Info Note

Coupling scientific methodologies and design thinking tools in a hybrid approach

Example BMZ project: Developing climate-sensitive financial products, Philippines

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Key messages

- Design thinking initiatives are open-ended and unpredictable: a challenge for AR4D institutions.
- A project team of the Alliance of Bioversity and CIAT (ABC) experimented with a hybrid approach, featuring both scientific methodologies and design thinking tools.

Main lessons learnt:

- Sequence is key, and large-scale surveys might be wasted is applied too early in the iterative process.
- Budget and time need to be invested in staff/ design team training and continuous engagement.
- Reflection and communication formats need to be adapted and recognized by all team members.
- Good practice is to embed design thinking initiatives in larger programs, that can continue the process.

Agricultural research for development (AR4D) is increasingly pressed to deliver impacts towards achieving the Sustainable Development Goals and the Paris 2015 Agreement. To increase farmers' adoption of climate-smart (or climate-resilient) technologies and practices, the AR4D community already applies methodologies for co-design or co-creation. Core to these methodologies is the involvement of farmers (or 'users') in the innovation process, thus responding more directly to farmers' needs, and increasing farmers' ownership of the innovations.

Design thinking as open-ended approach

Typical areas of application are e.g., farm design or tailoring climate information products and services. However, these methodologies are often used in a quite defined frame, with already identified (sets of) solutions. In turn, a full design thinking process, as often applied e.g., by private sector companies, requires a certain open-endedness, and an iterative approximation between identifying the root(s) of the problem(s), and the best-bet solution(s). The first phases of the design thinking process therefore focus much on the problem space, before venturing into the solution space, often with unpredictable results.

In fact, (Hoelzle and Rhinow 2019) identified three possible dilemmas in design thinking: For the unknown results, it is impossible to plan milestones or to know when to 'exit'. Further, strategic guidelines of organizations prescribe a certain direction, which makes a flexible learning process very difficult. For AR4D researchers and institutions, such open-ended approach might be even more challenging, since they have to move within the boundaries of scientific disciplines, their respective institutional mandates, and incentive systems that rewards publications over outcomes (Hall and Dijkman 2019).

Coupling design thinking and science

In the frame of the BMZ-funded small grant project 'Innovative Credit and Insurance Products for Scaling Climate-Resilient Agriculture in the Philippines', a team of researchers of the International Center for Tropical Agriculture (CIAT) therefore experimented with a more hybrid approach, coupling design thinking tools with recognized scientific methodologies.

Aim of the project was to design and test innovative credit and insurance bundles, that would promote farmers' uptake of climate-resilient technologies and practices, which would in turn de-risk the agricultural production, and consequently also de-risk agricultural credits.

In the following, this Info Note shortly introduces the aims, principles, and main phases of the design thinking methodology. It then describes the project as case study, and exemplifies the different steps undertaken in each

phase of the design process. Finally, the Info Note discusses the main lessons learnt, that can be useful for future design thinking initiatives in the context of AR4D.

The aims, principles and main phases of Design Thinking

> *"If I had asked my customers what they wanted, they would have told me a faster horse." Henry Ford [presumably]*

Design thinking is a human-centered approach to innovation addressing wicked problems. Originally coined by the design agency IDEO in the early 1990s, it is nowadays 'taught' at the d.schools in Stanford (since 2005) and Potsdam (since 2007). As methodology, it draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success. Key to the process are a hands-on solutions orientation, and interdisciplinary collaboration.

The main principle of design thinking is to empathize with the intended user(s) of innovations, to understand what influences their decisions and actions taken. It parts from the hypothesis that users' needs are not necessarily the ones that are articulated, or can be captured in surveys. In design thinking, designers try to understand underlying motivations of users, and root causes of problems.

Different to scientific methodologies, deep insights are gained from interactions with fewer, but 'extreme' users, rather than from large, systematic surveys that that ask for the 'what' and have no space to iterate on the 'why'.

