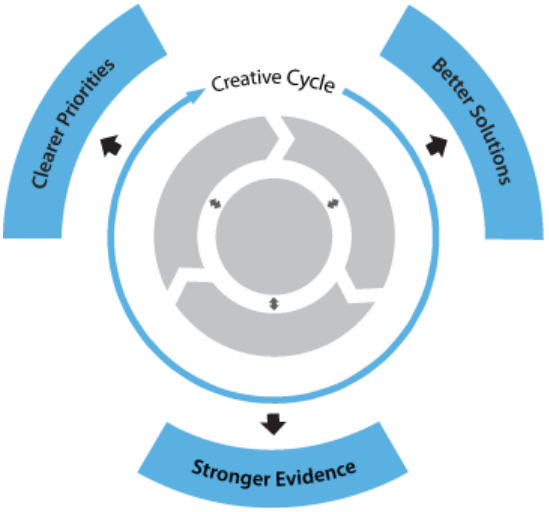
Principles of concept generation

1. **Understand impacts.** Determine 'what matters' across the whole life of the product, for energy use, social impact and reliance on risky materials.
2. **Strive for simplicity.** Simplicity is powerful but elusive, it requires a clear and succinct vision of what the product is about. Ask "can you do it with less?".
3. **Detail matters.** Dig deeper to uncover what people really do, really want, and really need.
4. **Consider the whole user journey.** Satisfying user goals involves designing for end-to-end journeys that takes place in real-world contexts.
5. **More than just users.** Consider the needs of stakeholders such as regulators, shareholders, manufacturers, retailers, purchasers, installers, supporters, and maintainers.
6. **Let ideas breathe.** Give wacky ideas the chance to become great ideas.
7. **Wear different hats.** Be creative, be critical and know when to switch.
8. **Challenge assumptions.** It's easy to get stuck in thinking that the way things have been done is the only way they could be done. List your assumptions and ask "why?".
9. **Prove it.** Complement opinions with evidence.
10. **Test early and test often.** Perform quick tests with rough prototypes, early enough in the process that meaningful change is still possible.



Successive iterations of the creative cycle lead to clearer priorities, better solutions to meet those priorities, and stronger evidence that the priorities are met.

11. **Repeat to refine.** Successive cycles of 'Explore', 'Create' and 'Evaluate' should generate a clearer priorities, better solutions to meet these priorities, and stronger evidence that the priorities are met.

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Summary of 'Explore'

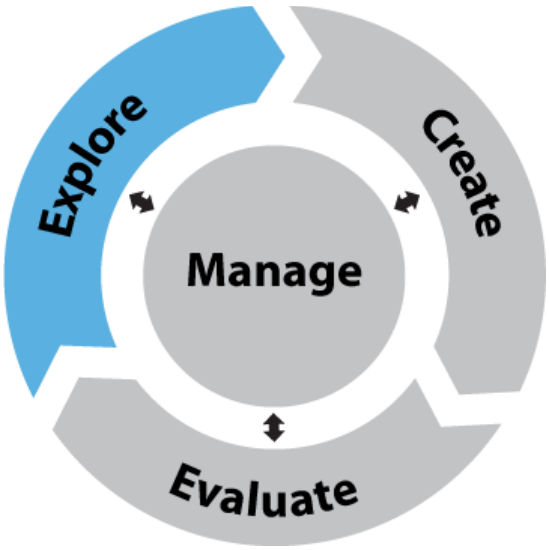
The 'Explore' phase of the design cycle is about understanding the users and other stakeholders, the tasks that occur across the whole-life of the product, and the different performance indicators of success.

The stakeholders, tasks and performance indicators are considered relative to a benchmark, and choosing this benchmark is the first activity within this phase. The remaining activities are:

- **Create stakeholder map** to identify the key players have something to gain or lose from the product.
- **Describe the user journey** to represent the tasks that the user performs across the whole-life of the product.
- **Create a map of impacts** to show how materials and energy are used across the whole-life of the product.
- **Review performance indicators** to confirm what 'better' looks like for 'Profit', 'People', and 'Planet'.

The overall objective of the 'Explore' phase is to build an understanding of stakeholders, tasks and performance indicators, and draw the findings together to determine 'What matters?'. There are many supplementary activities that should be undertaken to understand the diverse range of users within the target market, but these are not covered here.

The Explore page describes each of these activities in more detail.



The 'Explore' phase of the design cycle is about understanding the stakeholders, tasks and performance indicators, and drawing this together to determine 'What matters?'.

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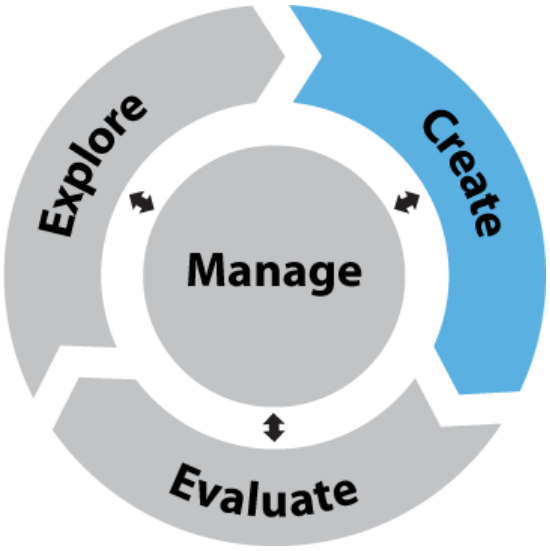
Summary of 'Create'

The 'Create' phase of the design cycle is about developing concepts in order to maximise performance for the stakeholders and tasks identified within the 'Explore' phase, across the full set of performance indicators. Specific activities include:

- **Review potential suppliers:** Consider the impacts of the goods they supply, and the behaviour of their business as a whole.
- **Maximise leverage:** Look for opportunities where the product can enable substantial positive impacts.