Textbox 1: The main phases of Design Thinking are, in a highly iterative sequence:

- **Understand:** Developing a shared understanding and 'language' among the interdisciplinary design team. Also drawing on existing knowledge from different sources.
- **Empathize:** Interact with the intended users to understand motivations and root causes of problems. This can be e.g., through in-depths interviews, observations, or user journeys.
- **Define:** Reframing the problem statement (the designers' task), based on interpreting ('making sense of') known facts with insights gained from empathic interactions.
- **Ideate:** Bringing out as many (wild!) ideas (or leads or such) for possible solutions, building on previous ideas (saying 'and' instead of 'but'), then prioritizing.
- **Prototype:** Give some physical representation to the chosen idea, that users can interact with. Since the first prototypes will probably be changed (or discarded), they need to be cheap, rapidly made, and simple.
- **Test:** Users interact with the prototypes (without explanations of designers!) and give feedback. The way they interact with the prototypes can bring new insights, towards the next iteration.

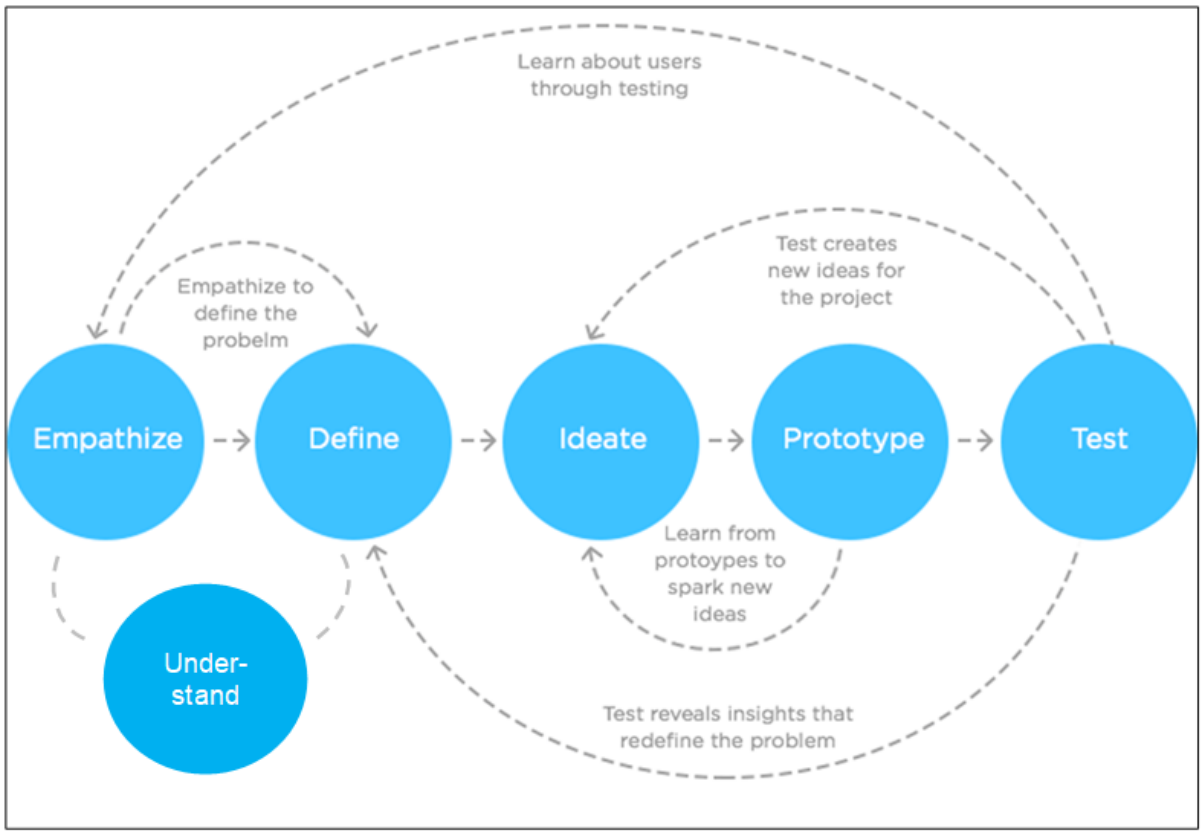

Figure 1: The Iterative Design Thinking Process

As a highly iterative process, the continuous testing (and discarding) of hypothesis, ideas and prototypes requires from designers the willingness and capability to 'kill their darlings', making space for new problem framings, understandings, and approaches towards solutions.

Case Study: Developing 'CRA-inclusive' financial products, Philippines

The Philippines is one of the most vulnerable countries to climate impacts. Since 2015, the Department of Agriculture (DA) actively promotes climate-resilient agriculture to increase production, farmers' adaptation capacities and mitigation potential. With technical support from CIAT, DA established the system-wide national Adaptation and Mitigation in Agriculture (AMIA) program. During the program implementation, farmers' access to credit emerged as a key ingredient for farmers' uptake of CRA innovations, which in turn was often constrained by the perceived risks of the agricultural sector, even worsening in the context of climate change.

Responding to this challenge, in 2017, the Agricultural Credit Policy Council (ACPC) created credit programs that were directly tailored to smallholder farmers' and fisher folks' needs and were to be channeled through local finance institutes like rural banks, micro finance institutes, or credit cooperatives. However, in the first year of their roll out, the number of availed credits had remained far below their potential scale. As possible solution, DA and ACPC reached out to the CIAT for developing credit and insurance bundles that would promote the uptake of CRA technologies and practices. The hypothesis was that CRA would reduce production risks for farmers, and consequently, as well for the lending institutions.

Empathize I: The scoping mission(s).

As part of the project preparation, in March 2018, a member of the CIAT project team undertook a scoping study in Ivisan Municipality, Capiz Province, Philippines, facilitated by the CCAFS partner NGO International Institute for Rural Reconstruction (IIRR).

Differently to design thinking processes that only design for the 'end-user', the project needed to consider also the needs and motivations of the lending institutes as 'next-users', and local governments as possible facilitators or intermediaries. The scoping mission therefore interacted not only with different farmer groups and – cooperatives, but also with representatives of local governments, lending - and insurance institutes, with a total of > 100 interactions. Qualitative interviews consisted of open questions about the context, and stakeholders' roles and experiences with climate change and finance products. Main insights were from the scoping session were:

- The APCP credit programs targeted at smallholder farmer and fisherfolks were already quite responsive to smallholder needs, in terms of low interest rates (6% p.a.), no collaterals, and flexible repayment duration.
- Due to accessibility constraints, vulnerable groups (women, elderly, tenants) felt excluded from the possibility to avail for credits.
- Most farmers preferred to use their own informal credit schemes, since they found the process of accessing financial products too complex.
- Lending self-help groups were very popular but lacked capital. Liability as a group was an issue.
- Lending institutes preferred to pay a fine for not lending to agriculture, albeit all ACPC's loans were automatically insured by the Philippine Crop Insurance Corporation (PCIC).
- Farmers had limited awareness and understanding of process and benefits of individual crop insurance.

Textbox 2: A Hybrid Approach to Design Thinking

The BMZ small-grant project 'Innovative Credit and Insurance Products for Scaling Climate Resilient Agriculture in the Philippines'

Goal: Facilitating uptake of CRA options for >25,000 smallholder clients of ACPC by designing innovative credit and insurance products.

Problem statement: Existing agri-finance products directed to smallholder farmers do not factor in climate change risks and farmers' adaptation options (CRA). Innovative credit and climate risk insurance products/ bundles that respond to smallholders needs when investing in CRA options, will reduce the risk for both farmers and service providers, thus facilitating wider uptake of CRA practices among beneficiary farmers.

Methodology: A combination of participatory design thinking and economics valuation approaches, employed to prioritize the most relevant CRA options, responding better to farmers' investment needs, as well as fine tuning the financial products/packages.

Activities:

- Methodological workshops on Human Centered Design, e.g., for assessing farmers' needs and developing farmers' typologies;
- State of the art behavioral experiments to test farmers' willingness to pay using contingent valuation, e.g. choice-experiment games to assess farmers' risk aversion and intertemporal preferences methodologies.

Define: Point of view statements

From these insights, the project team formulated a set of 'point of view statements' for the key stakeholders. These then served as new problem framing:

- Farmers need credits that cater also for the most vulnerable (women, elderly, and very poor), that are quickly accessible with less paperwork and have repayment modalities that correspond to the rhythm of their incomes, in a world where self-help groups are much closer and more familiar.
- Farmers also need special support during the initial phase(s) of taking up CRA innovations, because they need to develop the practical skills, and perhaps only the second or even third try is successful.
- Farmers Credit Cooperatives and self-help groups need more capital for their members, in a context where no one wants to be liable for group loans because government money is perceived as "grants".
- Microfinance Institutions (MFIs) need clients that are likely to pay back in the sense that these are in good health condition, know the market, their climate risks and CRA options, are financially literate and have some sort of financial business or livelihood backup.