- **Stimulate ideas:** Set up a creative environment to generate ideas that can lead to a step change in performance.
- **Develop concepts:** Combine ideas together into complete solutions.
- **Make prototypes:** Use drawings and models to communicate the concept and enable it to be tested.

The Create page gives more detail on each of these activities.



The 'Create' phase of the design cycle is about developing concepts in order to maximise performance for the stakeholders and tasks identified within the 'Explore' phase, across the full set of performance indicators

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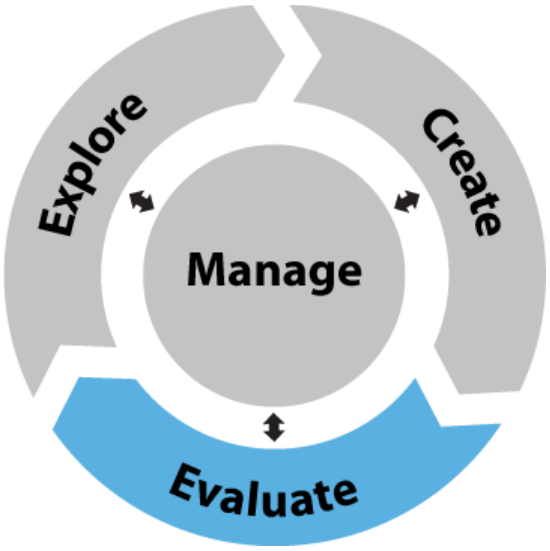
Summary of 'Evaluate'

The evaluate phase of the design cycle is about examining concepts from the 'Create' phase to determine whether they are better or worse than the chosen benchmark, for the stakeholders and tasks identified within the 'Explore' phase, across the full set of performance indicators.

Specific activities include:

- **Estimate profit impacts.** Consider the impacts on costs, revenues, technical and business risk, across the whole-life of the product.
- **Estimate people impacts.** Consider the impacts on user experience, total cost of ownership for the user and social impact, across the whole-life of the product.
- **Estimate planet impacts.** Consider the depletion of scarce resources (materials and useful water), energy use (carbon impact) and the impact on natural capital (including air / land / water pollution).
- **Review uncertainty.** For all of the estimates involved in a concept evaluation, consider which ones critically influence the decision-making, and consider whether these estimates are accurate enough for their purpose.
- **Present evidence** Summarise each concept by presenting the overall judgements of the Chief 'X' Officers: CFO, CTO, COO, CMO, CSO (Financial, Technical, Operations, Marketing, Sustainability.

The Evaluate page describes each of these activities in more detail.



The 'Evaluate' phase of the design cycle is about determining whether the concepts from the 'Create' phase are better or worse than the chosen benchmark, for each stakeholder, task and performance indicator.

Summary of 'Manage'

The manage phase is about determining what you want to achieve, what you have achieved so far, and what you should do next. An early stage design process should be dynamic and iterative, so the project plan will need to be updated to reflect the insights gained as the project progresses. Specific activities include:

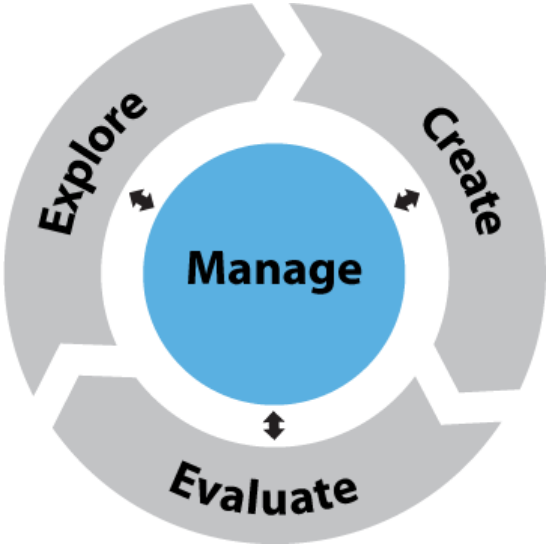
- Plan the next steps, based on the objectives, deadlines, current status, risks and available resources.
- Refine the product goals, by succinctly describing the problem that the development process is trying to solve, the big issues, and the essence of the proposed solution.
- Build a project case to justify the resources required to conduct further design activities, based on the potential return on investment.
- Communicate the vision to ensure that all project partners share a common understanding of the product goals and project plan.

The Manage page describes these activities in more detail.

Activities within project management also need to determine when to advance from concept development to the next stage in your process, based on the following criteria:

- If the stakeholders, tasks and performance indicators are not well understood ..... more exploration is required
- If the performance of the concepts is not good enough ..... more creativity is required
- If there is insufficient evidence ..... more evaluation is needed
- If you are confident in all of the above ..... move on to the next stage in your development process

The next section shows the 'Design wheel', which presents the specific design activities that should be performed within the 'Explore', 'Create', 'Evaluate' and 'Manage' phases of the design cycle.



Project management need to take account of the dynamic nature of an iterative early-stage design process.

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Next section: Design wheel