These insights pointed to a possible change of the projects' focus, towards a broader approach, including the processes of creating awareness, building capacities and facilitating the access to credit and insurance products. To accommodate such a flexible approach, the project team decided to embrace the design thinking methodology, making it the central approach for project implementation.

Textbox 3: Staff Capacity Building

With design thinking having been a new methodology for CIAT staff, the project organized three different modes of capacity building:

- Personal coaching, provided as courtesy by CARE design thinking expert (two days);
- Exchange with CARE Philippines' cohort of the SCALE X Cohort (CARE's design thinking accelerator);
- Virtual design thinking training (three days) provided as ToT by a hired design thinking facilitator.

The budget allocated for staff trainings did not allow for a continuous coaching/ reflecting on interim insights/ results, crucial to planning of next steps.

At the same time, the project provided the option for one staff member to feed her PHD research with results from the behavioral experiments (See Textbox 2).

Empathize II: Farmer Profiles

With support of the partner NGO IIRR, the CIAT project team applied design thinking tools with stakeholders and farmer focus groups, to build farmer profiles for rice and coconut farmers and fisherfolks. Tools included a problem tree capturing root causes, story mapping towards visualizing main commodities' supply chains, cashflow timelines, challenge prioritization, mapping farmers coping actions, and open discussions. Main insights were that few coconut farmers aspired for agricultural loans due to strong government support, fisherfolks used a mix of formal and

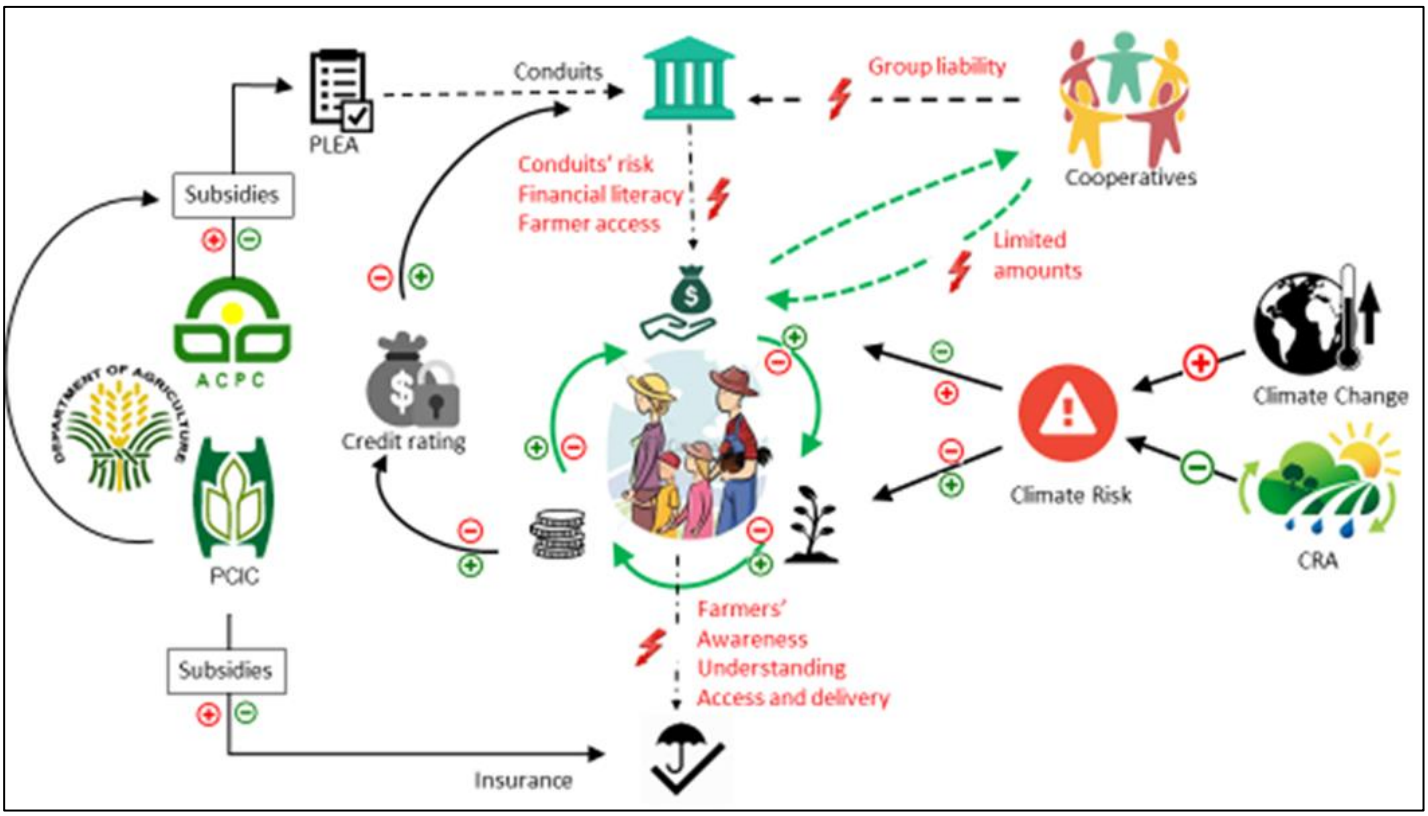

Figure 2: Problem visualization

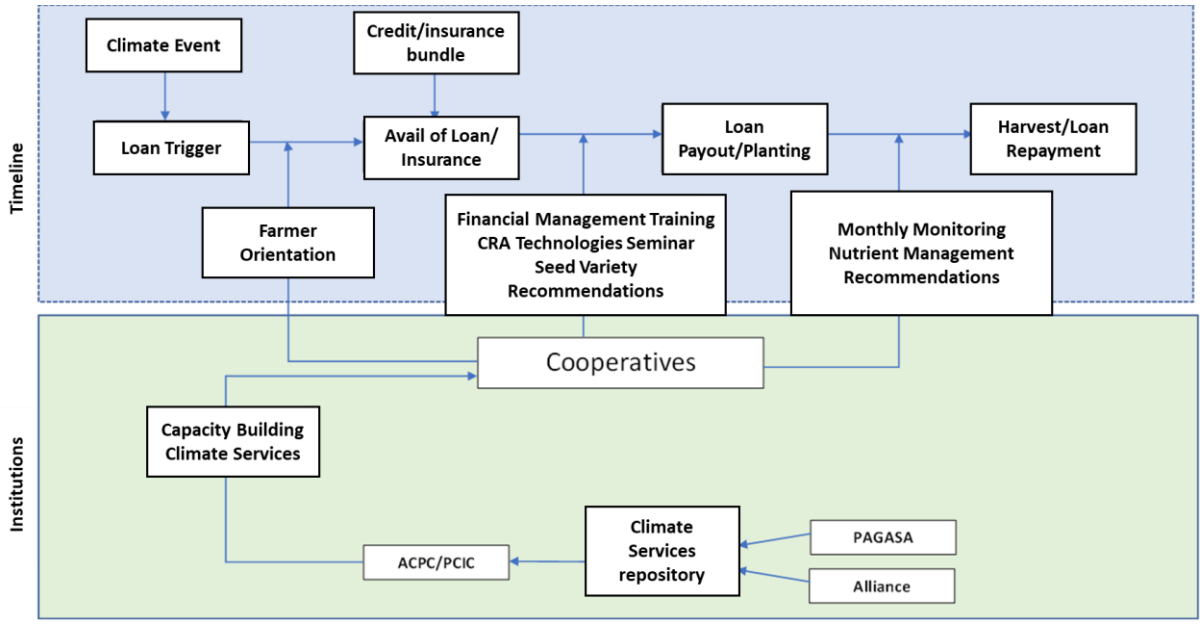

Figure 3: Prototype for CRA-inclusive credit services

informal sources, and rice farmers preferred non-monetary loans (seed and fertilizer inputs).

Understand: Survey / choice experiments

'In the end, we didn't use the results.'

A household survey then captured socio-demographic and farm-level data and perceptions of climate change of 327 farming households, including two choice experiments:

- **Risk aversion**: Two scenarios were tested, for winning (lottery) and for losing money. Results indicated that farmers were more risk tolerant towards losses.
- **Stated preference analysis**: A conjoint analysis on individual's preferences was aggregated to reflect the 'average farmers'. Most important traits of loan bundles were the loan delivery time (<4 days), payment scheme (well matured loans) and lenders involvement (continuous monitoring). Less important were customization of loans, and credit cooperatives.

When 'making sense' of these results, the project team found these difficult to interpret: The survey reflected the current status, but gave little hints about underlying reasons, or future aspirations. Also, the aggregation did not allow connecting to previous insights as farmer profiles.

Prototype: Interactive stakeholder workshop

> *'There is nothing we dislike about our prototype, because we made it!'*

Results were presented in a virtual workshop with representatives of ACPC, PCIC, micro finance institutes and credit cooperatives. However, they did not play a further role: Discussion revealed that it was not feasible to change credit conditions, since that would involve higher level institutes like the Central Bank of the Philippines.

Rather, through applying the 'user journey' tool, stakeholders followed the process from farmers' decisions to take a loan, throughout application, implementation and payback. Together, stakeholders build a service prototype, based on the following main insights:

- Farmers typically get most triggered to apply for loans after a climate event that had destroyed their crops.
- Farmers are heavily reliant on word-of-mouth for their information, while the use of text messaging and social media is limited due to limited digital infrastructure.
- CRA interventions shall help farmers anticipate climate events, focusing on the sustainability of their farm income over profitability.
- Documentary requirements shall be communicated early before the call for a loan in order to give farmers time to consolidate them or ask any questions.
- If the cooperatives are responsible for information dissemination, more farmers will receive it. Amount of info, though, has to be minimized in quick bite-sizes.

The developed service prototype consequently consisted of five main phases (Figure 2):

1) The ABC together with the Philippine Atmospheric, Geographical and Astronomical Services Administration to build a repository of CRA-options.
2) ACPC and PCIC will deliver capacity building and climate services for farmer cooperatives.
3) Climate events trigger the loan chain, and cooperatives organize the initial farmer orientation.
4) Between availing of loans and their payout, cooperatives give financial management and CRA training, as well as seed variety recommendations.
5) During planting, cooperatives do monthly monitoring and give nutrient management recommendations.

Testing: Farmers' feedback on the prototype

A final semi-virtual with Ivisan farmer groups validated this prototype, and added details on the design of the bundle:

Product: Agri-loan, interest rate 6% (or less)/season, bundled with insurance, of up to PhP 50,000, transacted through cooperatives and monitored on a monthly basis.

CRA inclusion: Bundled with 7-day weather forecast**,** with seed variety recommendations (upon receiving payment) and nutrient management recommendation (2-3 months into planting season).

Requirements: Farmers are listed with ACPC and undergo financial management and CRA seminars prior to the release of the loan.

Outlook

Due to the COVID-19 pandemic, the project extended to January 2022. The socialization of the service prototype, however, will continue in frame of further CIAT and AMIA projects in the Philippines, the region, and the OneCGIAR.

Lessons learnt: Hybrid design thinking

This project provided crucial learnings for applying a hybrid approach of design thinking in the context of AR4D:

- **Sequence of scientific/design thinking tools:** Methodologies that provide 'scientific and representative' results can add to the needed information base, but require more time, staff and budget than quick, qualitative design thinking tools. Therefore, they should be considered only when the problem is already well reframed (and validated with all stakeholders), and a possible solution is prioritized.
- **Budget, time, team, and adaptive management:** Resources need to be allocated to staff training, and design thinking needs to be understood as a 'rapid and dirty' sequence of activities with many iterations, and involving all stakeholders. The core design team needs to remain continuously the same, while foci can change. Projects therefore rather need theories of change than logframes, and an adaptive management.
- **Reflection and communication:** The process could have benefitted from more regular backstopping and coaching in the design thinking process. Continious syntheses of previous insights could help to tailor next steps. Without such reflections, single steps have a tendency to not connect, not builidng on each other. Communication formats that include visualizations might be more useful than conventional reporting formats (also for communicating among project staff).
- **Embeddedness:** For the iterative character, it seems unlikely that the full design thinking process can be initiated, implemented and the output scaled, within the duration of a small grant. Good practice is therefore to include such initiatives in the frame of larger projects that can then carry on.

References

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